



## **ANNAI WOMEN'S COLLEGE**

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### **E-BANKING**

### **I-M.COM(COMPUTER APPLICATION)**

**SUB CODE:P16CAE2A**



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## **ELECTIVE COURSE – II**

### **(A) E- BANKING**

**Objective :** To make the students to understand the e-banking transactions.

#### **Unit -I**

Networking of computers – Types – LAN – WAN – Internet and Intra net – E-mail .net banking services.

#### **Unit -II**

Electronic payment system : Automatic teller machine merits and demerits –installation and security aspects of ATM, MICR equipment – precautions in handling MICR instrument – benefits and limitations.

#### **Unit -III**

E-cash : features – benefits of e-cash – limitations of electronic data interchange – electronic fund transfer credit card – debit card – payment through bank network – payment by smart card –electronic pass book – home banking.

#### **Unit -IV**

Electronic clearing services – SWIFT – types of message in SWIFT (society for worldwide interbank financial telecommunication) – message format in SWIFT – bank information code – message flow in SWIFT system – advantages and structure of SWIFT.

#### **Unit -V**

E-Banking challenges and opportunities – services offered through e-banking – strengths of e-banking – weakness of e-banking – opportunities –threats of e-banking.

#### **Text and Reference Books :(Latest revised edition only)**

1. R.V. Kulkarni Knowledge based system in banking sector , New Century Publications, Chennai.
2. Computer Application in Business and, Commerce and Banking – R.S. Viramani.
3. Computer Application in Business – R.Parameswaran.

## UNIT-I:

### Network:

A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications. The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.

### Computer networking:

Simply put, computer networking is the study of how computers can be linked to share data. The concept of connecting computers dates back to the 1960s, when the Department of Defense led the first attempt to create a computer network that painstakingly linked a handful of computers around the U.S. Since then, wireless networking has taken off and networking is now considered an essential part of computing. A computer without a network, arguably, has little use in daily life.

### Types of Networks



Here are some of the well known types of computer networks that you can use for your computers

#### LAN (Local Area Network)

A **Local Area Network** is a privately owned computer **network** covering a **small Networks geographical area**, like a home, office, or groups of buildings e.g. a school Network. A LAN is used to connect the computers and other network devices so that the devices can communicate with each other to share the resources. The resources to be shared can be a hardware device like printer, software like an application program or data. The size of LAN is usually

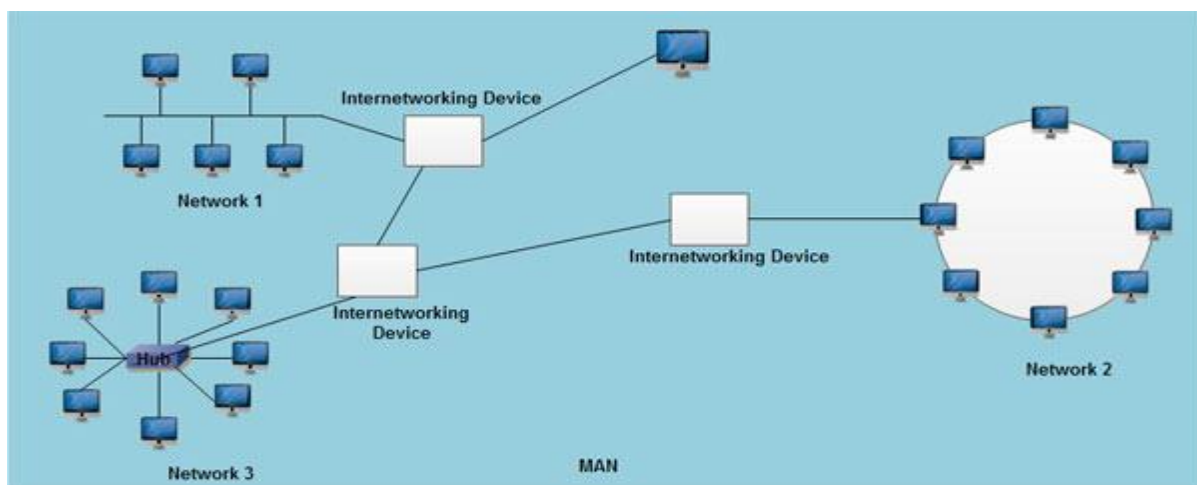
small. The various devices in LAN are connected to central devices called Hub or Switch using a cable.

Now-a-days LANs are being installed using wireless technologies. Such a system makes use of access point or APs to transmit and receive data. One of the computers in a network can become a server serving all the remaining computers called Clients.

For example, a library will have a wired or wireless LAN **Network** for users to interconnect local networking devices e.g., printers and servers to connect to the internet.

LAN offers high speed communication of data rates of 4 to 16 megabits per second (Mbps). **IEEE** has projects investigating the standardization of 100 Gbit/s, and possibly 40 Gbit/s. LANs **Network** may have connections with other LANs **Network** via leased lines, leased services.

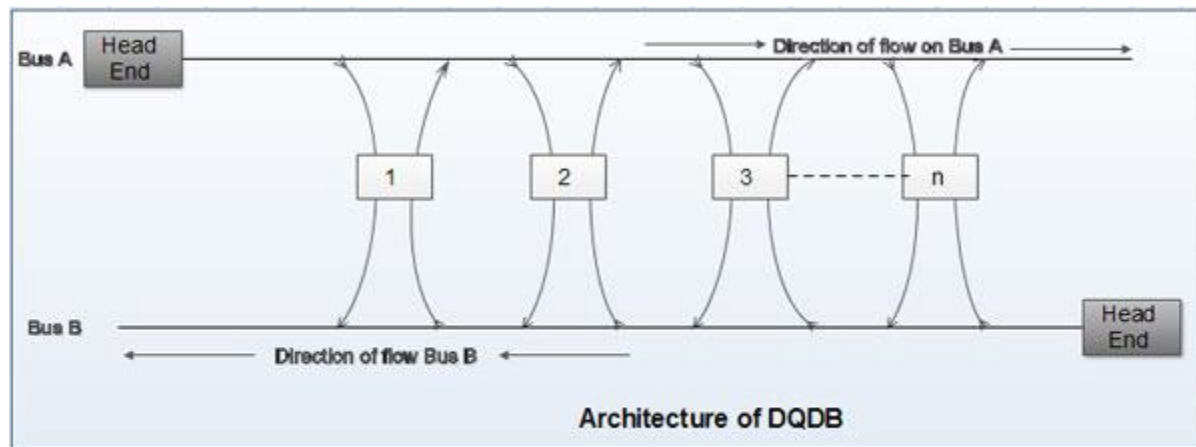
**MAN** stands for Metropolitan Area Networks is one of a number of types of networks. A MAN is a relatively new class of network. MAN is larger than a local area network and as its name implies, covers the area of a single city. MANs rarely extend beyond 100 KM and frequently comprise a combination of different hardware and transmission media. It can be single network such as a cable TV network, or it is a means of connecting a number of LANs into a larger network so that resources can be shared LAN to LAN as well as device to device.



A MAN can be created as a single network such as Cable TV Network, covering the entire city or a group of several Local Area Networks (LANs). In this way, resources can be shared from LAN to LAN and from computer to computer also. MANs are usually owned by large organizations to interconnect its various branches across a city.

MAN is based on IEEE 802.6 standard known as DQDB (Distributed Queue Dual Bus). DQDB uses two unidirectional cables (buses) and all the computers are connected to these two buses. Each bus has a specialized device that initiates the transmission activity. This device is called head end. Data that is to be sent to the computer on the right hand side of the sender is

transmitted on upper bus. Data that is to be sent to the left hand side of the sender is transmitted on lower bus.



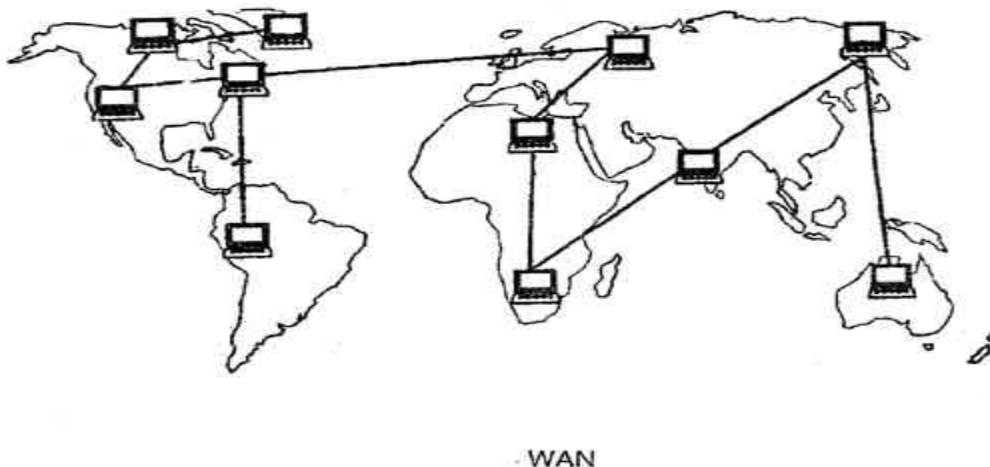
The two most important components of MANs are security and standardization. Security is important because information is being shared between dissimilar systems. Standardization is necessary to ensure reliable data communication.

A MAN usually interconnects a number of local area networks using a high-capacity backbone technology, such as fiber-optical links, and provides up-link services to wide area networks and the Internet.

The Metropolitan Area Networks (MAN) protocols are mostly at the data link level (layer 2 in the OSI model), which are defined by IEEE, ITU-T, etc.

### **WAN (Wide Area Networks)**

A wide area network (WAN) is a telecommunication network. A wide area network is simply a LAN of LANs or Network of Networks. WANs connect LANs that may be on opposite sides of a building, across the country or around the world. WANS are characterized by the slowest data communication rates and the largest distances. WANs can be of two types: an enterprise WAN and Global WAN.



Computers connected to a Wide Area Networks are often connected through public networks, such as the telephone system. They can also be connected through leased lines or satellites. The largest WAN in existence is the Internet. Some segments of the Internet, like VPN based extranets, are also WANs in themselves. Finally, many WANs are corporate or research networks that utilize leased lines.

Numerous WANs have been constructed, including public packet networks, large corporate networks, military networks, banking networks, stock brokerage networks, and airline reservation networks.

Organizations supporting WANs using the Internet Protocol are known as Network Service Providers (NSPs). These form the core of the Internet.

By connecting the NSP WANs together using links at Internet Packet Interchanges (sometimes called "peering points") a global communication infrastructure is formed.

WANs (wide area networks) generally utilize different and much more expensive networking equipment than do LANs (Local Area Networks). Key technologies often found in WANs (wide area networks) include SONET, Frame Relay, and ATM.

## **WLANs - Wireless Local Area Networks**

**WLANs (Wireless Local Area Networks)** or sometimes referred to as LAWN, for local area wireless network) provide wireless network communication over short distances using radio or infrared signals instead of traditional network cabling. WLANs (Wireless Local Area Networks) is one in which a mobile user can connect to a local area network (LAN) through a wireless (radio) connection

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A WLAN typically extends an existing wired local area network. WLANs (Wireless Local Area Networks) are built by attaching a device called the access point (AP) to the edge of the wired network. Clients communicate with the AP using a wireless network adapter similar in function to a traditional Ethernet adapter.

Network security remains an important issue for WLANs (Wireless Local Area Networks). Random wireless clients must usually be prohibited from joining the WLAN. Technologies like WEP raise the level of security on wireless networks to rival that of traditional wired networks.

The IEEE 802.11 group of standards specifies the technologies for wireless LANs. 802.11 standards use the Ethernet

WLAN (Wireless Local Area Networks) hardware was initially so expensive that it was only used as an alternative to cabled LAN in places where cabling was difficult or impossible.

All components that can connect into a wireless medium in a network are referred to as stations. All stations are equipped with wireless network interface controllers (WNICs). Wireless



stations fall into one of two categories: access points, and clients. Access points (APs), normally routers, are base stations for the wireless network.

They transmit and receive radio frequencies for wireless enabled devices to communicate with. Wireless clients can be mobile devices such as laptops, personal digital assistants, IP phones and other smart phones, or fixed devices such as desktops and workstations that are equipped with a wireless network interface.

### **WLAN (Wireless Local Area Networks) types**

Private home or small business WLAN Commonly, a home or business WLAN employs one or two access points to broadcast a signal around a 100- to 200-foot radius. You can find equipment for installing a home WLAN in many retail stores.

With few exceptions, hardware in this category subscribes to the 802.11a, b, or g standards (also known as Wi-Fi); some home and office WLANs now adhere to the new 802.11n standard. Also, because of security concerns, many home and office WLANs adhere to the Wi-Fi ProtectedAccess2(WPA2)standard.

### **Enterprise class WLAN**

An enterprise class WLAN employs a large number of individual access points to broadcast the signal to a wide area. The access points have more features than home or small office WLAN equipment, such as better security, authentication, remote management, and tools to help integrate with existing networks. These access points have a larger coverage area than home or small office equipment, and are designed to work together to cover a much larger area. This equipment can adhere to the 802.11a, b, g, or n standard, or to security-refining standards, such as 802.1x and WPA2.

### **Examples:**

For WLANs that connect to the Internet, Wireless Application Protocol (WAP) technology allows Web content to be more easily downloaded to a WLAN and rendered on wireless clients like cell phones and PDAs.

### **Storage Area Network (SAN):**

A **storage area network (SAN)** is a type of local area network (LAN) is a high-speed special-purpose network. A SAN typically supports data storage, retrieval and replication on business networks using high-end servers, multiple disk arrays and Fiber Channel interconnection technology.

**Storage Area Networks (SANs)** technology is similar but distinct from network attached storage (NAS) technology. While SANs traditionally employ low-level network protocols for transferring disk blocks, a NAS device typically works over TCP/IP and can be integrated fairly easily into home computer networks.

The term SAN can sometimes refer to system area networks instead of a storage area network. System area networks are clusters of high performance computers used for distributed

processing applications requiring fast local network performance. Storage area networks, on the other, are designed specifically for data management.

SANs support disk mirroring, backup and restore, archival and retrieval of archived data, data migration from one storage device to another and the sharing of data among different servers in a network. SANs can incorporate sub networks with network attached storage (NAS) systems.

### **Storage Area Networks Make Your Life Easier**

Simplification of Storage Administration is now possible because of Storage Area Networks cause cables and storage devices doesn't need to be moved physically. Moving data from one server into another is now a breeze. Thanks to Storage Area Networks. Life is much easier.

Before, storage area networks process can take as little as half an hour. But this was before and now we can accelerate it.

The boo-table features of Storage Area Networks can also be effective and enable during recovery of data because of certain disaster such as server failure or human error. Storage area networks are great tools in recovering important data and backups. Distant location doesn't effect the storage area networks as long as the secondary storage array is working.

This enables storage replication either implemented by disk array controllers, by server software, or by specialized SAN devices. Since IP WAN's are often the least costly method of long-distance transport, the Fiber Channel over IP (FCIP) and ISCSI protocols have been developed to allow SAN extension over IP networks.

In the old model like in physical SCSI layer, it supported a few meters of distance and no guarantee of business continuity when disaster strike. In storage area networks, the disk arrays has accelerated and consolidated in the features like I/O caching, volume cloning and snap shotting making business continuance possible or BCV's (Business Continuance Volumes).

### **Campus Area Network (CAN)**

A campus area networks (CANs) is a computer network interconnecting a few local area networks (LANs) within a university campus or corporate campus Network. Campus area network may link a variety of campus buildings. A campus area network is larger than a local area network but smaller than a metropolitan area network (MAN) or wide area network (WAN). CAN can also stand for corporate area network.

### **Personal Area Network (PAN)**

A personal area network is a computer network organized around an individual person. Personal area networks typically involve a mobile computer. Personal area networks can be constructed with cables or wirelessly. Personal area networks generally cover a Network range of less than 10 meters (about 30 feet).

**PAN (Personal Area Network)** first was developed by Thomas Zimmerman and other researchers at M.I.T.'s Media Lab and later supported by IBM's Almaden research lab.



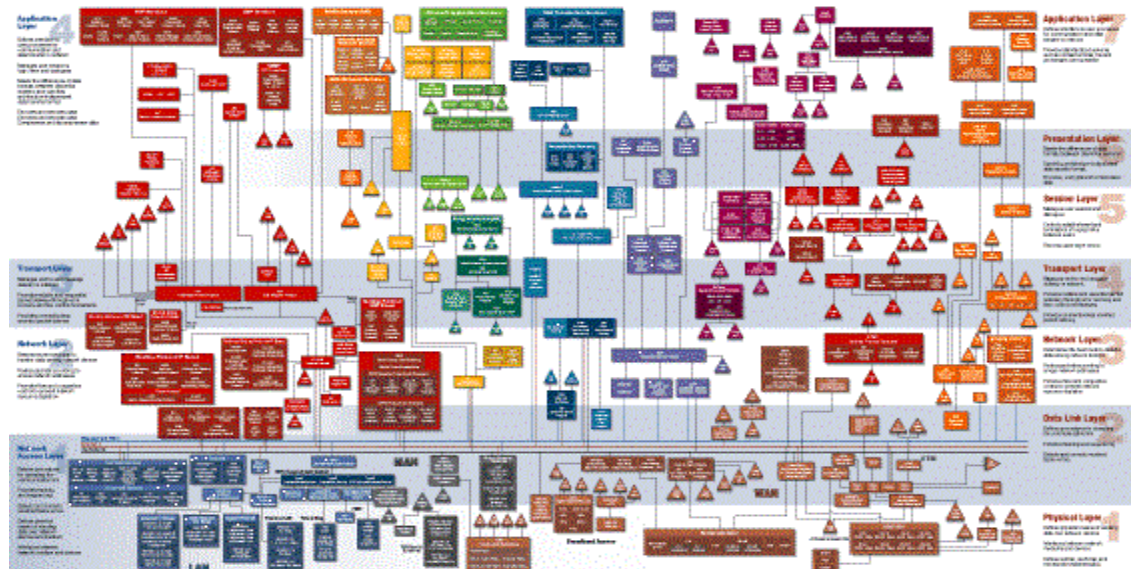
**Wireless Personal Area Network (WPAN)** which is virtually a synonym since almost any personal area network would need to function wirelessly. Conceptually, the difference between a PAN (personal area network) and a wireless LAN (Local Area Network) is that the former tends to be centered around one person Network while the latter is a local area network (LAN) that is connected without wires Network and serving multiple users.

### **Wireless Networks**

- The fastest growing segment of the computer industry is the mobile computers such as notebook computers and personal digital assistant (PDAs).
- The wireless networks are becoming increasingly important because the wired connection is not possible in cars or aero planes.
- Wireless networks can have many applications. A very common example is the portable office
- People traveling on road often want to make use of their portable electronic equipment for telephone calls, e-mails, faxes, read remote files etc.
- Wireless networks can exist on trucks, buses, taxies, aero planes etc. They are used where the telephone systems are destroyed in the event of disasters such as fires, floods and earthquakes etc.
- The wireless networks are important for military.

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- Wireless networks and mobile computing are related but they are not identical because portable computers are sometimes wired and some wireless computers are not portable.
  - But some applications are truly mobile wireless applications such as a portable office, inventories being handled by PDAs, etc.
  - Wireless LAN is another example of wireless network. Direct digital cellular service CDPD (Cellular Digital Packet Data) is now becoming available:
  - It is possible to have combinations of wired and wireless networking.

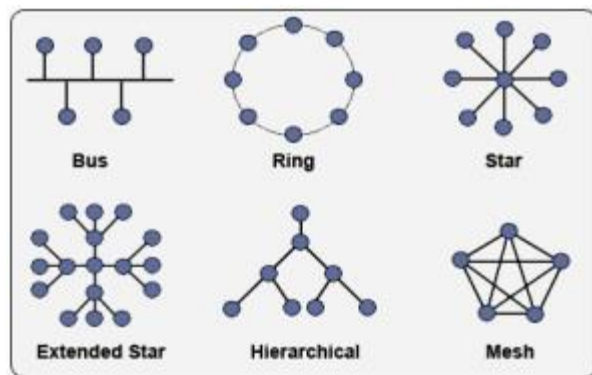
### **Types of Network Protocols**



Protocols are used as a medium to access the network with the right credentials. This is needed to make the connection possible and is often used as an identifier for the devices that are connected within the network. You can control these protocols if you wish. Here are the well-known protocols for network connections:

- **IP** – This is often considered as an identifier for internet connections and for computers that need connection to another computer.
- **Bluetooth** – This is often used for wireless purposes. This is often used in phones and is now used for gadgets like headsets and laptops for transmission of various features.
- **Routing** – This protocol is used for computers and other devices that are connected within a router. This is common for internet connection nowadays.
- **HTTP** – this is the protocol that leads you to a website with the use of the internet and your own IP address.

### Types of Network Topologies



A topology for the network is known to be a layout for the connected devices. This is important because this is used to provide a proper flow of data within the said network. Here are the various topologies:

- **Bus** – This is the type of structure that uses a single medium to connect the computer.

- **Ring** – Each computer is connected to another neighboring computer for data transfer. One failed network can cause all networks to turn off.
- **Star** – This is a structure that's common in homes. It uses a certain hub or a router to make the network possible.
- **Tree** – This is a complicated structure that connects the star into multiple buses. This is common for internet cafes and offices.
- **Mesh** – this is a connection that leads to various data transmissions which are perfect for routing huge networks.

### **INTERNET:**

The **Internet** is the global system of interconnected computer networks that use the Internet protocol suite (TCP/IP) to link devices worldwide. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and file sharing.

### **INTRANET**

An **intranet** is a private network accessible only to an organization's staff. Generally a wide range of information and services from the organization's internal IT systems are available that would not be available to the public from the Internet. A company-wide intranet can constitute an important focal point of internal communication and collaboration, and provide a single starting point to access internal and external resources. In its simplest form, an intranet is established with the technologies for local area networks (LANs) and wide area networks (WANs)

### **E-MAIL:**

**Electronic Mail (email or e-mail)** is a method of exchanging messages between people using electronic devices. Email first entered substantial use in the 1960s and by the mid-1970s had taken the form now recognized as email. Email operates across computer networks, which today is primarily the Internet. Some early email systems required the author and the recipient to both be online at the same time, in common with instant messaging. Today's email systems are based on a store-and-forward model. Email servers accept, forward, deliver, and store messages. Neither the users nor their computers are required to be online simultaneously; they need to connect only briefly, typically to a mail server or a webmail interface, for as long as it takes to send or receive messages.

### **NET BANKING:**

Net banking is changing the ways that people interact with financial institutions by enabling transactions to be performed through personal computers and mobile devices. This access allows customers to be in virtual contact with their banks on a regular basis, while

minimizing the time spent in a physical location. For example, smart-phone apps allow customers to make deposits by taking pictures of the front and back of checks, which eliminates the need to go to a brick and mortar location. Online banking also enables paperless bill paying, record keeping and money transfers between accounts.

## UNIT-II

### ELECTRONIC PAYMENT SYSTEM:

An e-payment system is a way of making transactions or paying for goods and services through an electronic medium, without the use of checks or cash. It's also called an electronic payment system or online payment system. Read on to learn more.

The electronic payment system has grown increasingly over the last decades due to the growing spread of internet-based banking and shopping. As the world advances more with technology development, we could see the rise of electronic payment systems and payment processing devices. As this increase, improve, and provide ever more secure online payment transactions the percentage of check and cash transactions will decrease.

### Methods Electronic Payment:

One of the most popular payment forms online is credit and debit cards. Besides them, there are also alternative payment methods, such as bank transfers, electronic wallets, smart cards or bitcoin wallet (bitcoin is the most popular crypto currency).

E-payment methods could be classified into two areas, credit payment systems and cash payment systems.

#### 1. Credit Card Payment System

- **Credit Card** — A form of the e-payment system which requires the use of the card issued by a financial institute to the cardholder for making payments online or through an electronic device, without the use of cash.
- **E-wallet** — A form of prepaid account that stores user's financial data, like debit and credit card information to make an online transaction easier.
- **Smart card** — A plastic card with a microprocessor that can be loaded with funds to make transactions; also known as a chip card.

#### 2. Cash Payment System:

- **Direct debit** — A financial transaction in which the account holder instructs the bank to collect a specific amount of money from his account electronically to pay for goods or services.

- **E-check** — A digital version of an old paper check. It's an electronic transfer of money from a bank account, usually checking account, without the use of the paper check.
- **E-cash** is a form of an electronic payment system, where a certain amount of money is stored on a client's device and made accessible for online transactions.

### **AUTOMATED TELLER MACHINE:**

An automated teller machine, also known in the United States of America as an automatic teller machine, automated banking machine, cash line, mini bank, cash machine, thyme machine, cash dispenser, bankomat or bancomat, is an electronic telecommunications device that enables the customers of a financial institution to perform financial transactions, particularly cash withdrawal, without the need for a human cashier, clerk or bank teller.

According to the ATM Industry Association (ATMIA) there are now close to 3.5 million ATMs installed worldwide.

On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smart card with a chip that contains a unique card number and some security information such as an expiration date or CVVC (CVV). Authentication is provided by the customer entering a personal identification number (PIN) which must match the PIN stored in the chip on the card (if the card is so equipped) or in the issuing financial institution's database.

Using an ATM, customers can access their bank deposit or credit accounts in order to make a variety of transactions such as cash withdrawals, check balances, or credit mobile phones. If the currency being withdrawn from the ATM is different from that in which the bank account is denominated the money will be converted at an official exchange rate. Thus, ATMs often provide the best possible exchange rates for foreign travelers, and are widely used for this purpose.

### **Merits of ATM :**

- **Round the Clock Services:** ATM provides banking services to its customers round the clock, 24 hours a day, 7 days a week and 365 days a year.
- **Access to bank from any part of the world:** Essential banking services like deposits, withdrawals transfer of funds etc., can be accessed by customers from any part of the world.
- **Expansion of Services to any corner of the world:** Of the Banks can expand their services to any corner of the world by providing electronic access to its customers.
- **Reduction in cost of operation:** This reduces human intervention and thereby reduces the cost of operations and increases profitability of banks.
- **For shopping Purpose:** Now a day's almost every shopping mall, restaurant and other organizations are accepting credit card payments.

### **Demerits:**

- **Cannot be provided in rural areas:** In a country like India, where banks are having large number of rural and non-computerized branches, ATM services cannot be provided.
- **Presence various constraints:** Even if banks make some efforts to introduce ATM services country side, various constraints like illiteracy, security concern, etc., may not permit that.
- **Limitation of cash withdrawals:** Again there is a limitation of cash withdrawals from ATM. For example, many banks do not permit withdrawal of more than 25,000 at a time.

- **Cash deposit facility is not safe:** Similarly cash deposit facility is restricted and not safe as dropping of envelope with can in ATM is not advisable.
- **Possibility of misusing ATM card:** ATM card, if misplaced, lost or stolen, may be misused. There are number of such reported incidences now a day.
- **Loss of personnel touch with the Banks:** Last but not the least, customers lose personal touch with their bankers.

### **ATM INSTALLATION:**

When someone uses an ATM machine, they pay a fee called a surcharge. People recognize they're paying for the convenience of getting cash when and where they need it. Each year billions of ATM transactions are performed for a fee. Start making money by providing convenience to your customers with ATM installation services!

Get an ATM installed in locations to boost customer traffic, increase per-ticket and overall sales, and improve your per-customer profit! Plus, with more cash sales, getting an ATM installed can decrease your credit card fees and bad check losses.

**ATM Installation** - ATM Experts offers nationwide ATM installation for merchants and businesses of every size. With over 4000+ ATMs installed, ATM Experts knows what is needed to ensure a seamless and trouble free ATM installation.

When having an ATM installed by ATM Experts, you can expect the following to be included with each ATM installation:

#### **Install Includes...**

- Your ATM will be installed by a courteous and professional ATM Installer
- The ATM installer will arrive on time as requested
- The ATM(s) will be installed securely using four 16,000 lbs concrete anchors
- The ATM installer will train you and your staff on how to use the ATM being installed
- The ATM installer will hang and install any ATM signage you have that needs to be installed

The ATM installer will take a photo of your location and the ATM being installed for VISA compliance if needed

### **ATM INSTALLATION REQUEST FORM**

You must have java script enabled.

Location:

Type of Machine Installed:

Training Required:

Signage to Be Included:



On-Site Contact:

Name:

Email:

Telephone:

Comments:

### **Security of automated teller machines:**



Automated Teller Machines (ATMs) were first introduced in 1939. Nowadays, about 3 million units are installed worldwide.

As the number of ATM units increase, the machines are prone to hacker attacks, fraud, robberies and security breaches. In the past, the ATM machines' main purpose was to deliver cash in the form of bank notes and to debit a corresponding bank account. However, ATM machines are becoming more complicated, and they serve numerous functions, thus becoming a high priority target to robbers and hackers.

Security measures of ATMs

#### **PIN Validation schemes for local Transactions**

- **On-Line PIN Validation**

The validation of on-line PIN occurs if the terminal in question is connected to the central database. The PIN supplied by the customer is always compared with the recorded reference PIN in the financial institutions. However, one disadvantage is that any malfunction of the network renders the ATM unusable until it is fixed.

- **Off-Line PIN Validation**

In off-line PIN validation, the ATM is not connected to the central database. A condition for off-line PIN validation is that the ATM should be able to compare the customer's entered PIN against the PIN of reference. The terminal must be able to perform cryptographic operations and it must have the required encryption keys at its disposal. The offline validation scheme is extremely slow and inefficient. Offline PIN validation is now obsolete, as the ATMs are connected to the central server under protected wireless networks.

- **PIN Validation for Interchange Transactions**

There are three PIN procedures for the operation of a high security interchange transaction. The supplied PIN is encrypted at the entry terminal, during this step, a secret cryptographic key is used. In addition to other transaction elements, the encrypted PIN is transmitted to the acquirer's system. Then, the encrypted PIN is routed from the acquirer's system to a Hardware Security Module. Within it, the PIN is decrypted. With a cryptographic key used for interchange, the decrypted key is immediately re-encrypted and is routed to the issuer's system over normal communications channels. Lastly, the routed PIN is decrypted in the issuer's security module and then validated on the basis of the techniques for on-line local PIN validation.

- **Shared ATMs**

There are different transaction methods used in shared ATMs with regards to the encipherment of PIN, and message authentication among them is the so called "ZONE ENCRYPTION". In this method, a trusted authority is appointed to operate on behalf of a group of banks so they could interchange messages for ATM payment approvals.

- **Hardware Security Module**

For a successful communication between banks and ATMs, the incorporation of a cryptographic module, usually called security module is a critical component in maintaining proper connections between banks and the machines. The security module is designed to be tamper resistant. The security module performs a plethora of functions, and among them is PIN verification, PIN translation in interchange, Key management and message authentication. The use of PIN in interchanges is causing concerns in security as the PIN can be translated by the security module to the format used for interchange. Moreover, the security module is to generate, protect and maintaining all keys associated with the user's network.

- **Authentication and Data Integrity**

The personal verification process begins with the user's supply of personal verification information. This information includes a PIN and the provided customer's information which is recorded on the bank account. In cases where there is storage of a cryptographic key on the bank card, it is called a Personal key (PK). Personal identification processes can be done by the Authentication Parameter (AP). It is capable of operating in two ways. The first option is where an AP can be time invariant.

The second option is where an AP can be time variant. There is the case where there is an IP which is based on both time variant information and on the transaction request message. In such a case where an AP can be used as a message authentication code (MAC), the use of message authentication is made recourse to find out stale or bogus messages which might be routed both into the communication path and the detection of modified messages which are fraudulent and

which can traverse non-secure communication systems. In such cases, the AP serves two purposes.

Earlier this month there was some newspaper reports about how a reputed bank in Bangalore identified fake demand drafts (DD), and alerted the police. In this case the bar codes in the fake DDs lacked magnetic ink and were not readable on the MICR and this along with other vital clues helped stop the fraud.

So, in a way the MICR codes saved the day for the bank! However, this is not the only use of MICR! There are many more uses. But before that let us see what the MICR is all about! What does it comprise of? Most importantly how is it useful to you?

### **MICR-(Magnetic Ink Character Recognition):**

Many of you would have seen the magnetic inks bar codes printed on the bottom of your bank's cheque leaves. These bar codes are known as MICR code, an abbreviation for 'Magnetic Ink Character Recognition'. Actually, the MICR is the name given to the technology used in printing the code.

In the early 1980s the Reserve Bank of India introduced many new modes for safe and effective payments across the country. One such important mode introduced was the unique system of MICR based cheque clearing system.

Apart from being a security bar code to protect your transaction, the MICR code is also an indispensable part for online money transfers. Every bank branch is given a unique MICR code and this helps the RBI to identify the bank branch and speed up the clearing process.

### **What does it comprise?**

The MICR code has nine digits in it with each three digits signifying some important information about the transaction and the bank. The first three digits in the MICR code represent the city code that is the city in which the bank branch is located.

In most cases it is in line with the PIN code of the postal addresses in India.

The next three digits stand for the bank code while the last three digits represent the bank branch code.

For example, if you have an account with State Bank of India (SBI) Mumbai (Central) then its nine digit MICR code will be 400002009 wherein:

- 400, the first three digits representing the city code for Mumbai;
- 002, the next three digits representing the bank code for SBI;
- 009, the last three digits representing the bank branch code for Andheri (West).

You can check the MICR codes of different banks and its branches by checking it out on the RBI website.

### **MICR help speed up the processing of cheques:**

- Unlike the manual clearing of cheques where there is a possibility of many human errors and subsequent delay in clearing, the MICR code on the cheque printed with a unique magnetic ink usually iron oxide has magnetic material present in it and thus makes it machine-readable and almost error proof!

- Under this method the reading machine or a cheque sorting machine reads through a cheque when inserted and identifies the branch the cheque belongs to and activates the automation clearing process.
- The MICR code is so clear and fine that the machine could read it even if the MICR code isn't visible due to other marks or stamps on it.
- According to the Reserve Bank of India report (Payments in India: Vision 2009-2012), all bank branches will be enabled with MICR codes.
- Also, the RBI intends to reduce paper-based clearing process by introducing MICR- Cheque Processing Centre's that will process over 95 per cent of volume and value of cheques processed in the country.

### **Advantages & Disadvantages of Magnetic Ink Character Recognition:**

The last line on all checks in the United States and many other countries is printed using a special character font family and technology known as magnetic ink character recognition. Banks use the technique to verify the validity and enhance the security of signed checks, while some airlines use MICR to validate flight tickets. However, the technology is expensive and often impractical when used in small businesses. MICR characters are printed with a magnetic toner or ink made of iron oxide. An MICR reader or scanner magnetizes the characters before it decodes the complete text. The characters are then run through a MICR read head -- a device that converts the characters to waveform, which are then identified by the system.

### **Readability and Security**

The use of iron oxide-based ink ensures MICR characters are readable even if a document is obscured by marks or overprinted. MICR systems provide a high level of security since MICR characters must to follow a stringent format and use precise iron oxide ink, which makes the documents difficult to forge.

### **Few Errors**

The error rate for reading MICR characters is small when compared to other character recognition systems. MICR scanners precisely and accurately decipher the characters, provided they follow standards set out by the American National Standards Institute (ANSI) and the American Bankers Association (ABA). For example, for every 20,000 to 30,000 checks processed by a MICR scanner, typically only one read error occurs.

### **High Standards:**

Printing MICR documents is demanding due to precise but difficult-to-achieve standards, which is a distinct disadvantage in terms of time consumption. The American National Standards Institute implements and manages all MICR printing standards. It sets precise requirements for MICR character fonts, MICR registration, paper-moisture content and grain and toner adhesion.

All MICR character fonts must meet ANSI requirements. MICR fonts that do not adhere to these standards will result in rejected checks at banks and processing errors at other institutions.

### **Expensive Equipment**

MICR readers are expensive and capable of recognizing only MICR fonts written in a specific format. MICR printers run on cartridges that cost far more than plain ink toner cartridges.

## **UNIT-III**

### **DIGITAL CASH (ECASH):**

Digital cash is a system of purchasing cash credits in relatively small amounts, storing the credits in your computer, and then spending them when making electronic purchases over the Internet. Theoretically, digital cash could be spent in very small increments, such as tenths of a cent (U.S.) or less. Most merchants accepting digital cash so far, however, use it as an alternative to other forms of payment for somewhat higher price purchases. There are several commercial approaches to digital cash on the Web. Among these are eCash from DigiCash and Cybercash.

### **FEATURES AND BENEFIT**

#### **ACCESS**

Internet banking, telephone and post

#### **DEPOSITS**

Initial deposit by personal cheque, transfer from an existing Scottish Widows Bank account, or transfer from your client's main current account

Cheques from an account held in your client's name (building society cheques need to be verified by issuing branch)

Third-party cheques are not permitted

Additional deposits by regular or occasional Direct Debit payments from an existing personal current account

- A Direct Debit mandate needs to be completed in order to use this facility
- There must be cleared funds in the personal account
- Regular monthly transfers of additional funds can be arranged

Transfers from other ISAs accepted

## **WITHDRAWALS**

- No notice period or penalties for withdrawals
- Withdrawals will be paid by electronic funds transfer direct to the nominated bank or building society current account
- Instructions made by internet banking
- Transfers from accounts are free of charge provided there is one business days notice

## **INTEREST PAYMENTS**

- Interest can be credited to your client's account with us or to their designated account with any other bank or building society according to their instructions
- Interest can be applied annually on 1 April, or twice yearly on 1 April and 1 October

## **TAX**

Tax-free interest on savings

### **The Benefits of Using E-Cash:**

E-Cash solves some issues that developed from trying to conduct transactions across the Internet. As more discussions have emerged about paying for content on the Internet, being charged to visit a website, or agreeing to pay a download fee, there was no viable solution in place to cover such small transaction amounts. Using a credit card for a ten or twenty-five cent transaction was just not fiscally smart for businesses given the processing fees attached to these transactions.

Another issue that emerged was that shareware providers rarely got paid for what they offered because there was no viable way to do so unless they wanted to receive an offline monetary payment. E-cash became a solution that was not only address this new type of transaction, but it was also cheap, secure, and private.

E-cash also responds to the globalization of the economy. Now that companies and freelancers are doing business with others all over the world, E-cash has provided a way to receive or send any type of currency desired.

Last e-cash also has linked offline and online payments together through the introduction of smart card technology. Money can be loaded onto these cards and then moved to other smart cards or electronic "wallets." While previously smart card technology was just used for phone calls, the world is now using smart card technology for all types of transactions.



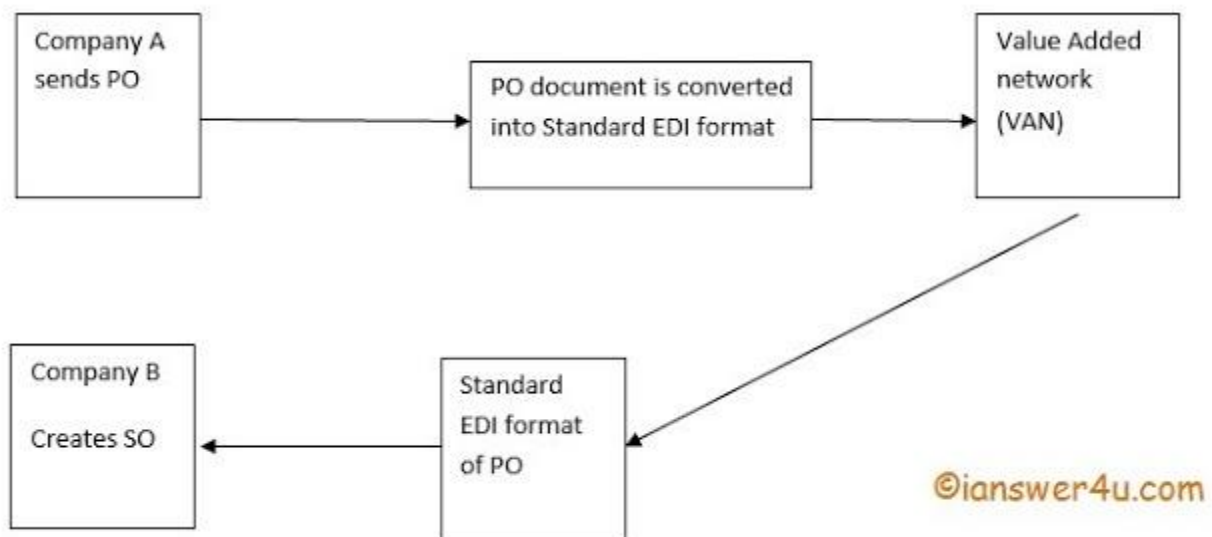
## EDI :

EDI stands for Electronic Data Interchange. EDI is an exchange of data or business documents between two or more businesses using a standardized electronic format, without human intervention. It is mostly used by large businesses to carry out their business process over a secured network with accuracy and in less time.

- 1) Purchase order (PO)
- 2) Sales order(SO)
- 3) Invoice
- 4) Advance Ship Notice (ASN)
- 5) Functional Acknowledgement

Each company has their own format of sending these documents. Suppose we have two companies A and B. Company A sends its purchase order (PO) to company B. As the format of the document is different for the Company B, it will manually read the data from PO sent by Company A and creates a Sales order (SO) from it in order to carry out further processes. EDI provides the data exchange formats and reduces the manual intervention in the process.

Let us understand how electronic data interchange works with help of a diagram



## **Working of EDI process**

By using EDI, we can provide speed and accuracy to the information being sent from one business to another. In EDI enabled systems, everything is fully automated with less human intervention.

Moreover, in the given example, EDI system allows Company A to select the vendors, plan the production schedules electronically and create purchase order (PO) automatically. The errors involved here are minimal as there is less human involvement. When the PO reached at Company B end, the EDI helps to create Sales order (SO) automatically without any human involvement of creating Sales Order from PO send by Company A.

## **Drawbacks of EDI**

### **1) Expensive**

Early EDI business applications were complex and expensive. Primarily serving peripheral functions, they were not fully integrated into all business activities. So although there were substantial savings to be gained from EDI, the cost of re-designing software applications to integrate EDI into existing business applications offset the cost advantages..

### **2) Initial setup is time consuming**

Initial cost to setup EDI is time consuming.

### **3) EDI standard changes**

The business process depends on EDI standard format. If any of the standard format changes then the business process has to be changed accordingly.

### **4) System electronic protection**

An EDI enabled system needs electronic protection from viruses, hacking, malware and other frauds.

### **5) Staff training cost**

Staff needs training in order to run EDI enabled software. Investment has to be done in training.

6) **Proper backup** should be maintained as the whole data depends on EDI. In case of any crash of EDI system, proper backup has to be maintained and extra cost is required for it.

### **7) Limit your trading partners**

Some organization stops doing business which don't use EDI. For instance, Wal-Mart prefers to do business only with those organization which uses EDI.

## **Electronic Funds Transfer (EFT):**

Electronic Funds Transfer (EFT) is a system of transferring money from one bank account directly to another without any paper money changing hands. One of the most widely-used EFT programs is Direct Deposit, in which payroll is deposited straight into an employee's bank account, although EFT refers to any transfer of funds initiated through an electronic terminal,

including credit card, ATM, Fedwire and point-of-sale (POS) transactions. It is used for both credit transfers, such as payroll payments, and for debit transfers, such as mortgage payments.

An electronic fund transfer moves money from one account to another. The accounts can be at the same financial institution or two different financial institutions. The transaction is done electronically over a computerized network.

EFT transactions are also referred to as electronic banking. Everything is done paper free, so there isn't a need for cash or paper checks.

Electronic fund transfers are regulated by the Electronic Fund Transfer Act (EFTA). It lays out the rights and liabilities for electronic fund transfers.

### **Types of EFT Payments:**

There are many ways to transfer money electronically. Below are descriptions of common EFT payments you might use for your business.

- ❖ **Direct deposit** lets you electronically pay employees. After you run payroll, you will tell your direct deposit service provider how much to deposit in each employee's bank account. Then, the direct deposit provider will put that money in employee accounts on payday. Not all employers can make direct deposit mandatory, so make sure you brush up on direct deposit laws.
- ❖ **Wire transfers** are a fast way to send money. They are typically used for large, infrequent payments. You might use wire transfers to pay vendors or to make a large down payment on a building or equipment.
- ❖ **ATMs** let you bank without going inside a bank and talking to a teller. You can withdraw cash, make deposits, or transfer funds between your accounts.
- ❖ **Debit cards** allow you to make EFT transactions. You can use the debit card to move money from your business bank account. Use your debit card to make purchases or pay bills online, in person, or over the phone.
- ❖ **Electronic checks** are similar to paper checks, but used electronically. You will enter your bank account number and routing number to make a payment.
- ❖ **Pay-by-phone systems** let you pay bills or transfer money between accounts over the phone.
- ❖ **Personal computer banking** lets you make banking transactions with your computer or mobile device. You can use your computer or mobile device to move money between accounts.

### **CREDIT CARD:**

A credit card allows you to borrow money from your bank to make your purchases, whether you're buying a burger or a round-trip ticket to France. As long as you pay back the money you borrowed within the "grace period" of 25-30 days, you don't have to pay extra. If you don't pay it back in that time period, you'll have to pay interest — a percentage of the money you owe the bank — on top of what you borrowed.

## **What Is a Credit Card?**

A credit card is a card that allows you to borrow money in small amounts at local merchants. You use the card to make your basic transactions.

The credit card company then charges you interest on your purchases, though there is generally a grace period of approximately thirty days before interest is charged if you do not carry your balance over from month to month. Credit cards have high interest rates and are considered a revolving line of credit that you can use again after you pay it down. Your credit card balance and payment history can affect your credit score.

- A credit card is a line of credit you can access with your card.
- Generally, you must sign on these purchases (exceptions may be at the gas pump or for small amounts at a drive-thru window).
- You will pay interest on the purchases made if not paid off in thirty days.

## **Debit Cards vs Credit Cards**

In the past many people felt that you needed a credit card to complete certain transactions such as rent a car or to purchase items online. They also felt that it was safer and easier to travel with a credit card rather than carrying cash or trying to use your checkbook. However debit cards offer the same convenience without making you borrow the money to complete the transactions. It can be difficult to determine when to use a credit card or a debit card. Some argue that a credit card offers additional insurance on purchases and makes it easier to request a refund or a return.

You should carefully read the disclosure information for your credit card to understand the benefit.

## **Choosing the Best Card for the Situation:**

It is better to use your debit card whenever possible, because it will prevent you from accidentally falling into the credit card trap. When you can pay cash for most items, you are doing better financially. Some rental car agencies and hotels may still request a credit card over a debit card because they want to have a card where they can bill you for damages to their property. Be sure to check with the hotel or agency before you travel to make sure you can use your debit card instead of your credit card.

Some people will argue for using a credit card for the majority of purchases to take advantage of credit card reward programs. This works if you pay off the balance in full each month.

However, if you do not, you will not earn enough to make up for the rewards. The credit companies offer the rewards as an incentive for you to use the credit card and would not do so if they lost money on the transactions.

- Consider using credit cards for hotel reservations and car rentals.
- For daily purchases, your debit card can help you stick to your budget.
- If you are going to take advantage of rewards, be sure to pay off the balance in full each month.

### **The different categories of credit cards are:**

- Auto / Fuel Credit Cards
- Balance transfer Credit Cards
- Business Credit Cards
- Cashback cards
- Classic Credit Cards
- Co-branded Credit Cards
- Contactless Credit Cards
- Credit cards for Women
- Entertainment Cards
- Gold Credit Cards
- Lifestyle Cards
- Platinum Credit Cards
- Premium/Signature Credit Cards
- Prepaid Credit Cards
- Rewards Cards
- Silver Credit Cards
- Titanium Credit Cards
- Travel Cards

### **Silver Credit Cards:**

Silver credit cards can be availed by anyone who falls under a nominal salary range and has a work experience of around 4 to 5 years. It is easy for salaried employees to procure this type of credit card, provided they have a good credit history. These cards have a low membership fee and there is no interest charged for the initial 6 to 9 months, on balance transfers.

### **Gold Credit Cards:**

Individuals with higher income can avail a gold credit card from any bank in India. Applicants for any type of gold credit card should have a good credit score. The common features of a gold credit card are:

- High cash withdrawal limit.
- High credit limit.
- Add-on card facility for family members like spouse, parents or children.
- Travel insurance.
- Cashback offers.
- Rewards program and much more.

### **Mentioned below are the top Gold credit cards available to customers in India:**

- SBI Gold & More Credit Card.
- LIC Gold Credit Card.
- Dhanlaxmi Bank Gold Credit Card.
- Indian Bank Global Gold Credit Card.

- IOB Gold Credit Card.
- Kotak Urbane Gold Card.

### **Classic Credit Cards:**

Classic credit cards come with features like global acceptance, revolving credit, cash advance, interest free credit period, rewards program, supplementary cards, insurance and a dedicated 24/7 customer care helpdesk for customers. Most classic credit cards do not carry annual fees or joining fees and are offered at low finance charges.

### **The top Classic credit cards available to customers are:**

- Union Bank VISA International Classic Credit Card.
- Syndicate Bank Global Classic Credit Card.
- IndusInd Bank Classic Credit Card.
- Indian Bank Global Classic Credit Card.
- IOB Classic Credit Card.
- Canara Bank Classic Visa Credit Card.
- PNB Global Classic Credit Card.
- Vijaya bank Visa Classic Chip Credit Card.
- RBL Bank Classic Shopper Card.
- ICICI Bank British Airways Classic Credit Card.

### **Credit cards for Women:**

To ensure their female customers get the maximum benefits, some banks have introduced credit cards that are exclusively designed for women. These cards mainly focus on shopping rewards and cashback offers. Apart from this, cardholders can get bonus reward points, fuel surcharge waiver, insurance, etc. They can also earn reward points when they make purchases using their credit cards. There are few credit cards for women that offer amazing travel benefits.

### **Some of the popular credit cards for women are:**

- HDFC Bank Solitaire - Premium Women's Credit Card.
- Kotak Mahindra Bank Silk Inspire Credit Card.
- Citibank Rewards credit card.
- ICICI Bank Coral card.
- Standard Chartered Inner Circle Platinum.
- American Express Payback Credit Card.

### **Titanium Credit Cards:**

Titanium credit cards are premium cards that come with a load of privileges and benefits. The key feature of a Titanium credit card is the Titanium Rewards program that is offered to the customers. This rewards program includes accrual of rewards points, redemption for gifts and air miles, cashback offers, etc. Other privileges that come with any Titanium credit card are surcharge waivers, revolving credit, interest free credit period, annual fee reversals, insurance, welcome gifts in the form of vouchers from top retail brands, add-on card facility, wellness and beauty offers, lifestyle and dining benefits, etc.

### **Some of the popular titanium credit cards are:**

- Tata Titanium Card.



- Tata Croma Titanium Card.
- ICICI Bank Titanium Credit Card.
- LIC Titanium Credit Card.
- Axis Bank Titanium Smart Traveler Credit Card.

Platinum card is one of the most popular credit card and is owned by many people because of the number of benefits and privileges it offers. The benefits include lifestyle, dining, shopping and entertainment offers, etc. The annual, joining and renewal fee of Platinum cards are a little higher compared to other types of credit cards.

Every Platinum credit card comes with an exceptional welcome package, gift vouchers from retail brands, annual spend rewards, accelerated rewards points, cashback offers, Priority Pass membership with access to premium airport lounges, renewal gift vouchers, global lifestyle and golfing privileges, easy cash withdrawals, fuel surcharge waiver, add-on cards for family, emergency card replacement services, etc. Platinum card members generally also get other exclusive privileges, deals and offers with every card availed, depending on the financial institution they are banking with.

#### **Some of the popular Platinum credit cards are:**

- IndusInd Bank Platinum Select Credit Card.
- SBI BMB Platinum Credit Card.
- Bank of Maharashtra SBI Platinum Credit Card.
- Karur Vysya Bank SBI Platinum Credit Card.
- ICICI Bank Platinum Chip VISA Credit Card.
- RBL Platinum Delight Card.

#### **Some of the popular rewards credit cards are:**

- Citibank Rewards Credit Card.
- Standard Chartered Platinum Rewards Credit Card.
- Citibank Rewards Domestic Credit Card.

#### **Auto / Fuel Credit Cards:**

Fuel credit cards offer benefits on every fuel transaction that cardholders make. This card helps customers save on refuelling by providing them with cashback offers and fuel surcharge waivers. Some banks also offer accelerated rewards points on fuel transactions, if they are made at specific petrol pumps across India. The accumulated rewards points can be redeemed for refuelling for a predetermined value. Other additional benefits include activation bonus, entertainment benefits, dining, hotel and wellness offers, etc.

The annual and joining fees charged on Auto credit cards are very low and daily Metro/train commuters can greatly benefit by availing these cards. These cards double up as a travel card plus a normal credit card which can be used for shopping and other purchases. As a welcome offer, these cards come preloaded with certain amount of cash and they also have auto top-up facility. Customers can earn rewards points on top-ups and other transactions. Some cards also offer annual renewal deals, add-on card facility and surcharge waivers to cardholders.

#### **Some of the popular auto/fuel credit cards are given as follows -**

- ICICI Bank Unifare Mumbai Metro Credit Card.
- ICICI Bank Unifare Delhi Metro Credit Card.
- ICICI Bank Unifare Bangalore Metro Credit Card.

- ICICI Bank HPCL Coral American Express Credit Card.
- ICICI Bank HPCL Platinum Credit Card.
- ICICI Bank HPCL Coral VISA/MasterCard Credit Card.
- IndianOil Citibank Platinum Credit Card.
- IndianOil Citibank Titanium Credit Card.

#### **Balance transfer Credit Cards:**

Banks offer balance transfer facility on most credit cards. This facility allows cardholders to transfer the outstanding balance from one card to another new credit card availed with another bank. Repayments using the new card can be done in particular tenures at low interest rates. Banks do charge a nominal processing fees for balance transfers. Most balance transfer plans do not charge any interest for the first three months of repayment and after that they charge a reasonable interest on the outstanding balance.

#### **Business/Corporate Credit Cards:**

Business and Corporate credit cards are offered to business establishments, corporates and other financial institutions where the employer can offer credit cards to their employees and also conveniently manage the finances on the card. These cards cannot be used by the employees for personal transactions and are valid only during their employment period with the company. The privileges offered on corporate cards are hotel accommodation and travel deals, business savings plans, expense management, insurance, fuel surcharge waivers, airport lounge access, rewards programs, cash advance, add-on cards, bill payments and options to convert purchases into monthly installments. Companies also have the option of getting the name of the company embossed on these credit cards.

#### **Some of the popular business/corporate credit cards are:**

- SBI Platinum Corporate Credit Card.
- Indian Bank VISA Business Credit Card.
- HDFC Business Platinum Credit Card.
- Axis Bank MY Business Credit Card.
- IndusInd Bank Business Gold Credit Card.

#### **Cashback Credit Cards:**

Cashback credit cards offer cashback to customers on their transactions, which varies from 5% to up to 20% depending on the spend category. Cashback can be earned on bill payments, movie ticket bookings, retail purchases, dining bills, grocery purchases, etc. The key features available with every cashback card are fuel surcharge waivers, annual fee reversals, dining and shopping privileges global acceptance, rewards program, balance transfers, etc.

#### **Co-branded Credit Cards:**

Co-branded credit cards are offered by banks in association with a retail brand, travel aggregator or any other financial institution. Privileges from both the parties are integrated into a co-branded credit card, letting customers enjoy double benefits via one card. The most successful co-branded credit cards are the ones issued along with retail merchants as banks can easily expand their customer base through the merchant's clientele. Depending on the tie-up, co-branded credit cards can have benefits like rebates, discounts and offers from a retail partner brand, sporting benefits from a sports league, ticket booking privileges from airline and railway partners, holiday and hotel accommodation privileges from travel aggregators and premier hotel chains, etc. Though these credit cards carry features from two key entities, there is no restriction on the usage.

### **Some of the popular co-branded credit cards are:**

- Yatra SBI Credit Card.
- IRCTC SBI Platinum Credit Card.
- Bank of India TAJ Premium Credit Card.
- HDFC Snapdeal Credit Card.
- IndusInd Bank Chelsea FC Credit Card.

### **Contactless Credit Cards:**

Contactless credit cards are equipped with a unique payment technology that allow cardholders to make payments by simply tapping their cards at POS terminals. These contactless transactions do not require the customers to enter any PIN number to make purchases and are extremely secure. These cards offer several benefits such as discounts, cash rewards, entertainment benefits, reward points, welcome gift, lounge access, concierge service, insurance policy, etc.

### **Some of the popular contactless credit cards are:**

- SBI Signature Contactless Card.
- ICICI Bank Coral Contactless Credit Card.

### **Entertainment Credit Cards:**

Entertainment credit cards are known for their amazing entertainment offers, which includes discounts, cashback or buy 1 get 1 free offers on movie ticket bookings, events, shows, etc. These cards also offer lifestyle, golf, dining, shopping and travel benefits to the cardholders. Apart from this, customers can earn rewards points on these transactions and redeem them for movie tickets, travel bookings or gift cards.

### **Some of the popular entertainment credit cards are:**

- Kotak PVR Gold Credit Card.
- Kotak PVR Platinum Credit Card.
- HDFC Titanium Times Credit Card.

### **Lifestyle Credit Cards:**

Lifestyle credit cards are designed keeping in mind the changing lifestyles and income of the applicants. Most lifestyle credit cards carry golfing privileges, shopping privileges, dining, travel and other benefits. These cards generally come with first year annual fee waivers, cashback on tickets, insurance discounts, etc. Customers can earn bonus and accelerated rewards points with lifestyle credit cards on their purchases. Most of these cards are Platinum credit cards and offer superior travel, shopping, dining and luxury lifestyle privileges. For example – Axis Bank Signature Credit card with Lifestyle Benefits.

### **Premium/Signature Credit Cards:**

Most banks offer a “Premium” or “Signature” credit card that come with the best of lifestyle privileges. Signature credit cards are in a league of their own with exclusive privileges like flexible spending limits, premium airport lounge access, concierge services, complimentary insurance, rewards program, global assistance services, chartered yacht and flight services, surcharge waivers, retail, travel and hotel accommodation vouchers, etc. There are more options

for redeeming rewards that are earned using these cards. Some of these cards offer annual fee waiver, provided the cardholders reach a certain spend amount.

**Some of the popular signature credit cards are:**

- SBI Advantage Signature Credit Card.
- ICICI Bank Visa Signature Credit Card.

**Prepaid Credit Cards:**

Prepaid credit cards allow cardholders to load a certain amount of money in it and use that money to make the purchases. Even though these cards do not offer a line of credit, customers can enjoy most of the privileges that are provided by the other types of credit cards. The outstanding balance is the amount that is left in the prepaid card by the customer after making a certain transaction.

**Some of the Prepaid credit cards that are offered by banks in India are as follows:**

- American Express Prepaid Card.
- Axis Bank Prepaid Credit Card.

**Travel Credit Cards:**

Travel credit cards are popular because of the unlimited travel benefits they offer. These cards do not just offer travel benefits in India, but abroad as well. Most banks have tied up with airline companies or travel companies to offer travel credit cards. When customers use this card to make travel transactions, they can earn air miles. Apart from this, some travel cards provide access to airport lounges to the customers. The reward points that customers earn on these cards can be converted to air miles, which can then be used to book flight tickets and upgrade seats. Travel cards also provide hotel and holiday offers, golf offers, dining offers, travel insurance, etc.

**Some of the popular travel credit cards are:**

- Axis Bank Miles & More Credit Card.
- Citibank PremierMiles Credit Card.
- HDFC All Miles Credit Card.
- Air India SBI Signature Card.
- Air India SBI Platinum Card.

**Debit Card**

Debit cards offer the convenience of a credit but work in a different way. Debit cards draw money directly from your checking account when you make the purchase. They do this by placing a hold on the amount of the purchase. Then the merchant sends in the transaction to their bank and it is transferred to the merchants account. It can take a few days for this to happen, and the hold may drop off before the transaction goes through. For this reason, it is important to keep a running balance of your checking account to make sure you do not accidentally overdraw your account. It is possible to do that with a debit card. You will have a PIN to use with your debit card at stores or ATMs. However, you can also use your debit card without a PIN at most merchants, you will just sign the receipt like you would with a credit card.

- A debit card is tied directly to your checking account.
- It can be used where a credit card can be used.

- Generally, you will use your PIN to complete the transactions.

The **debit card**, also known as electronic or plastic money, is a financial instrument issued by a bank or savings bank that allows the customer to access the balance available in their current account associated with the card. In fact, the payment in a debit card carries directly the charge in the account of which it is the holder.

Likewise, the debit card facilitates the acquisition of the articles and products that are desired in the shops and establishments that accept it as a means of payment, while allowing cash withdrawals from its network of ATMs and other operations (such as recharging A mobile phone with the prepaid card, complete transfers, etc.)

## **Types of Debit Cards**

They can be categorized into three categories:

### **1. Adult Debit Cards:**

Adult Debit Cards are the most common Debit Cards that are associated with a current account and no commission is paid if money is withdrawn from the ATMs linked to the bank or card issuer.

### **1. Youth Debit Cards:**

These cards have advantages associated with the age of their holders; That is to say, the banking strategy in offering this service is to attract future clients and promote savings in young people. They exist from cards for newborn children, to the young card “Dollar -30” and ” Dollar+30”, which include discounts on accommodation, transport, cultural activities or courses, among others.

1. **Prepaid Cards:** The holder charges an amount of money to be able to perform operations until consuming the amount. One type of prepaid cards is virtual ones or, in other words, those that only serve for the payment through the Internet.

## **Advantages of Debit Card**

- Avoid having to carry cash always in your pocket.
- It facilitates to know at all times the expense that is being done with the card.
- It allows withdrawing cash from ATMs 24 hours a day without any interest charges, as long as it belongs to the same ATM network.
- There are certain discounts, raffles, and points in some trades to pay with the card (promotions).

## **Safety recommendations for Debit Card**

- Take care of the privacy of your secret key and avoid sharing it with third parties.
- Change your personal identification codes (PINs) periodically.
- Use secret codes difficult to guess.

- Memorize your secret code; Avoid carrying it in writing.
- Count your money discreetly.
- Be sure to remove the card after the operation at the ATM and wait for the screen to return to the beginning.
- Follow only the recommendations given on the ATM site. Avoid advice from strangers.
- Do not perform operations at the cashier with strangers nearby.
- Remove and keep receipts obtained at ATMs, thus preventing third parties from using them for your benefit.
- Check your bank account balances regularly.
- If the ATM retains your card, lock it and give immediate notice to your bank.

### **Smart Card-Based Electronic Card Payment Systems :**

Many products and services will soon be (or are already being) sold over the Internet or other networks. Paying for these with standard methods of payments, such as cash, checks, credit card, or debit card, may be ineffective or inefficient. For such cases, electronic card payment systems are more appropriate. Several things need to be considered when investigating electronic card payment system options, including:

customer needs and benefits, developmental and operational cost, corporate benefits, continually changing technologies, critical mass of customers, security, standards of payment systems, and customer perception and comfort with new technologies. we analyze how smart card-based systems are used in mass transportation. Managers in mass transportation face the following questions: Do you develop your own electronic card payment system, do you wait for multifunctional cards that will be accepted across many industries to provide the functionality required in your market, or do you do nothing. The discussion here concentrates mainly on the transportation industry, where the transactions and payments are made on local area networks.

### **SMART CARD:**

A smart card resembles a credit card in size and shape, but inside it is completely different. First of all, it *has* an inside -- a normal credit card is a simple piece of plastic. The inside of a smart card usually contains an **embedded microprocessor**. The microprocessor is under a gold contact pad on one side of the card. Think of the microprocessor as *replacing* the usual magnetic stripe on a credit card or debit card.

Smart cards are much more popular in Europe than in the United States. In Europe, the health insurance and banking industries use smart cards extensively. *Every* German citizen has a smart card for health insurance.

### **E-PASSBOOK:**

Commercial Bank introduced the e-Passbook facility which is a mobile application which allows you to download and view your account transactions online or offline on your android or Apple smart phones.

### **The Essentials E-PASSBOOK:**



- View your real time account balance and transactions of all your accounts
- Access at any time from anywhere
- Check all your transactions for the last 30 days
- e-Passbook will be provided totally free of charge

The e-Passbook facility provides you the account history of all your accounts in a similar manner of a savings passbook or a current account statement. This application provides an online-real time view of the account transactions.

### **Salient features**

- ❖ Allows the real-time tracking of account transactions for the last 30 days.
- ❖ Account balance and the transaction history is updated and displayed online real time.
- ❖ You can also recall the last viewed transactions on Offline Mode, even when the internet connection is not available.
- ❖ The e-Passbook provides multiple account facility which acts as a single repository for all accounts enrolled, with the capability to view each account separately.
- ❖ You can label multiple accounts with preferred names/codes, for easy reference. (eg: Salary /Petty Cash / Savings / Entertainment)
- ❖ Provides flexibility to operate with or without a log-in password.

### **Eligibility**

- ❖ If you are an existing personal savings and/ or current account holder with a valid mobile number registered with the Bank, you can obtain this facility.
- ❖ Even if you open a new personal savings and/or current account and has a valid Mobile Number you can request for this facility.
- ❖ Joint Account holders could obtain the e-Passbook facility after submitting the written consent of all parties.
- ❖ You can also access your e passbook via Tablet computers, with the Android or IOS operating systems.

### **Home banking:**

Home banking is another feature in banking services. As with increase in technology you get to use many banking facilities sitting at home or any convenient place you like. In simple words home banking means you do not go to bank branch only. However you sit at home and continue with bank processes. In addition there are advantages of home banking also. You can keep reading to know more about this here.

Definition of the term home banking is simple to understand. It is so because as name says it is home banking. So you bank from home only. Even you bank using internet or your telephone. Though internet banking started in 1980s still home internet banking became popular in 1990s.

As a result you do not go to bank for any banking transactions. However you go to only home banking option of your bank to access banking services. Further you get chance to manage accounts from any place in world.

You also use different services. Thus it makes banking experience easy and manageable. Below you check list of home banking services that you use from.

### **Features of home banking**

- Pay bills while you are at home
- Online transactions
- Check account details
- Get notifications or alerts about account activity on your phone through text message
- Or you may receive alerts or notifications regarding your bank account through registered email ID
- Finally you use one simple and secure home banking option

### **Some more services and advantages of home banking:**

Apart from above stated home banking features you do not worry about extra charges on use of home banking options. It is so because you use services such as accessing bank accounts funds or other services through computer.

There are some people who call it as internet banking also. While there are other people who call it as electronic banking. As you take help of internet to access account information. There is also net banking option.

You can know more about internet banking here. People also call it as online banking advantages and disadvantages. Hence it is better that you check net banking definition and features of internet banking.

### **Advantages and Disadvantages of Home Banking:**

As you know there are many advantages and disadvantages of home banking. But before that you should know what do you mean by home banking system. As this term of home banking or banking from home means that you bank from your home.

Moreover you do not have to go to bank personally. It is so because you get all facilities in home banking system only. Besides there is option for home banking software. On other hand you should have home banking ID.

As home banking ID helps you to use home banking system or the home banking software. In addition idea of best investment options in India will be plus point.

## **UNIT-IV:**

### **SWIF:**

SWIFT stands for the Society for Worldwide Interbank Financial Telecommunication: It is an organisation that was founded in Brussels in 1973 to establish some common processes and standards for financial transactions. We've put together a short guide to answer the biggest question about the SWIFT payment system and how it works.

## **What is a SWIFT transfer?**

A SWIFT transfer is a type of international money transfer sent via the SWIFT international payment network. The SWIFT organisation provides a secure network that allows more than 10,000 financial institutions in 212 different countries to send and receive information about financial transactions to each other. Before the SWIFT network was put in place, banks and financial institutions relied on a system called TELEX to make money transfers. TELEX was slow, and the system lacked the security necessary for a time when technology was making rapid progress.

## **Who uses the SWIFT network?**

The majority of SWIFT system members are banks, but it is also used by trading institutions; money brokers and security broker dealers; clearing systems; investment management institutions and more. To actually become a member of SWIFT itself (along with gaining the shares and voting rights that membership bestows), the institution must hold a Banking License.

## **How does the SWIFT payment system work?**

The SWIFT network does not actually transfer funds, but instead it sends payment orders between institutions' accounts, using SWIFT codes. It was SWIFT that standardised IBAN (International Bank Account Numbers) and BIC (Bank Identifier Codes). SWIFT owns and administrates the BIC system, meaning that it can quickly identify a bank and send a payment there securely. You can get the BIC and IBAN number associated with your bank account from your bank - or it might even be printed on your debit card.

## **Transfer times**

SWIFT payments usually take 1-3 working days to reach their destination, however it is possible that they can take longer due to circumstances such as time differences between the sending and receiving country.

## **Swift Code :**

**Swift Code** is a standard format of Bank Identifier Codes (BIC) and it is unique identification code for a particular bank. These codes are used when transferring money between banks, particularly for international wire transfers. Banks also used the codes for exchanging other messages between them.

The Swift code consists of 8 or 11 characters. When 8-digits code is given, it refers to the primary office. The code formatted as below;

**AAAA BB CC DDD**

- First 4 characters - bank code (only letters)
- Next 2 characters - ISO 3166-1 alpha-2 country code (only letters)
- Next 2 characters - location code (letters and digits) (passive participant will have "1" in the second character)
- Last 3 characters - branch code, optional ('XXX' for primary office) (letters and digits)

Currently, there are over 40,000 "live" Swift codes. The "live" codes are for the partners who are actively connected to the Swift network. On top of that, there are more than 50,000 additional codes, which are used for manual transactions. These additional codes are for the passive participants.

The registrations of Swift Codes are handled by Society for Worldwide Interbank Financial Telecommunication ("SWIFT") and their headquarters is located in La Hulpe, Belgium. SWIFT is the registered trademarks of S.W.I.F.T. SCRL with a registered address at Avenue Adèle 1, B-1310 La Hulpe, Belgium.

## Processing SWIFT Messages

SWIFT is the ‘Society for Worldwide Interbank Financial Telecommunication’, a member-owned cooperative through which the financial world conducts its business operations with speed, certainty and confidence. SWIFT enables customers to automate and standardise financial transactions, thereby lowering costs, reducing operational risk and eliminating inefficiencies from their operations.

SWIFT is solely a carrier of messages. It does not hold funds nor does it manage accounts on behalf of customers, nor does it store financial information on an on-going basis. As a data carrier, SWIFT transports messages between two financial institutions. This activity involves the secure exchange of proprietary data while ensuring its confidentiality and integrity.

There are four key areas that SWIFT services fall under within the financial marketplace. They are Securities, Treasury and Derivatives, Trade Services, and Payments & Cash Management. SWIFT messages consist of five blocks of data including three headers, message content, and a trailer. They are identified in a consistent manner. They all start with the literal ‘MT’ which denotes Message Type. This is followed by a 3-digit number that denotes the message type, category, and group. The following are the categories of a message:

### Message blocks

A message consists of **blocks** enclosed in curly braces. The first colon separates the block name and content. The block content can consist of sub-blocks.

Detailed specification of the structure and content of SWIFT message blocks can be found in the SWIFT User Handbook, chapter FIN Service Description (accessible only to SWIFT subscribers). Publicly accessible documentation can be found at IBM Knowledge Center and MSDN.

1. **Basic header block** containing information about the message source.

The Basic header block {1:F01TESTBIC12XXX0360105154} contains five fixed-length fields:

- F — Application ID
- 01 — Service ID
- TESTBIC12XXX — Logical terminal address of the message source
- 0360 — Session number
- 105154 — Sequence number

2. **Application header block** with information about message type and destination of the message.

The application header block can be either of type Input or Output. The output block {2:O5641057130214TESTBIC34XXX26264938281302141757N} contains a set of fixed-length fields:

- O — Direction

- 564 — Message type
- 1057 — Input time
- 130214 — Input date
- TESTBIC34XXX — Logical terminal address of the message destination
- 2626 — Session number
- 493828 — Sequence number
- 130214 — Output date
- 1757 — Output time
- N — Priority

An input block has a different structure and consists of six fixed-length fields.

3. Optional **User header block** contains sub-blocks with optional processing instructions. In `{3:{103:CAD}{108:2RDRQDHM3WO}}` the sub-block 103 specifies a Service identifier and 108 a Message user reference.
4. **Text block** with the actual content of the message.  
The format of the text block is described below.
5. **User trailer block**. The trailer consists of sub-blocks. In the example `{5:{CHK:C77F8E009597}}` it contains a Checksum.
6. SWIFT network can append an additional **System trailer block 'S'**. For example `{S:{SAC:}{COP:P}}`.

### Structure of Swift:

When designing the models and data structure for your app, you would probably be deciding between Structs and Classes.

If you're coming from a different programming language, it's easy to settle into a pattern of using classes throughout your app.

However, structs in Swift are highly significant—they have been given tremendous importance throughout the Swift Standard Library itself. You too, should keep them in mind for your own apps. The following set of pros and cons should help you make a decision in this regard.

### Advantages:

1. Structs are marginally faster at runtime than classes, due to optimisations done by the compiler.
2. You can enforce full immutability. If you declare a struct instance as `let`, you will not be able to change its properties. Whereas, with classes, immutability is only with respect to the reference held by the constant—you'll still be able to change its properties.
3. Since structs are value types, each instance is a unique copy of data. Because of this, when using structs in a multi-threaded environment, each thread could have its own copy of the data, and chances are low of one thread changing data out under you in a different thread. Of course, if your instance of the struct is mutable, or if you mix reference types in your struct (see below), the chances of this happening are higher—but if you're using a class, even the little safety you'd get is lost.

## UNIT-V

### E-Banking:

E-banking can be defined as the automated and effective delivery of new and conventional banking products and services directly to customers through electronic, interactive communication channels. It includes the systems that enable financial institutions, individual customers or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet. It encompasses the wide technological innovations that have taken place in banking from transferring funds online, making online payments for almost any service, managing account balances to making railway, airway and hotel bookings online. It has removed the barriers of 'Brick and mortar' model of banking.

### Following E-Banking Products And Services:

- ☐ Automated Teller Machines (ATMs)
- ☐ Internet Banking
- ☐ Mobile Banking
- ☐ Phone Banking
- ☐ Tele banking
- ☐ Electronic Clearing Services
- ☐ Electronic Clearing Cards
- ☐ Smart Cards
- ☐ Door Step Banking
- ☐ Electronic Fund Transfer

### CHALLENGES IN E-BANKING:

- ❖ **Security Risk:** The problem related to the security has become one of the major concerns for banks. A large group of customers refuses to opt for e-banking facilities due to uncertainty and security concerns. According to the IMAI Report (2006), 43% of internet users are not using internet banking in India because of security concerns. So it's a big challenge for marketers and makes consumers satisfied regarding their security concerns, which may further increase the online banking use.



- ❖ **The Trust Factor:** Trust is the biggest hurdle to online banking for most of the customers. Conventional banking is preferred by the customers because of lack of trust on the online security. They have a perception that online transaction is risky due to which frauds can take place. While using e-banking facilities lot of questions arises in the mind of customers such as: Did transaction go through? Did I push the transfer button once or twice? Trust is among the significant factors which influence the customers' willingness to engage in a transaction with web merchants.
- **Customer Awareness:** Awareness among consumers about the e-banking facilities and procedures is still at lower side in Indian scenario. Banks are not able to disseminate proper information about the use, benefits and facility of internet banking. Less awareness of new technologies and their benefits is among one of the most ranked barrier in the development of e-banking.
- **Privacy risk:** The risk of disclosing private information & fear of identity theft is one of the major factors that inhibit the consumers while opting for internet banking services. Most of the consumers believe that using online banking services make them vulnerable to identity theft. According to the study consumers' worry about their privacy and feel that bank may invade their privacy by utilizing their information for marketing and other secondary purposes without consent of consumers.

**Strengthening the public support:** In developing countries, in the past, most e-finance initiatives have been the result of joint efforts between the private and public sectors. If the public sector does not have the necessary resources to implement the projects it is important that joint efforts between public and private sectors along with the multilateral agencies like the World Bank, be developed to enable public support for e-finance related initiatives.

- **Availability of Personnel services:** In present times, banks are to provide several services like social banking with financial possibilities, selective up gradation, computerization and innovative mechanization, better customer services, effective managerial culture, internal supervision and control, adequate profitability, strong organization culture etc. Therefore, banks must be able to provide complete personnel service to the customers who come with expectations.
- **Implementation of global technology:** There is a need to have an adequate level of infrastructure and human capacity building before the developing countries can adopt global technology for their local requirements. In developing countries, many consumers either do not trust or do not access to the necessary infrastructure to be able to process e-payments.
- **Non- Performing Assets (NPA):** Nonperforming assets are another challenge to the banking sector. Vehicle loans and unsecured loans increases N.P.A. which terms 50% of banks retail

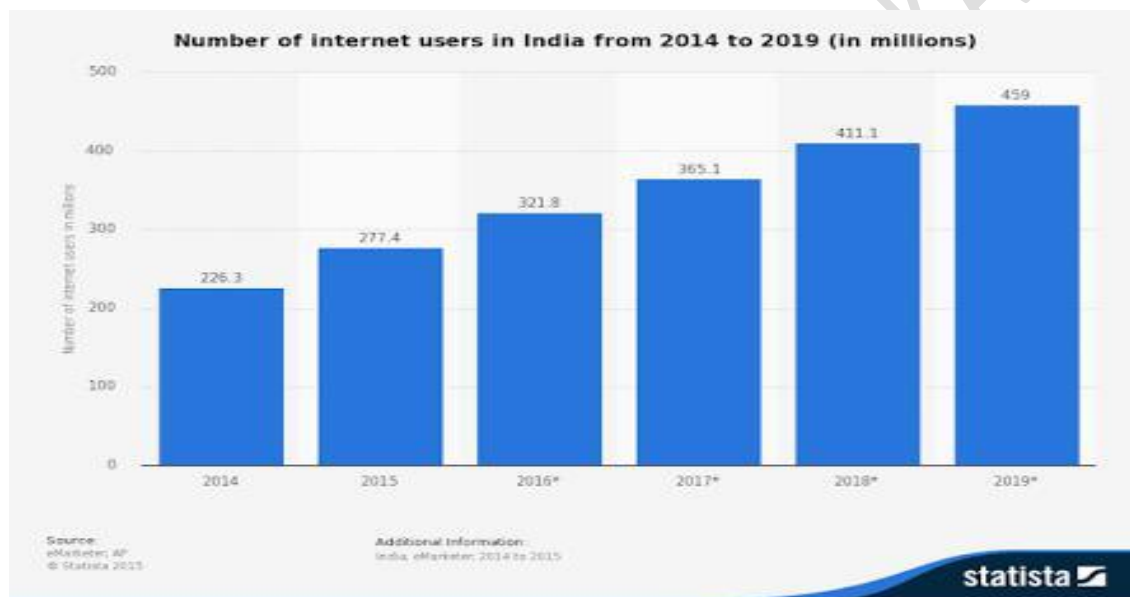
portfolio was also hit due to upward movement in interest rates, restrictions on collection practices and soaring real estate prices. So that every bank have to take care about regular repayment of loans.

- **Competition:** The nationalized banks and commercial banks have the competition from foreign and new private sector banks. Competition in banking sector brings various challenges before the banks such as product positioning, innovative ideas and channels, new market trends, cross selling ad at managerial and organizational part this system needs to be manage, assets and contain risk. Banks are restricting their administrative folio by converting manpower into machine power i.e. banks are decreasing manual powers and getting maximum work done through machine power. Skilled and specialized man power is to be utilized and result oriented targeted staff will be appointed.
- **Handling Technology:** Developing or acquiring the right technology, deploying it optimally and then leveraging it to the maximum extent is essential to achieve and maintain high service and efficiency standards while remaining cost effective and delivering sustainable return to shareholders. Early adopters of technology acquire significant competitive advances Managing technology is therefore, a key challenge for the Indian banking sector.

#### **OPPORTUNITIES IN E-BANKING:**

- ❖ **Untapped Rural Markets:** Contributing to 70% of the total population in India is a largely untapped market for banking sector. In all urban areas banking services entered but only few big villages have the banks entered. So that the banks must reach in remaining all villages because majority of Indian still living in rural areas.
- ❖ **Multiple Channels:** Banks can offer so many channels to access their banking and other services such as ATM, Local branches, Telephone/mobile banking, video banking etc. to increase the banking business.
- ❖ **Competitive Advantage:** The benefit of adopting e-banking provides a competitive advantage to the banks over other players. The implementation of e-banking is beneficial for bank in many ways as it reduces cost to banks, improves customer relation , increases the geographical reach of the bank , etc. The benefits of e-banking have become opportunities for the banks to manage their banking business in a better way.
- ❖ **Increasing Internet Users & Computer Literacy:** To use internet banking it is very important or initial requirement that people should have knowledge about internet technology so that they can easily adopt the internet banking services. The fast increasing internet users in India can be a very big opportunity and banking industry should encash this opportunity to attract more internet users to adopt internet banking services. Table shows evidence of increasing number of internet users in India.
- ❖ **Worthy Customer Service:** Worthy customer services are the best brand ambassador for any bank for growing its business. Every engagement with customer is an opportunity to develop a customer faith in the bank. While increasing competition customer services has become the backbone for judging the performance of banks.

- ❖ **Internet Banking:** It is clear that online finance will pickup and there will be increasing convergence in terms of product offerings banking services, share trading, insurance, loans, based on the data warehousing and data mining technologies. Anytime anywhere banking will become common and will have to upscale, such up scaling could include banks launching separate internet banking services apart from traditional banking services.
- ❖ **Retail Lending:** Recently banks have adopted customer segmentation which has helped in customizing their product folios well. Thus retail lending has become a focus area particularly in respect of financing of consumer durables, housing, automobiles etc., Retail lending has also helped in risks dispersal and in enhancing the earnings of banks with better recovery rates.



## E-Banking Services:

E-banking products and services which banks have continuously strived to bring for the ease of customers. Included below depicts the service tree of e-banking. Some of them have been listed below:

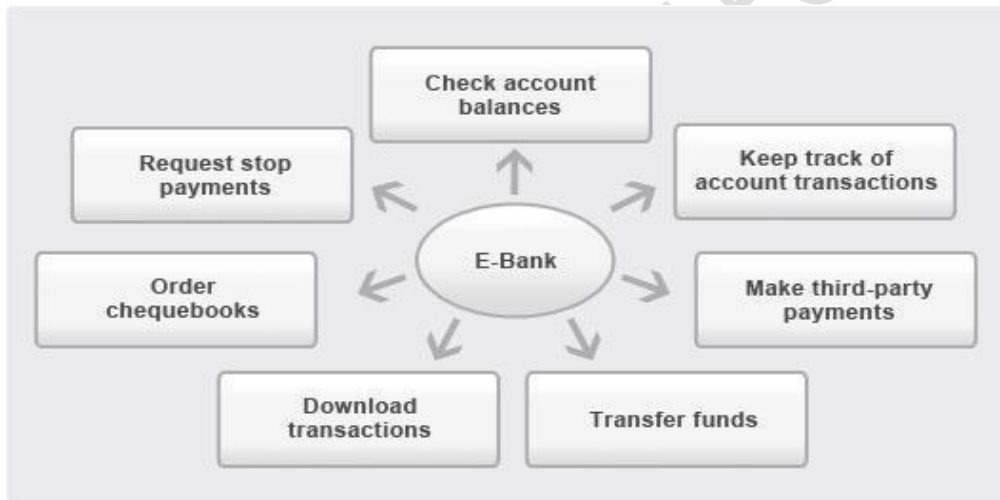
- ❖ Automated Teller Machines (ATMs)
- ❖ Internet Banking
- ❖ Electronic Fund Transfer
- ❖ Mobile Banking/ Telebanking
- ❖ Electronic Clearing Services

- ❖ Smart Cards
- ❖ Door Step Banking
- ❖ Electronic Clearing Cards
- ❖ Online payments
- ❖ NEFT/RTGS

#### **Electronic Payment Services**

- E Cheques
- E-tax
- E-ticketing
- Demat account
- Account Opening Request
- Account statement on emails, etc.

#### **E-banking services**



#### **Strengths of E-Banking:**

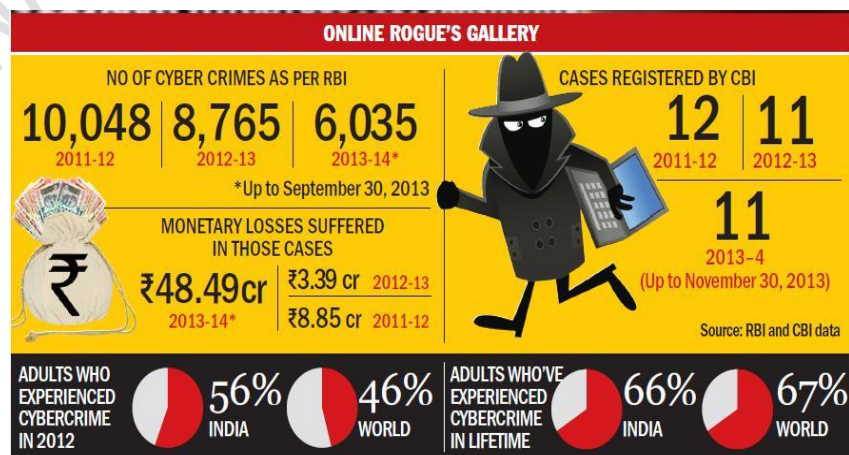
- ❖ It offers superior & user friendly technology
- ❖ Anywhere-anytime banking. Further, instant information is available to users as soon as the transaction takes place.
- ❖ No paper work and physical handling and storage of paper instruments
- ❖ Low cost of online transactions- A Study mentioned that the cost per transaction through a branch was Rs. 66, through Automated Teller Machines was Rs. 22, and through internet was Rs.10, ignoring the extreme variations owing to the investment cost and nature of transactions.

- ❖ Competition from private sector and foreign banks has led to creation of more and more innovative products and services such as e-wallet, plastic cards, online transaction history, buying and selling shares/ Mutual funds online, Renewal/ premature closure of FD/ RD, Bills Payment, Convert to EMI, Online loans, Online tax payments and lots more.
- ❖ Faster response to customer queries and complaints. Better customer relationship management.
- ❖ Improved management, transparency and accountability.
- ❖ Improved trade relations across boundaries with easier transfer of funds through net banking.
- ❖ Multi-folds growth in the business of banking sector with variety of banking players in the market- public, private, foreign, regional rural, etc. It also establishes healthy competition and promotes better consumer services.
- ❖ With development in technology, banks are reaching more and more remote locations in the country allowing access to rural people who earlier did not have convenient access to banks.
- ❖ Strong Regulatory Institutional Framework constituting RBI, IT act, 2000, Banking regulations act, etc.

### Weakness of E-Banking:

- ❖ Complexity in online transactions. The people who are not tech savvy cannot operate bank accounts online unless they are made aware of the e-banking culture.
- ❖ There is a 'digital divide' as the poor are excluded from the use of the internet and so from the financial system.

The confidentiality and integrity of data and information over internet is still a major concern in India. There has been a rise in the number of cyber crimes registered by CBI recently. Of the total cyber crimes recorded in 2012 around the globe, 56% were from India as per a report of RBI.



- ❖ The usage of Internet banking is dependent upon the availability of internet which means when the server is down, the whole system is paralysed.
- ❖ Lack of physical presence of bankers which at the time of customer grievances proves to be a negative point.
- ❖ Ineffective maintenance of technological infrastructure in some branches.
- ❖ Still, there are some banking personnel are not adequately trained and equipped to handle e-banking which creates barriers and limitations in the system.

### **Opportunities of E-Banking:**

- ❖ India is a growing economy with large numbers of savers and investors. It holds immense potential for market expansion.
- ❖ One of the biggest opportunities for Indian banking sector is the Indian consumer. With demographic changes over the years, in terms of income levels and rising standards of living, the demand for sophisticated, competitive and retail banking services have risen. Banks need to tap that market by delivering solutions.
- ❖ Integration of domestic banks with foreign markets offer countless opportunities to Indian banking sector to get exposure to the world. In this global world, countries seek high quality banking services with operational efficiency. Hugely talented Indian manpower can seek good opportunities across globe. Additionally, it will create employment opportunities for the youth.
- ❖ There still lies a large untapped rural market in India which in the coming years, needs to be explored for better reach of the banking sector. That leads to greater “financial inclusion”.
- ❖ Better development in areas like Risk management and CRM (Customer Relationship Management).
- ❖ Advancement in current IT base to avoid system failures and provide efficient and secure platform for online transactions. Safe and secure payment gateways.
- ❖ Financial Inclusion

### **Threats of E-Banking:**

- ❖ One of the major threats is that it's not secure all the time. Lately, there have been cases where cyber criminals have tricked users through spam sites, social media, etc. to give out their personal information.



- ❖ High transaction costs for banks if their customers do not often transact online because huge investment goes into the setting up of Internet banking systems.
- ❖ In the times of fierce competition if the banks do not timely upgrade technology, they will have to face and suffer losses of customers as well as profits.
- ❖ The legal and regulatory framework suffers some loopholes which allow criminals to take advantage of the situation. It needs to be more stringent to prevent frauds.
- ❖ Lack of customer loyalty
- ❖ Proportion of workforce incapable of handling e-banking business results in inefficiency.