

IDHAYA COLLEGE FOR WOMEN KUMBAKONAM



PG & Research Department of Commerce

II M.Com

PROJECT MANAGEMENT – P16MCE5A

UNIT – V

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PERT/CPM

PROJECT

Combination of
interrelated activities

Executed in logical
sequence

*Accomplishment of a
desired objective*

“A project is a temporary effort undertaken to create a "unique" product or service”

Plan your work first.....then work your plan

HISTORY OF PERT/CPM

PERT

Developed by the US Navy for the planning and control of the **Polaris missile program**

The emphasis was on completing the program in the shortest possible time.

CPM

Developed by **Du Pont** to solve project scheduling problems

The emphasis was on the trade-off between the cost of the project and its overall completion time

Why PERT/CPM?



- **Prediction of deliverables**
- **Planning resource requirements**
- **Controlling resource allocation**
- **Internal program review**
- **External program review**
- **Performance evaluation**
- **Uniform wide acceptance**

APPLICATIONS OF PERT/CPM TECHNIQUES

- 
- Construction of a Dam or Canal
 - Construction of a building or highway

- 
- Maintenance or Overhaul of aircrafts
 - Space Flights

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- Designing a Prototype of a Machine
 - Development of Supersonic Planes

Steps in PERT/CPM



1. PLANNING

2. SCHEDULING

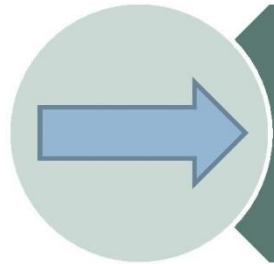
3. ALLOCATION OF RESOURCES

4. CONTROLLING

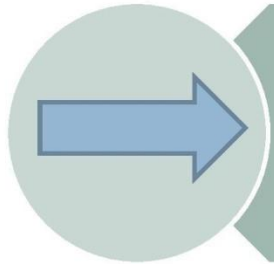
Framework for PERT and CPM

- Define the Project. The Project should have only a single start activity and a single finish activity.
- Develop the relationships among the activities.
- Draw the "Network" connecting all the activities.
- Assign time and/or cost estimates to each activity
- Compute the critical path.
- Use the Network to help plan, schedule, monitor and control the project.

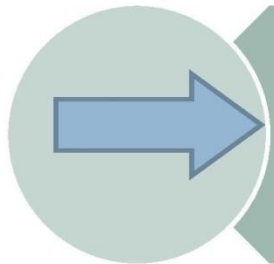
CPM - Critical Path Method



Drafting the design of
Programme or Project

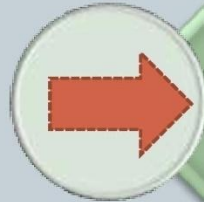


Evaluation of drafted
Programme or Project

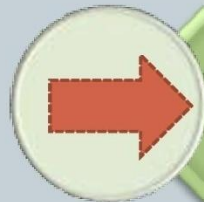


Review of evaluated
Programme or Project

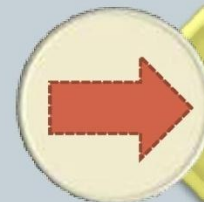
PERT - Project Evaluation & Review Techniques



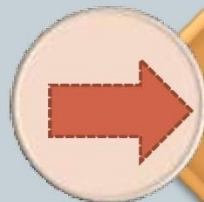
To analyze and represent the tasks involved in completing a given project



Accommodates the variation in event completion time



Event-oriented technique rather than start- and completion-oriented



Commonly used in conjunction with the critical path method

Basic Terms In Network Analysis



Activity

Event

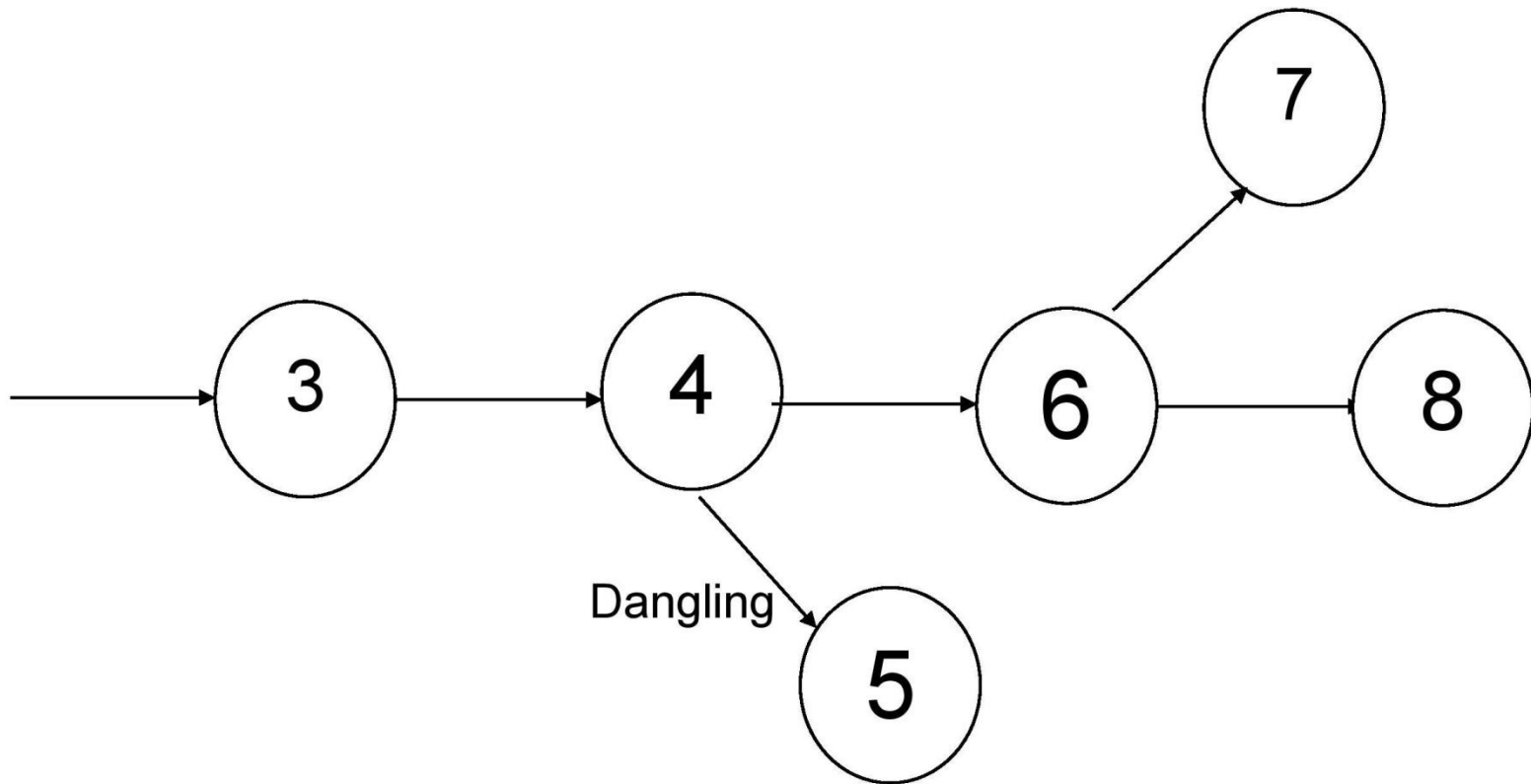
Constraints

Network Diagram

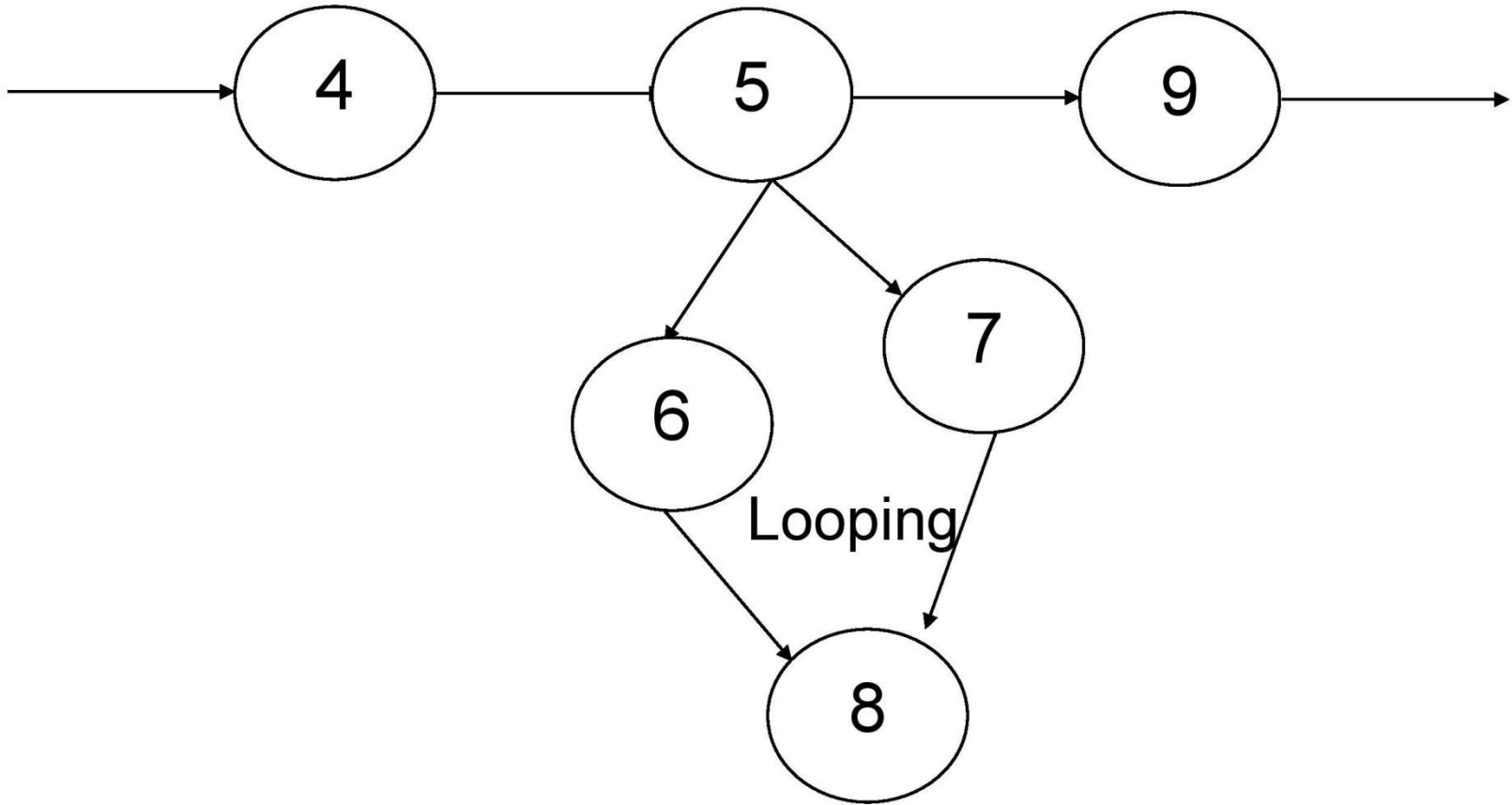
Critical Path

Errors in Network Construction

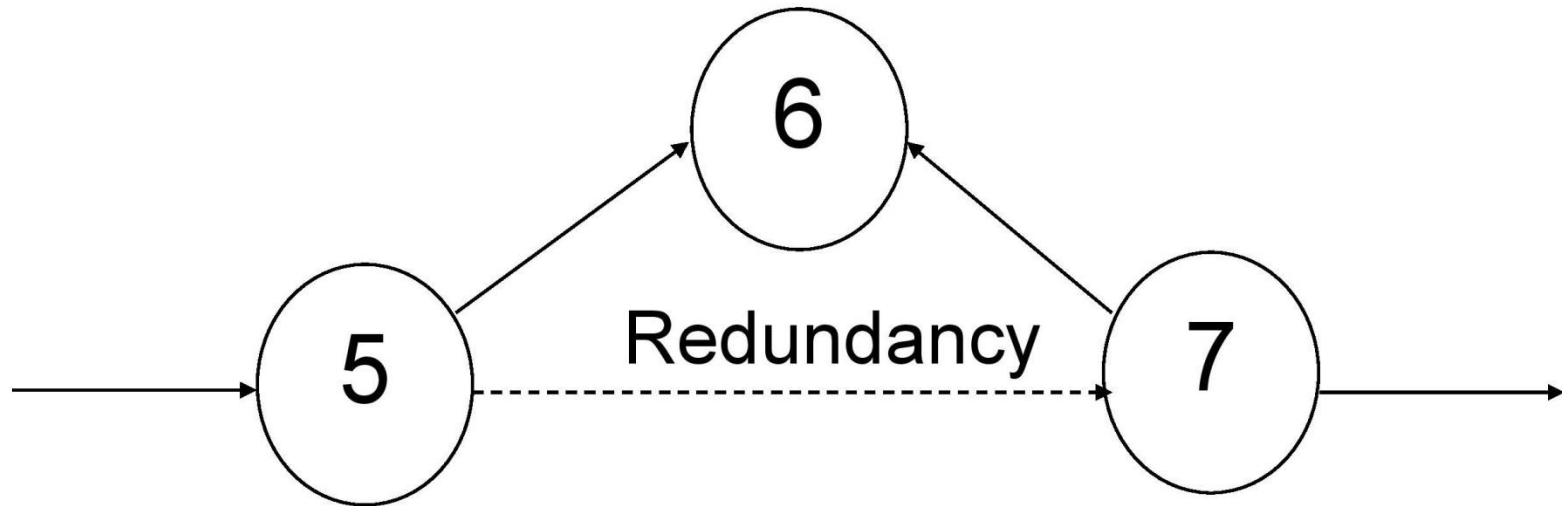
- Dangling



Looping



Redundancy




Comparison Between PERT & CPM



Both are Quantitative Techniques of Network Analysis



Both are used as tools for Decision Making



Both involve drawing & analysis of Network Diagram on various scores



Difference Between PERT & CPM

PERT

T
Probabilistic Model

Non-repetitive Jobs like
planning & scheduling of
programmes

Results calculated on basis of
Events

Related with activities of
uncertain time

CPM

Deterministic Model

Repetitive Jobs like residential
construction

Results calculated on basis of
activities

Related with activities of Well
Known time

Advantages of PERT/CPM

Reduction in cost

- Elimination of Risk in Complex activity

Flexibility

- Optimisation of Resources

Reduction of Uncertainties

Disadvantages of PERT/CPM



Network charts tend to be large

Lack of a timeframe on most PERT/CPM charts makes it harder to show status

When PERT/CPM charts become unwieldy, they are no longer used to manage the project

Planning & Implementation required skillful personnel