

# Project Planning & Control

## *Network Representation & Analysis -2; Two-Span Bridge: Scheduling, Network Analysis and Application*

### *Week 4*

Koshy Varghese, Ph.D.

*Professor*

*Building Technology & Construction Management*

*Department of Civil Engineering*

*I.I.T. Madras*



# Project Planning & Control

## *Lesson 1*

### *Introduction to Floats, Types of Floats and Example- 1 Discussion*

Koshy Varghese, Ph.D.

*Professor*

*Building Technology & Construction Management*

*Department of Civil Engineering*

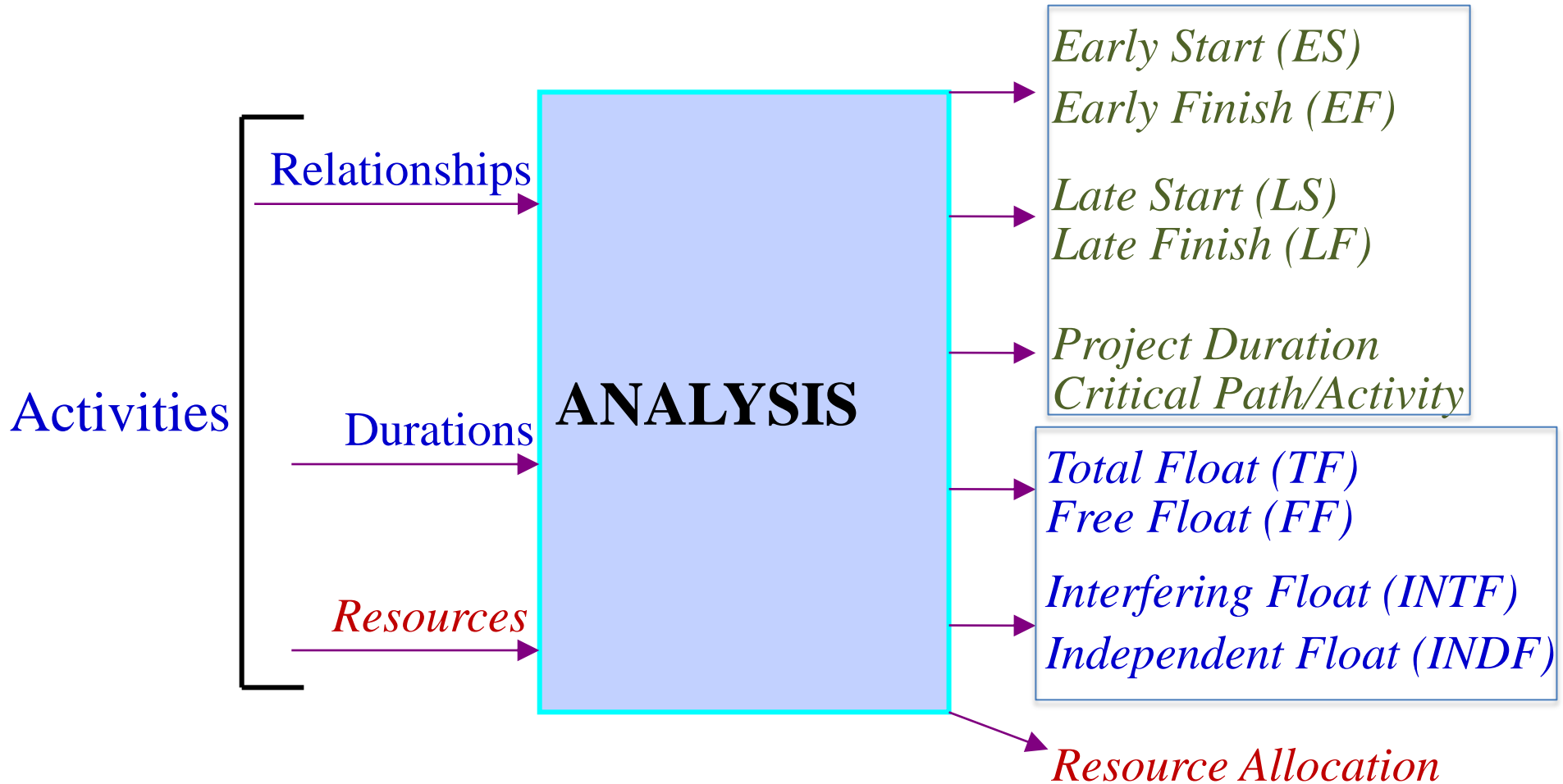
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# Learning Objectives

1. Types of Float / Slack & Definitions
2. Calculation of Float - Examples
3. Usage of Float for Project Decisions

# Networks Analysis

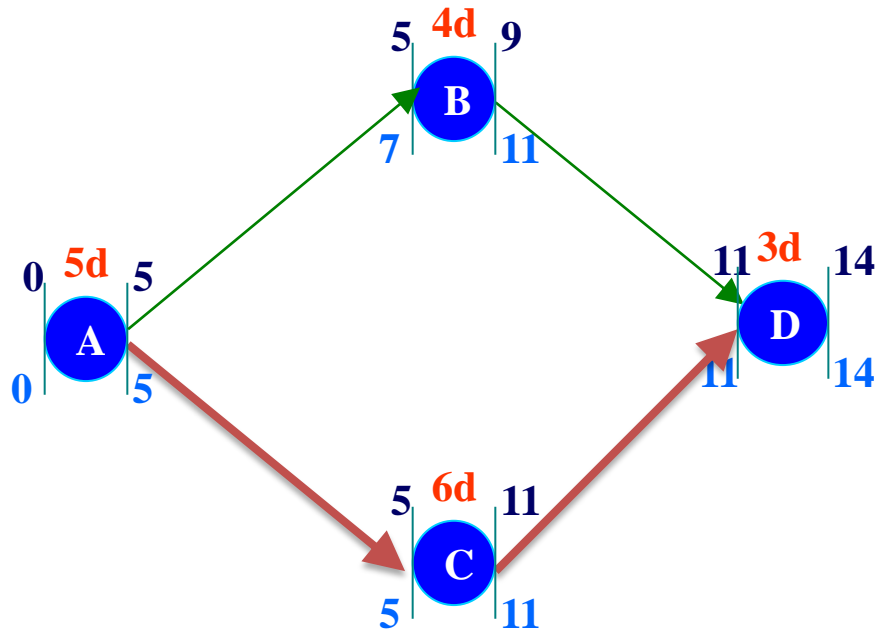


# Definitions – Floats or Slack

TERM	DEFINITION
<b>Total Float (TF)</b>	Maximum amount by which an activity can be delayed from Early Start without delaying the project
<b>Free Float (FF)</b>	Maximum amount by which an activity can be delayed without delaying the Early Start of any following activity
<b>Interfering Float (IntF)</b>	Maximum amount by which an activity can be delayed without delaying the project but will cause delay to the Early Start of some following activity
<b>Independent Float (IndF)</b>	Amount by which an activity can be delayed Without delaying the the project; <u>Even if all predecessors are at Late Finish and all Successors are at Early Start</u>

# EXAMPLE-1 – ABCD Project

FORWARD PASS

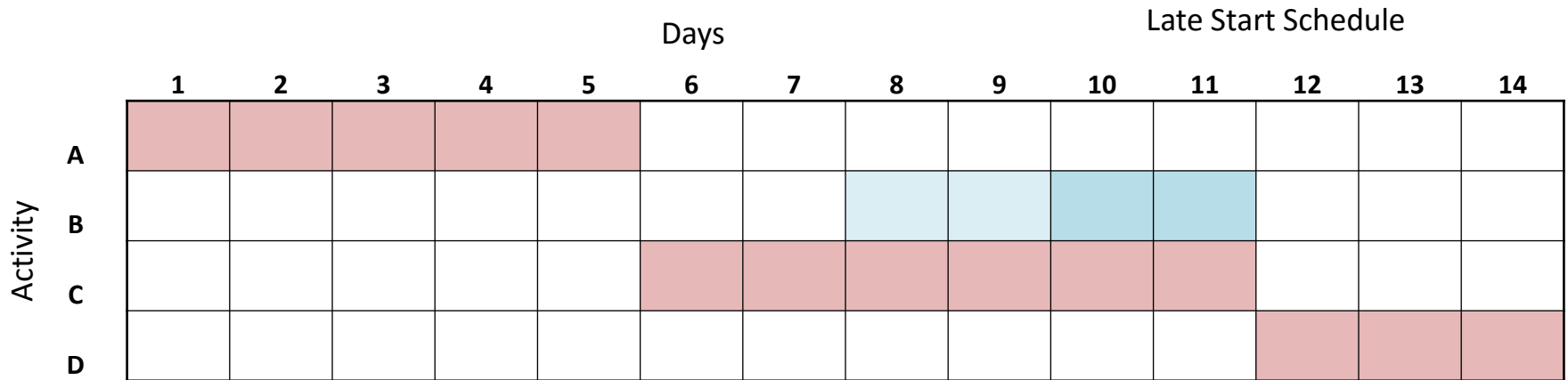
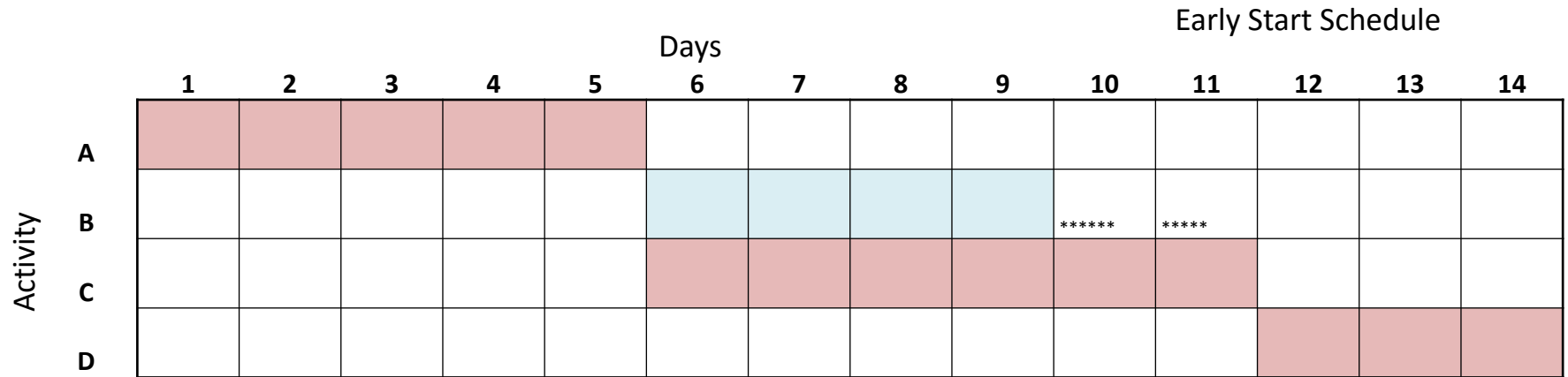


BACKWARD PASS

Activity	Duration	Predecessor
A	5	-
B	4	A
C	6	A
D	3	B,C

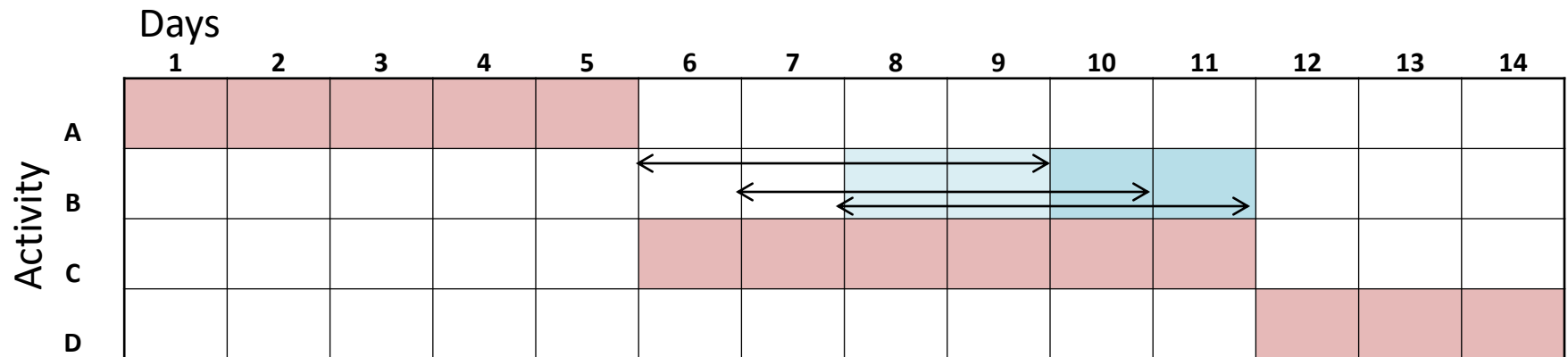
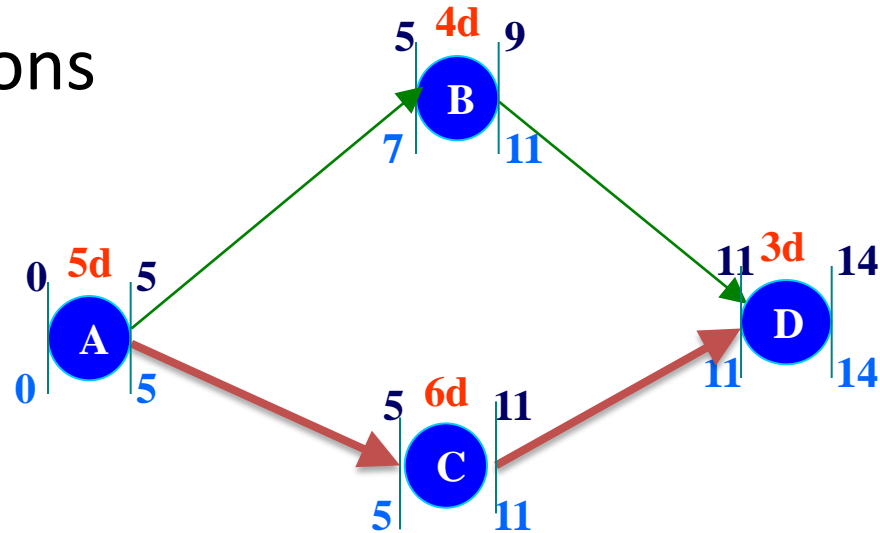
ACT	Early Start	Early Finish	Late Start	Late Finish	Critical
A	0	5	0	5	Y
B	5	9	7	11	N
C	5	11	5	11	Y
D	11	14	11	14	Y

# Results in Gantt chart



Only Act B has Float- Others are critical.

# Applying Definitions

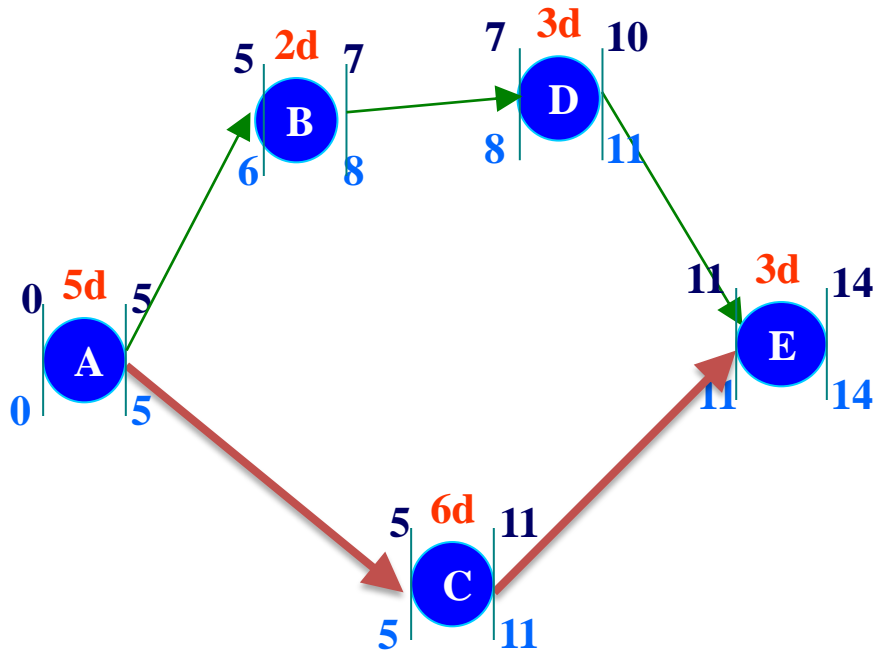


- Total Float
  - B 2 days
- Free Float
  - B 2 day

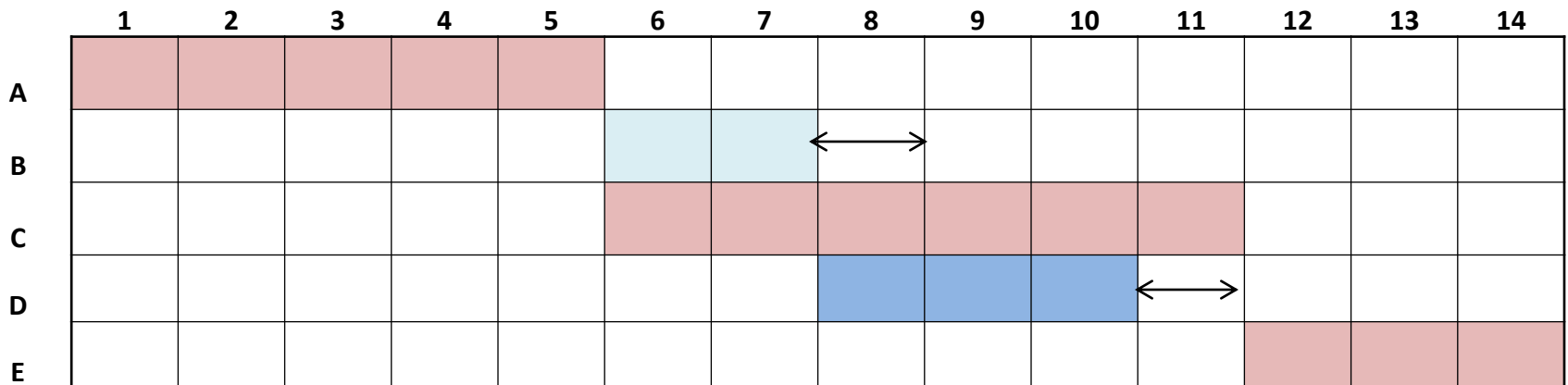
- Interfering Float
  - B 0 days
- Independent Float
  - B 2 days

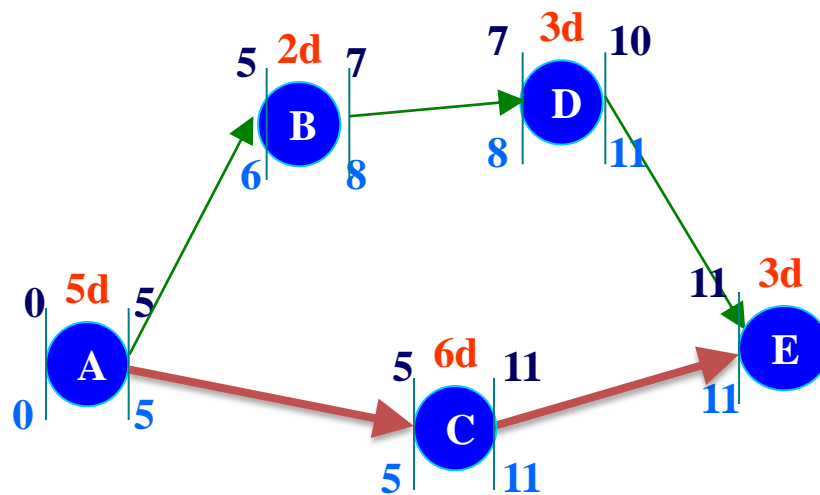


# EXAMPLE-2 – ABCDE Project



Activity	Duration	Predecessor
A	5	-
B	2	A
C	6	A
D	3	B
E	3	D,C





	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C														
D														
E														

- Total Float**

- B 1 day
- D 1 day

Shared Float

- Free Float**

- B 0
- D 1

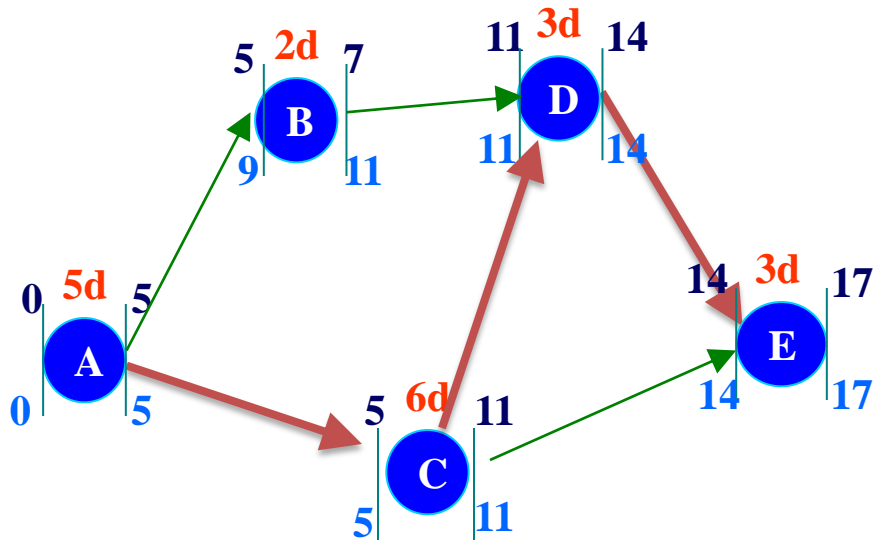
- Interfering Float**

- B 1 day
- D 0 day

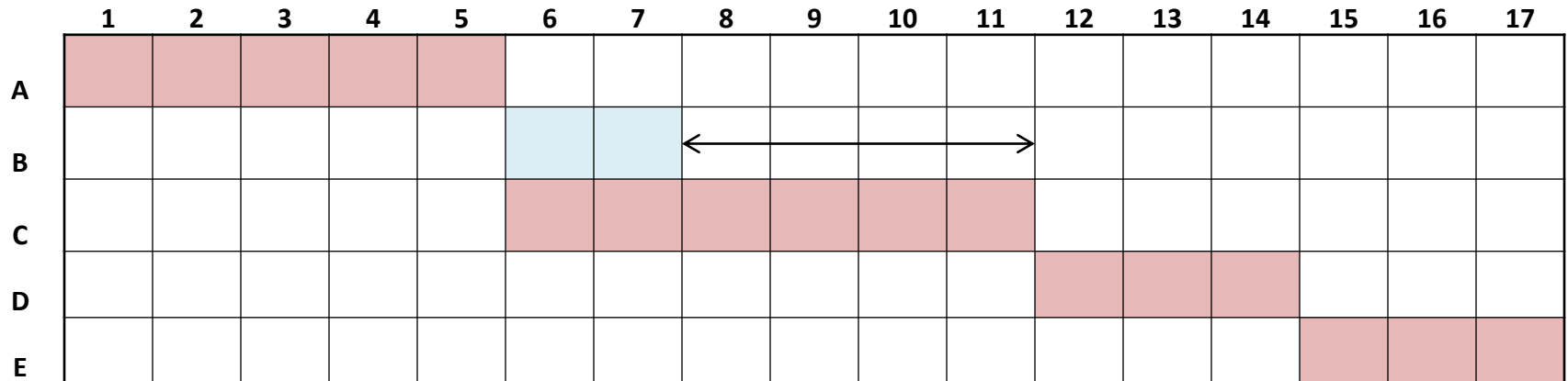
- Independent Float**

- B 0 day
- D 0 day

# EXAMPLE-3 – ABCDE Project



Activity	Duration	Predecessor
A	5	-
B	2	A
C	6	A
D	3	B,C
E	3	D,C



- Total Float
  - B 4 days
- Free Float
  - B 4 day

- Interfering Float
  - B 0 days
- Independent Float
  - B 4 days

# Usage of Float

- Priority to Critical Activities vs. non-critical
- Criticality of a activity / activity chain
- Knowledge of float to balance sub-contacted work
- Use of float to balance resource loads
- Who does Float belong to ? Should it be shared ?