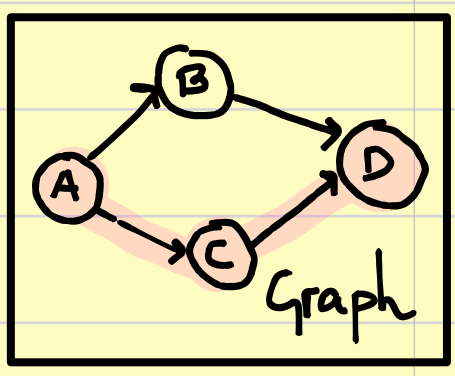
CRITICAL PATH OF A PROJECT (GRAPH TIMELY)

Example 1.

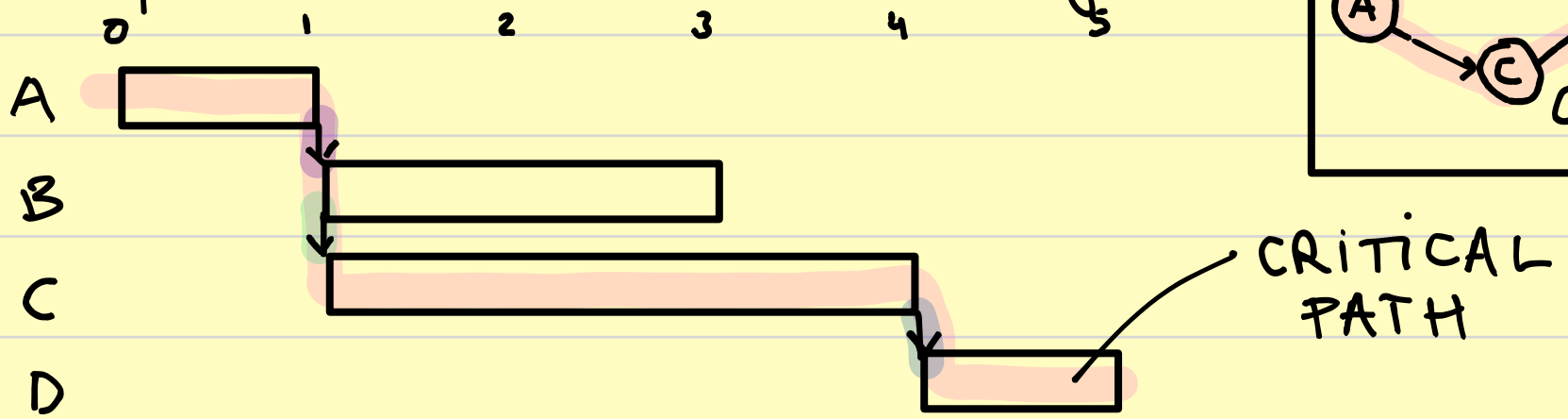
the WP cannot start until Pre-decessor is done

Workpackage	Pre-decessor	Duration
A	–	1
B	A	2
C	A	3
D	B - C	1

What is the critical path?



- Step 1. Time-Chart / Gantt Diagram



- Step 2. Early Start (ES) / Late Start (LS) / Early Finish (EF) / Late Finish (LF) - Chart

What is the Early/Late start/Finish for each package without delaying the overall project time line?

	ES	LS	EF (ES+d)	LF (LS+d)	SLACK*
A	0	0	1	1	0
B	1	2	3	4	1
C	1	1	4	4	0
D	4	4	5	5	0

*SLACK: |ES - LS| = |EF - LF| = SLACK

The slack determines how critical work packages are in the timeline.

Critical Path is formed by those workpackages with slack equal to zero.

critical path = { A , C , D }

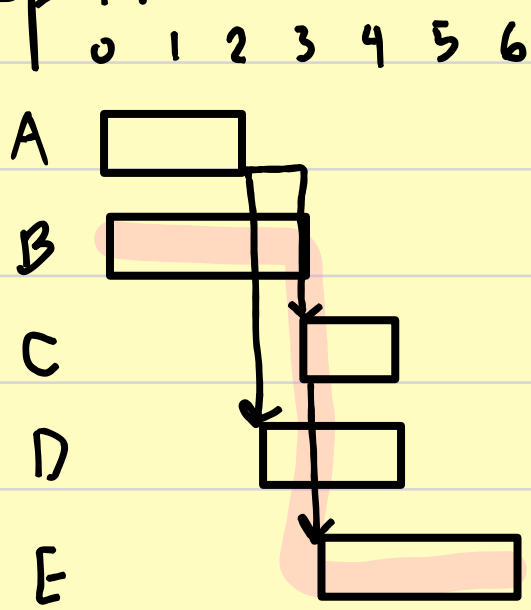
- Step 3. Calculate Critical Path.

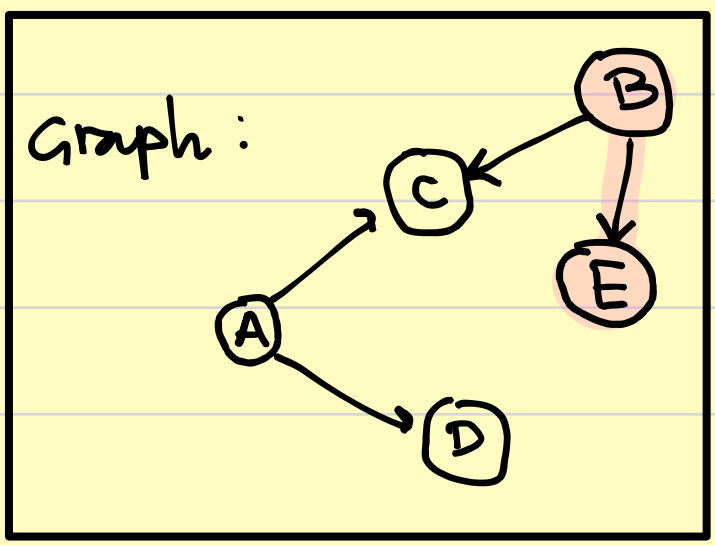
Example 2.

Workpackage	Pre-decessor	Duration
A	–	2
B	–	3
C	A - B	1
D	A	2
E	B	3

what is the critical path?

Step 1.





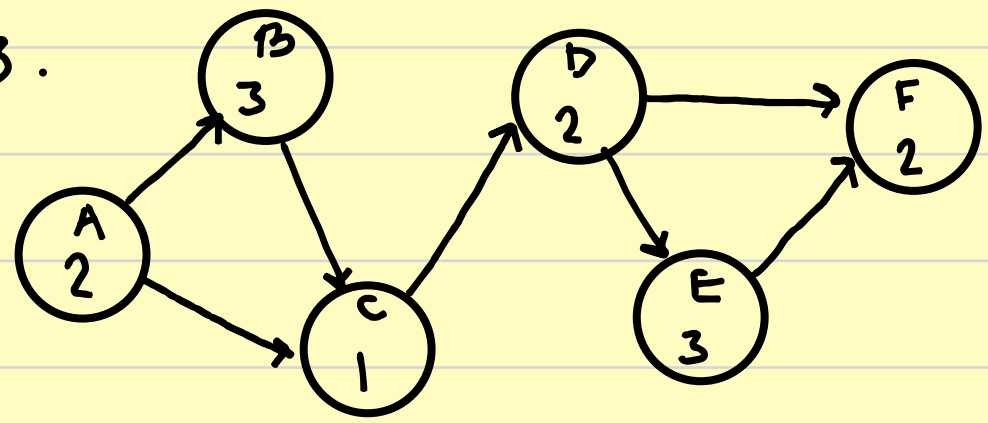
Step 2.

	ES	LS	EF	LF	slack
A	0	1	2	3	1
B	0	0	3	3	0
C	3	5	4	6	2
D	2	4	4	6	2
E	3	3	6	6	0

Step 3. Critical path.

C.P. = {B, E}

Example 3.



* wp
d

Given this Projectgraph perform following calculations:

1) Critical Path
2) Average Path length
3) Clustering Coefficient
4) Determine the project bottleneck based on these calculations.

H4