

ENAE 483/788D LECTURE #04 (SYSTEMS ENGINEERING) – FALL, 2023

The following tasks describe a project which you need to analyze and manage. Task durations are given in weeks; assume the project starts at Week 1.

Task	Precedent Tasks	Duration (weeks)
Alpha	-	1
Bravo	Alpha	1
Charlie	Alpha	3
Delta	Alpha	4
Echo	Alpha	3
Foxtrot	Alpha	2
Golf	Alpha	5
Hotel	Alpha	4
India	Alpha	5
Juliett	Bravo, Charlie	3
Kilo	Bravo, Charlie, Delta	5
Lima	Charlie, Delta, Echo	2
Mike	Delta, Echo, Foxtrot	6
November	Echo, Foxtrot, Golf	4
Oscar	Foxtrot, Golf, Hotel	2
Papa	Golf, Hotel, India	3
Quebec	Hotel, India	4
Romeo	Juliett, Kilo	5
Sierra	Juliett, Kilo, Lima	4
Tango	Kilo, Lima, Mike	4
Uniform	Lima, Mike, November	5
Victor	Mike, November, Oscar	6
Whisky	November, Oscar, Papa	3
Xray	Oscar, Papa, Quebec	2
Yankee	Papa, Quebec	6
Zulu	Romeo, Sierra, Tango, Uniform, Victor, Whisky, Xray, Yankee	1

- (1) Draw a Gantt chart for this program. You can use project management software if you have it (several are available for free online) or draw it manually.

See attached figure.

- (2) Draw a PERT chart for this program. Again, use whatever software or manual techniques you choose.

See attached figure.

- (3) What is the minimum time (in weeks) it will take to complete the project?

18 weeks

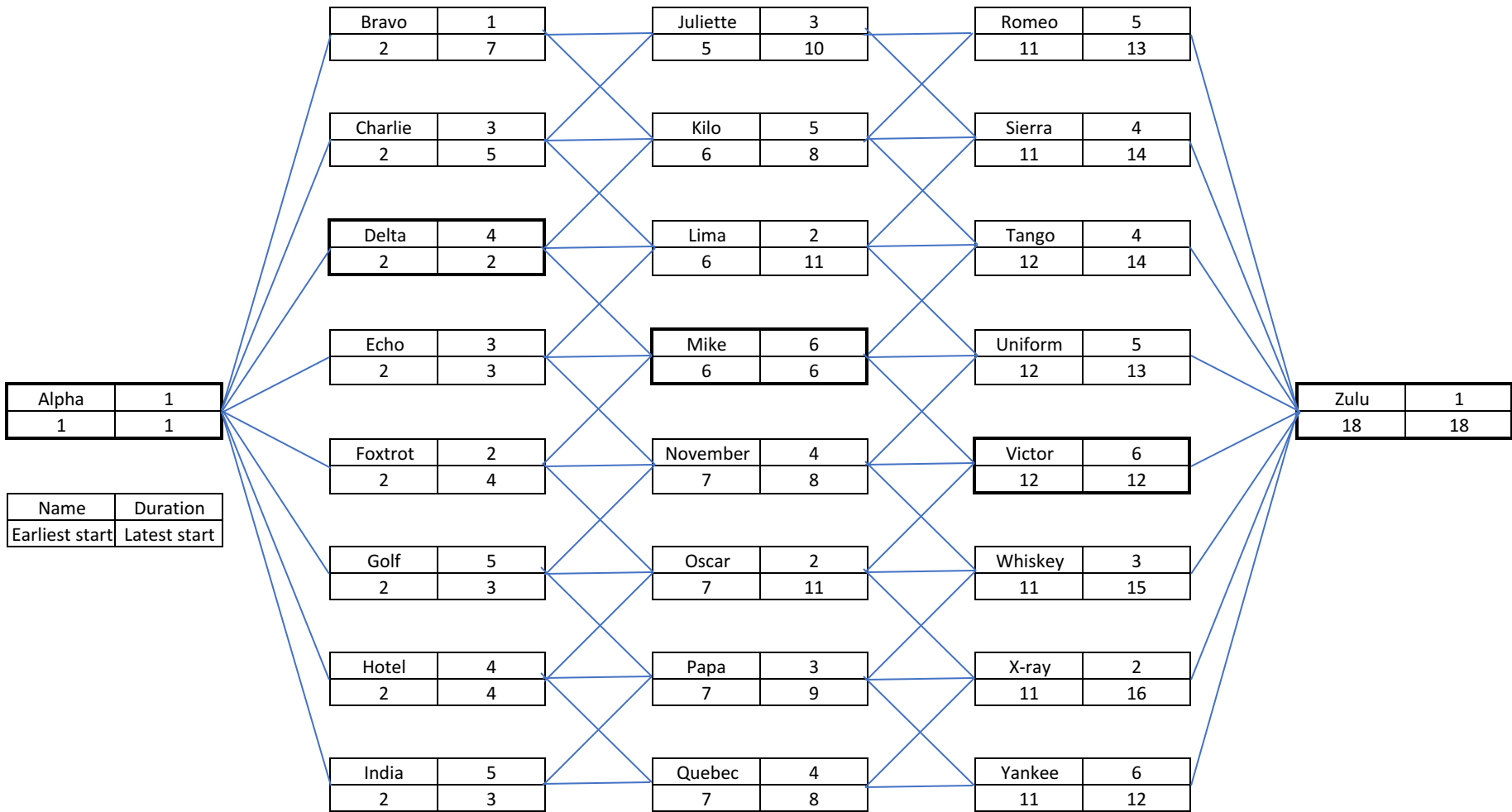
- (4) What is the critical path?

Alpha-Delta-Mike-Victor-Zulu, shown by bold box borders on the PERT chart.

- (5) How much slack time does task Lima have?
5 weeks

Table 1

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Alpha	█																		
Bravo		█																	
Charlie		█	█	█															
Delta		█	█	█	█														
Echo		█	█	█															
Foxtrot		█	█																
Golf		█	█	█	█	█													
Hotel		█	█	█	█														
India		█	█	█	█	█													
Juliett					█	█	█												
Kilo						█	█	█	█	█									
Lima						█	█												
Mike						█	█	█	█	█	█								
November							█	█	█	█									
Oscar							█	█											
Papa							█	█	█										
Quebec							█	█	█	█									
Romeo										█	█	█	█	█	█				
Sierra										█	█	█	█						
Tango											█	█	█	█	█				
Uniform											█	█	█	█	█	█			
Victor											█	█	█	█	█	█	█		
Whiskey											█	█	█						
X-ray											█	█							
Yankee											█	█	█	█	█	█	█		
Zulu																			█



Name	Duration
Earliest start	Latest start