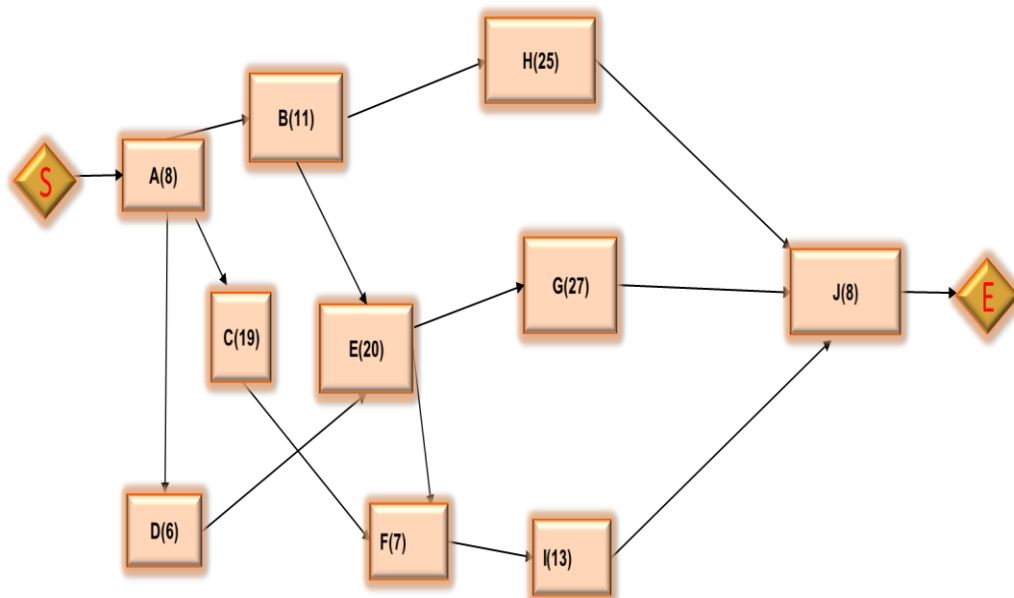


Assignment 4: Critical Path Analysis

Consider the table below, which includes time and activity data for a Small IT Project. All duration estimates or estimated times are in days. Perform a critical path analysis for this project.

Activity	Duration (Days)	Predecessor
A	8	-
B	11	A
C	19	A
D	6	A
E	20	B, D
F	7	C, E
G	27	E
H	25	B
I	13	F
J	8	H, G, I

1. Draw a network diagram representing the project. MS PowerPoint or Visio are good



tools
for
this
task.

2. Identify and list all of the paths through the network diagram and note how long they are. (3 points)

A-B-H-J = 52

A-B-E-G-J = 74

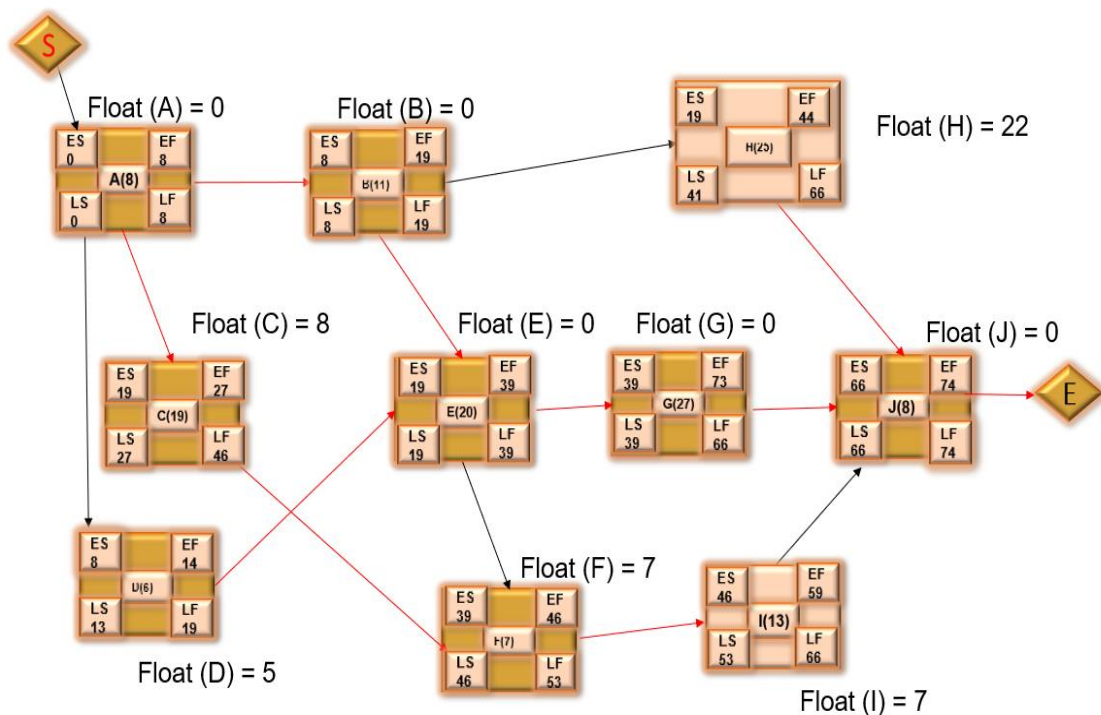
A-B-E-F-I-J = 67

A-C-F-I-J = 55

A-D-E-G-J = 69

A-D-E-F-G-J = 62

3. Calculate the float for all the activities in the network diagram. There are 10 activities in the table above and you must show the early and late start/ finish dates to receive credit for this question. (5 points)



4. What is the timeline within which the project can earliest be completed and explain why you say so? (1 points)

It is 74 days. Having built the network diagram, I identified all possible paths through the diagram, and adding up all tasks' duration and calculating the time to complete each path. we find 6 flows. The longest path that has the earliest duration, it is 74 days. Hence, it is the earliest time to complete the project since it is the critical path and has no float time. Whereas the non-critical path have float which is the amount of time a task can slip.

5. If D takes 4 days, what will be the impact to the project and the critical path? Explain your reasoning. (1 points)

If $D=4$, the earliest time by which the project can be completed remains the same as when $D=6$, the time is still 74 days. The float of D changes from 5 to 7. So, making D as 4 days does not mean the whole project schedule will slip. The float 5 and 7 when $D=6$ and $D=4$ makes sure the project can be completed by 74 days. The project manager also does not have to take corrective action. There is no impact to the project

There are changes in two of the six paths:

$A-D-E-G-J = 67$

$A-D-E-F-G-J = 60$

The critical path remains 74 days as D isn't included in this path and has a float, meaning that they can be delayed or extended without affecting the overall project timeline.

6. If G takes an additional 7 days, what will be the impact to the project and the critical path? Explain your reasoning. (1 points)

When G takes an additional 7 days, the time to complete the project changes from 74 days to 81 days. The float of various activities changes also.

Activity G is part of the critical path, and the change makes a significant impact on the duration of the project. The change in G also impacts activities C, F, I, H, J. It impacts the float of other activities such as F, C, I and H.

The float of C changes from 8 to 26. The float of F changes from 7 to 14. The float of I changes from 7 to 26. The float of H changes from 22 to 29.

G is an activity that does not allow for any flexibility in timing. Hence, when the G takes an additional 7 days, the completion of the project is delayed by (81-74) days. The project manager now have to takes corrective action.

Question 6

