

Problem 1:

You are given the following project.

Activity	Time	Predecessor Activities
A	3	–
B	2	A
C	5	A
D	8	B, C
E	4	B, C
F	2	D, E

1. Draw the network which corresponds to this project.
2. Find the earliest and latest start and finish times, and the slack for each activity.
3. What is the critical path?
4. What is the earliest the project can be completed?
5. Formulate an LP to solve the problem.
6. Solve the problem in Python.

Problem 2:

You are given the following project.

Activity	Time	Predecessor Activities
A	3	–
B	4	A
C	4	A
D	3	A
E	3	D
F	4	B
G	6	B
H	5	F, C, E
I	6	G, H
J	4	F, C, E
K	2	D
L	6	I, J, K

1. Draw the network which corresponds to this project.
2. Find the earliest and latest start and finish times, and the slack for each activity.
3. What is the critical path? What is the earliest the project can be completed?
4. The following data summarize the per-day cost of crashing the activities in the project.

Activity	Crashing cost/day (\$)	Maximum crash days*
A	50	2
B	60	3
C	57	1
D	45	2
E	25	2
F	30	2
G	65	5
H	55	2
I	28	4
J	33	3
K	40	1
L	37	2

*The maximum number of days by which a given activity can be shortened.

Determine the least costly way of crashing the project if it must be completed within 20 day.