Example 1: Draw the network for the events in Table 1. Identify the critical path. Find ES, EF, LS, LF, and slack time for each event.

Table 1. Network activities and duration times

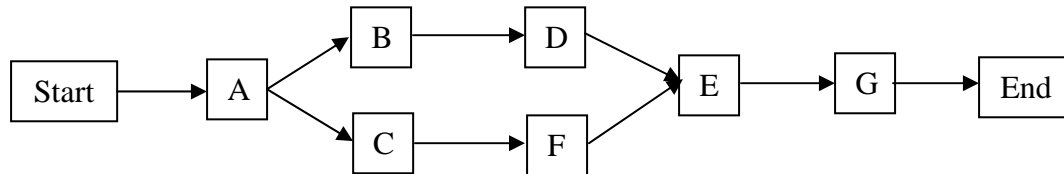| Activity Description	Symbol	Duration (hours)	Immediately Preceding Event(s)
Design prototype	A	6	
Obtain materials	B	2	A
Order parts	C	2	A
Manufacture parts	D	3	B
Assembly 1	F	2	C
Assembly 2	E	4	D, F
Final Assembly	G	1	E

The network for this example is given in Figure 1.

Figure1. Project Network

The total project time can now be determined from the sequence of events requiring the longest time to complete. In this project that is the sequence: ABDEG, which requires 6+2+3+4+1 =16 hours. This path is termed the Critical Path (CP). Any delay in starting or completing each event along this critical path will cause a delay in completing the project in 16 hours.

Knowing the total project completion time allows the determining the earliest start (**ES**) and latest finish (**EF**) for each event on the critical path as shown in Table 2. The table also shows what appears to be redundant information consisting of the latest start (**LS**) and latest finish (**LF**). However, these latest times are not the same along the non-critical path involving events C and D. Since these events are not on the critical path, some delay in their completion will not delay the project completion. To avoid delaying the project completion, event E must be completed at the same time event D is completed since both are precedents for event E. Therefore, the **LF** for event F is 11 and its **LS** is 9. Moving backwards in time allows the **LF** and **LS** to be determined for event C as shown in Table 2.

Table 2. Earliest and latest starts and finishes for all events

Activity	Precedent	Critical	Duration	ES	EF	LS	LF	Slack
A	-	Yes	6	0	6	0	6	0
B	A	Yes	2	6	8	6	8	0
D	B	Yes	3	8	11	8	11	0
E	D, F	Yes	4	11	15	11	15	0
G	E	Yes	1	15	16	15	16	0
C	A	No	2	6	8	7	9	1
F	C	No	2	8	10	9	11	1

Figure 2 shows these times noted on the network diagram next to each event using the following convention:
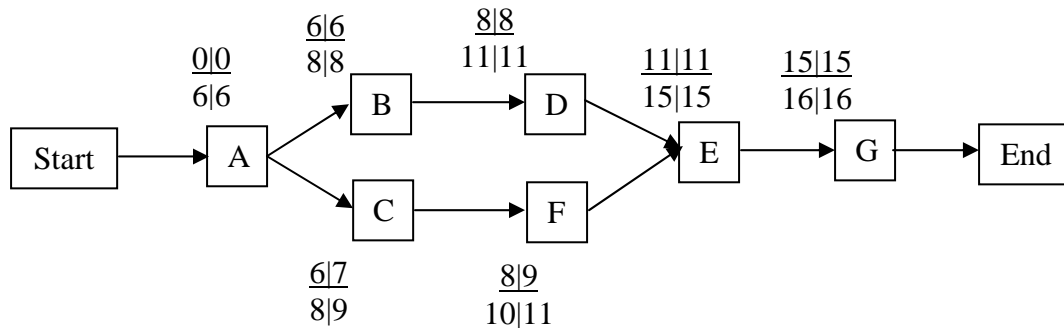
ES | LS
EF | LF

Figure 2. Project Network with earliest and latest times

Table 2 also shows the slack time, which is the difference between earliest and latest times. Of course, the slack is zero along the critical path.