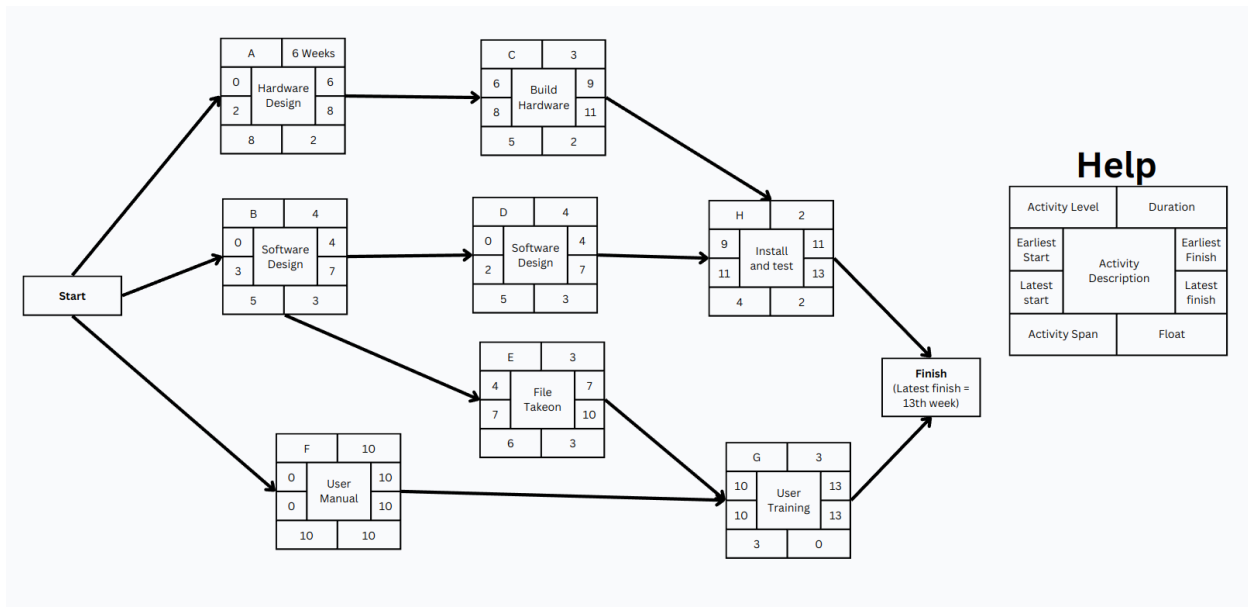


## Project Scheduling:



Constraints: Node H cannot start unless B and C are finished

Activity	Duration (wks)	Preference
A. Hardware Selection	6	
B. Software Design	4	
C. Build Hardware	3	A
D. Code and test software	4	B
E. File take-on	3	B
F. Write user manual	10	
G. User training	3	E, F
H. Install and test software	2	C, D

## Project Specification

### CRITICAL PATH METHOD

The critical path method is concerned with two primary objectives:

1. Planning the project in such a way that it is completed as quickly as possible, and
2. Identifying those activities where a delay in their execution is likely to affect the overall end date of the project

### The network is analysed

1. **Forward Pass:** to calculate the earliest dates at which activities may commence and the project be completed
2. **Backward Pass:** to calculate the latest start dates for activities and the **Critical path**

**Assumption:** The latest finish date for the project is same as the earliest finish date, that is, we wish to complete the project as early as possible

**Activity Span:** L.F – E.S

**Float** = L.S – E.S = L.F – E.F

**Float** is a measure of how much the start or completion of an activity may be delayed without affecting the end date of the project.

Any activity with a float of zero is critical in the sense that any delay in carrying out the activity will delay the completion date of the project as a whole

|  
v

**Project Specification:** There will always be at least one path through the network joining those crucial activities, this is the CRITICAL PATH

**Uncertainty in Task duration**

**PERT**(program evaluation and review technique) provides a method for estimating the probability of meeting with missing target dates

Activity Duration (wks)

Activity	Optimistic(a)	Most likely (m)	Pessimistic (b)
A	5	6	8
B	3	4	5
C	2	3	3
D	3.5	4	5
E	1	3	4
F	8	10	15
G	2	3	4
H	2	2	2.5

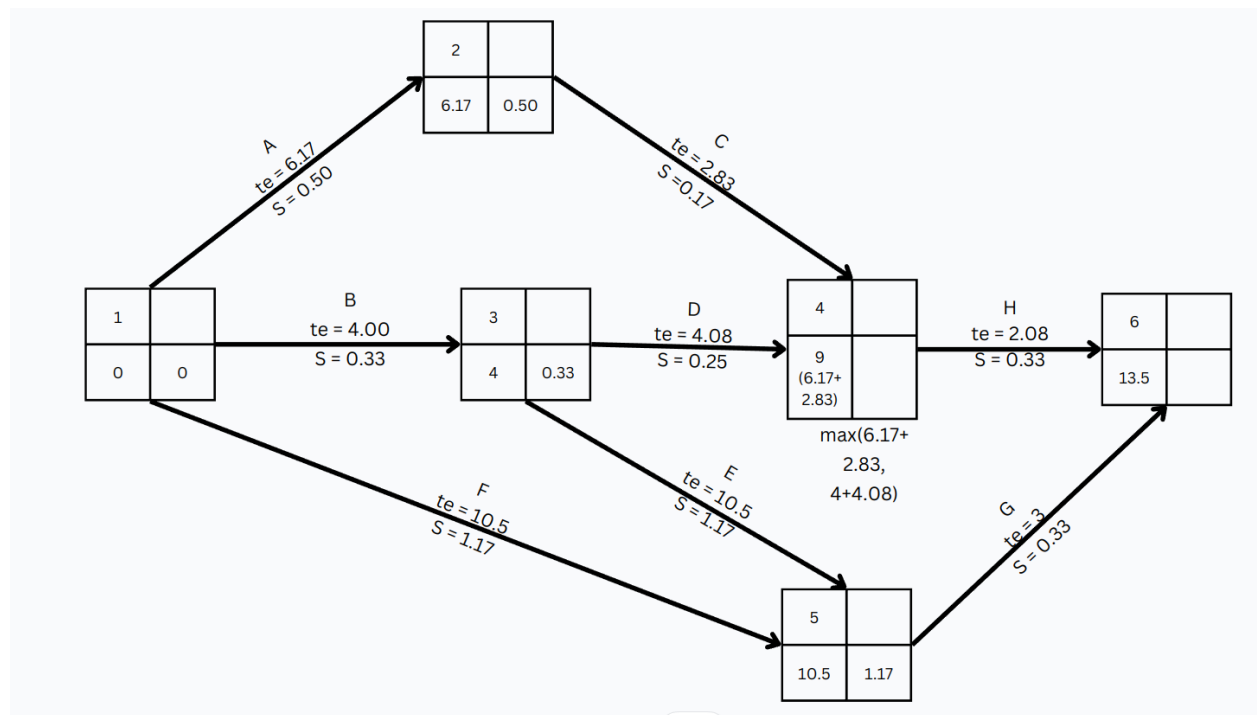
Expected duration:

$$t_e = \frac{a + 4m + b}{6}$$

PERT event labeling connection

Event Number	Target Date
Expected date	Standard deviation

$$t_e = \frac{5 + 24 + 8}{6} = \frac{37}{6} = 6.17$$



Standard deviation for an activity

$$S = \frac{b - a}{a}$$

Event	Std dev
B	0.33
E	0.5

$$B + E = \sqrt{0.33^2 + 0.5^2} = 0.6$$