
PROJECT
MANAGEMENT
CONCEPTS AND FEATURES

WHAT IS A PROJECT?

Project-

"A **temporary** endeavor undertaken to create a **unique** product, service or result"

How Temporary?

Has a finite duration with a definite beginning and an end

Ceases when objectives have been met

Team disbands on project completion

How Unique?

Produced as a result of the project is different in some way or the other

EXAMPLES OF PROJECT

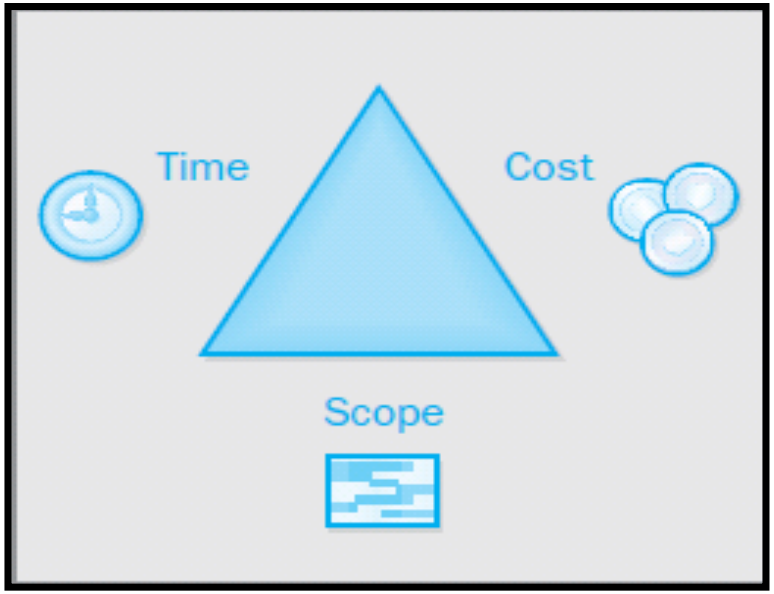
- Road construction
- Building construction
- Shut down project
- Wedding ceremony
- Moving office to a new location

etc.

USING PROJECT SELECTION METRICS

- Financial return
- Effect on employees/alignment with corporate culture
- Technical advancement or innovation
- Market value/share
- Public perception
- Alignment with/advancement of corporate planning

TRIPLE CONSTRAINT THEOREM



Evaluate the competing demands of Scope, Time, Cost and their impact on Quality ensuring Customer satisfaction

WHAT IS A PROJECT MANAGEMENT?

"The application of Knowledge, Skills, Tool & Techniques, to project activities in order to meet the Project objectivities"

WHAT IS A PROJECT MANAGEMENT?

- Knowledge — Through subjects and experience

- Skills — Leadership, communication, motivation, negotiation, problem solving, Budgeting etc.

- Tools and techniques — Equipments, concepts and software. E.g. lathe, excavator, Auto CAD, MS Office Project etc.

ACTIVITY DEFINITION

Decomposing the work package further into Tasks and Activities

- Decompose the work only up to the level you would like to track it

ACTIVITY SEQUENCING

Identifying the task relationships and supplying the right sequence

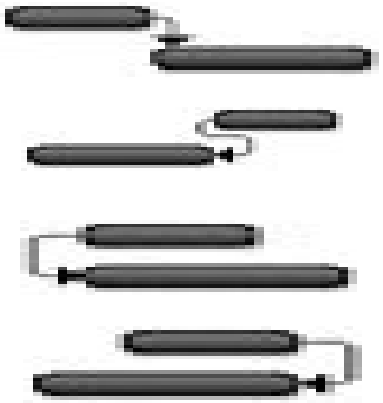
Dependency Types:

- Mandatory – Hard Logic
- Discretionary – Soft Logic
- External

TASK RELATIONSHIPS

There exists four types of Task relationships

- **FS :** Finish to Start
- **SF :** Start to Finish
- **SS :** Start to Start
- **FF :** Finish to Finish



DURATION ESTIMATION

PERT - Program Evaluation Review Technique

Three-point analysis:

- Pessimistic
- Optimistic
- Most Likely

PERT = (P + O + 4M) / 6

Standard Deviation = (P - O) / 6

Variance = Standard Deviation^2

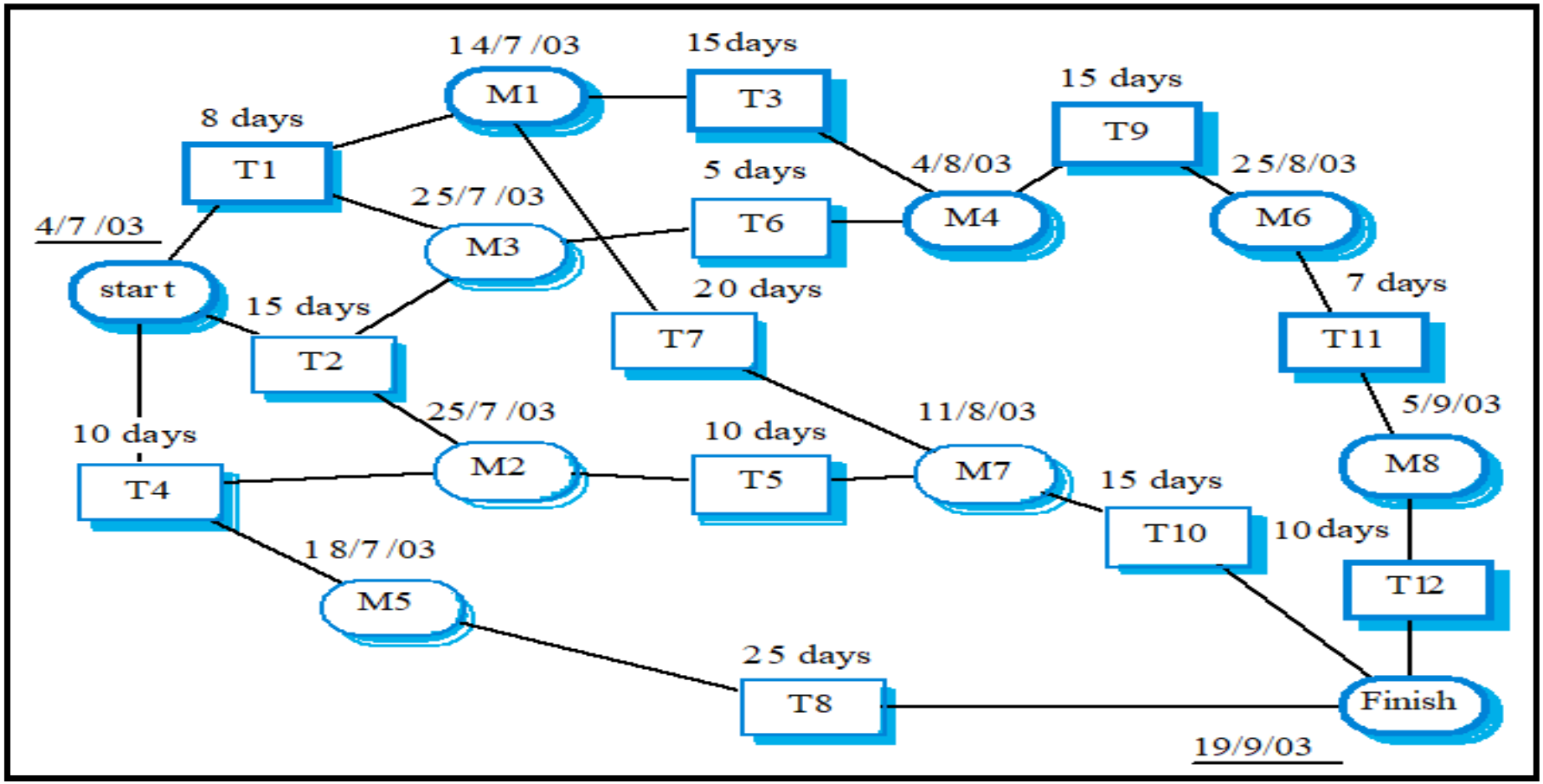
BAR CHARTS AND ACTIVITY NETWORKS

- Graphical notations used to illustrate the project schedule.
- Show project breakdown into tasks. Tasks should not be too small. They should take about a week or two.
- Activity charts show task dependencies and the critical path.
- Bar charts show schedule against calendar time.

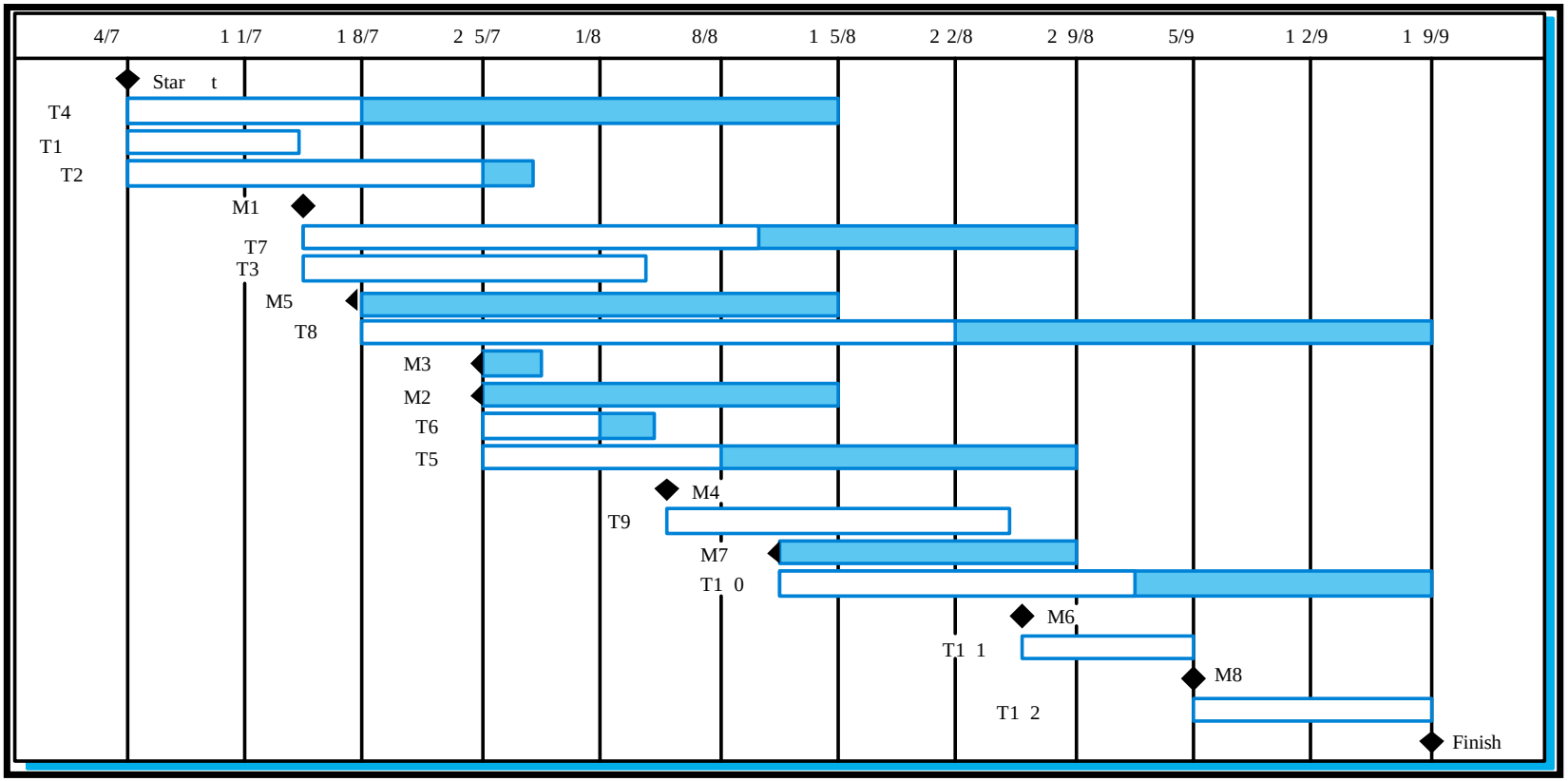
TASK DURATIONS AND DEPENDENCIES

Activity	Duration (days)	Dependencies
T1	8	
T2	15	
T3	15	T1 (M1)
T4	10	
T5	10	T2, T4 (M2)
T6	5	T1, T2 (M3)
T7	20	T1 (M1)
T8	25	T4 (M5)
T9	15	T3, T6 (M4)
T10	15	T5, T7 (M7)
T11	7	T9 (M6)
T12	10	T11 (M8)

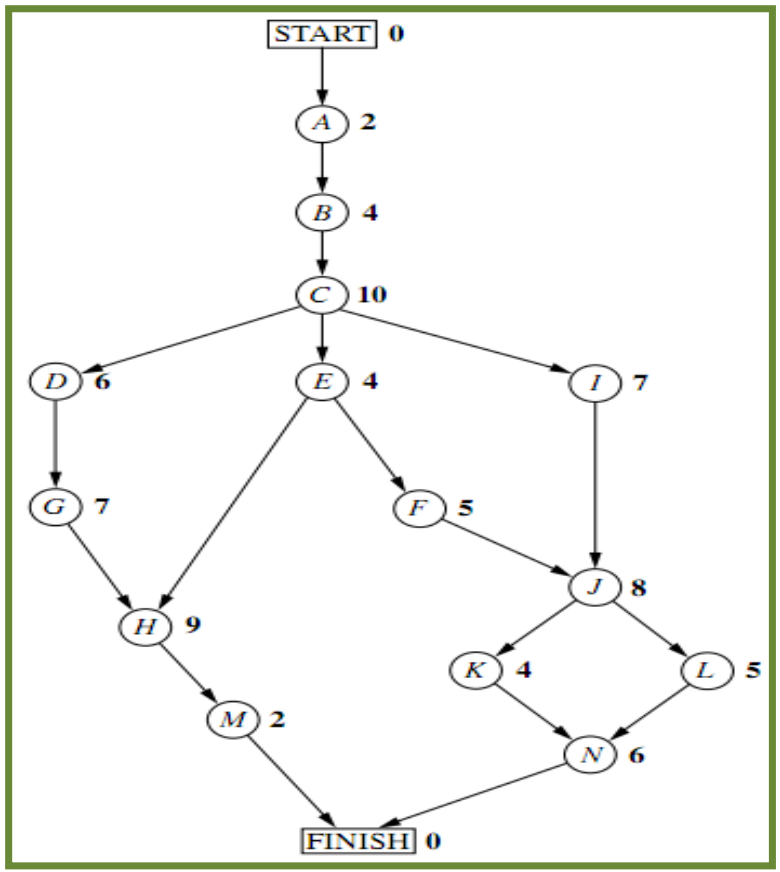
ACTIVITY NETWORK



ACTIVITY TIMELINE



THE PROJECT NETWORK FOR THE RELIABLE CONSTRUCTION CO. PROJECT.



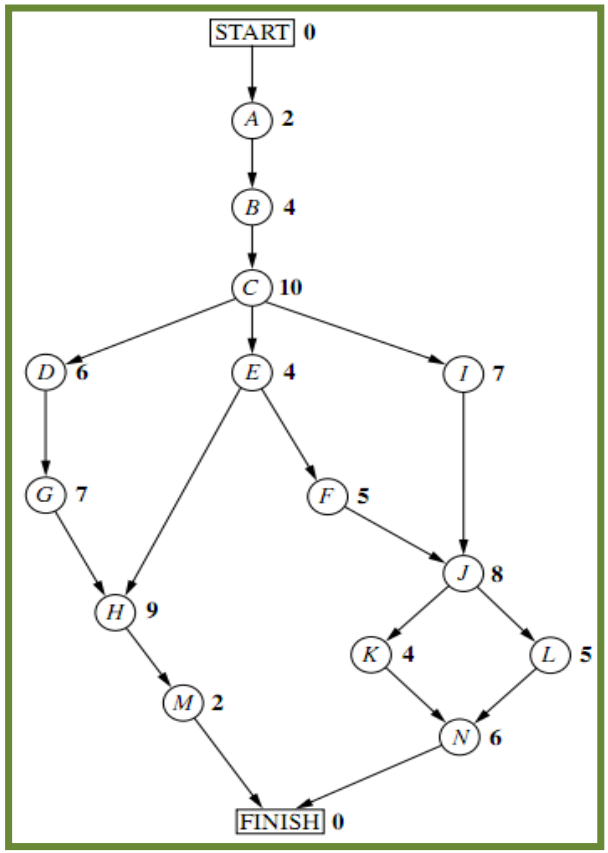
Activity Code

A. Excavate
B. Foundation
C. Rough wall
D. Roof
E. Exterior plumbing
F. Interior plumbing
G. Exterior siding
H. Exterior painting
I. Electrical work
J. Wallboard
K. Flooring
L. Interior painting
M. Exterior fixtures
N. Interior fixtures

THE CRITICAL PATH

A path through a project network is one of the routes following the arcs from the START node to the FINISH node. The length of a path is the sum of the (estimated) durations of the activities on the path. Such a Path with maximum duration is called **“Critical Path”**.

THE PATHS AND PATH LENGTHS THROUGH RELIABLE'S PROJECT NETWORK

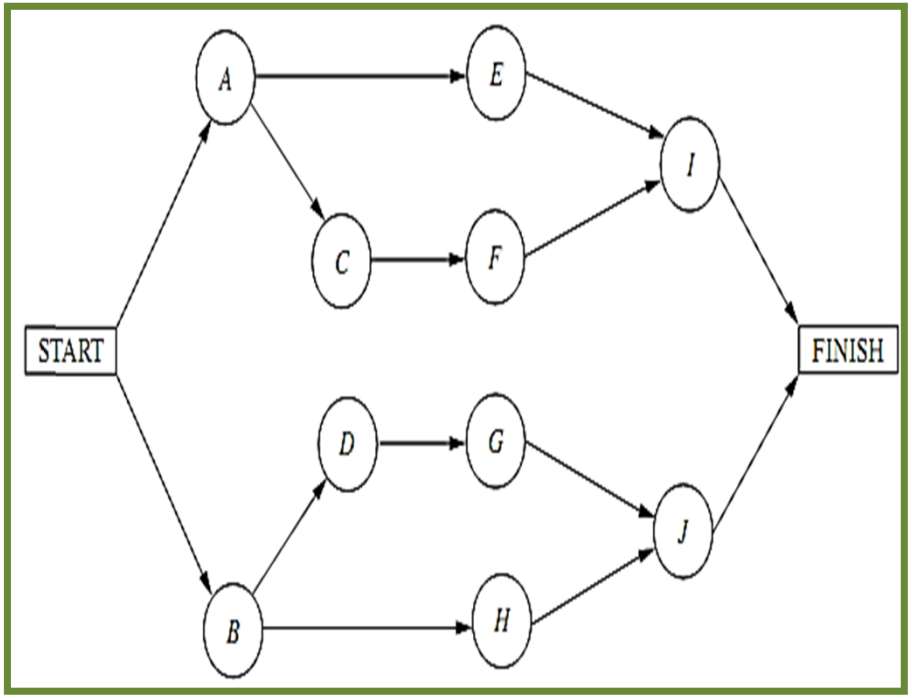


Path	Length
START →A→B→C→D→G→H→M→ FINISH	2 + 4 + 10 + 6 + 7 + 9 + 2 = 40 weeks
START →A→B→C→E→H→M→ FINISH	2 + 4 + 10 + 4 + 9 + 2 = 31 weeks
START →A→B→C→E→F→J→K→N→ FINISH	2 + 4 + 10 + 4 + 5 + 8 + 4 + 6 = 43 weeks
START →A→B→C→E→F→J→L→N→ FINISH	2 + 4 + 10 + 4 + 5 + 8 + 5 + 6 = 44 weeks
START →A→B→C→I→J→K→N→ FINISH	2 + 4 + 10 + 7 + 8 + 4 + 6 = 41 weeks
START →A→B→C→I→J→L→N→ FINISH	2 + 4 + 10 + 7 + 8 + 5 + 6 = 42 weeks

Red color marked path is the critical path as with the maximum duration.

CONSIDER THE FOLLOWING TABLE FOR 10 ACTIVITIES.

Activity	Optimistic Estimate	Most Likely Estimate	Pessimistic Estimate
A	1.5 months	2 months	15 months
B	2 months	3.5 months	21 months
C	1 month	1.5 months	18 months
D	0.5 month	1 month	15 months
E	3 months	5 months	24 months
F	1 month	2 months	16 months
G	0.5 month	1 month	14 months
H	2.5 months	3.5 months	25 months
I	1 month	3 months	18 months
J	2 months	3 months	18 months

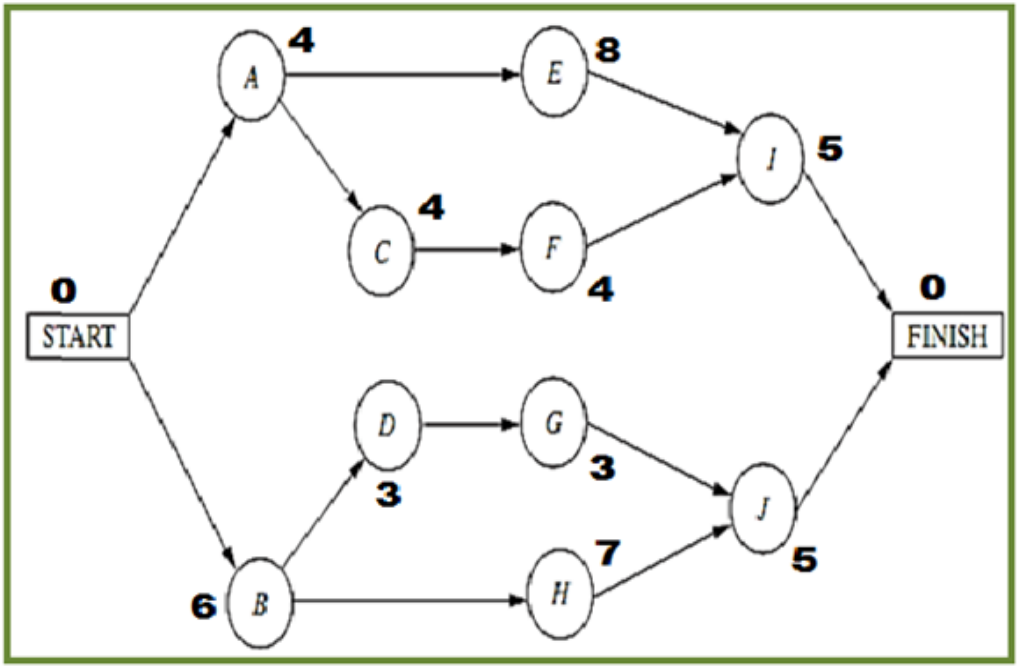


Find the duration of the project.

CONSIDER THE FOLLOWING TABLE FOR 10 ACTIVITIES.

E2 =(B2+4*C2+D2)/6

	A	B	C	D	E	F
1	Activity	Optimistic	Most Likely	Pessimistic	PERT	
2	A	1.5	2	15	4	
3	B	2	3.5	21	6	
4	C	1	1.5	18	4	
5	D	0.5	1	15	3	
6	E	3	5	24	8	
7	F	1	2	16	4	
8	G	0.5	1	14	3	
9	H	2.5	3.5	25	7	
10	I	1	3	18	5	
11	J	2	3	18	5	



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8	G	0.5	1	14	3	
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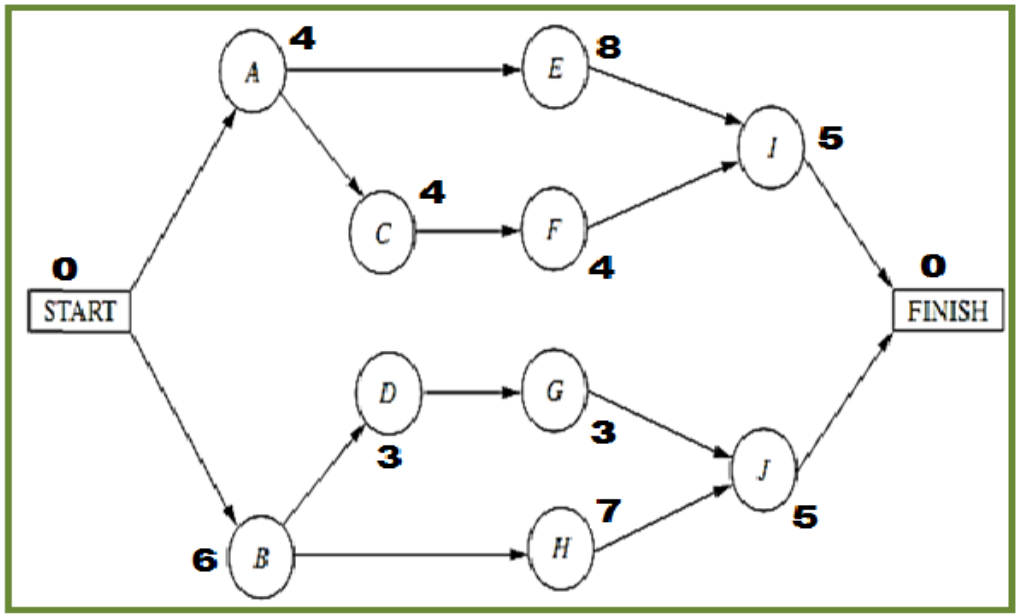
10	I	1	3	18	5	
11	J	2	3	18	5	

So the duration of the project = 18 Months



Start - A - E - I - Finish = 0 + 4 + 8 + 5 + 0 = 17

Start - A - C - F - I - Finish = 0 + 4 + 4 + 4 + 5 + 0 = 17

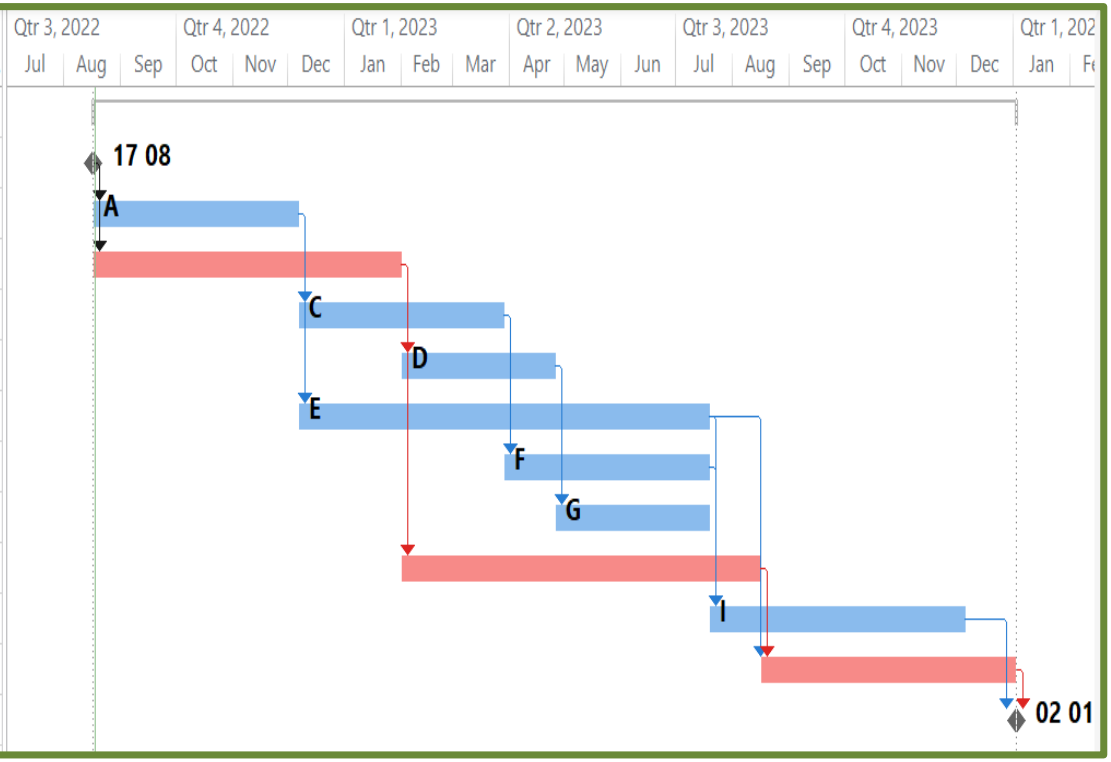
Start - B - D - G - J - Finish = 0 + 6 + 3 + 3 + 5 + 0 = 17

Start - B - H - J - Finish = 0 + 6 + 7 + 5 + 0 = 18

GANTT CHART IN MS-PROJECT SOFTWARE.

GANTT CHART

	Task Mode	Task Name	Duration	Start	Finish	Predecessors
0		**Project1**	**18 mons**	**Wed 17 08 22**	**Tue 02 01 24**	
1		Start	0 mons	Wed 17 08 22	Wed 17 08 22	
2		A	4 mons	Wed 17 08 22	Tue 06 12 22	1
3		B	6 mons	Wed 17 08 22	Tue 31 01 23	1
4		C	4 mons	Wed 07 12 22	Tue 28 03 23	2
5		D	3 mons	Wed 01 02 23	Tue 25 04 23	3
6		E	8 mons	Wed 07 12 22	Tue 18 07 23	2
7		F	4 mons	Wed 29 03 23	Tue 18 07 23	4
8		G	3 mons	Wed 26 04 23	Tue 18 07 23	5
9		H	7 mons	Wed 01 02 23	Tue 15 08 23	3
10		I	5 mons	Wed 19 07 23	Tue 05 12 23	6,7
11		J	5 mons	Wed 16 08 23	Tue 02 01 24	6,9
12		Stop	0 mons	Tue 02 01 24	Tue 02 01 24	10,11



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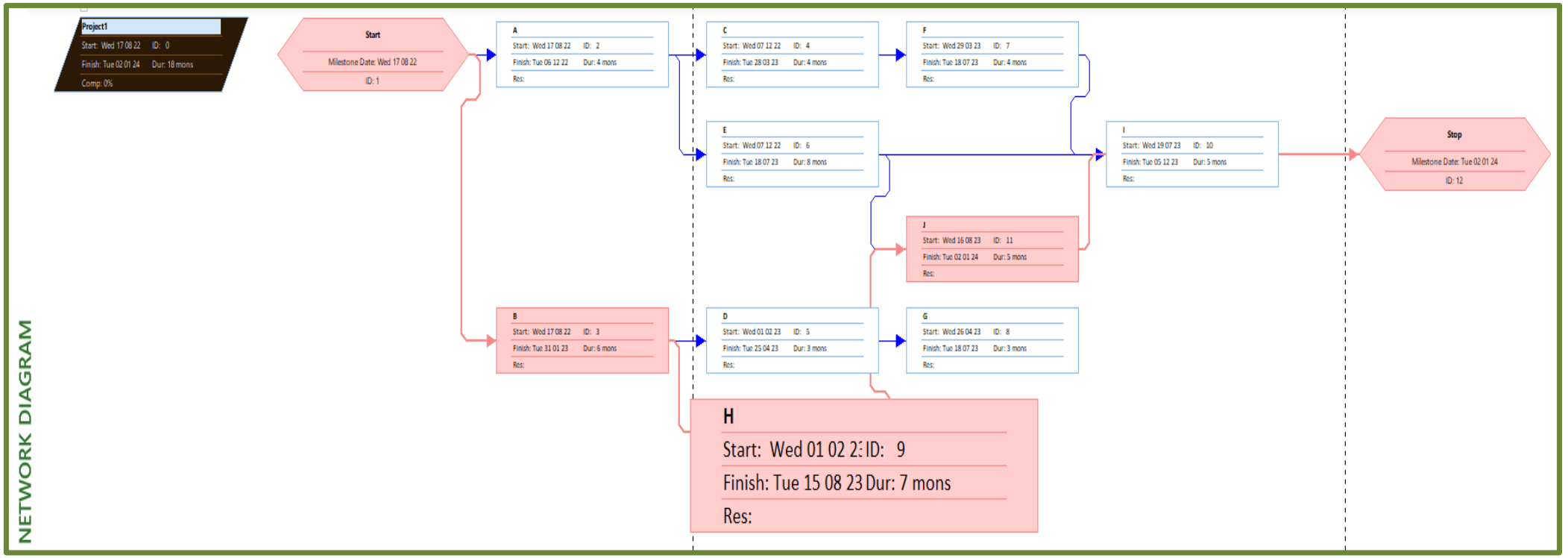
ACTIVITY NETWORK DIAGRAM IN MS-PROJECT SOFTWARE.



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THANKS FOR LISTENING !