BHARATIYA VIDYA BHAVANS
SARDAR PATEL INSTITUTE OF TECHNOLOGY
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai

Experiment 4

Group Members:

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Project Title: Resort Property Management System

Aim: To create Work Breakdown Structure and Activity Diagrams for the project

Main Table:

Phase I

Task	Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critical Path
Requirement Analysis	A		4	0	4	0	4	0	Yes
Defining Problem Statement	B	A	1	4	5	4	5	0	Yes
Defining Objectives and Features	C	B	2	5	7	5	7	0	Yes
Proposal Documentation	D	B,C	1	7	8	7	8	0	Yes
Project Proposal Approval	E	D	1	8	9	8	9	0	Yes
+ Add Task									
			9 sum	24 sum	33 sum	24 sum	33 sum	0 sum	

Phase II

Task	Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critical Path
Designing UI	F	E	7	9	16	9	16	0	Yes
Database connectivity and setup	G	F	2	16	18	18	20	2	No
Login-Signup Implementation	H	F, G	2	16	18	20	22	4	No
Implementation of User System	I	H	6	18	24	22	28	4	No
Implementation of Property System	J	F	6	16	22	16	22	0	Yes
Implementation of Booking System	K	J	6	22	28	22	28	0	Yes
Phase II Documentation and Presentation	L	I, K	1	28	29	28	29	0	Yes
+ Add Task									
			30 sum	125 sum	155 sum	135 sum	165 sum	10 sum	

Phase III

Task	Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critical Path
Implementation of Payment System	M	L	8	29	37	29	37	0	Yes
Implementation of Inventory Management	N	M	9	37	46	37	46	0	Yes
Testing	O	M, N	6	46	52	46	52	0	Yes
Deployment	P	O	8	52	60	52	60	0	Yes
Phase III Documentation	Q	O, P	5	60	65	60	65	0	Yes
Final Project Report Preparation	R	Q	6	65	71	65	71	0	Yes
Final Presentation	S	R	6	71	77	71	77	0	Yes
+ Add Task									
			48 sum	360 sum	408 sum	360 sum	408 sum	0 sum	

Activity Node with Predecessor, Duration, ES, EF, LS, LF, Slack and Critical Path:

Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critic...
A		4	0	4	0	4	0	Yes
B	A	1	4	5	4	5	0	Yes
C	B	2	5	7	5	7	0	Yes
D	B,C	1	7	8	7	8	0	Yes
E	D	1	8	9	8	9	0	Yes

Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critical Path
F	E	7	9	16	9	16	0	Yes
G	F	2	16	18	18	20	2	No
H	F, G	2	16	18	20	22	4	No
I	H	6	18	24	22	28	4	No
J	F	6	16	22	16	22	0	Yes
K	J	6	22	28	22	28	0	Yes
L	I, K	1	28	29	28	29	0	Yes

Activity Node Name	Predecessor	Duration	Early Start	Early Finish	Late Start	Late Finish	Slack	Critical Path
M	L	8	29	37	29	37	0	Yes
N	M	9	37	46	37	46	0	Yes
O	M, N	6	46	52	46	52	0	Yes
P	O	8	52	60	52	60	0	Yes
Q	O, P	5	60	65	60	65	0	Yes
R	Q	6	65	71	65	71	0	Yes
S	R	6	71	77	71	77	0	Yes

Early Start (ES):

Early Start or ES is the earliest time that activity can start. An activity near the end of path or much later will only start if all the previous activities in the path also started early. If any one of the previous activities slips then it will push this activity out.

Early Finish (EF):

Early Finish or EF is the earliest time that activity can finish. It is the date that an acitivity can finish if all previous activities started early and none of the activities slipped.

If project manager and team knows about early start and early finish dates of all the activities(tasks) then they will know how much freedom they have to move the start dates without causing any problem to the project.

Late Start (LS):

Late Start or LS is the latest time an activity can start. If an activity is on the path which is much shorter compared to the critical path, then it can start much late without any delay to the project. But these delays cause problem if other activities on the path slip.

Late Finish (LF):

Late Finish or LF is the latest time that an activity can finish. If an activity is on a shorter path and all of the other activities on the same path start as well as finish early, then it can finish very late without causing the project to be late.

Slack/ Float:

Slack is the difference between the scheduled completion date of a task and its required date, where the required date is later than the completion date. When there is slack in a task, a project manager can choose to delay the start of the task, allocate fewer resources to it, or conduct the task in the usual manner and preserve the slack in case there are delaying problems later in the project. There is no slack in the critical path of a project.

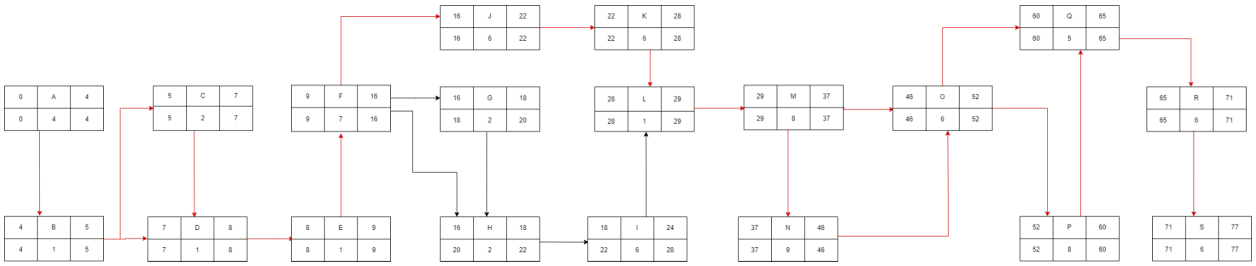
Slack = Latest Start Time - Earliest Start Time

OR

= Latest Finish Time - Earliest Finish Time

Activity On Node Diagram:

Activity-on-node is a project management term that refers to a precedence. diagramming method which uses boxes to denote scheduled activities. These. various boxes or “nodes” are connected from beginning to end with arrows to. depict a logical progression of the dependencies between the scheduled activities.



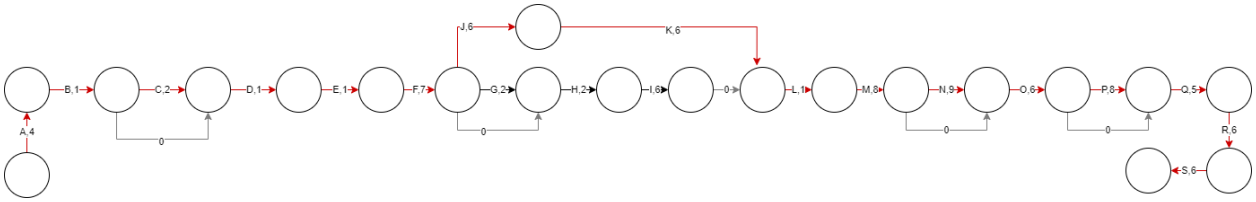
Critical Paths:

The critical path (or paths) is the longest path (in time) from Start to Finish; it indicates the minimum time necessary to complete the entire project.

1. A-B-C-D-E-F-J-K-L-M-O-Q-R-S
2. A-B-C-D-E-F-J-K-L-M-O-P-Q-R-S
3. A-B-C-D-E-F-J-K-L-M-N-O-Q-R-S
4. A-B-C-D-E-F-J-K-L-M-N-O-P-Q-R-S
5. A-B-D-E-F-J-K-L-M-O-Q-R-S
6. A-B-D-E-F-J-K-L-M-O-P-Q-R-S
7. A-B-D-E-F-J-K-L-M-N-O-Q-R-S
8. A-B-D-E-F-J-K-L-M-N-O-P-Q-R-S

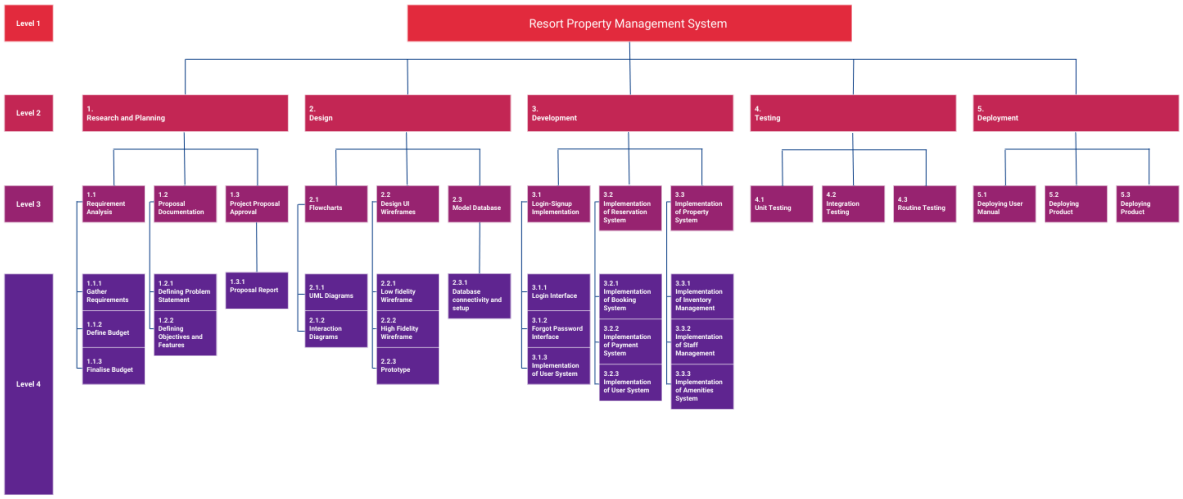
Activity On Arrow Diagram:

The activity on arrow (AoA) technique is a project management tool for mapping and scheduling activities, such as tasks or events. Project managers use circles, referred to as nodes, to represent each activity of a project. Each node has sections that denote the earliest and latest event start times.



Work breakdown structure (WBS):

Work breakdown structure (WBS) in project management is a method for completing a complex, multi-step project. It's a way to divide and conquer large projects to get things done faster and more efficiently.



WBS Dictionary:

A WBS dictionary is where the details of the tasks, activities, and deliverables of the work breakdown structure are located. The content includes whatever milestones are related, the project scope and in some instances dates, resources, cost and quantity.

WBS Dictionary		
Task No.	**Task Description**	**Description**
1	Research and Planning	
1.1	Requirement Analysis	Reading multiple research papers and articles
1.1.1	Gather Requirements	Reading research papers and writing Literature Survey
1.1.2	Define Budget	Defining the budget of the project
1.1.3	Finalize Budget	Finalizing the budget
1.2	Proposal Documentation	Documneting the proposal
1.2.1	Defining Problem Statement	Forming a proper problem statement
1.2.2	Defining Objectives and Features	Describing objectives and features
1.2.3	Defining tech stack	Details of tech stack
1.3	Project Proposal Approval	Getting the propoal approved by the faculties
1.3.1	Project Report	Creating the detailed report for the selected topic
2	Design	
2.1	Flowcharts	Creating flowcharts
2.1.1	UML Diagrams	Creating UML Diagrams
2.1.2	Interaction Diagrams	Creating Interaction Diagrams
2.2	Design UI Wireframes	Designing the wireframes for UI-UX
2.2.1	Low fidelity Wireframe	Designing low fidelity Wireframe
2.2.2	High fidelity Wireframe	Designing higj fidelity Wireframe
2.2.3	Prototype	Creating the prototype
2.3	Model Database	Designing Database for the system
2.3.1	Database connectivity and setup	Setting up and coonecting database
3	Development	
3.1	Login-Signup Implementation	
3.1.1	Login Interface	For users to login
3.1.2	Forgot Password Interface	For usersto login even if they forget their passwords
3.1.3	Implementation of User System	
3.2	Implementation of Reservation System	
3.2.1	Implementation of Booking System	For users to book rooms in the desired resort
3.2.2	Implementation of Payment System	For users to pay their bills
3.2.3	Implementation of User System	
3.3	Implementation of Property System	To provide different property of resorts
3.3.1	Implementation of Inventory Management	To track the inventory by the staff
3.3.2	Implementation of Staff Management	Contains all information related to the staff employed
3.3.3	Implementation of Amenities System	To manage the amenities
4	Testing	
4.1	Unit Testing	Perform Unit Testing till all small parts are working and bugs are fixed
4.2	Integration Testing	Perform Integration Testing till all parts are properly integrated without bugs
4.3	Routine Testing	Perform Routine Testing