

### Task 4: Network Diagram

Network Diagram: A network diagram is a diagram that shows the sequence of project tasks and the dependencies between them. This is derived from our work breakdown schedule which is given in task 3. In order to this first a work breakdown table is created. This has a list of tasks, its duration, its start & end dates, its immediate predecessors and successors. This is as given in the table below.

Task Number	Task	Duration	Start	Finish	Predecessor	Successor
1	Prepare Project Plan	5	01/03	07/03	NA	3
2	Risk Analysis	3	01/03	05/03	NA	3
3	Submit & get approval for project plan	5	08/03	14/03	1,2	4,5
4	Decide on hardware & software requirements	2	15/03	16/03	3	6
5	Resource Planning	1	15/03	15/03	3	6
6	Project kick-off meeting	1	19/03	19/03	4,5	7
7	Create FRS from BRS	5	20/03	26/03	6	8,9
8	FRS Signed and approved	5	27/03	12/04	7	10
9	Software & Hardware Configuration	2	27/03	28/03	7	10
10	Design of HLD & LLD from FRS	15	03/04	23/04	8,9	11
11	Knowledge Transfer Sessions	8	24/04	03/05	10	12,27
12	Create & Initialise Customised Tables	2	04/05	07/05	11	13
13	Setup DB Access Rights	1	08/05	08/05	12	14
14	Test DB Setup	2	09/05	10/05	13	15,16,17
15	Portal Design for Customers/ Business Users/ Third Parties	23	11/05	12/06	14	18
16	Oracle CRM Development	24	11/06	13/06	14	18
17	Test Case Preparation & Approval	20	11/06	07/06	14	19
18	Installation of Developed Systems	1	14/06	14/06	15,16,27	19,20
19	Testing Phase	17	15/06	09/07	17,18	21
20	Bug Fixing	5	03/07	09/07	18	21
21	Bug Fixing	5	03/07	16/07	19, 20	22
22	User Manual Creation	1	17/07	17/07	21	23
23	Code Deployment	2	18/07	19/07	22	24
24	Customer Acceptance Testing & Bug Fixing	10	20/07	02/08	23	25
25	Quality Assurance Check	3	03/08	07/08	24	26
26	Project Documentation	1	08/08	08/08	25	NA
27	Status Meetings	29	04/05	08/08	11	18

This is then used to create the network diagram shown in the figure. We have used OpenProj to create our network diagram.

Critical Path: The critical path in a network diagram is the flow of tasks (path) that takes the longest amount of time to be completed taking into consideration the various dependencies between the tasks. In our case we have three critical paths. These are

- a) 1 -> 3 -> 4 -> 6 -> 7 -> 8 -> 10 -> 11 -> 12 -> 13 -> 14 -> 16 -> 18 -> 19 -> 21 -> 22 -> 23 -> 24 -> 25 -> 26
- b) 1 -> 3 -> 4 -> 6 -> 7 -> 8 -> 10 -> 11 -> 12 -> 13 -> 14 -> 16 -> 18 -> 20 -> 21 -> 22 -> 23 -> 24 -> 25 -> 26
- c) 1 -> 3 -> 4 -> 6 -> 7 -> 8 -> 10 -> 11 -> 27 -> 18

In the diagram the boxes in red denote the critical path.

In case of critical path 'a' & 'b', if the time taken to prepare & verify the test cases or to create the portal exceeds the estimate by 4 days & 1 day respectively, then we will have a new critical path. In case of most other tasks however, the likelihood that a task will overshoot its estimate is very slim.

Critical path 'c' is actually a critical path as the task 'Status Meetings' has to take place over the entire period of development. While it does not take the specified 29 days to complete, these meetings will be spread over this duration. This duration might get longer or shorter based on the time taken by other tasks, but 'c' will remain a critical path.

Slack: Slack may be defined as the amount of time by which a task may be delayed without delaying the schedule of tasks. The slack in case of each path is calculated and written above that path.









