Task 4: Network Diagram

Network Diagram: A network diagram is a diagram that shows the sequence of project tasks and the dependencies between them. It is a graphical overview of tasks and logical relationships that take place within a project. It will enable us to control project implementation progress on the level of logical work sequence.

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. The table shows information for the tasks, such as the duration of the tasks, its start and end dates, its immediate predecessors and successors. The following table contains the information for constructing the network diagram.

Task Number	Task	Duration (in person-days)	Start (dd/mm)	Finish (dd/mm)	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	23	11/05	12/06	14	18

	Customers/ Business Users/ Third Parties					
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

Table 1: Work Breakdown Table

Here the project documentation task mentioned in the work breakdown structure has been split into two. One of which is task 22 “User Manual Creation” and the other is task 26 “Project Documentation” each of duration one day each.

In order to create our network diagram we have used Serena OpenProj V 1.4.

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 -> 17 -> 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.

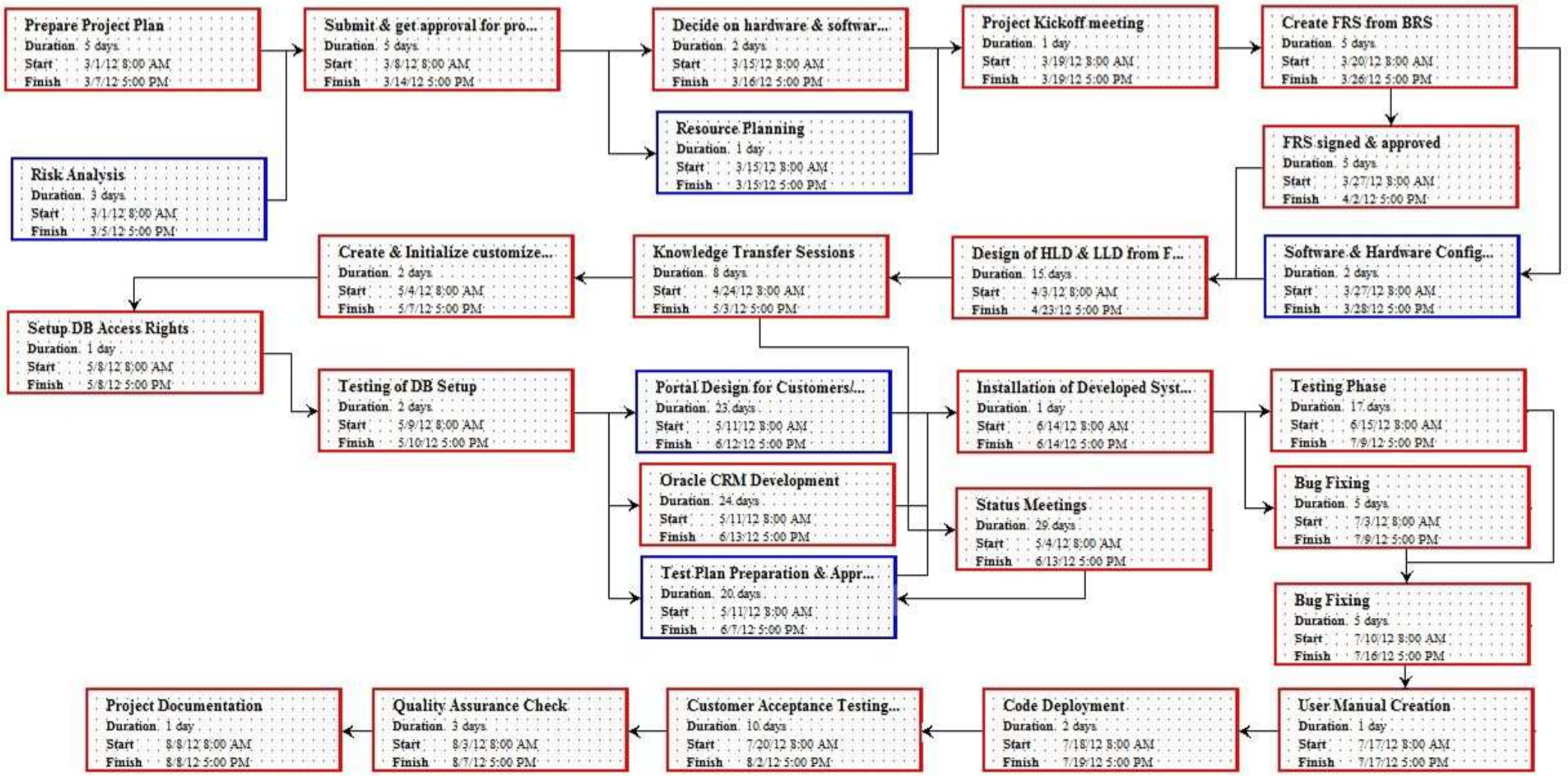
In case of critical path ‘a’ and ‘b’, if the time taken to prepare and verify the test cases or to create the portal exceeds the estimate by 4 days & 1 day respectively, then we will have a new critical path. In case of most other tasks however, the likelihood that a task will overshoot its estimate 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 the rest of the tasks or the date on which the project is completed. The slack in case of each task not on the critical path is given in the table below.

Task Number	Task Name	Duration of task (in person-days)	Task No. (on critical path)	Duration of critical path task (in person-days)	Calculation	Slack (in person-days)
2	Risk Analysis	3	1	5	5 - 3	2
5	Resource Planning	1	4	2	2 - 1	1
9	Hardware & Software Configuration	2	8	5	5 - 2	3
15	Portal design for customers/ business users / third parties	23	16	24	24 – 23	1
17	Test case preparation & approval	20	16	24	24 -20	4

Table 2: Slack Table


Prepare Project Plan
Duration 5 days
Start 3/1/12 8:00 AM
Finish 3/7/12 5:00 PM
Submit & get approval for pro...
Duration 5 days
Start 3/8/12 8:00 AM
Finish 3/14/12 5:00 PM
Decide on hardware & softwar...
Duration 2 days
Start 3/15/12 8:00 AM
Finish 3/16/12 5:00 PM
Project Kickoff meeting
Duration 1 day
Start 3/19/12 8:00 AM
Finish 3/19/12 5:00 PM
Create FRS from BRS
Duration 5 days
Start 3/20/12 8:00 AM
Finish 3/26/12 5:00 PM
Resource Planning
Duration 1 day
Start 3/15/12 8:00 AM
Finish 3/15/12 5:00 PM
Risk Analysis
Duration 3 days
Start 3/1/12 8:00 AM
Finish 3/5/12 5:00 PM
FRS signed & approved
Duration 5 days
Start 3/27/12 8:00 AM
Finish 4/2/12 5:00 PM
Create & Initialize customize...
Duration 2 days
Start 5/4/12 8:00 AM
Finish 5/7/12 5:00 PM
Knowledge Transfer Sessions
Duration 8 days
Start 4/24/12 8:00 AM
Finish 5/3/12 5:00 PM
Design of HLD & LLD from F...
Duration 15 days
Start 4/3/12 8:00 AM
Finish 4/23/12 5:00 PM
Software & Hardware Config...
Duration 2 days
Start 3/27/12 8:00 AM
Finish 3/28/12 5:00 PM
Setup DB Access Rights
Duration 1 day
Start 5/8/12 8:00 AM
Finish 5/8/12 5:00 PM
Testing of DB Setup
Duration 2 days
Start 5/9/12 8:00 AM
Finish 5/10/12 5:00 PM
Portal Design for Customers/...
Duration 23 days
Start 5/11/12 8:00 AM
Finish 6/12/12 5:00 PM
Installation of Developed Syst...
Duration 1 day
Start 6/14/12 8:00 AM
Finish 6/14/12 5:00 PM
Testing Phase
Duration 17 days
Start 6/15/12 8:00 AM
Finish 7/9/12 5:00 PM
Oracle CRM Development
Duration 24 days
Start 5/11/12 8:00 AM
Finish 6/13/12 5:00 PM
Status Meetings
Duration 29 days
Start 5/4/12 8:00 AM
Finish 6/13/12 5:00 PM
Bug Fixing
Duration 5 days
Start 7/3/12 8:00 AM
Finish 7/9/12 5:00 PM
Test Plan Preparation & Appr...
Duration 20 days
Start 5/11/12 8:00 AM
Finish 6/7/12 5:00 PM
Bug Fixing
Duration 5 days
Start 7/10/12 8:00 AM
Finish 7/16/12 5:00 PM
Project Documentation
Duration 1 day
Start 8/8/12 8:00 AM
Finish 8/8/12 5:00 PM
Quality Assurance Check
Duration 3 days
Start 8/3/12 8:00 AM
Finish 8/7/12 5:00 PM
Customer Acceptance Testing...
Duration 10 days
Start 7/20/12 8:00 AM
Finish 8/2/12 5:00 PM
Code Deployment
Duration 2 days
Start 7/18/12 8:00 AM
Finish 7/19/12 5:00 PM
User Manual Creation
Duration 1 day
Start 7/17/12 8:00 AM
Finish 7/17/12 5:00 PM