Software Project Management

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Homework 2

WBS for the Project Plan:

Task Name	WBS
Project Plan	**1.1**
Write Plan	1.1.1
Review Plan	**1.1.2**
Preparation for review	1.1.2.1
Review Meeting	1.1.2.2
Rework	1.1.3
Requirement	**1.2**
Write requirements	1.2.1
Review Requirements	**1.2.2**
Preparation for review	1.2.2.1
Review Meeting	1.2.2.2
Rework	1.2.3
Lab and Environment Setup	**1.3**
Hardware	**1.3.1**
Install Network Elements	**1.3.1.1**
Routers	1.3.1.1.1
Bridge	1.3.1.1.2
Install Server	1.3.1.2
Install Clients	1.3.1.3
Software	**1.3.2**
Install Development Tools	1.3.2.1
Install Testing Tools	1.3.2.2
Analysis/Design Document	**1.4**
Write DD	1.4.1
Review DD	**1.4.2**
Preparation for DD	1.4.2.1
Review Meeting	1.4.2.2
Rework	1.4.3
Data Model	**1.5**
Create Data Model	1.5.1
Review Data Model	**1.5.2**
Preparation for DM	1.5.2.1
Review Meeting	1.5.2.2
Rework	1.5.3
Coding and unit test	**1.6**
Write Code	1.6.1
Unit Testing	**1.6.2**

Prepare/Execute Test Cases	1.6.2.1
Fix Found Defects	1.6.2.2
Test Fixed Defects	1.6.2.3
Code Inspection	**1.6.3**
Preparation for Code Inspection	1.6.3.1
Code Inspection Meeting	1.6.3.2
Rework	1.6.3.3
Testing	**1.7**
Write test plan (TP)	1.7.1
Review TP	**1.7.2**
Preparation for TP	1.7.2.1
Review TP Meeting	1.7.2.2
Rework	1.7.2.3
Execute TP (test cases)	1.7.3
Fix Found Defects	1.7.4
Documentation	**1.8**
User Documentation	1.8.1
Review UD	**1.8.2**
Preparation for UD review meeting	1.8.2.1
Review UD Meeting	1.8.2.2
Rework	1.8.2.3
Training	**1.9**
Training Handouts (TH)	1.9.1
Review Training Handouts (TH)	**1.9.2**
Preparation for TH review meeting	1.9.2.1
Review TH Meeting	1.9.2.2
Rework	1.9.2.3

Calculation for effort for 100% utilization:

1. Project Plan:
There are 8 working hours/person.
1. Write Plan: 1 manager
Ans: Amount of Work = 132 pages
Productivity Rate = 4 pages/hour = 4 * 8 = 32 pages/day
Effort = Amount of Work/Productivity Rate = 132/32 = **4.125 days**

2. Preparation for Review:
Ans: Amount of Work = 132 pages
Productivity Rate = 5 pages/hour = 5 * 8 = 40 pages/day
Effort = Amount of Work/Productivity Rate = 132/40 = **3.3 days**

3. Review Meeting:
Ans: Amount of Work = 132 pages

Productivity Rate = 10 pages/hour = 10* 8 = 80 pages/day
Effort = Amount of Work/Productivity Rate = 132/80 = **1.65 days**

4. Rework: manager
Ans: Amount of Work = 102 defects
Productivity Rate = 5 defects/hour = 5* 8 = 40 defects/day
Effort = Amount of Work/Productivity Rate = 102/40 = **2.55 days**

3. Requirement:
There are 8 working hours/person.
1. Write Requirements:
Ans: Amount of Work = 256 Req
Productivity Rate = 5 Req/hour = 5 * 8 = 40 Req/day
Effort = Amount of Work/Productivity Rate = 256/40 =**6.4 days/1hct**

3. Preparation for Review – Requirements:
Ans: Amount of Work = 256 Req
Productivity Rate = 7 Req/hour = 7* 8 = 56 Req/day
Effort = Amount of Work/Productivity Rate = 256/56 =**4.57 days**

5. Review Meeting – Requirements:
Ans: Amount of Work = 256 Req
Productivity Rate = 10 Req/hour = 10 * 8 = 80 Req/day
Effort = Amount of Work/Productivity Rate = 256/80 **= 3.2 days**

7. Rework:
Ans: Amount of Work = 173 defects
Productivity Rate = 4 Use Cases/hour = 4 * 8 = 32 Use Cases/day
Effort = Amount of Work/Productivity Rate = 173/32 = **5.40 days**

1. Lab and Environment Setup:

a) Routers:
Ans: Amount of Work = 4
Productivity Rate = 2 routers/day
Effort = Amount of Work/Productivity Rate = 4/2 days = **2 days**

b) Bridge:
Ans: Amount of Work = 48
Productivity Rate = 2 bridges/day
Effort = Amount of Work/Productivity Rate = 48/2 days = **24 days**

c) Install Server:
Ans: Amount of Work = 21 servers

Productivity Rate = 1 server/day
Effort = Amount of Work/Productivity Rate = 21/1 days = **21 days**

d) Install Clients:
Ans: Amount of Work = 67 Clients
Productivity Rate = 5 clients/day
Effort = Amount of Work/Productivity Rate = 67/5 days = **13.4 days**

e) Install Development Tools:
Ans: Amount of Work = 18 Tools
Productivity Rate = 5 tools/day
Effort = Amount of Work/Productivity Rate = 18/5 days = **3.6 days**

f) Install Testing Tools:
Ans: Amount of Work = 16 Tools
Productivity Rate = 5 tools/day
Effort = Amount of Work/Productivity Rate = 16/5 days = **3.2 days**

2. Analysis/Design Document:

a) Write DD:
Ans: Amount of Work = 278 Pages
Productivity Rate = 3 pages/hour = 3 * 8 pages/day = 24 pages/day
Effort = Amount of Work/Productivity Rate = 278/24 days = **11.58 days**

b) Preparation for DD:
Ans: Amount of Work = 278 Pages
Productivity Rate = 5 pages/hour = 5 * 8 pages/day = 40 pages/day
Effort = Amount of Work/Productivity Rate = 278/40 days = **6.95 days**

c) Review Meeting:
Ans: Amount of Work = 278 Pages
Productivity Rate = 10 pages/hour = 10 * 8 pages/day = 80 pages/day
Effort = Amount of Work/Productivity Rate = 278/80 days = **3.47 days**

d) Rework:
Ans: Amount of Work = 327 Defects
Productivity Rate = 4 defects/hour = 4 * 8 defects/day = 32 defects/day
Effort = Amount of Work/Productivity Rate = 327/32 days = **10.21 days**

3. Data Model:

a) Create Data Model:
Ans: Amount of Work = 23 Pages
Productivity Rate = 1 page/hour = 1 * 8 pages/day = 8 pages/day
Effort = Amount of Work/Productivity Rate = 23/8 days = **2.87 days**

b) Preparation for DM:
Ans: Amount of Work = 23 Pages
Productivity Rate = 5 Pages/hour = 5 * 8 pages/day = 40 pages/day
Effort = Amount of Work/Productivity Rate = 23/40 days = **0.57 days**

c) Review Meeting:
Ans: Amount of Work = 23 Pages
Productivity Rate = 10 Pages/hour = 10 * 8 pages/day = 80 pages/day
Effort = Amount of Work/Productivity Rate = 23/80 days = **0.28 days**

d) Rework:
Ans: Amount of Work = 231 Defects
Productivity Rate = 4 defects/hour = 4 * 8 defects/day = 32 defects/day
Effort = Amount of Work/Productivity Rate = 231/32 days = **7.21 days**

4. Coding and unit test:

a) Write Code:
Ans: Amount of Work = 6928 SLOC
Productivity Rate = 5 SLOC/hour = 5 * 8 SLOC/day = 40 SLOC/day
Effort = Amount of Work/Productivity Rate = 6928/40 = **173.2 days**

b) Prepare/Execute Test Cases:
Ans: Amount of Work = 954 test cases
Productivity Rate = 3 tc/hour = 3 * 8 tc/day = 24 tc/day
Effort = Amount of Work/Productivity Rate = 954/24 = **39.75 days**

c) Fix found defects:
Ans: Amount of Work = 1023 defects
Productivity Rate = 18 defects/day
Effort = Amount of Work/Productivity Rate = 1023/18 = **56.83 days**

d) Test fixed defects:
Ans: Amount of Work = 1023 defects
Productivity Rate = 45 defects/day
Effort = Amount of Work/Productivity Rate = 1023/45 = **22.73 days**

e) Preparation for Code Inspection:
Ans: Amount of Work = 6928 SLOC
Productivity Rate = 100 SLOC/hour = 100 * 8 SLOC/day = 800 SLOC/day
Effort = Amount of Work/Productivity Rate = 6928/800 = **8.66 days**

f) Code Inspection Meeting:
Ans: Amount of Work = 6928 SLOC
Productivity Rate = 150 SLOC/hour = 150 * 8 SLOC/day = 1200 SLOC/day
Effort = Amount of Work/Productivity Rate = 6928/1200 = **5.77 days**

g) Rework:
Ans: Amount of Work = 947 defects
Productivity Rate = 4 defects/hour = 4 * 8 defects/day = 32 defects/day
Effort = Amount of Work/Productivity Rate = 947/32 = **29.59**

5. Testing:

a) Write test plan(TP):
Ans: Amount of Work = 316 pages

Productivity Rate = 10 pages/day
Effort = Amount of Work/Productivity Rate = 316/10 = **31.6 days**

b) Preparation for TP:

Ans: Amount of Work = 316 pages
Productivity Rate = 5 pages/hour = 5 * 8 pages/day = 40 pages/day
Effort = Amount of Work/Productivity Rate = 316/40 = **7.9 days**

c) Review TP Meeting:

Ans: Amount of Work = 316 pages
Productivity Rate = 10 pages/hour = 10 * 8 pages/day = 80 pages/day
Effort = Amount of Work/Productivity Rate = 316/80 = **3.95 days**

d) Rework:

Ans: Amount of Work = 266 defects
Productivity Rate = 4 defects/hour = 4 * 8 defects/day = 32 defects/day
Effort = Amount of Work/Productivity Rate = 266/32 = **8.31 days**

e) Execute TP (test cases):

Ans: Amount of Work = 517 test cases
Productivity Rate = 7 tc/ day
Effort = Amount of Work/Productivity Rate = 517/7= **73.85 days**

f) Fix found Defects:

Ans: Amount of Work = 195 defects
Productivity Rate = 5 defects/ day
Effort = Amount of Work/Productivity Rate = 195/5 = **39 days**

6. Documentation:

a) User Documentation:

Ans: Amount of Work = 314 pages
Productivity Rate = 5 page/hour = 5 * 8 pages/day = 40 pages/ day
Effort = Amount of Work/Productivity Rate = 314/40 = **7.85 days**

b) Preparation for UD review meeting:

Ans: Amount of Work = 314 pages
Productivity Rate = 5 page/hour = 5 * 8 pages/day = 40 pages/ day
Effort = Amount of Work/Productivity Rate = 314/40 = **7.85 days**

c) Review UD Meeting:

Ans: Amount of Work = 314 pages
Productivity Rate = 8 page/hour = 8 * 8 pages/day = 64 pages/ day
Effort = Amount of Work/Productivity Rate = 314/64 = **4.90 days**

d) Rework:

Ans: Amount of Work = 283 defects
Productivity Rate = 5 defects/hour = 5 * 8 defects/day = 40 defects/ day
Effort = Amount of Work/Productivity Rate = 283/40 = **7.075 days**

7. Training:

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a) Training Handouts:

Ans: Amount of Work = 121 pages
Productivity Rate = 1 page/hour = 1 * 8 pages/day = 8 pages/ day
Effort = Amount of Work/Productivity Rate = 121/8 = **15.12 days**

b) Preparation for TH review meeting:

Ans: Amount of Work = 121 pages
Productivity Rate = 5 page/hour = 5 * 8 pages/day = 40 pages/ day
Effort = Amount of Work/Productivity Rate = 121/40 = **3.02 days**

c) Review TH meeting:

Ans: Amount of Work = 121 pages
Productivity Rate = 8 page/hour = 8 * 8 pages/day = 64 pages/ day
Effort = Amount of Work/Productivity Rate = 121/64 = **1.89 days**

d) Rework:

Ans: Amount of Work = 234 defects
Productivity Rate = 5 defects/hour = 5 * 8 defects/day = 40
Effort = Amount of Work/Productivity Rate = 234/40 = **5.85 days**

Following are the assumptions for the Project Plan and Resources Assigned:

1. A day constitutes of 8 business hours for each resource.
2. Duration (in hours) is calculated using (Amount of Work) / (Productivity Rate * Head Count).
3. Inspection of code is done by peer programmer (other than author of code) considering their expertise will be helpful.

Q6. What is the earliest finish date for this project if it is scheduled to start on 2/13/23? (under this scenario, as soon as engineers complete their tasks on Homework 1 you will assign them to start working on tasks for Homework 2 project)

Ans:

If the project is scheduled to start on 2/13/23, the earliest finish date for this project with 100% utilization of resources will be **4/29/24.**

Q7. Is it feasible to complete this project (Assignment 2 project) 2 weeks after the completion date you identified for the project in Assignment 1? Explain.

Ans:

Assignment 1 starts on 2/6/23 and takes 110.72 days to finish. The finish date for Assignment 1 is **7/10/23.**
Assignment 2 starts on 2/13/23 and takes 315.3 days to finish. The finish date for Assignment 2 is **4/29/24.**
Thus, from above we can conclude that if Assignment 2 starts as scheduled and if the resources are assigned and shared correctly in both the projects, it is not feasible to complete the project 2 weeks after the completion date of the project in Assignment 1.

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9. Submit your Comments regarding the start and completion dates and resources assignments for the two projects in a PDF document called Analysis.pdf

Ans:

Assignment#1: Start Date: **2/6/23.**

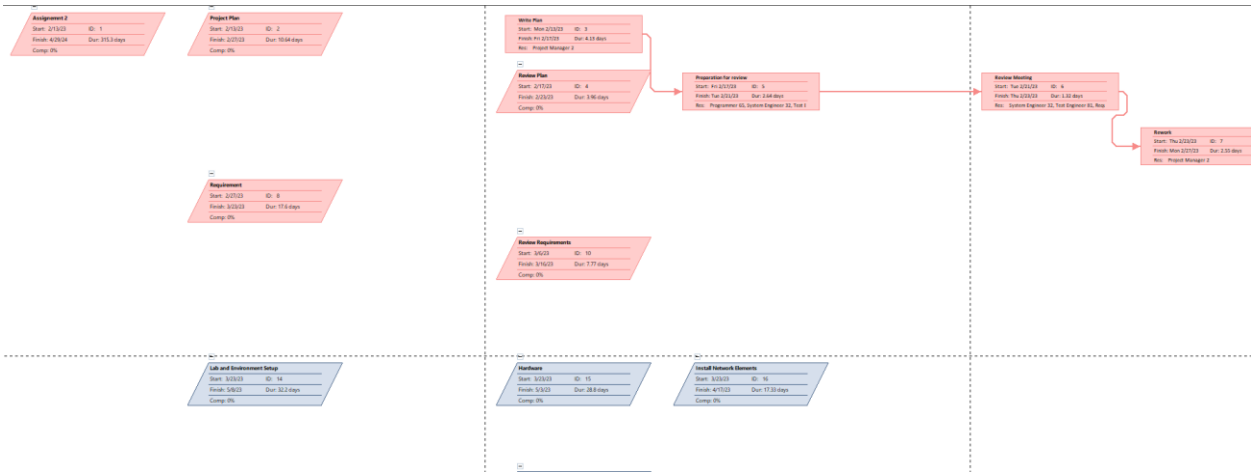
End Date: **7/10/23.**

Assignment#2: Start Date: **2/13/23.**

End Date: **4/29/24.**

From above, we can conclude that Assignment 2 completes later than Assignment 1 as we are starting almost 2 weeks later. We have been given some additional resources in Assignment 2 that are shared with Assignment 1 and Assignment 2. After allocating resources to Assignment 2 and resolving conflicts, Assignment 2 is completing at **4/29/24** without any conflicts after utilizing 100% resources.

Following are some screenshots of network diagram of assignment 2:



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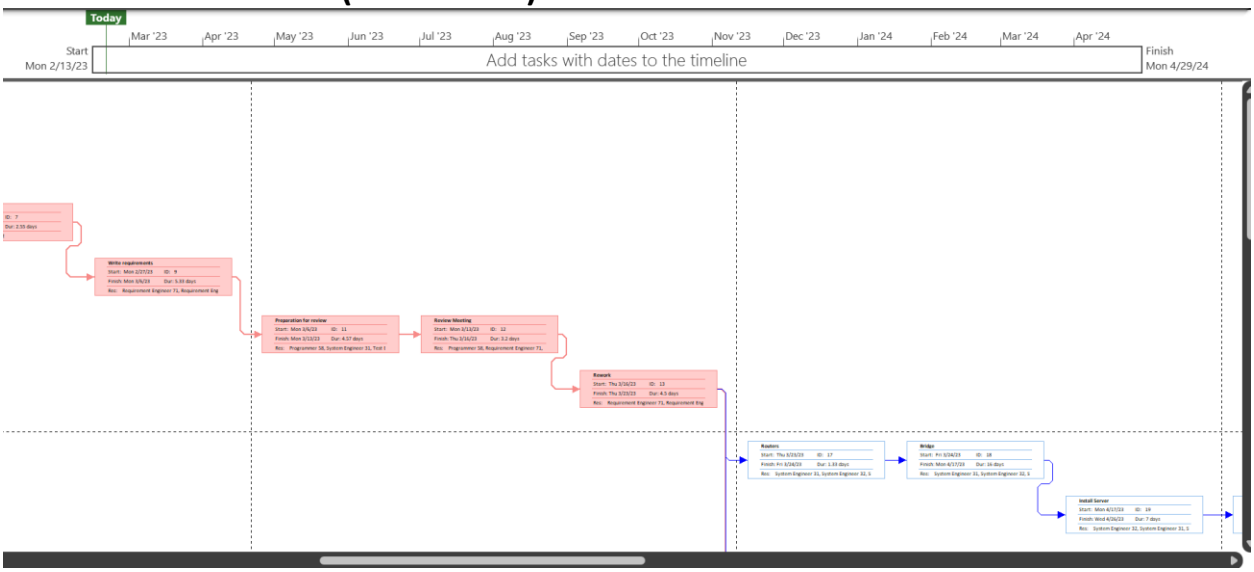

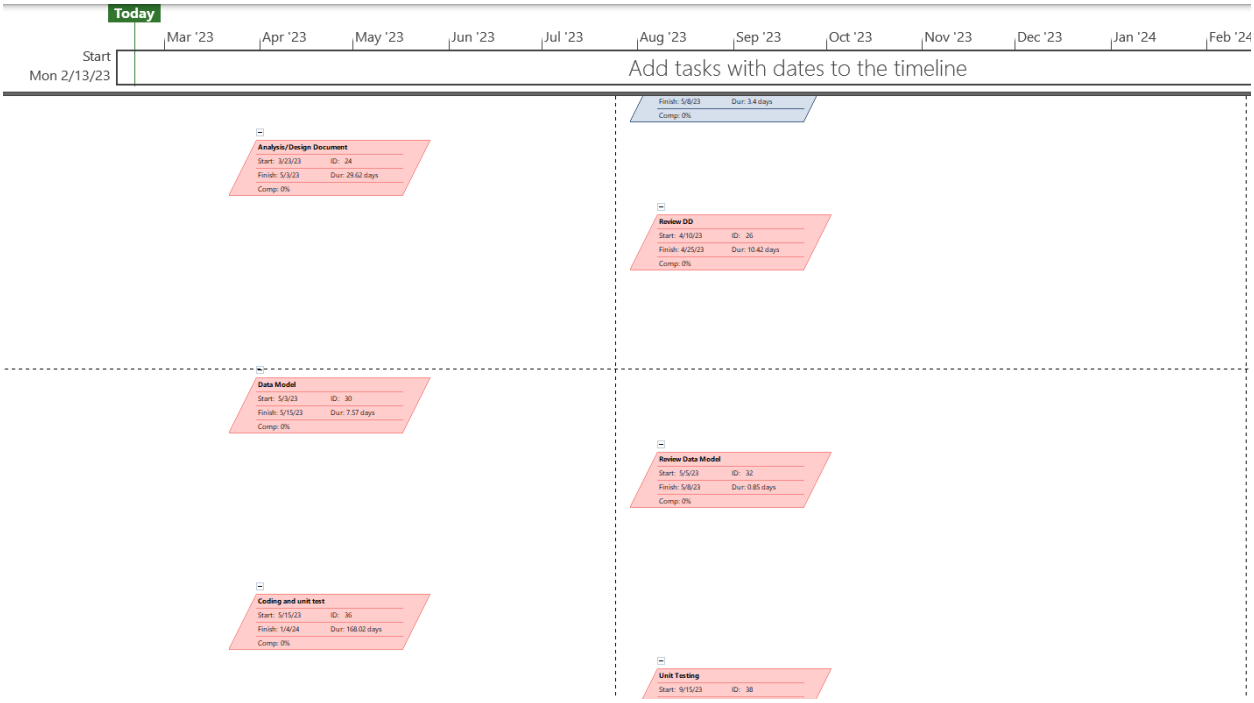

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