Assignment #1

- Deliverable: post your homework on Canvas as a single ZIP file with the name "HW1_YourLastName, FirstName" that has the following documents:
    1. MS Project File
    2. Report PDF document

- *Communicate all questions regarding the homework with the TA.*

Use the data spreadsheet provided below to achieve the following:

1. Feed the information provided in this handout in MS Project to create the Project Plan and the Network Diagram
2. Create a WBS with the required phases and activities to complete this project
3. Assign the Resources to the Tasks making any assumptions you consider appropriate (Your assumptions should be based on Software Engineering Assumptions).
4. Document in your report ALL calculations related to resource allocation, effort, and duration for every task/activity.
5. What is the earliest finish date for this project if it is scheduled to start on 2/10/25?
6. If you are not allowed to use more than 20% of the resources available at any point of time for this project, what is the earliest finish date for this project if it is scheduled to start on 2/10/25?
7. Submit your MS Project File and the PDF report document with your answers

Resources Available

Important Note: ONLY assign the needed resources to the tasks; for example, a project management task needs only one project manager of the available managers to write it, however, you could use more than one requirements engineer to work on writing the requirements document.

Category	Initials
Project Manager	PM1, PM2
Requirement Engineers	RE10, RE11, RE12, RE18, RE19, RE20, RE21
System Engineers	SE8, SE9, SE11, SE12, SE13, SE17, SE18
Programmers/Software Engineers	PE8, PE9, PE10, PE11, PE12, PE16, PE17
Test Engineers	TE8, TE9, TE10, TE15, TE16, TE17, TE18
Documentation Engineers	DE5, DE6, DE7, DE8, DE9, DE14

Assumptions and Constraints:

1. Every review or inspection "meeting" task shall be carried by 5 engineers including ONE of the author(s)
2. Every review or inspection "preparation" task shall be carried by 4 engineers excluding the author(s)
3. Any "Rework" task can be executed by one or all authors of the original task
4. Project Plan shall be reviewed by at least ONE engineer from every technical area.
5. Risk Mitigation and Contingency Plan is written by one of the project managers.
6. Risk mitigation and contingency plan shall be reviewed by at least ONE engineer from every technical area.
7. System Engineers are responsible for creating Analysis and Design artifacts

Task/Activity Dependencies:

It is expected that you will find the correct task dependencies based on the material discussed during class and considering the following constraints:

1. There is no technical task prior to requirement phase; project planning is not a technical task it is a managerial task.
2. Analysis Activity can start as soon as requirement document is complete
3. Design activity can start as soon as Analysis document is complete
4. Data Model task can start when Detailed Design task finishes
5. Coding can start as soon as design is complete
6. Writing Test Plan can start as soon as requirements are complete
7. Executing Test Plan can start as soon as coding is complete
8. Documentation can start as soon as requirements are complete
9. Any other constraints that you might add, shall be documented clearly when you submit your homework.
10. Risk mitigation and contingency planning can start after project plan is complete, and can finish any time before analysis starts.

Task	Amount of Work	Productivity Rate
Project Plan		
Write Plan	56 pages	5 pages/Hour
Review Plan		
Preparation for review		4 pages/Hour
Review Meeting		8 pages/Hour
Rework	39 defects	5 defects/Hour
Risk Mitigation and Contingency Plan		
Write Plan	78 pages	5 pages/Hour
Review Plan		
Preparation for review		5 pages/Hour
Review Meeting		10 pages/Hour
Rework	19 defects	5 defects/Hour
Requirement		
Write requirements	176 Req	4 Req/Hour
Write Use Case Model	62 Use Cases	5 use case/2 Hours
Review Requirements/ Use Case Model		
Preparation for review		18 Req/Hour
		4 Use Cases/Hour
Review Meeting		23 Req/Hour
		5 Use Cases/Hour
Rework	127 defects	8 defects/Hour
Analysis		
Write Analysis Document	72 pages	5 pages/Hour
Review Analysis Document		
Preparation for Analysis Document		4 pages/Hour
Review Meeting		7 pages/Hour
Rework	92 defects	5 defects/Hour
Design		
Write DD	78 pages	4 pages/Hour
Review DD		
Preparation for DD		5 pages/Hour
Review Meeting		9 pages/Hour
Rework	175 defects	4 defects/Hour
Write Data Model (DM)	31 pages	1 page/3 Hours
Review DM		
Preparation for DM		5 pages/Hour
Review Meeting		4 pages/Hour
Rework	79 defects	7 defects/Hour

Coding and unit test		
Write Code	3758 SLOC	5 SLOC/Hour
Unit Testing		
Prepare/Execute Test Cases	194 test cases	8 Test Cases/Day
Fix Found Defects	184 Defects	7 Defects/Day
Test Fixed Defects	184 Defects	6 Defects/Day
Code Inspection		
Preparation for Code Inspection		124 SLOC/Hour
Code Inspection Meeting		210 SLOC/Hour
Rework	174 defects	4 defects/Hour
Testing		
Write test plan (TP)	210 pages	6 pages/Day
Review TP		
Preparation for TP		5 pages/Hour
Review TP Meeting		8 pages/Hour
Rework	287 defects	6 defects/Hour
Execute TP (test cases)	259 test cases	8 test cases/day
Fix Found Defects	188 defects	9 defects/day
Test Fixed Defects	188 defects	13 defects/day
Documentation		
User Documentation	147 pages	4 pages/Hour
Review UD		
Preparation for UD Review		4 pages/Hour
Review UD Meeting		6 pages/Hour
Rework	163 defects	8 defects/Hour