Assignment #1

- Deliverable: post your homework on Blackboard 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. What is the earliest finish date for this project if it is scheduled to start on 9/12/22?
5. If you are not allowed to use more than 30% 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 9/12/22?
6. Submit your MS Project File and the Report PDF document with your answers to Question #4 and Question #5 above.

Resources Available

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

Category	Initials
Project Manager	PM1, PM2
Requirement Engineers	RE701, RE2, RE707, RE8, RE10, RE12
System Engineers	SE701, SE2, SE5, SE706, SE12
Programmers/Software Engineers	PE701, PE2, PE723, PE27, PE28, PE30
Test Engineers	TE41, TE44, TE47, TE48
Documentation Engineers	DE2, DE3, DE7, DE10, DE12

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, if exists, shall be reviewed by at least ONE engineer from every technical area.
6. System Engineers are responsible for creating Analysis and Design artifacts
7. Task effort can be rounded to nearest hour and nearest day.

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. Any management related tasks like 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	43 pages	5 pages/Hour
Review Plan		
Preparation for review		5 pages/Hour
Review Meeting		5 pages/Hour
Rework	23 defects	5 defects/Hour
Requirement		
Write requirements	198 Req	2 Req/Hour
Write Use Case Model	67 Use Cases	1 use case/2 Hours
Review Requirements/ Use Case Model		
Preparation for review		20 Req/Hour
		5 Use Cases/Hour
Review Meeting		22 Req/Hour
		5 Use Cases/Hour
Rework	96 defects	5 defects/Hour
Analysis		
Write Analysis Document	70 pages	5 pages/Hour
Review Analysis Document		
Preparation for Analysis Document		5 pages/Hour
Review Meeting		10 pages/Hour
Rework	26 defects	5 defects/Hour
Design		
Write DD	178 pages	5 pages/Hour
Review DD		
Preparation for DD		5 pages/Hour
Review Meeting		8 pages/Hour
Rework	155 defects	5 defects/Hour
Write Data Model (DM)	26 pages	1 page/5 Hours
Review DM		
Preparation for DM		3 pages/Hour
Review Meeting		5 pages/Hour
Rework	61 defects	5 defects/Hour
Coding and unit test		
Write Code	4233 SLOC	6 SLOC/Hour
Unit Testing		
Prepare/Execute Test Cases	207 test cases	5 Test Cases/Day
Fix Found Defects	188 Defects	4 Defects/Day
Test Fixed Defects	188 Defects	7 Defects/Day
Code Inspection		
Preparation for Code Inspection		90 SLOC/Hour

Code Inspection Meeting		150 SLOC/Hour
Rework	188 defects	4 defects/Hour
Testing		
Write test plan (TP)	191 pages	7 pages/Day
Review TP		
Preparation for TP		5 pages/Hour
Review TP Meeting		10 pages/Hour
Rework	189 defects	4 defects/Hour
Execute TP (test cases)	448 test cases	10 test cases/day
Fix Found Defects	280 defects	4 defects/day
Test Fixed Defects	280 defects	8 defects/day
Documentation		
User Documentation	195 pages	4 pages/Hour
Review UD		
Preparation for UD Review		10 pages/Hour
Review UD Meeting		10 pages/Hour
Rework	189 defects	8 defects/Hour