PROJECT PROPOSAL

CMSE 473

GROUP NO: 5

PROJECT NAME: Team Project Tracker

PROJECT START DATE: September 25, 2017

PROJECT END DATE: January 6, 2018

SUPERVISOR: Assoc. Prof. Dr. Duygu Çelik Ertuğrul

SEMESTER TERM: Fall 2017-2018

The from is adapted from TÜBİTAK* – The scientific and technological Research Council of TURKEY, https://www.tubitak.gov.tr/en

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A.1. Preliminary Project Information

A.1.1

Project No	5
Project Name	Team Project Tracker
Start Date	25-Sep-2017
End Date	6-Jan-2018
Time	104 Days

A.1.2

Project Manager			
Name Surname	Talal Mahdy	**ID No**	147139
Title/Role	Project Manager/System Architect/Documenter		
Address	Famagusta, North Cyprus		
Phone	+90 533 8885729		
Email	talal.mahdy96@gmail.com		

A.2 Group Information

A.2.1

Student 1			
Name Surname	Talal Mahdy	**ID No**	147139
Title/Role	Project Manager/System Architect/Documenter		
Address	Famagusta, North Cyprus		
Phone	+90 533 8885729		
Email	talal.mahdy96@gmail.com		

Student 2			
Name Surname	Mohamed Balto	**ID No**	147697
Title/Role	Lead Programmer/Database Developer/Administrator		
Address	Famagusta, North Cyprus		
Phone	+90 533 8397554		
Email	Baltu.libya@gmail.com		

Student 3			
Name Surname	Abdoulgwad Elsheredi	**ID No**	147597
Title/Role	Software Programmer/Software Tester		
Address	Famagusta, North Cyprus		
Phone	+90 533 8528065		
Email	abdoulgwad.elsheredi@yahoo.it		

Student 4			
Name Surname	Adham Moshasha	**ID No**	148387
Title/Role	Requirements Engineer/User Interface Designer		
Address	Famagusta, North Cyprus		
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Email	adhamoshasha@gmail.com		

A.2.2

List of Completed / Ongoing Projects of Team
Completed: EMU Student Kit (CMSE 322) Ongoing: Team Project Tracker (CMSE 473) E-Bookstore Online Shopping Interface (CMSE 439) Change Request Management Application (CMSE 405)

B.1 Introduction to Project

B.1.1

Summary of Project
The Team Project Tracker is a Multi-Platform application having a variety of different features that are targeted towards employees in teams working for a company or an organization. While the application is a Multi-Platform and can run on Android, iOS, and Windows Operating Systems, the application will be released as an Android only application for this project.

B.1.2

Key Words
Team, Multi-Platform, Android, Mobile Application, Project Tracker, Employees

B.1.3

Aim of Project
This project aims to organize and track the progress of teams in a working environment and the employees or workers in those teams.

B.1.4

Innovative Aspects/Contributions of Project
This project is innovative since there is a shortage of similar applications dedicated to teams and employees on Google's Play Store. Another innovative aspect is that the project can be easily run on iOS and Windows Operating Systems if some minor optimizations to the code are performed.

B.1.5

Methods to be Applied
This project is to be developed using the Xamarin (XAML) development tool of Visual Studio. The C# Programming Language will be used for writing the code behind of the application. SQL will be used in developing the database of the application and the database will be hosted online using Microsoft Azure Platform. The Modelio Tool will be used for designing the application. Other designing tools such as Microsoft Visio and Mockflow Wireframe may be used for designing as well.

B.1.6

Economic and National Outcomes
This is a not-for-profit and an open source project which can increase the performance of companies and improve the organization of its teams.

B.2 Reason of Starting the Project, Methods and R&D Stages

1- Explain the reason of starting this project.
In these days, companies are becoming bigger with more and more employees and their organization of teams is becoming more complex. This means that there is a lot of paperwork going on inside the company to keep track of the progress that the employees in those teams are doing. Also, people these days are more and more dependent on devices such as smartphones to organize their lives and to save time. Looking at Google's Play Store, there are not very few applications like Team Project Tracker and it is feasible and makes sense to develop a project like this. After teams in companies start using the application, the company may even require its employees to use the application to record some data.

2- Explain the purpose of this project.
This project serves many purposes. But the main purpose of this project to reduce some of the common paperwork going on between teams and to organize the teams. This application will also solve a common problem in ongoing projects of companies which is keeping track of the progress of the projects for the purpose of providing the progress data to the customer whenever it is required. Also, this application will solve a problem in companies where employees are paid per hour worked since this application keeps track of those hours. The data stored in this application can also be used to improve the cost estimation of future projects in the company and it can also be used in writing final reports with correct data about the completed project.

3- Explain ○ **output of project** ○ **national / international standards if exist** ○ **the specific objectives of the project** ○ **success criteria** ○ **realistic constraints**
The expected output of the project is a well-designed mobile Android application known as Team Project Tracker. Also, documentations in the form of a Software Requirements Document (SRS) and a Software Design Description (SDD), and a final report are expected outputs of this project. Some standards that are followed in this project are TUBITAK organization for the project proposal form, IEEE 1016-1998 and 830-1998 standards for the Software Design Descriptions document and the Software Requirements Specifications document. The specific objectives of this project are to organize teams in companies, reduce much paperwork performed between the teams, and perform some essential activities for completing projects. Success Criteria are metrics to determine if the project is successful. Some of them are: a. Total Downloads: The number of times the application was downloaded should be growing at a steady rate. b. Monthly Average Users (MAU: The application should have a high number of Average users among those who downloaded the application. If it appears that the MAU is

growing, then the project is growing in the right path.

c. Engagement: Also, those users should have a high engagement ratio, i.e., users visit it frequently and use it for a considerable amount of time. Engagement can be measured by metrics such as session length (time period between app open and close), session interval (time between the user's first session and their next one) and retention rate (users who return to your app based on the date of their first visit).
d. Documentation: The number of users submitting help requests or bug reports should be less due to well documentation good design of application.

4- Explain

- **the methods to be applied during R&D activities**
- **applications**
- **technics and tools to be used**
- **standards to be followed under the workflow**

In this project, we will be applying an evolutionary development approach. An evolutionary development is based on the idea of developing an initial implementation, exposing it to the customer's comments, refining it through many versions until an adequate system has been developed. This development method is going to be more effective in this project since it is a small-medium sized system. The requirements for this system are not well defined from the beginning and we have to work with the customer and produce prototypes while obtaining feedbacks from the customer. To do this, we are going to have to conduct a number of interviews with the customer and clearly understand the requirements. The waterfall development approach cannot be used in this case since the requirements are not well defined. During the design and UI Design stage of development, we are going to use various CASE Tools such as IBM Rational tools to aid us in developing a clearer picture of how our application is going to look like. Then, we are going to start the development of the application using Google's Android Studio Integrated Development Environment (IDE) and by using Java as the main programming language.

5- Explain

- **the contribution of national/international technological development if exist**
- **starting a new research and development projects within or outside the team**
- **launch new applications or research studies in different technology areas**

With whom we can cooperate?
Expectations:
Published work:
Can your output be an input for other similar national/international projects?

The Team Project Tracker is an open source non-profit project. There it can be of a great contribution to other national or international projects. Developers around the world can simply view and study and the design and the code of the program. Since it is also a complex system, it can also be used as a case study for students in many different areas of Software Engineering. This project can also be used as an input for other similarly designed projects since other Software Engineers can use this project as a reference or as a sample when creating other applications for companies or for specific organizations. The expected publications of this project are the Android Team Project Tracker Application along with its different documentations such as a Requirements Document and a Design Document.

B.3 Innovative and Unique Aspects

B.3.1

1- Describe ○ **differences** ○ **advantages** ○ **superiority** **compared to other similar projects.**
The Team Project Tracker is a complex application and it contains many different functions and features. On Google's Play Store, an application which is perfectly similar to Team Project Tracker does not exist. There are other applications which may have a similar feature which is present in Team Project Tracker but these applications are focused only on that particular feature and they do not contain many features in a single application. Another difference between Team Project Tracker and other applications is the target audience. A certain company may create an application for its employees but that application is targeted only towards that company's employees while Team Project Tracker is targeted towards almost all companies and organizations involved in projects.

B.3.2

2- Who can contribute to this project in your team?
Project Manager/System Architect/Documenter ○ Talal Mahdy **Lead Programmer/Database Developer/Administrator** ○ Mohamed Balto **Software Programmer/Software Tester** ○ Abdoulgwad Elsheredi **Requirements Engineer/User Interface Designer** ○ Adham Moshasha

C.1 Gantt Chart and Work Packages

C.1.1 Gantt Chart and Work Breakdown Structure (WBS) (attached at the end of this document)

C.1.2 Work Package 1

Work Package No	1
Work Package Name	**Feasibility and Pre-Research (SRS stage)**
Start-End Date and Time	Start: 25-09-17 Finish: 12-10-17
Related Organizations	

1- List the activities of work packages.
1. Scope. **2. Analysis/Software Requirements.**
2- Describe the methods and parameters that will be used for work package.
Microsoft Project
3- List the experiments, tests and analysis in the work package.
1. Scope: 1.1. Determine project scope 1.2. Secure project approval 1.3. Define preliminary resources 1.4. Secure core resources 1.5. Scope complete **2. Analysis/Software Requirements:** 2.1. Conduct needs analysis 2.2. Draft preliminary software specifications 2.3. Develop preliminary budget 2.4. Review software specifications/budget with team 2.5. Incorporate feedback on software specifications 2.6. Develop delivery timeline 2.7. Obtain approvals to proceed (concept, timeline, budget) 2.8. Secure required resources 2.9. Analysis complete
4- List the output of work package and its success criteria.
Outputs: Initial Requirements Specification Document (SRS), feasibility analysis, secured resources. **Success Criteria:** Project approved, project is feasible to implement, initial requirements are well documented, resources and team members are secured.
5- Explain the relation of output with other work packages
This is the initial phase of development and is the basic input for all other work packages. It defines the following: What is the project? Who are the stakeholders? Who will use the system? How should it be developed? Who are the team members? What are the basic requirements? How should it be developed? How should it be delivered? Etc.

C.1.3 Work Package 2

Work Package No	2
Work Package Name	**System Design (SDS Stage)**
Start-End Date and Time	Start: 12-10-17 Finish: 03-11-17
Related Organizations	

1- List the activities of work packages.
1. **Team Project Tracker Software Design** 2. **Development of first prototype** 3. **Improve SRS Document**
2- Describe the methods and parameters that will be used for work package.
Modelio, Mockflow Wireframe, Microsoft Visio
3- List the experiments, tests and analysis in the work package.
Review preliminary software specifications Develop functional specifications Design of System Develop prototype based on functional specifications Review functional specifications and Design Incorporate feedback into functional specifications Obtain approval to proceed Design complete
4- List the output of work package and its success criteria.
Outputs: A Software Design Specification (SDS) Document, First Prototype of Software. **Success Criteria:** An improvement of the SRS Document as a result of better understanding of requirements from first prototype, completion of system design.
5- Explain the relation of output with other work packages
The design stage is the next stage in the software development life cycle. Without designing the software and knowing what has to be done, it will be very difficult for the programmer to develop the software and many mistakes will be done. So this work package is a very important prerequisite to the next stage which is the development stage.

C.1.4 Work Package 3

Work Package No	3
Work Package Name	**Software Development Stage**
Start-End Date and Time	Start: 04-11-17 Finish: 26-11-17
Related Organizations	

1- List the activities of work packages.
The main coding, primary debugging of the program and development of the database.
2- Describe the methods and parameters that will be used for work package.
C# Programming Language, XAML, SQL, Azure
3- List the experiments, tests and analysis in the work package.
Review functional specifications Identify modular/tiered design parameters Assign development staff Develop Code and Database Developer testing (primary debugging) Development complete
4- List the output of work package and its success criteria.
Outputs: Team Project Tracker Android Application Package (APK) **Success Criteria:** A successful working APK file of our project.
5- Explain the relation of output with other work packages
During the development of our application, the coders will obviously find some bugs and attempt to fix them. However, there might be some logical or other types of errors that a developer might not notice. Therefore, it is important for the application to be tested by a separate dedicated tester. Testing of the application can begin shortly after the development of the first unit of the application.

C.1.5 Work Package 4

Work Package No	4
Work Package Name	**Software Testing Stage**
Start-End Date and Time	Start: 18-11-17 Finish: 26-12-17
Related Organizations	

1- List the activities of work packages.

1. **Unit and Integration Test Plans.**
2. **Unit Testing.**
3. **Integration Testing.**

2- Describe the methods and parameters that will be used for work package.

Module-by-Module Unit Testing and Overall Integration Testing

3- List the experiments, tests and analysis in the work package.

1. Unit and Integration Test Plans:

1.1. Develop unit test plans using product specifications
1.2. Develop integration test plans using product specifications

2. Unit Testing:

2.1. Review modular code
2.2. Test component modules to product specifications
2.3. Identify anomalies to product specifications
2.4. Modify code
2.5. Re-test modified code
2.6. Unit testing complete

3. Integration Testing:

3.1. Test module integration
3.2. Identify anomalies to specifications
3.3. Modify code
3.4. Re-test modified code
3.5. Integration testing complete

4- List the output of work package and its success criteria.

Outputs: Test data, verification results
Success Criteria: Testing successfully completed with all the errors and bugs successfully fixed.

5- Explain the relation of output with other work packages

After successfully testing the system, next stages in the software life cycle are the delivery and maintenance stages. The software should be delivered and installed as per the request of the customer. Also, the maintenance stage is very important as a software may serve for many years to come and it will obviously need to be updated. Therefore, a good maintenance team along with good documentation is very important for the product to be successful.

C.1.6 Work Package 5

Work Package No	5
Work Package Name	**Documentation and Delivery**
Start-End Date and Time	Start: 12-01-18 Finish: 06/01/18
Related Organizations	

1- List the activities of work packages.

1. **Documentation**
2. **Pilot**
3. **Deployment**
4. **Post Implementation Review**

2- Describe the methods and parameters that will be used for work package.

Microsoft Project, Microsoft Office, GitHub

3- List the experiments, tests and analysis in the work package.

1. **Documentation**
   - 1.1. Develop Help specification
   - 1.2. Develop SRS Document
   - 1.3. Develop SDS Document
   - 1.4. Develop Help system
   - 1.5. Review Help documentation
   - 1.6. Incorporate Help documentation feedback
   - 1.7. Develop user manuals specifications
   - 1.8. Develop user manuals
   - 1.9. Review all user documentation
   - 1.10. Incorporate user documentation feedback
   - 1.11. Documentation complete
2. **Pilot**
   - 2.1. Identify test group
   - 2.2. Develop software delivery mechanism
   - 2.3. Install/deploy software to Google's Play Store
   - 2.4. Obtain user feedback
   - 2.5. Evaluate testing information
   - 2.6. Pilot complete
3. **Deployment**
   - 3.1. Determine final deployment strategy
   - 3.2. Develop deployment methodology
   - 3.3. Secure deployment resources
   - 3.4. Train support staff
   - 3.5. Deploy software
   - 3.6. Deployment complete
4. **Post Implementation Review**
   - 4.1. Document lessons learned
   - 4.2. Distribute to team members
   - 4.3. Create software maintenance team
   - **4.4.** Post implementation review complete

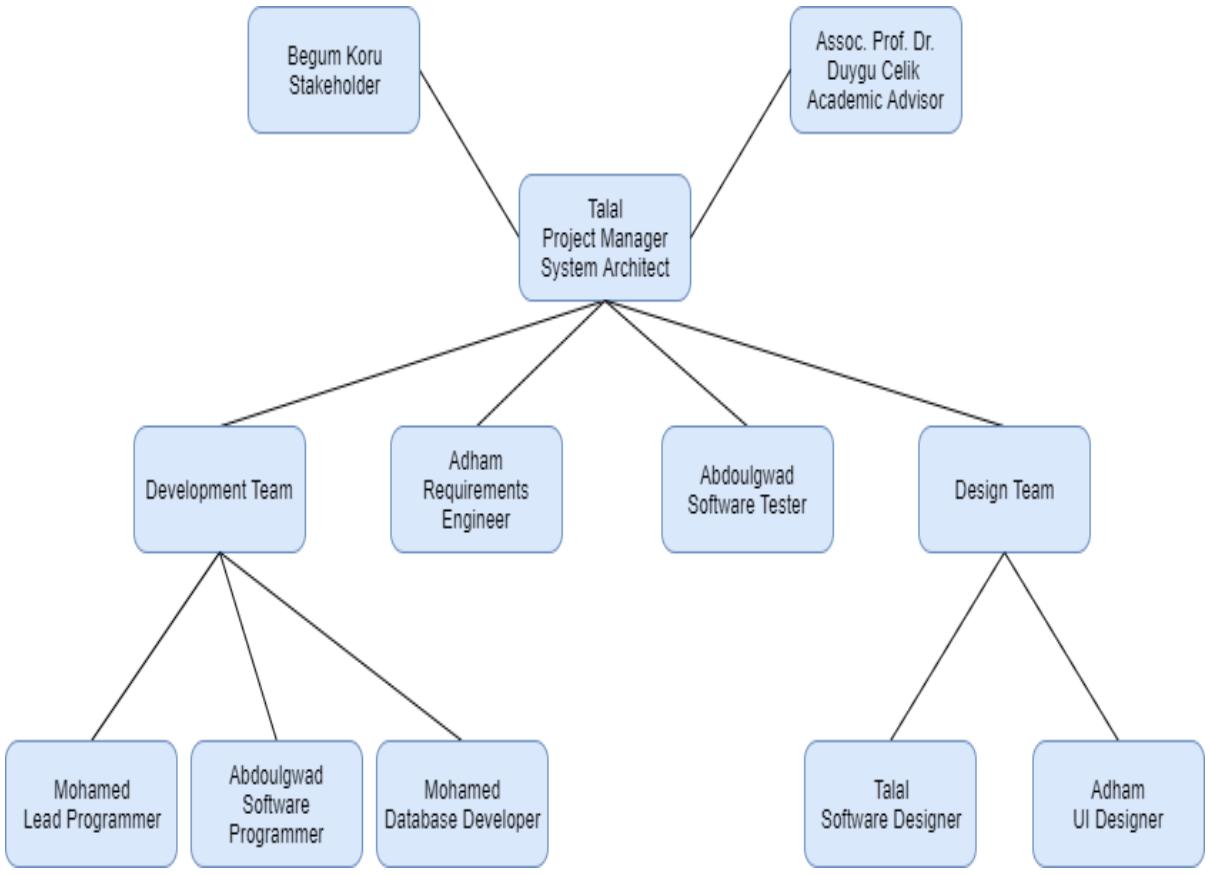
4- List the output of work package and its success criteria.
Outputs: Successful delivery of project, uploading to Play Store, completed documentation **Success Criteria:** A completed well documented, well perceived software application.
5- Explain the relation of output with other work packages
As can be noticed, the documentation stage started at an early time in the software process, sometime after the design stage started. It is important to document all requirements and design aspects of the project along with a proper user guide before delivering the application.

C.2 Project Management and Organization

C.2.1 Project Team

Personnel Name	Title	ID	Education Status	Graduation Date	Date of Starting Work	Idea Owner
Talal	-Project Manager -System Architect	147139	Undergraduate	June 2018	September 2017	Yes
Abdoulgwad	-Software Programmer -Software Tester	147597	Undergraduate	June 2018	September 2017	Yes
Adham	-UI Designer -Requirements Engineer	148387	Undergraduate	June 2018	September 2017	Yes
Mohamed	-Lead Programmer -Database Developer	147697	Undergraduate	June 2018	September 2017	Yes

C.2.2 Organization Scheme



C.2.3 List of Milestones

	Description of Output	Expected Time Interval	
1	Scope determination and approval	**25-09-17**	**28-09-17**
2	Analysis/Software Requirements	**28-09-17**	**12-10-17**
3	System Design (SDS Stage)	**12-10-17**	**03-11-17**
4	Software Development Stage	**04-11-17**	**26-11-17**
5	Unit Testing	**22-11-17**	**11-12-17**
6	Integration Testing	**11-12-17**	**23-12-17**
7	Documentation	**20-10-17**	**06-12-17**
8	Pilot	**12-10-17**	**29-12-17**
9	Deployment	**30-12-17**	**03-01-18**
10	Post Implementation Review	**04-01-18**	**06-01-18**
11	Software Development	**25-09-17**	**06-01-18**

C.2.4 List of Risks

Risk	Probability	Effects	Your Strategy
The time required to develop the software is underestimated.	High	Serious	The most important requirements of the project should always be implemented first. We will have more time later on to implement the requirements that are not important.
Software tools cannot work together in an integrated way.	High	Tolerable	Always minimize the number of design tools used and make sure that the outputs of these tools are compatible with each other.
Customers fail to understand the impact of requirements changes.	Moderate	Tolerable	Conduct frequent meetings with the stakeholders and keep being updated on latest requirement changes.
The rate of defect repair is underestimated.	Moderate	Tolerable	Replace potentially defective components with more reliable bought-in components.
The size of the software is underestimated.	Moderate	Insignificant	Investigate buying software components; Investigate use of a program generator.
Code generated by code generation tools is inefficient.	Moderate	Insignificant	This risk is always expected since code generation tools often do not produce reliable code and this code always needs editing by the software developers.
Key staffs are ill at critical times in the project.	Moderate	Serious	Reorganize team so that there is more overlap of work and people therefore understand each other's jobs.
The database used in the system cannot process as many transactions per second as expected.	Low	Serious	Investigate the possibility of buying a higher-performance database.

D.1 Economic Forecasts

1- Evaluate the commercialization potential of project outcomes. List possible risks here?
Commercialization of our product can start as soon as the development and testing of the most important modules is done. However, to further guarantee that everything is working as planned and to have an advantage over other applications, we are going to wait until most of the features of the application are done. After that, the commercialization process starts when the application is uploaded to Google's Play Store. Then, many user feedbacks will be gained and improvements with new features and bug fixes will be implemented. In addition, during this time, an advertisement campaign will be made to promote our product and increase the user base. So the aim is to enable and invite many companies to use this application.

2- List your expectations to your team which are come by your project	
Time-to-market (month):	4
The expected increase in sales revenue (%):	25%
The expected increase in market share (%):	10%
Time to start to gain:	February 2018

D.2 National Outcomes

1- Specify the output that may be subject to patent, utility model and industrial design registration in the project.
The application will not implement major new inventions in mobile application design. Therefore, patent, utility model and industrial design registration will not apply to our product and we are not planning to apply for any of these in the future.
2- Explain the potential of project and its outputs that may have an effect on social life, education, health and etc.
The application will have a positive effect in the organizational convenience aspect of an employee's life. Its feature can provide a peace of mind and increase the productivity of an employee since the employee will no longer have to worry about paperwork during his work or at the end of the workday.
3- Explain the positive and negative effects of project outputs for environment and human being.
This project will definitely not have any negative impact on the environment or human being. While this application will be beneficial to an employee's life, an employee may feel confident and over-depend on it in recording critical information at a time when there is an undiscovered bug in the application.

(M013) Instrument / Equipment / Software / RELEASE PURCHASES

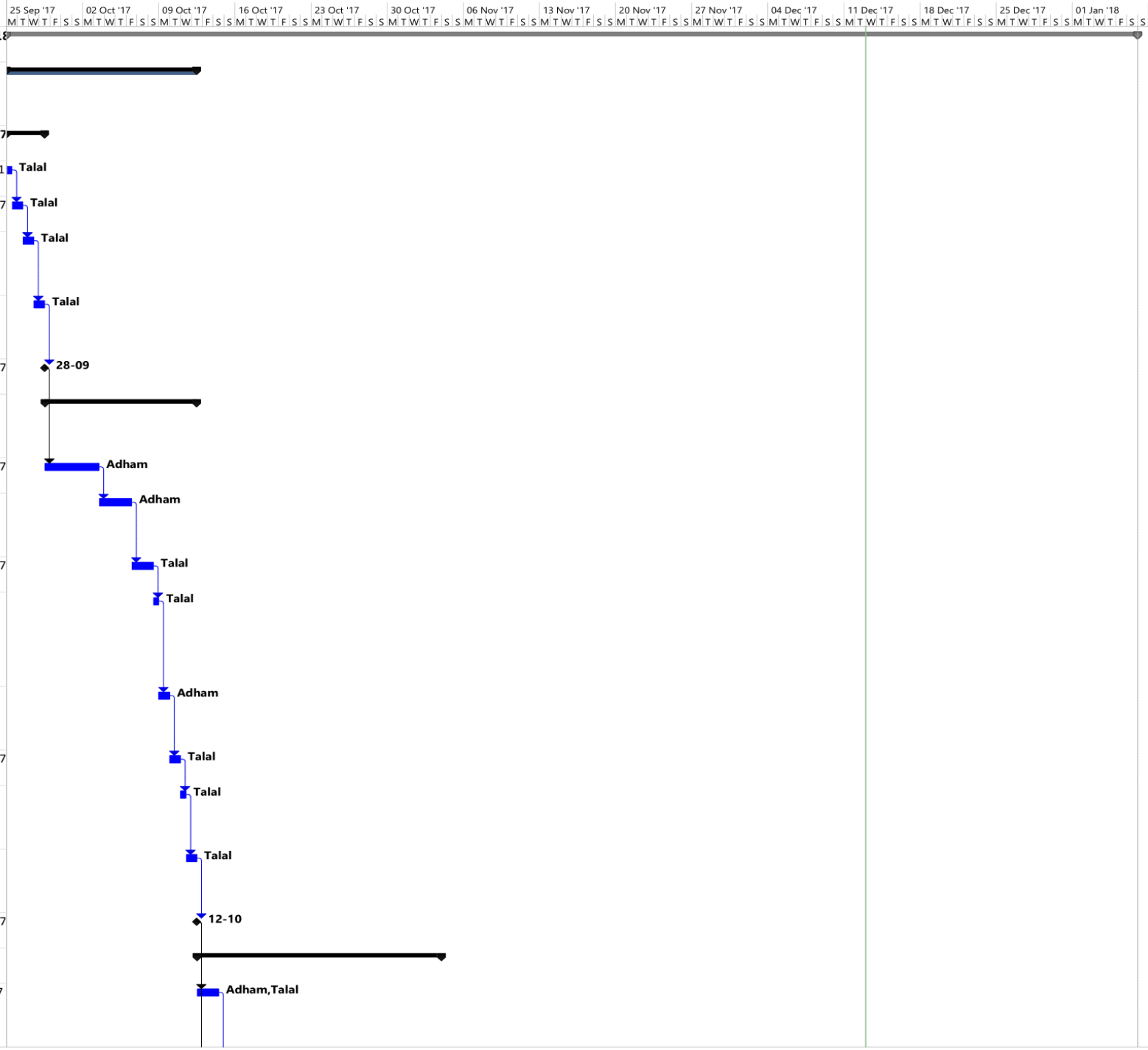
Project Name										
Line no	Instrument / Equipment / Software / Publication Name	No. of Item	Capacity	Technical specification	Purpose of Project Activities	Post-Project Place of Use / Purpose		Unit Price (USD)	Unit Price (TL)	Total Amount (TL)
						R & D	Production			
1	Visual Studio	1		Integrated Development Environment (IDE) from Microsoft	Main IDE used for development of our project		Yes	-	-	-
2	Microsoft Project	1		Project Management Software	We will use this application to plan and schedule our project		Yes	589.99	2085.36	
3	Microsoft Office	1		An office suite of applications, servers, and services	Used in many areas of the project such as documentation		Yes	399.99	1413.80	
4	Microsoft Visio	1		Software Design Tool	Used to draw software design diagrams		Yes	299.99	1060.35	

5	**Visual Paradigm**	**1**		**Software Design Tool and Code generator**	**Used to draw software design diagrams and generate code required for the application based on those diagrams**		**Yes**	**349**	**1233.54**	
6	**Mockflow Wireframe**	**1**		**User Interface Design Tool**	**Used to draw a User Interface for our system**		**Yes**	**208**	**735.38**	
7	**Gliffy**	**1**		**Software Design Tool**	**Used to draw software design diagrams**		**Yes**	**20**	**70.71**	
8	**GenMyModel**	**1**		**Software Design Tool**	**Used to draw software design diagrams**		**Yes**	**120**	**424.26**	
9	**Modelio**	**1**		**Software Design Tool and Code generator**	**Used to draw software design diagrams and generate code required for the application based on those diagrams**		**Yes**	**-**	**-**	
									TOTAL	**7023.4 TL**

(M030) Quarterly Estimated Cost Form (TL)

Project Name :				
Cost Item	2017		TOTAL (TL)	TOTAL COST RATE OF CONTENTS (%)
	I	II		
Personnel	20000	20000	40000	49.37
Travel	1000	1000	2000	2.47
Instrument / Equipment / Software / Publications	7023.4		7023.4	8.67
Domestic Works Made By R & D and Testing Institutions	1500	1500	3000	3.70
International Works Made By R & D and Testing Institutions	1600	1600	3200	3.95
Domestic Services Procurement	1800	1800	3600	4.44
Overseas Service Procurement	2000	2000	4000	4.94
Material	2100	2100	4200	5.18
TOTAL COST	37023.4	37000	81023.4	100
CUMULATIVE COST				
IN THE PROJECT TOTAL MAN-MONTH			720 hours	

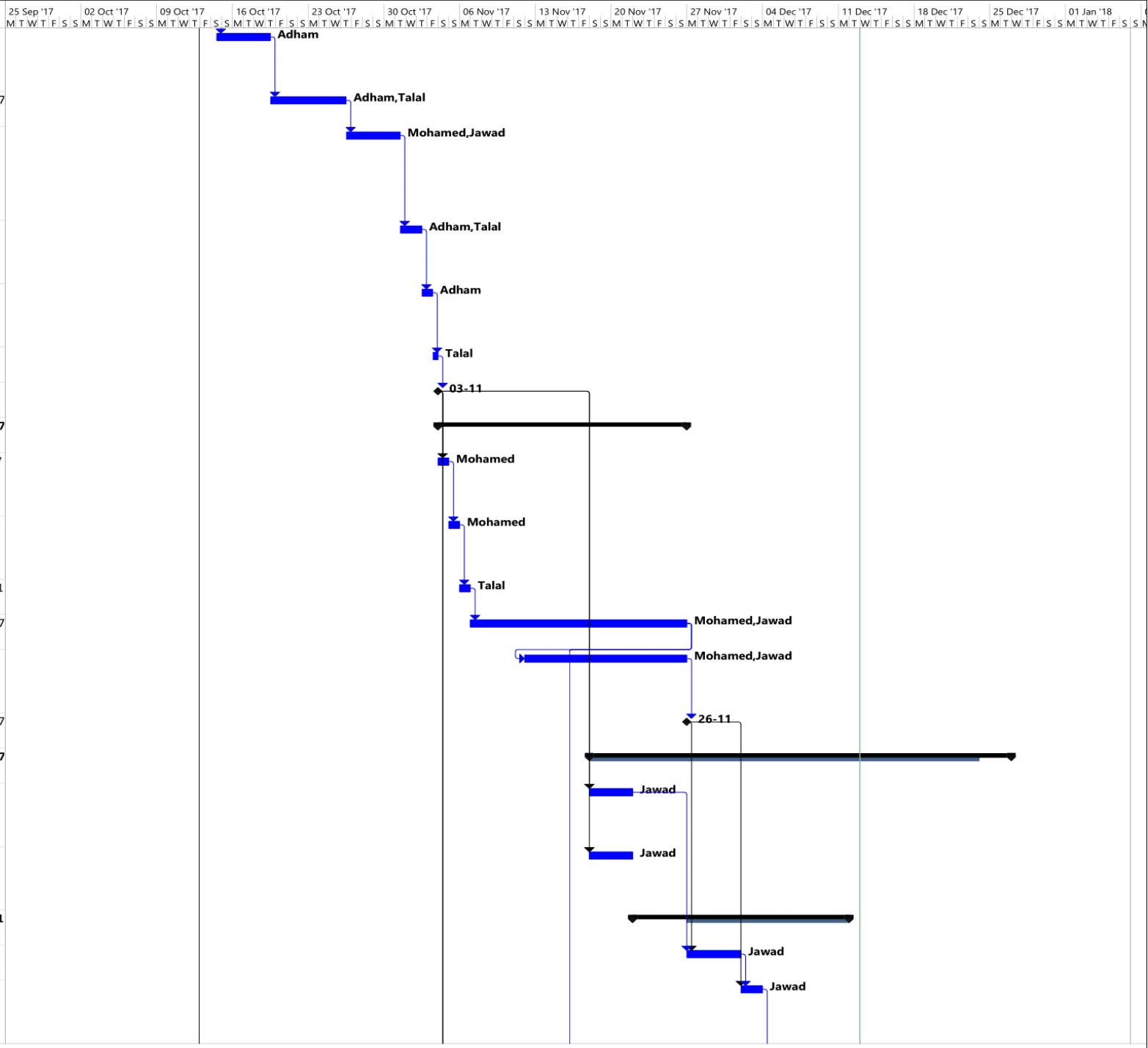
ID	WBS	Task Name	Duration	Start	Finish
0		**Software Development**	**104 days**	**Mon 25-09-**	**Sat 06-01-18**
1	**A**	**Feasibility and Pre-Research (SRS Stage)**	**17.5 days**	**Mon 25-09-17**	**Thu 12-10-17**
2	**A.1**	**Scope**	**3.5 days**	**Mon 25-09-1**	**Thu 28-09-17**
3	A.1.1	Determine project scope	4 hrs	Mon 25-09-1	Mon 25-09-1
4	A.1.2	Secure project approval	1 day	Mon 25-09-1	Tue 26-09-17
5	A.1.3	Define preliminary resources	1 day	Tue 26-09-17	Wed 27-09-17
6	A.1.4	Secure core resources	1 day	Wed 27-09-17	Thu 28-09-17
7	A.1.5	Scope complete	0 days	Thu 28-09-17	Thu 28-09-17
8	**A.2**	**Analysis/Software Requirements**	**14 days**	**Thu 28-09-17**	**Thu 12-10-17**
9	A.2.1	Conduct needs analysis	5 days	Thu 28-09-17	Tue 03-10-17
10	A.2.2	Draft preliminary software specifications	3 days	Tue 03-10-17	Fri 06-10-17
11	A.2.3	Develop preliminary budget	2 days	Fri 06-10-17	Sun 08-10-17
12	A.2.4	Review software specifications/budget with team	4 hrs	Sun 08-10-17	Sun 08-10-17
13	A.2.5	Incorporate feedback on software specifications	1 day	Mon 09-10-17	Mon 09-10-17
14	A.2.6	Develop delivery timeline	1 day	Tue 10-10-17	Tue 10-10-17
15	A.2.7	Obtain approvals to proceed (concept, timeline, budget)	4 hrs	Wed 11-10-17	Wed 11-10-17
16	A.2.8	Secure required resources	1 day	Wed 11-10-17	Thu 12-10-17
17	A.2.9	Analysis complete	0 days	Thu 12-10-17	Thu 12-10-17
18	**B**	**System Design (SDS Stage)**	**22.5 days**	**Thu 12-10-17**	**Fri 03-11-17**
19	B.1	Review preliminary software specifications	2 days	Thu 12-10-17	Sat 14-10-17



Project: Software Development
Date: Wed 13-12-17

Task	Project Summary	Rolled Up Progress	Inactive Milestone	Manual Summary Rollup	Deadline		
Split	Group By Summary	External Tasks	Inactive Summary	Manual Summary	Progress		
Milestone	Rolled Up Task	External Milestone	Manual Task	Start-only			
Summary	Rolled Up Milestone	Inactive Task	Duration-only	Finish-only			

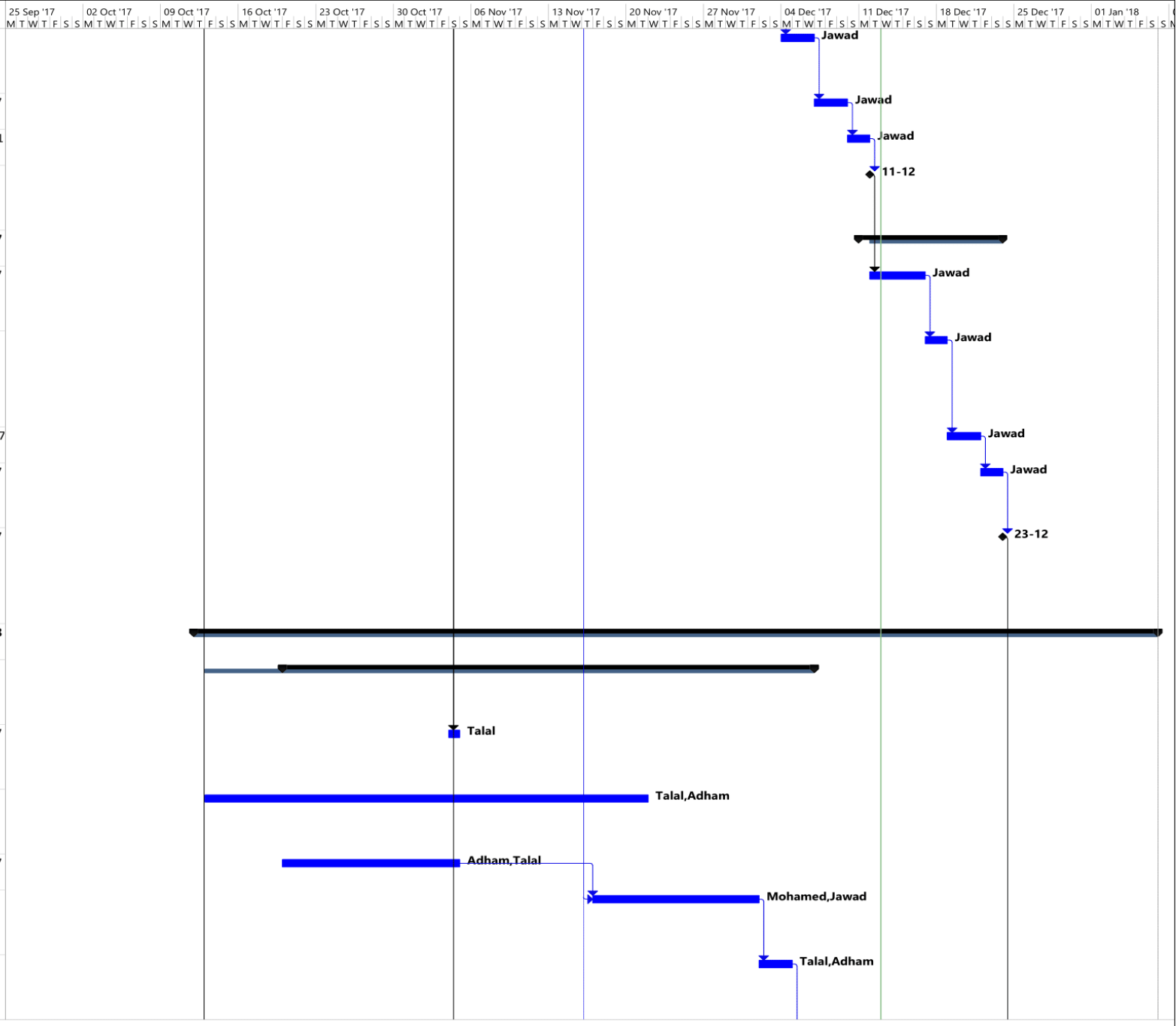
ID	WBS	Task Name	Duration	Start	Finish
20	B.2	Develop functional specifications	5 days	Sat 14-10-17	Thu 19-10-17
21	B.3	Design of System	7 days	Thu 19-10-17	Thu 26-10-17
22	B.4	Develop prototype based on functional specifications	5 days	Thu 26-10-17	Tue 31-10-17
23	B.5	Review functional specifications and Design	2 days	Tue 31-10-17	Thu 02-11-17
24	B.6	Incorporate feedback into functional specifications	1 day	Thu 02-11-17	Fri 03-11-17
25	B.7	Obtain approval to proceed	4 hrs	Fri 03-11-17	Fri 03-11-17
26	B.8	Design complete	0 days	Fri 03-11-17	Fri 03-11-17
27	**C**	**Software Development Stage**	**23 days**	**Sat 04-11-17**	**Sun 26-11-17**
28	C.1	Review functional specifications	1 day	Sat 04-11-17	Sat 04-11-17
29	C.2	Identify modular/tiered design parameters	1 day	Sun 05-11-17	Sun 05-11-17
30	C.3	Assign development staff	1 day	Mon 06-11-1	Mon 06-11-1
31	C.4	Develop Code and Database	20 days	Tue 07-11-17	Sun 26-11-17
32	C.5	Developer testing (primary debugging)	15 days	Sun 12-11-17	Sun 26-11-17
33	C.6	Development complete	0 days	Sun 26-11-17	Sun 26-11-17
34	**D**	**Software Testing Stage**	**39 days**	**Sat 18-11-17**	**Tue 26-12-17**
35	D.1	Develop unit test plans using product specifications	4 days	Sat 18-11-17	Tue 21-11-17
36	D.2	Develop integration test plans using product specifications	4 days	Sat 18-11-17	Tue 21-11-17
37	**D.3**	**Unit Testing**	**20 days**	**Wed 22-11-1**	**Mon 11-12-1**
38	D.3.1	Review modular code	5 days	Mon 27-11-1	Fri 01-12-17
39	D.3.2	Test component modules to product specifications	2 days	Sat 02-12-17	Sun 03-12-17



Project: Software Development
Date: Wed 13-12-17

Task	Project Summary	Rolled Up Progress	Inactive Milestone	Manual Summary Rollup	Deadline				
Split	Group By Summary	External Tasks	Inactive Summary	Manual Summary	Progress				
Milestone	Rolled Up Task	External Milestone	Manual Task	Start-only					
Summary	Rolled Up Milestone	Inactive Task	Duration-only	Finish-only					

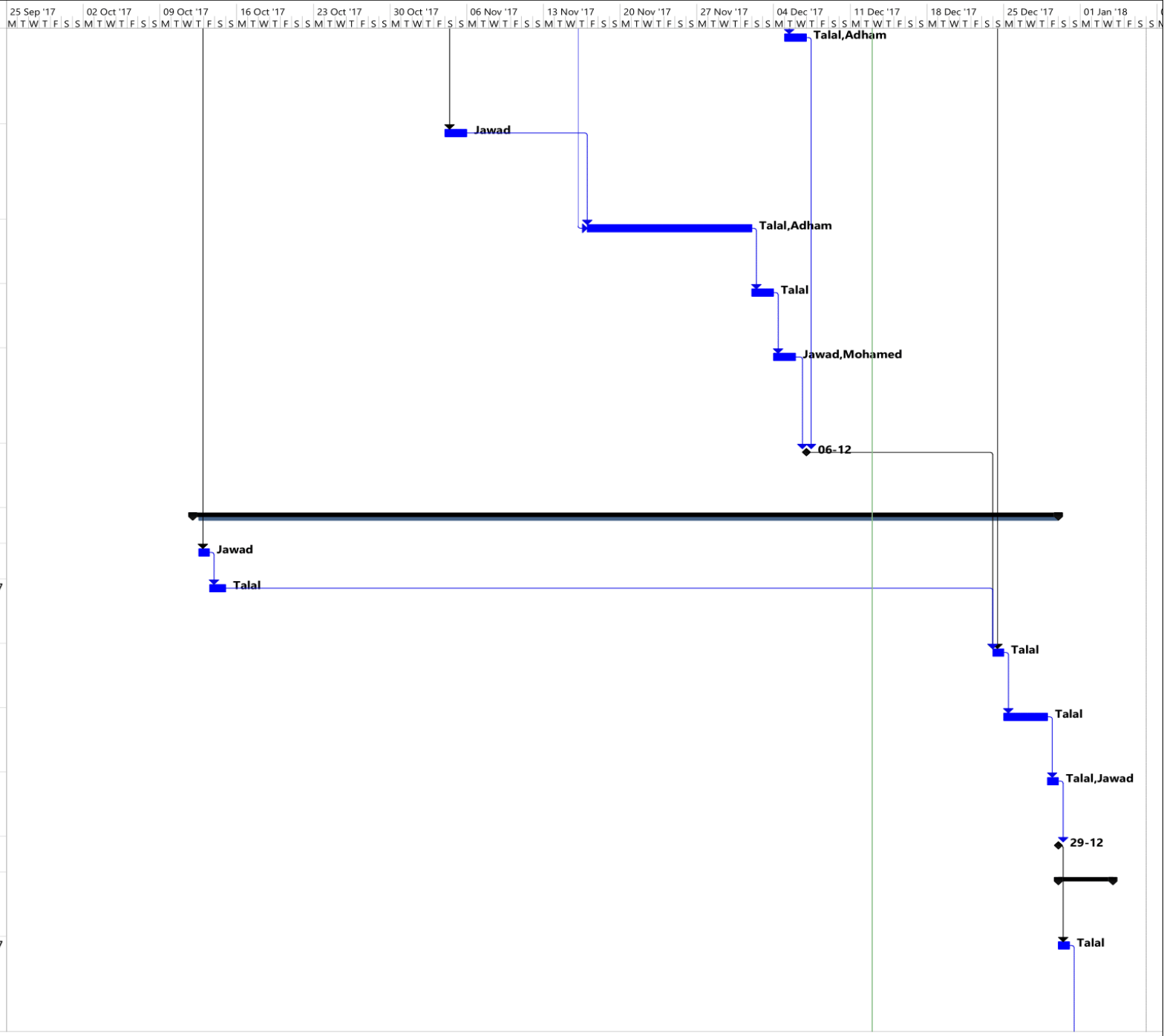
ID	WBS	Task Name	Duration	Start	Finish
40	D.3.3	Identify anomalies to product specifications	3 days	Mon 04-12-17	Wed 06-12-17
41	D.3.4	Modify code	3 days	Thu 07-12-17	Sat 09-12-17
42	D.3.5	Re-test modified code	2 days	Sun 10-12-17	Mon 11-12-1
43	D.3.6	Unit testing complete	0 days	Mon 11-12-17	Mon 11-12-17
44	**D.4**	**Integration Testing**	**13 days**	**Mon 11-12-1**	**Sat 23-12-17**
45	D.4.1	Test module integration	5 days	Tue 12-12-17	Sat 16-12-17
46	D.4.2	Identify anomalies to specifications	2 days	Sun 17-12-17	Mon 18-12-17
47	D.4.3	Modify code	3 days	Tue 19-12-17	Thu 21-12-17
48	D.4.4	Re-test modified code	2 days	Fri 22-12-17	Sat 23-12-17
49	D.4.5	Integration testing complete	0 days	Sat 23-12-17	Sat 23-12-17
50	**E**	**Documentation and Delivery**	**87 days**	**Thu 12-10-17**	**Sat 06-01-18**
51	**E.1**	**Documentation**	**48 days**	**Fri 20-10-17**	**Wed 06-12-17**
52	E.1.1	Develop Help specification	1 day	Sat 04-11-17	Sat 04-11-17
53	E.1.2	Develop SRS Document	40 days	Fri 13-10-17	Tue 21-11-17
54	E.1.3	Develop SDS Document	16 days	Fri 20-10-17	Sat 04-11-17
55	E.1.4	Develop Help system	3 wks	Fri 17-11-17	Fri 01-12-17
56	E.1.5	Review Help documentation	3 days	Sat 02-12-17	Mon 04-12-17



Project: Software Development
Date: Wed 13-12-17

Task	Project Summary	Rolled Up Progress	Inactive Milestone		Manual Summary Rollup	Deadline	
Split	Group By Summary	External Tasks	Inactive Summary		Manual Summary	Progress	
Milestone	Rolled Up Task	External Milestone	Manual Task		Start-only		
Summary	Rolled Up Milestone	Inactive Task	Duration-only		Finish-only		

ID	WBS	Task Name	Duration	Start	Finish
57	E.1.6	Incorporate Help documentation feedback	2 days	Tue 05-12-17	Wed 06-12-17
58	E.1.7	Develop user manuals specifications	2 days	Sat 04-11-17	Sun 05-11-17
59	E.1.8	Develop user manuals	3 wks	Fri 17-11-17	Fri 01-12-17
60	E.1.9	Review all user documentation	2 days	Sat 02-12-17	Sun 03-12-17
61	E.1.10	Incorporate user documentation feedback	2 days	Mon 04-12-17	Tue 05-12-17
62	E.1.11	Documentation complete	0 days	Wed 06-12-17	Wed 06-12-17
63	**E.2**	**Pilot**	**79 days**	**Thu 12-10-17**	**Fri 29-12-17**
64	E.2.1	Identify test group	1 day	Thu 12-10-17	Fri 13-10-17
65	E.2.2	Develop software delivery mechanism	1.5 days	Fri 13-10-17	Sat 14-10-17
66	E.2.3	Install/deploy software to Google's Play Store	1 day	Sun 24-12-17	Sun 24-12-17
67	E.2.4	Obtain user feedback	4 days	Mon 25-12-17	Thu 28-12-17
68	E.2.5	Evaluate testing information	1 day	Fri 29-12-17	Fri 29-12-17
69	E.2.6	Pilot complete	0 days	Fri 29-12-17	Fri 29-12-17
70	**E.3**	**Deployment**	**5 days**	**Sat 30-12-17**	**Wed 03-01-18**
71	E.3.1	Determine final deployment strategy	1 day	Sat 30-12-17	Sat 30-12-17



Project: Software Development
Date: Wed 13-12-17

Task	Project Summary	Rolled Up Progress	Inactive Milestone	Manual Summary Rollup	Deadline				
Split	Group By Summary	External Tasks	Inactive Summary	Manual Summary	Progress				
Milestone	Rolled Up Task	External Milestone	Manual Task	Start-only					
Summary	Rolled Up Milestone	Inactive Task	Duration-only	Finish-only					

ID	WBS	Task Name	Duration	Start	Finish
72	E.3.2	Develop deployment methodology	1 day	Sun 31-12-17	Sun 31-12-17
73	E.3.3	Secure deployment resources	1 day	Mon 01-01-18	Mon 01-01-18
74	E.3.4	Train support staff	1 day	Tue 02-01-18	Tue 02-01-18
75	E.3.5	Deploy software	1 day	Wed 03-01-1	Wed 03-01-1
76	E.3.6	Deployment complete	0 days	Wed 03-01-18	Wed 03-01-18
77	**E.4**	**Post Implementation Review**	**3 days**	**Thu 04-01-18**	**Sat 06-01-18**
78	E.4.1	Document lessons learned	1 day	Thu 04-01-18	Thu 04-01-18
79	E.4.2	Distribute to team members	1 day	Fri 05-01-18	Fri 05-01-18
80	E.4.3	Create software maintenance team	1 day	Sat 06-01-18	Sat 06-01-18
81	E.4.4	Post implementation review complete	0 days	Sat 06-01-18	Sat 06-01-18
82	F	Software development complete	0 days	Sat 06-01-18	Sat 06-01-18

Project: Software Development
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Task	Project Summary	Rolled Up Progress	Inactive Milestone	Manual Summary Rollup	Deadline				
Split	Group By Summary	External Tasks	Inactive Summary	Manual Summary	Progress				
Milestone	Rolled Up Task	External Milestone	Manual Task	Start-only					
Summary	Rolled Up Milestone	Inactive Task	Duration-only	Finish-only					

Team Project Tracker - Work Breakdown Structure (WBS)

WP NO	WORK STEPS	TIME	START DATE	END DATE	2017 September	October	November	December	18 January
WP1:	**Feasibility and Pre-Research (SRS stage)**	18 Days	25-09-17	12-10-17					
1.1.	**Scope**								
	Determine project scope								
	Secure project approval								
	Define preliminary resources								
	Secure core resources								
	Scope complete								
1.2.	**Analysis/Software Requirements**								
	Conduct needs analysis								
	Draft preliminary software specifications								
	Develop preliminary budget								
	Review software specifications/budget with team								
	Incorporate feedback on software specifications								
	Develop delivery timeline								
WP2:	**System Design (SDS Stage)**	23 Days	12-10-17	03-11-17					
2.1.	Review preliminary software specifications								
2.2.	Develop functional specifications								
2.3.	Design of System								
2.4.	Develop prototype based on functional specifications								
2.5.	Review functional specifications and Design								
2.6.	Incorporate feedback into functional specifications								
2.7.	Obtain approval to proceed								
2.8.	Design complete								
WP3:	**Software Development Stage**	23 Days	04-11-17	26-11-17					
3.1.	Review functional specifications								
3.2.	Identify modular/tiered design parameters								
3.3.	Assign development staff								
3.4.	Develop Code and Database								
3.5.	Developer testing (primary debugging)								
3.6.	Development complete								
WP4:	**Software Testing Stage**	39 Days	18-11-17	26-12-17					
4.1.	Develop unit test plans using product specifications								
4.2.	Develop integration test plans using product specifications								
4.3.	**Unit Testing**								
	Review modular code								
	Test component modules to product specifications								
	Identify anomalies to product specifications								
	Modify code								
	Re-test modified code								
	Unit testing complete								
4.4.	**Integration Testing**								
	Test module integration								
	Identify anomalies to specifications								
	Modify code								
	Re-test modified code								
	Integration testing complete								
WP5:	**Documentation and Delivery**	87 Days	12-10-17	06-01-18					
5.1.	**Documentation**								
	Develop Help specification								
	Develop SRS Document								
	Develop SDS Document								
	Develop Help system								
	Review Help documentation								
	Incorporate Help documentation feedback								
	Develop user manuals specifications								
	Develop user manuals								
	Review all user documentation								
	Incorporate user documentation feedback								
	Documentation complete								
5.2.	**Pilot**								
	Identify test group								
	Develop software delivery mechanism								
	Install/deploy software to Google's Play Store								
	Obtain user feedback								
	Evaluate testing information								
	Pilot complete								
5.3.	**Deployment**								
	Determine final deployment strategy								
	Develop deployment methodology								
	Secure deployment resources								
	Train support staff								
	Deploy software								
	Deployment complete								
5.4.	**Post Implementation Review**								
	Document lessons learned								
	Distribute to team members								
	Create software maintenance team								
	Post implementation review complete								
	Software development complete								