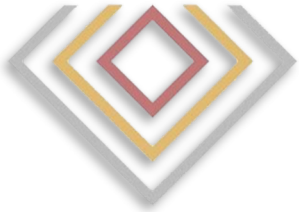
جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

Imam Abdulrahman Bin Faisal University
College of Computer Science & Information Technology
Department of Computer Science

CS 411 – Software Engineering
Term 1 – 2019/2020

Software Project Management Plans
For



جواهر
JAWAHER

L7F2 – Team 2

Version 1.0
Mrs. Lubna Tahlawi

October 10, 2019

This Software Project Management Plans (SPMP) was prepared and provided as a deliverable for Software Engineering, CS 411, Term 1, and it will be used by all JAWAHER employees and customers in JAWAHER Alnemer Jewels Company, Eastern Province, Saudi Arabia .

This document is based in part on the IEEE Recommended Practice for SPMP Descriptions.

- **Team Members:**

#	Name	Role
1	Zahra Maher Al-Nemer	Leader
2	Reem Fadhel Aljishi	Member
3	Zahra Majed Al-Zawad	Member
4	Fatimah Abbas Alramadhan	Member
5	Fatimah Yousef Alomran	Member

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Revision History

This record is to keep track of the changes and updates that have been made to the SPMP after the initial version on 27th of September, 2019.

Name	Date	Reason For Changes	Version
All members	September 27, 2019	Prepared initial version	0.1
All members	October 5, 2019	Updated section 1	0.2
All members	October 6, 2019	Updated section 2	0.3
All members	October 8, 2019	Updated section 3	0.4
All members	October 10, 2019	Updated section 4	0.5
All members	October 10, 2019	Updated section 5 and 6	0.6
All members	October 19, 2019	Spelling/ Grammar mistakes	0.7
All members	October 19, 2019	Complete review - Final version	1.0

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1. Project Overview

This section of the provides an overview of the purpose, scope and objectives of the project for which the Plan has been written, the project assumptions and constraints, a list of project deliverables, a summary of the project schedule and budget.

1.1 Purpose, Scope, and Objectives

This JAWAHER project is presented for the Software Engineering course (CS411). This website will be developed to organize and manage sales services for the JAWAHER jewelry company. To be clarified, it aims to simplify and facilitate all sales and purchasing operation for/by the customer remotely rather than having to come to the geographical location of the shop branch to see the jewels products and buying them, so it will be easy for the customer to buy any jewelry product from any location worldwide. In addition to that, it will let the employee to manage everything related to selling jewels products. There are functional requirements that project team members should meet such as developing, designing, debugging, and maintaining the website and so on.

- The main features of the website are:
  - give the customer the ability to view the jewels products with all information and add it to the shopping cart, and submitting the purchasing request.
  - supply the employee with the ability to the to modifying, deleting and add products with all its information and categorized them in collections and manage the purchasing requests.

- The website main objectives is to:
  - Improve the quality of services that the JAWAHER offers. This system will be easy to use and comfortable for the end-user.
  - Facilitate the operations starting from view the jewels collections and products with its prices for the customer and ending with the success of completing purchasing it by him.
  - Complete the project before the deadline.

1.2 Assumptions, Constraints and Risks

Table 1 shows the assumptions and constraints that are necessary to ensure the project's success. It also represents the potential risks that cause the project failure (details in section 3.4):

Type	Assumptions, Constraints and Risks
Assumptions	Team members are expected to have the knowledge and skills to ensure project completion successfully.
	Working collaboration and communication between team members is expected from all of them and ensures overcoming the obstacles.
	The project manager distributes tasks equally and fairly among team members based on their skills and abilities with a realistic schedule of time.
	Availability of all resources required to complete the project as per schedule successfully.
Constraints	Due to coming exams, the working hours will be limited to12-15 hours per week.
	Considering to lack of time, the code will not be coded from scratch, but the WIX tool will be used to develop the website.

Risks	The member may resign or be dismissed while he is working, causing pressure on the rest of the team members and delaying the project delivery.
	Mal of software quality due to poor communication and miss lacking skills between/of team members.
	Lack or unavailability of resources, programs, members and other tools that required to accomplish the project.
	The company may be exposed to a financial crisis that disrupts or prevent the successful completion of the program.

Table 1 Description of Assumptions, constraints and risks.

1.3 Project Deliverables

Table 2 represents the required deliverables, to whom, format, date and location to complete this project. This is represented as a working system, with only a single copy of each deliverable described below will be provided.

deliverables	to whom	format	date	location
Defining Project	Mrs. Lubna Tahlawi	Software	September 16, 2019	Company's website
Project Proposal	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	September 19, 2019	Company's website
Software Project Management Plan (SPMP)	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	October 19, 2019	Company's website and Company's building
Software Requirement Specification (SRS)	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	October 31, 2019	Company's website and Company's building
Status Report	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	November 7, 2019	Company's website and Company's building
Software Design Specification (SDS)	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	November 21, 2019	Company's website and Company's building
Software Test Plan (STS)	Mrs. Lubna Tahlawi	Softcopy and Hardcopy	December 5, 2019	Company's website and Company's building
Delivery of the Project Code	Mrs. Lubna Tahlawi	Softcopy	December 12, 2019	Company's website

Table 2 JAWAHER Deliverables

1.4 Schedule and Budget Summary

The code and presentation will be in December 2019. Due to printing and binding the deliverables, there will be a part of the budget for them. Besides the team members, their salaries are counted, but our website will be free to use (More details in section 3.2.4).

1.5 Evolution of the Plan

This is the initial version of SPMP template, any other modifications or updates on the scheduled plans, the team manager Zahraa Al-Nemer, and the supervisor Mrs. Lubna Tahlawi must approve that first, then forward it to other members via Company's website, else the members can modify the plan without a supervision approval and share it by WhatsApp or email.

1.6 References

[1] TheFreeDictionary, "HTML5 | encyclopedia article by TheFreeDictionary," [Online]. Available: https://encyclopedia.thefreedictionary.com/Html5. [Accessed 15 October 2019].

[2] TheFreeDictionary , " Local area network | encyclopedia article by TheFreeDictionary," [Online]. Available: https://encyclopedia.thefreedictionary.com/Local+Area+Network. [Accessed 15 October 2019].

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[5] tutorialspoint, "SDLC - Overview," [Online]. Available: https://www.tutorialspoint.com/sdlc/sdlc_overview.htm. [Accessed 15 October 2019].

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[7] STC Admin, " Software Requirement Specification (SRS)," 26 April 2015. [Online]. Available: https://www.softwaretestingclass.com/software-requirement-specification-srs/. [Accessed 15 October 2019].

[8] Techopedia, " What is a Test Plan? - Definition from Techopedia," [Online]. Available: https://www.techopedia.com/definition/30546/test-plan. [Accessed 15 October 2019].

[9] L. Sharma, "What is WaterFall Model?," 17 April 2017. [Online]. Available: https://www.toolsqa.com/software-testing/waterfall-model/. [Accessed 15 October 2019].

[10] WhatIs, " What is WhatsApp? - Definition from WhatIs.com," [Online]. Available: https://searchmobilecomputing.techtarget.com/definition/WhatsApp. [Accessed 15 October 2019].

[11] V. Beal, " What is Wi-Fi (Wireless)? Webopedia Definition," [Online]. Available: https://www.webopedia.com/TERM/W/Wi_Fi.html. [Accessed 15 October 2019].

[12] " IDE (Integrated Device Electronics or Integrated Development Environment) Definition," 8 July 2015. [Online]. Available: https://techterms.com/definition/ide. [Accessed 15 October 2019].

1.7 Definitions and Acronyms

Table 3 represents definition of all terms mentioned in this document.

Terminology	Definition
HTML5	HTML5 is a markup language used for structuring and presenting the content on the web, it is an improved version 5 of the HTML that has more features. [1]
Local Area Network (LAN)	A local area network (LAN) is a network that connects the computer within a limited or small area. [2]
Software Development Kit (SDK)	collection of software that includes an IDE that used to develop applications. [3]
Software Design Specification (SDS)	Software Design Specification is a document that defines all data, architectural, interface and component-level design of the software. [4]
Software Development Life Cycle (SDLC)	Software Development Life Cycle is a process followed for a software project developed in an organization that contains a plan describes how to develop, maintain, replace, and alter or enhance specific software and it used to develop the quality of software and overall development process. [5]
Software Project Management Plan (SPMP)	Software project management plan is a plan that states the process, overview, deliverables, materials, and tools that must be fulfilled by the team members, it includes many plans such as the budget, schedule, and resource requirements. [6]
Software Requirement Specification (SRS)	A software requirements specification (SRS) is an exhaustive description of the developed software system with its functional and non-functional requirements. [7]
Software Test Plan (STS)	A software test plan is a technical documentation which specifics a systematic approach to test a system such as device, machine, or software that clarifies the details of how the system works, it is functions, and whether is the software works as its design in order to find bugs and specifies its actual bounds. [8]
Waterfall Model	Waterfall model is an SDLC approach that used for software development that divided into separate phases in which is each phase can start after the previous phase is complete and at the end of each phase a review operation to decide whether is the project progressing right or not to continue or dismiss the project. [9]
WhatsApp	WhatsApp is a cross-platform instant messaging application used for communication between different devices. [10]
Wi-Fi	Wireless Fidelity (Wi-Fi) is a wireless technology uses radio waves to provide high-speed Internet communication without a physical wire between the sender and receiver. [11]
WIX	An online SDK used to build websites in drag and drop technique with the HTML5 language.
Integrated Development Kit (IDE)	Integrated Development Kit (IDE) is an application that developers use to develop programs, consists of multiple development tools such as source code editor, debugger, and compiler and more that combined in one program. [12]

Table 3 Definitions

Table 4 list the acronyms mentioned in this document:

Acronyms	Detention
GUI	Graphical User Interface.
LAN	Local Area Network.

PC	Personal Computer.
QC	Quality Control.
SDLC	Software Development Life Cycle.
SDS	Software Design Specification.
SPMP	Software Project Management Plan.
SRS	Software Requirement Specification.
STS	Software Test Plan.
WBS	Work Breakdown Structure.
IDE	Integrated Development Kit.

Table 4 List of Acronyms

1.8 Document Structure

This subsection shows the description of the whole document plan as provided below:

- **Section 1 (Project Overview):** This section shows a general overview, purpose, scope, and objectives of the project initially. Secondly, its assumptions, constraints, and risks that the project may have, deliverables schedule with its dates and necessary details. Also, the budget summary and evolution of the plan for the scheduled and non-scheduled submissions and who is in charge to accept it. Finally, it provides the references of all other sources, abbreviations, and acronyms used in this document.

- **Section 2 (Project Organization):** it includes external structure which shows the supervisor, client and developers for the project, also the internal structure that explains the team members, their organizational structure, and their job titles. Finally, the roles and responsibilities for each member of them in the project.

- **Section 3 (Managerial Process Plans):** in the beginning, this section discusses a start-up plan that has three subsections, which are estimates, staffing, and project staff training. The next thing is the work plan, which also divided into four subsections that are: work breakdown structure, schedule allocation, resource allocation, and budget allocation. Also, the project tracking plan that includes five sub-sections which are: requirements management, schedule control, quality control, reporting, and project metrics. Moreover, the risk management plan takes place, and we conclude this section by showing the project closeout plan.

- **Section 4 (Technical Process Plans):** this section consists of a process model that contains technical solutions used in terms of implementation methods, techniques, and tools used to develop this website. Moreover, this section shows the infrastructure which determines the plan to maintain and install software, hardware, operating system and so on. Finally, product acceptance will be assigned by a person who is responsible to accept or reject the project final product.

- **Section 5 (Supporting Process Plans):** this section consists of the documentation table to follow when prepare and review each document to the successful delivery of the project.

- **Section 6 (Additional Plans):** this section describes extra plans needed for contractual terms and project requirements.

2. Project Organization

This clause explains the external interfaces, internal interfaces and project roles and their responsibilities.

2.1 External Interfaces

The proposed JAWAHER is supervised by Mrs. Lubna Tahlawi and intended for JAWAHER jewelry company. Meetings or discussions will be conducted with the supervisor and the client via e-mail. Figure 1 shows the external interfaces.

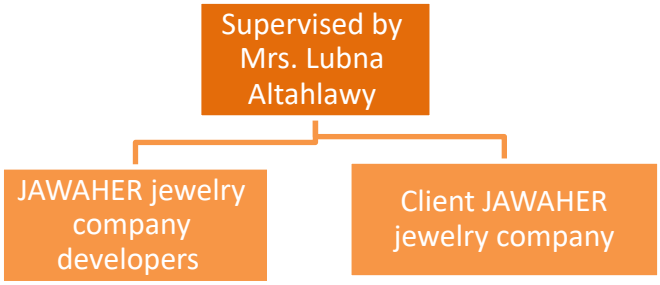

Figure 1 JAWAHER jewelry's External interface

2.2 Internal Interfaces

The proposed JAWAHER will be managed and completed by the team members: Zahra Al-Nemer, Reem Aljishi, Zahra Al-Zawad, Fatimah Alramadhan and Fatimah Alomran. All the team members will be leaded by: Zahra Al-Nemer, and supervised by: Mrs. Lubna Tahlawi. As shown in Figures 2 the structure of the team is hierarchical.

Members can contact each other on weekdays by phone number for quick reviews, updates and queries, meetings will conduct twice a week to ensure that the project is progressing as scheduled in the plan.

All team members have good experiences and diverse professional, managerial, and technical skills that will help them complete the different roles assigned to them well. in order to get the most benefit out of each member and keep the work flow as smooth as possible. we will follow one of the most effective method to achieve the project goals, which is assign each member to the best proper role among the team and matching their experience scope. Figure 3 shows the project's organizational structure, note that the roles of the members are expected to change during the project to overcome any weaknesses that might arise during the project.

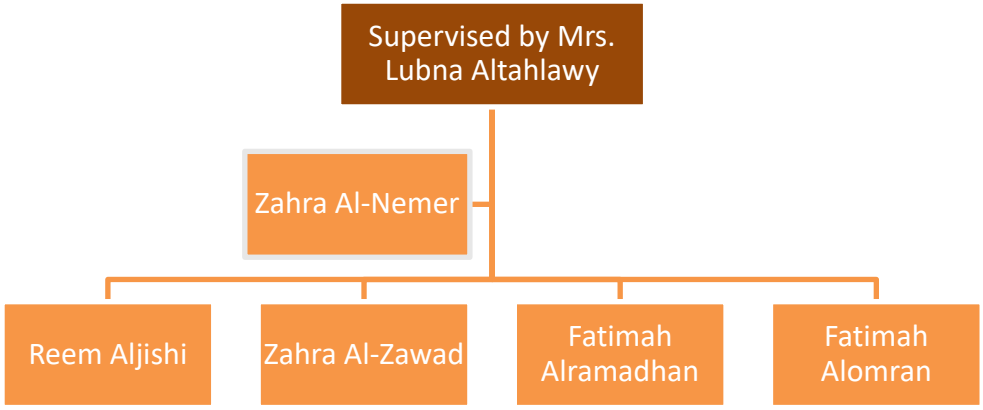

Figure 2 Project team members

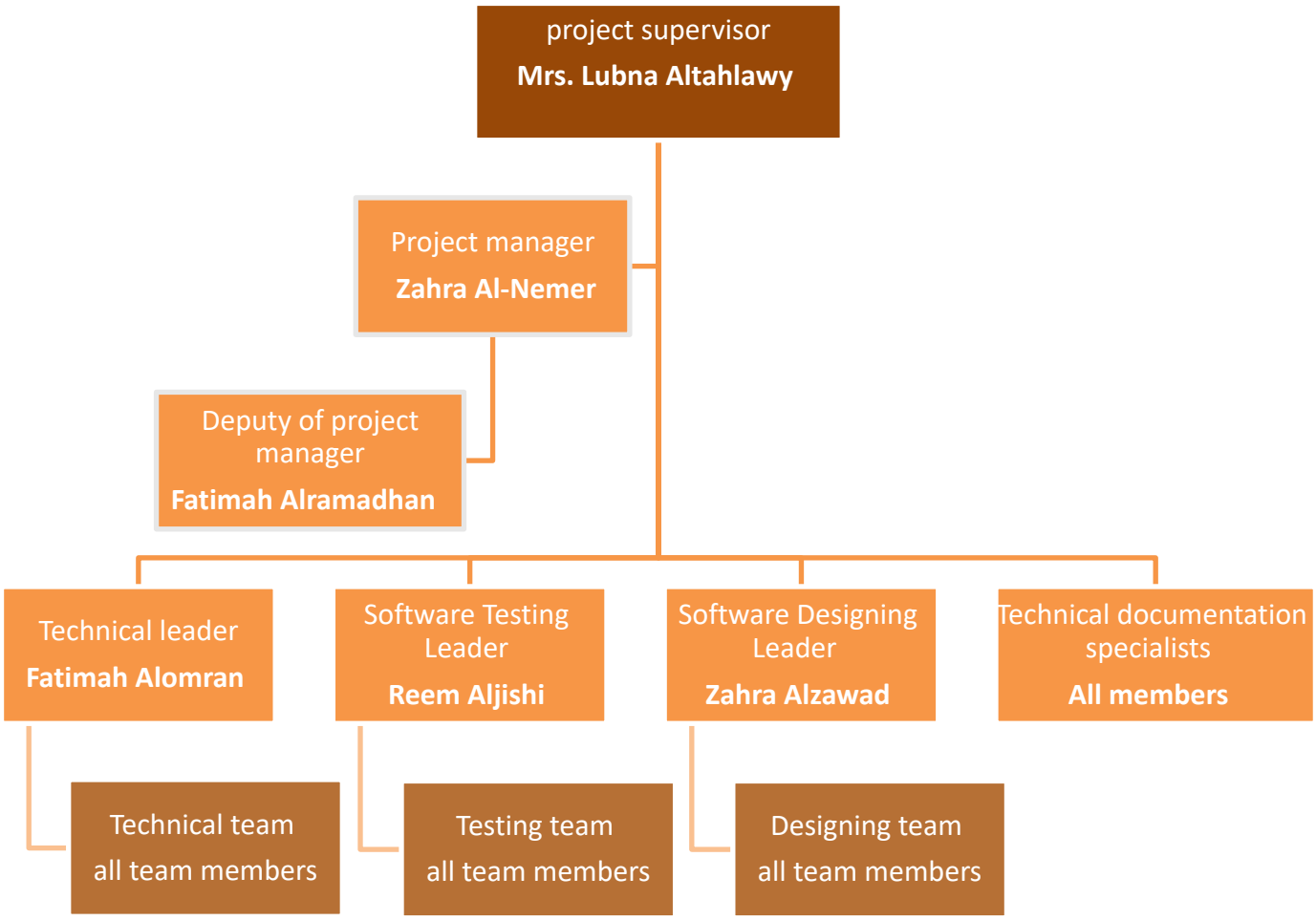

Figure 3 Project's Organizational Structure

2.3 Roles and Responsibilities

This sub clause shows the major responsibilities for each role, Table 5

Member name	Responsibilities	Role
Leader: Zahra Al-Nemer	• Define the project goals. • Designing a project plan. • Organizing and motivating a project team. • Managing the project. • Monitoring progress. • Managing budget.	Project manager
Leader: Fatimah Alramadhan	• Assisting project manager • Analyzing and managing project risk • Designing alternative plans.	Deputy of project manager

Leader: Fatimah Alomran	• Explain the goals to the team members. • Maintain a proper progression of work. • Deliver a great product to the market	Technical leader
Leader: Reem Aljishi	• Assuring to produce fault free software. • Testing and modifying systems	Software Testing Leader
Leader: Zahra Alzawad	• Designing a suitable software that serves the project goals. • Designing user friendly interfaces that fit the software requirements.	Software Designing Leader
All Team Members	• Writing the project's technical documentation.	Technical Documentation Specialists

Table 5 Roles and Responsibilities of Team Members

3. Managerial Process Plans

This section specifies the project management processes for the project. In addition, it defines the plans for project start-up, risk management, project's work, tracking and close-out.

3.1 Start-up Plan

Here in the start-up plan we mainly discuss the estimation of resources in the project, in addition to costs, budgets, staffing and their training.

3.1.1 Estimates

JAWAHER website will be created and published to clients for free. Designing and testing the website should not contribute to the cost. On the other hand, documentation may approximately cost 500SR. These come from printing the documents (25 SR for each) and binding the documents (15 SR for each). In addition, human resources include the work and effort each member contributes into their tasks. We are planning on finishing the project in 3 months; 5 days a week. Since there are 5 members working on this project, we estimated that each member will allocate 3 hours each day to work. Task durations are explained on table 6 below.

3.1.2 Staffing

Our team is a group of 5 members, all of which are from level 7 in Imam Abdulrahman ibn Faisal University. We all have experiences in HTML coding, and the necessary skill in writing reports, research, decision making, team work, and communication skills. The table below shows the project's phases, resources and the necessary duration.

Project Phase	Human Resources	Duration
Project Proposal	Team members, project manager and clients.	1 week
SPMP (submit project management plan)	Team members, project manager and clients.	3 weeks
SRS	Team members, project manager and clients.	2 weeks
Status Report	Team members, project manager and clients.	1 week
SDS	Team members, project manager and clients.	1 week
STS	Team members, project manager and clients.	2 weeks
Final Project Source code	Team members, project manager and clients.	1 week

Table 6 Project's Staffing Plan

3.1.3 Project Staff Training

Developing a successful website requires the whole team to have skills in a variety of aspects in project development. Each team member (depending on their role in the project) is expected to have the skills represented in the table 7 below from previous projects and experiences, and if any of the skills are not attained or new skills are required, online lectures and consultations are offered to help them reach their goal.

Role	Skills
Project Manager	• Communication skills • Critical thinking skills. • Decision making skills • Leadership skills • Negotiation skills • Problem solving skills
Deputy Of Project manager	• Interpersonal skills • Communication skills • Problem solving skills
Technical leader	• Analytical skills • Communication skills • Critical thinking skills • Team working skills § Technical skills
Software Testing Leader	• Analytical skills • Communication skills • Critical thinking skills • Team working skills • Technical skills
Software Designing Leader	• Creativity skills • Imagination • Knowledge design programs
Technical Documentation Specialist	• Research skills • Team working skills • Writing skills

Table 7 Staffing Required Skills

3.2 Work Plan

Here we discuss how we are going to break down the project and how resources and budgets are assigned.

3.2.1 Work Breakdown Structure

The Table below shows the break downs of the project, and the estimated duration of each task we are following to ensure full allocation of resources and time management.

Task No.	Task Name	Estimated Duration	Products or deliverables of the activity	Status
1	Defining Project	1 week	Orally	Completed
2	Project Proposal	1 week	Document	Completed
3	SPMP (Submit project management plan)	3 weeks	Document	Completed
4	SRS (Submit project requirements)	2 weeks	Document	Not Completed
5	Status Report	1 week	Document	Not Completed
6	SDS (Submit Project Design)	1 weeks	Document	Not Completed

7	Implementation	Until Testing		Not Completed
7.1	Interfaces			
7.2	Generating the source code (drag and drop)			
8	STS (submit project test)	2 weeks	Document	Not Completed
9	Submit Final Project and Report	1 week	Document	Not Completed

Table 8 Scheduled Activities

3.2.2 Schedule Allocation

We used the task, duration, and dependencies table to represent schedule allocation and relationships. The path in the schedule goes from task 1 to 8 in order with the duration specified in the table.

Task No.	No. of people assigned	Duration	Dependencies
1	All team members	1 week	
2		1 week	
3		3 weeks	
4		2 weeks	
5		1 week	T1, T2, T3, T4
6		1 weeks	
7		Until testing	T6
7.1			
7.2			
8		2 weeks	T7, T7.1, T7.2
9		1 week	

Table 9 JAWAHER's Tasks, duration, and dependencies

We also used the figure below to show how much time is allocated for each task.

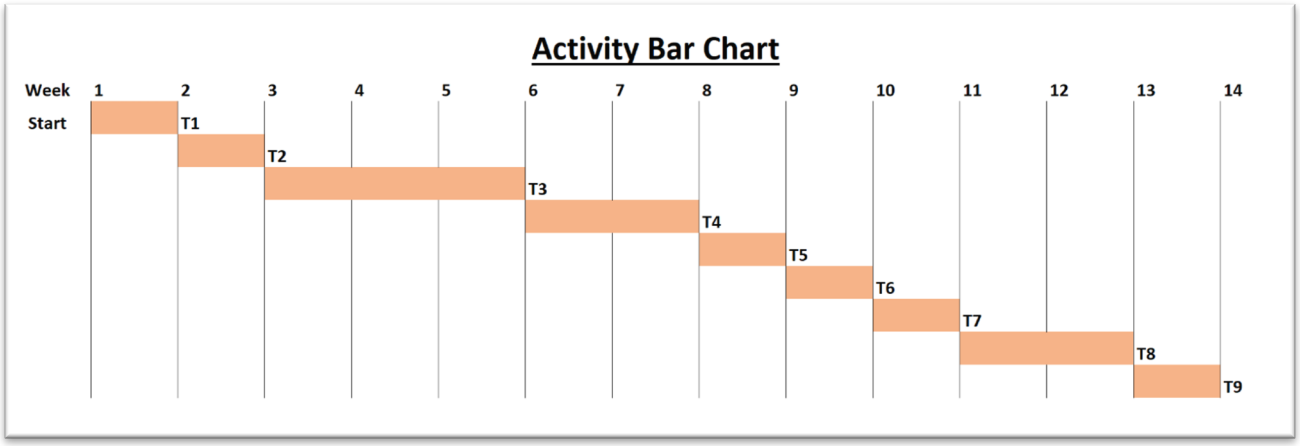

Figure 4 Activity Bar Chart for schedule allocation

3.2.3 Resource Allocation

Resources include both human resources (team members and the advisor) and non-human resources (WIX tool, Microsoft apps, Google documents and printers, Adobe illustrator, Adobe Photoshop, Web browser). The table below represents each task with its allocated resources.

Task No.	Task name	Human resources	Non-Human resources
1	Defining the Project	All Team members and the advisor.	• Word processor
2	Project Proposal		• Word processor • Adobe Photoshop • Adobe illustrator • Printer
3	SPMP		• Word processor • Adobe Photoshop • Adobe illustrator • Printer
4	SRS		• Word processor • Printer
5	Status Report		• Word processor • Printer
6	SDS		• Word processor • Printer • Adobe Photoshop • Adobe illustrator • WIX tool • Web browser
7	Implementation		• WIX Tool • Web browser
7.1	Interfaces		• Word processor • Adobe Photoshop • Adobe illustrator • WIX tool • Web browser
7.2	Generating the source code (Drag and Drop)		• WIX tool • Web browser
8	STS		• WIX tool • Web browser • Word processor • Printer
9	Submit final project ad report		• Word processor • Printer

Table 10 Resource Allocation

3.2.4 Budget Allocation

We will need:

1) A PC to make all the documentations required plans, and to design and test the website. These services are not charged.
2) A printer to submit the hard copies of each documented task. The cost of printing depends on the number of pages we write in each task, so it will cost about 200 SR for all the documents and binding might cost about 15 SR for each task.

3.3 Project Tracking Plan

3.3.1 Requirements Management

We aim to deliver a successful website for JAWAHER company. To do that, requirements should be clearly stated and strictly followed by all team members, this insures traceability and consistency in work flow. Some requirements have an important impact on website developing and it can't function without it, which are agreed upon beforehand between team members and the clients.

Team members and the client should decide that if any changes in the requirements occur, is it important to make the change or not, and if so, how urgent is it. If the change is dramatic, it must be discussed thoroughly with the whole team and be done with maximum effort, also we must update the document and take the approval from all group members and project advisor. On the other hand, if the change is less important and it won't affect the website's functionality, the decision can made depending if there's time or not.

3.3.2 Schedule Control

Our task schedule stated in section 3.2.1 (Work Breakdown Structure) is frequently restructured as we progress, where changes happen and time passes. Also, our Project Manager is responsible for keeping track of the work flow and making sure that we're following the plan and all tasks are completed on time, we also agreed on having a meeting twice a week to discuss the work improvements, if we have any problem or questions, and if we need assistance. Moreover, it is necessary to develop techniques to ensure that we are following the plan, and if any member is behind these techniques should help them get back on track.

3.3.4 Quality Control

Quality control (QC) is a set of procedures planned to ensure that the product or the service follows a defined set of requirements of the customer. It's the responsibility of the Project Manager and Deputy of Project manager to keep an eye on QC.

Therefore, before any submission, it must be evaluated first by the whole team many times to ensure that it is flawless and meets every requirements and specification for JAWAHER company and the clients.

3.3.5 Reporting

Group meetings are held regularly, and during which we report to our group manager who ensures the plan is going perfectly and reports to the advisor about the status of our project. Also, we report to our clients, JAWAHER company members about the progress of their project.

Communication and reporting is key to ensure a flawless workflow, we use group meetings, WhatsApp groups and Google docs as our reporting methods. and each method has its reasons, which are shown in the table below.

Reason to communicate / report	Communication / reporting method
• Monitor the project status. • Move to next stage. • Change in the plan. • Test the work	Physical Group Meetings
• Clarifying misunderstood points. • Share resources. • Determine a day and time for face-to-face meeting. • Ask quick simple questions	WhatsApp Group
To collect the written parts of the task all in one place so it becomes clearer and bonded like one complete report.	Google Docs

Table 11 Reporting Methods

3.3.6 Project Metrics

Metrics are a type of measurements that help companies see their work going successfully, and help the project manager and the advisor measure the project position and to help teamwork quality and productivity.

There are many metrics which are set depending on a project's objectives and quality. There are 3 important measurements we are looking for in our project:

1- **Quality and Satisfaction:** Quality reassurance and customer satisfaction are the way to ensure that the client is happy and there aren't many problems with the work we are doing. It also ensures a perfect quality deliverables at the end of each task.

2- **Productivity:** this metric ensures using the resources in all the right ways. It is done by comparing the budgeted with the final product, like in some case the productivity is effected by relations of group members and the work environment itself.

3- **Cost:** Measuring how costs and expenses are overseen is generally critical to a project's success. It has various factors that depend on the project itself, for example; quality, scope and productivity. On the off chance that it goes higher than or beneath projections, the task will endure; that is why costs must be in their best shape in all the phases of the project.

3.4 Risk Management Plan

Specifying the risk managements plan beforehand is very important to control any possible unplanned surprising events. Moreover, classifying the effects of each risk on the task and its likelihood to happen is vital. The table below shows some potential risks and their management plans:

Potential Risk	Risk Type	Probability	Effects	Action	Prevention
Change in the requirements	Requirement risk	Moderate	Tolerable	Adapt to the new requirement.	Explain the impact of changing to the client.

Miscommunication	People risk	Moderate	Serious	Make sure that each member gets a chance to contribute. All opinions must be valued.	Each member introduces themselves prior to starting the work. Also, respecting each other is necessary.
Lack of resources	Organizational risk	Low	Insignificant	Aske another team about their recourse.	Provide online resources.
Time shortage	Estimation risk	Low	Insignificant	Working in the weekend.	A perfect plan schedule from the beginning of the project.
Illness and absence of team members	People risk	Low	Serious	Additional sessions if needed.	Warning from unnecessary absence.

Table 12 Risk Management Plan

3.5 Project Closeout Plan

The project closeout plan authorizes that all project tasks are done; all requirements are fulfilled. The reason behind the closeout plan is to evaluate the project and ensure completion.

A list with all the requirements and needs of the client is made in alignment to close out the project. Before the final submission, all team members and the project advisor must approve of the final project's overall look and feel, and the work should be checked several times. The following points must be done by submission time:

- Project proposal.
- SMPM document.
- SRS document.
- Statues report.
- SDS document.
- STP document.
- The final website.

4. Technical Process Plans

This section explains the process model, methods, tools, project's infrastructure and acceptance

4.1 Process Model

The JAWAHER website will obey the waterfall model. As one phase cascades into another, waterfall best suites the development process. All the requirements are clearly identified from the project launch, and start and end dates have been set for each phase since it is a plan-driven process model. The SDLC of the waterfall model involves five principal stages:

1- ***Requirement analysis:*** Understand what services are required, constraints and goals fully to create the SRS document.
2- ***System and software design:*** understanding the system's architecture and creating the SDS document.
3- ***Implementation:*** creating the website's source code.
4- ***System testing:*** test the system to ensure that the requirements of the software have been met.
5- ***Maintenance:*** repair defects which were not discovered in earlier phases.

Following all these phases leads to a successful JAWAHER application.

4.2 Methods, Tools, and Techniques

There are some tools and method will be used in the software , table -13- lists some below:

Phase	Tools	Methods	Standards
Planning	Microsoft word	None	IEEE Std 1058 – 1998
Requirement Analysis	Microsoft word	Activity diagrams	IEEE Std 830 –1998
System Design	Microsoft word Draw.io	Entity Relationship Diagram Data flow diagram	IEEE Std 1016–1998
Implementation	GUI WIX tools Adobe Photoshop Adobe illustrator	Design Interface	None

Table 13 Tools and Methods in Different Phases

4.3 Infrastructure

The application needs environment which contains suitable hardware, network, operating system, software, and facilities that success the application, table -14- displays required development environment:

Infrastructure Plan	
Hardware	Each member has his own PC.

Network	- High-speed Ethernet LAN. - Wi-Fi. - High-level password security authentication.
Operating System	- Macintosh operating system. - Windows 10.
Software	- Microsoft Office. - WIX SDK online tools.
Facilities	- Workstation / office. - Resources: printers, scanners.

Table 14 Infrastructure Required

4.4 Product Acceptance

The success of the project affected by meets the requirements of the client. The requirement should be identified from the client with the developers. The SRS document should clearly state all requirements to increase the client's satisfaction.

- Each deliverable will be evaluated by Mrs. Lubna Tahlawi before launching the application and the final product should be valued by the client (JAWAHER Company).

5. Supporting Process Plans

This section will explain the documentation of JAWAHER's website.

5.1 Documentation

Writing and reviewing the JAWAHER documents is the responsibility of each team member. Table "number" "table name" displays the list of documents that will be created and maintained and updated for each phase of the development process.

Type (Name)	Format Standard	Estimated Page count (page)	Prepare document	Review document
Defining project	Provided by project supervisor	1	All Team Members	Project Supervisor Mrs. Lubna Tahlawi
Project proposal	Provided by project supervisor	3		
Project management plan SPMP	IEE std 1058-1998	25		
Project Requirements (SRS)	IEE std 1058-1998	10		
Project Design (SDS)	IEE std 1058-1998	50		
Project Test Plan (STP)	IEE std 1058-1998	10		
Final product	Provided by project supervisor	100		

Table 15 JAWAHER's Documentation

6. Additional Plans

Additional plans can be added to the plans listed in the previous sections. There are several additional plans to be considered to maintain the functionality of the software project.
These plans include:

1- Assuring safety, privacy, and security are important requirements to meet.
2- User training plans: held a workshop to train end-users.
3- Product maintenance plans to fix any errors that may happen.
4- Project test plans: test security and privacy.
5- Developing plans: updating the software and improve functionality.

The purpose of these plans is to maintain the software and protecting the system and system user information, these plans are extended from project long term goals.