PSI Requirements Specification

Version 1.0

April 15, 2022

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1. Executive Summary

1.1 Project Overview

Nowadays companies are using Project Management Systems to increase the efficiency of the products. Some different projects may be running at the same time , so a proper software to fully organize and divide the work in the group is needed. Since several workers take part in each project , the application will play a critical role in creating reliable and high quality projects. We considered the possibility that a Project Management System is needed and is in demand for some companies or businesses .

1.2 Purpose and Scope of this Specification

PSIΨ Project Management System main purpose is to help in managing various projects in a company. It is designed to manage and store project information , as it allows easy management and tracking of several projects. It is an effective software system to help manage these activities in any project, so the primary goal is to ease the companies tasks division and management and also to make a complete project for everyday use , which confirms all demands and requirements of the client.

2. Product/Service Description

2.1 Product Context

The context of the Software that we are creating is closely related to companies that need help in managing various projects. This Web based Project Management System can increase performance, productivity and efficiency within the teams. This application will be used by the team leader and also the team members , to have a better understanding and collaborating with each other.

2.2 User Characteristics

There is a total of two users :
1- Admin
2- User
User Profile : **Admin**
-This user will be logged in.
-Responsible for bug reports. (Support)
-Can access the users information.
-Has access to the projects.
-Can delete users.

User Profile : **User**
-Every user must register in order to use the application , with an email , username , password and birthday.
-After registering , or if he already has an account , the user can login using the username and the password.
-After login , the main page will be displayed , containing a button to Create a project , and also all the

projects all the user are shown there.
-If the user creates a project, the user can add members to the team.

→***Team Leader:***

-Assigns tasks (Description , File , Deadline)
-Posts Announcements
-Adds and Removes members.
-Views the progress of the tasks. (To Do / Done)

→***Team Member:***

-Can view all the tasks. (To Do / Done)
-Comment in the chatbox.
-Can request deadline extension.

2.3 Assumptions

It is assumed that most of students have at least one project to a group of students. Also, it's assumed that every student has at least a PC or a laptop to work with. It is assumed that everyone in the group has a work to do and should make it in time. In addition, it is assumed that the user has a persistent network connection, otherwise it won't work.

2.4 Constraints

The system will be potentially constrained by:

• The fact that every member of the group should have access to internet at the time they are posting in PSI.

• If the user has any problems with the login part they should contact support team.

• Users should have PC or a laptop to work with.

2.5 Dependencies

Dependencies that affect therequirements are:
This web is dependent on the fact that users and admin are connected to the internet.

3. Requirements

3.1 *Functional Requirements*

PMS- (Project Management System Requirements) Pertains to the general requirements.

Req#	**Requirement**	**Comments**	**Priority**	**Date Rvwd**	**SME Reviewed / Approved**
PMS_01	The system supports the idea of **users**. Each user has a name and a password. Users also a set of attributes like email, phone number etc.		1		
PMS_02	The system will determine the functionalities provided to the user according to the **user role** after authentication.		1		
PMS_03	Predefined user roles Administrator - Full control over the system. Project Leader/Manager - Control over project related functionalities. Project Member - View/Update given tasks.		2		
PMS_4	The system shall provide the user with the ability to change their password and update the change.	.	1		
PMS_5	The system shall provide certain user roles (Administrator/Team Leader) with the ability to change and update permissions for specific user roles.		1		
PMS_6	The system shall support the idea of a **user profile.** The user profile The system's user-specific customizable parameters are contained in the user profile. The user profile can be related to only one user.		1		
PMS_7	The system must enable the user to edit his profile and update changes.		1		
PMS_8	User will login to the system by using their name and password before they can interact with the system. The user is not allowed to login in the password is incorrect or in the case the user is not registered. If the user is		1		

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
	authenticated successfully he/she will be presented with a GUI customized according to their user role and projects.				
PMS_9	The system shall provide a new user will the ability to register. If registration fails due to account already existing or format not matching the one specified by the system an error message will be displayed accordingly. If the registration is successful the user will be redirected to his dashboard.				
PMS_10	The system shall provide authorized user the ability to view current list of projects he is involved in.		1		
PMS_11	The system shall provide authorized user permission to apply certain filters when viewing current list of projects.		2		
PMS_12	The system shall provide authorized user ability to create a new project, specify certain attributes of the project and add member/s to it. The project name must be different from projects the user is already associated with. The project will be empty upon creation.		1		
PMS_13	The system shall provide authorized user permission to edit selected projects attributes and members.		1		
PMS_14	The system shall provide authorized user permission to delete selected project only if he is the assigned the Team Leader role for that project. Otherwise an error will be display informing the user that the have insufficient privileges to complete that action.		1		
PMS_15	The system shall provide authorized user the ability to export the selected project to a file in a predefined format.		2		
PMS_16	The system shall provide		2		

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
	authorized user permission to make announcements on the project if he has the Team Leader role for that project.				
PMS_17	The system shall provide authorized user permission to add or remove team members if the has the Team Leader role for that project.		1		
PMS_18	The system shall provide authorized user with the role Team Leader the ability to assign to tasks to member/s of the team for a specific project,.		1		
PMS_19	The system shall provide authorized user a dashboard for the provided project with features and permissions according to their role in the project.		1		
PMS_20	The system shall provide authorized user the ability to update given tasks status to “done”.		1		
PMS_21	The system shall provide authorized user permission to comment on an announcement made by the project management.		2		
PMS_22	The system shall provide the authorized user the ability to communicate with other members using the project chatbox.		3		

3.2 *Non-Functional Requirements*

3.2.1 User Interface Requirements

The system shall be a web application, which can be seen either with Mozilla, Chrome or Safari. The application will have a user interface that will be for the Students , businesses, Architectures, and whoever needs to manage a project properly. It will have some sections and services. On the first page there will be a login button. The Login button will redirect to a simple login interface, where it will ask the user for Username and Password. The user will gain access to the system, in case of proven authenticity otherwise, an error message of wrong credentials will be displayed.

It will have 2 different users, Admin and User, User will be divided to Leader and member. A user can be leader at e project and member at another one, my default leader is the one creating the project. The user will have the first page which will be the names of the projects he/she is part of and a create project button. If he is a leader he will have 4 other pages , members , dashboard , announcement ,tasks.if he is an Admin he will be able to see a menu page that will provide him access to see users , project names , support , delete a user. If he is a user the first page will be same as leader he will have access to group members , his own tasks , his own dashboard , and announcements.

3.2.2 Usability

- The application is simple to use and understand.
- The web application will come together with a PDF manual, providing a step by step information on how to effectively use the system.
- Specific error messages will be displayed, by also identifying the specific action, that caused the error.
- The application is specified for certain users, thus the system will know, when a certain action is not allowed

3.2.3 Performance

The application will be a web application which will be stored in a web server.

The application's time of execution will depend on:

- The efficiency of fetching data from database
- The Internet connection bandwidth
- The server's hardware capabilities
- The Operating System installed on a server.
- The third-party libraries that need to be installed.
- The number of active users accessing the website.

3.2.3.1 Capacity

The application needs to be stored in a web server. The application itself will have a maximum size of 100 MB. The database will be complex and considerably large. Anyway, the application is expected to work just fine will every user logged on.

3.2.3.2 Availability

- The web application will be available for use 24/7.
- The web application will work in an optimal manner during the working hours of the day.
- The application can be accessed and used in any geographical area, as long as the user has an active Internet connection.
- By creating separate user sessions, their overall work efficiency and productivity will not decrease by much, while using the application.
- Specific error messages will be provided, in case an action would cause systems fatal error.

3.2.3.3 Latency

The latency of the web application will depend on:

- The internet connection bandwidth
- The efficiency of fetching data from the database
- The size of database.

Some functions such as searching for users might take longer.

3.2.4 Manageability/Maintainability

3.2.4.1 Monitoring

The applications user interface will be easy, and it will not provide cases that would crash the system. Necessary actions for any of error will be taken. The login interface needs a (1)
Username and (2) Password as input. These two-input data must be valid input data. The user will log in the system, in case the user has entered valid credentials, otherwise an error message of “Wrong Credentials” will be displayed.

3.2.4.2 Maintenance

The system will be developed using MySQL for the database and Apache for the server.
In case the system crashes, the application is going to restart. During this process, the application will redirect the user to the dashboard, but the changes will be saved, and he will be asked to confirm them.If the problem persists, it is needed to contact the IT squad so a full restart of the server can happen.

3.2.4.3 Operations

Some of the operations that can be taken by the users are:

- Upload a file
- Add a new member
- Delete a member
- Set deadlines

- Make announcements
- Let comments on the chat box
- Search for users
- Assign someone to a task

3.2.5 System Interface/Integration

The database will provide to the users only as information. They can not change the structure of it. Only Admin will have access to the DB configuration. The application will take care of queries.

3.2.5.1 Network and Hardware Interfaces

The application is a web application that will be stored in a web server, so the browser will create a TCP connection with the server. Every browser supports this connection, so it will function properly.

3.2.6 Security

3.2.6.1 Protection

The application security is very important, since this is a highly confidential system. Protection is added in every form that will make sure that everything entered is correct such as a valid name, valid surname, valid email address and valid password. The client will not be able to see the passwords.

3.2.6.2 Authorization and Authentication

- Valid credentials are checked when users log in.
- Authorization will be based on the user type.
- Users will have access only to their information.
- Session to be used for the currently logged user.
- Using Cookies and PubCookie tool.

3.2.7 Data Management

The application might have a complex and large database and some of those classes are:

- Users
- Project
- Task
- taskComment
- Annauncement
- AnnouncementComment
- Chatbox

3.2.8 Standards Compliance

The application will be developed in such way that will follow and respect the rules and regulations lead to concrete requirements. In order to meet these requirements, organizations must

1. Define processes and operations.
2. Guarantee the availability of information.
3. Monitor processes and operations.
4. Establish an effective communications policy

These measures apply to organizations as well as small organizational units, or projects, The best way is to establish a so-called Compliance Management System and set up a workflow that helps you to meet standards, one that is independent from individual persons while at the same time supporting the work of individuals. This will help you to master audits, implement changes to your processes and operations and take advantage of the oppportunites compliance offers.

3.2.9 Portability

The application can be accessed via a browser and a internet connection.

3.2.10 Other Non-Functional Requirements

Please provide all necessary non-functional requirements, similar to the requirements explained in the lesson slides or in the textbook.

3.3 *Domain Requirements*

In our case   by choosing this topic of “Project Management System” we are part of the clients side as well , all students are part of the client side in this project but not only! This project can be used in field as: Business, Architecture, Marketing, School, etc… By saying this automatically we are the specialists, we know how a project is done , what is required to make a project efficient , finish it on time , and coordinating your group members perfectly!

So that's it! What a project need to be done is specifying:

1. Members of the group(keeping their emails, phones in case he need it)
2. Tasks assigned (to do or done , also the %of the tasks each have done to complete their own tasks)
3. Dashboard (watching the progress of the project, such as the % of the whole project completed)
4. Announcements (everybody can see the announcements of the leader and comment on the chat box)

4. User Scenarios/Use Cases

Failed Registration

- The user clicks on menu bar the Register button.
- The user is asked to enter input data: email, username, password, birthday.
- The input will be validated and in case of wrong input, requirements will be shown.

Successful Registration

- The user clicks on menu bar the Register button.
- The user is asked to enter input data: email, username, password, birthday.
- The input will be validated and if it is successful, a “Successful Registration successful” message will be shown.

Failed Login

- The user clicks on menu bar the Login button.
- The user is asked to enter input data: username and password.
- If the credentials are wrong, a message will be displayed.
- After 5 unsuccessful tries “Please wait a few minutes before you try again”, will be shown and the login will be blocked for several minutes.

Successful Login

- The user clicks on menu bar the Login button.
- The user is asked to enter input data: username and password.
- The input will be validated and if it is successful, after the authentication, it will redirect to admin or user view, depending on the user role.

Create Project

- After successfully login in as a user, you can see a button “Create Project”
- You will be redirected to a form, where you can input: Project Title, Description.
- After clicking submit the project, the project will be added in the projects tab with the user with the role of Project Leader.

Opening Project

- After successfully login in as a user, your main page is Projects.
- If there is no projects linked to the user, “No Projects yet” message will be displayed.
- If there are projects, those will be displayed in a list.
- By clicking the project name you will be redirected to the Project's Announcement page.

Posting Announcement

- Team leader can post an announcement, by writing in Post Announcement window and clicking the button.
- The announcement will be displayed with the others in the page.

Project Leader adds Project Members

- After opening the project, the leader can click on the menu “Members”.
- It will be redirected to a page, where it I can see a list of already joined members.
- Write username and click “+Add Member”.
- If username doe not exist a message will be displayed.

Project Leader searchs Project Members

- After opening Members, in top of the page you can write the username and click search.
- The users, which fulfill the filter search will be shown in the list.

Project Leader removes Project Members

- In the Members's list, in the end of each row is a button “Delete”.
- After clicking it the user will be removed from the project.

Project Leader assigns Tasks

- Opening Tasks tab, by clicking the button add Task a form will be shown.
- In this form task name, task description and the team member will be specified and submitted.
- The submitted task will be shown in Task page for team leader and team member.

Project Leader' Dashboard

- Dashboard page will show the progress of all assigned tasks.

Project Member completes Task

- As project member Task page will show the already assigned task from the project leader.
- Clicking on the task, it will show a page with more information for it.
- Clicking the “Complete” button will complete the Task.

Users comment in Task

- In task can comment the Project Leader and Project Member, whose the task was assigned to.
- Writing in input text field and clicking Add Comment will post it.

Users comment in Announcement

- In announcement can comment the Project Leader and Project Member.
- Writing in input text field under the announcement and clicking Add Comment will post it.

Users writes in chatbox

- In chatbox in announcement page by writing in input field, the user can write to all group.
- Clicking the Button “Submit” will write it in the chat.

Admin search user

- In main page, click user information.
- This will show you a search input field.
- After writing the username and clicking the button “Search” it will provide the information for this user such as: username, email, birthday, phone.

Admin deletes user

- After searching user in User Information, in the and of row is a button “Delete”
- After clicking in it will remove, and the user will be able to log in with this account.

Admin search project

- In main page, click Project
- This will show you a search input field.
- After writing the project name and clicking the button “Search” it will provide the information for this project such as a list of members and its leader.

APPENDIX

The appendixes are not always considered part of the actual Requirements Specification and are not always necessary. They may include

- Sample input/output formats, descriptions of cost analysis studies, or results of user surveys;
- Supporting or background information that can help the readers of the Requirements Specification;
- A description of the problems to be solved by the system;
- Special packaging instructions for the code and the media to meet security, export, initial loading, or other requirements.

When appendixes are included, the Requirements Specification should explicitly state whether or not the appendixes are to be considered part of the requirements.

Appendix A. Definitions, Acronyms, and Abbreviations

Define all terms, acronyms, and abbreviations used in this document.

Appendix B. References

List all the documents and other materials referenced in this document.

Appendix C. Requirements Traceability Matrix

The following trace matrix examples show one possible use of naming standards for deliverables (FunctionalArea-DocType-NN). The number has no other meaning than to keep the documents unique. For example, the Bargaining Unit Assignment Process Flow would be BUA-PF-01.

For example (1):

Business Requirement	Area	Deliverables	Status
BR_LR_01 The system should validate the relationship between Bargaining Unit/Location and Job Class.---Comments: Business Process = "Assigning a Bargaining Unit to an Appointment" (Priority 1)	BUA	BUA-CD-01 Assign BU Conceptual Design	Accepted
		BUA-PF-01 Derive Bargaining Unit-Process Flow Diagram	Accepted
		BUA-PF-01 Derive Bargaining Unit-Process Flow Diagram	Accepted
BR_LR_09 The system should provide the capability for the Labor Relations Office to maintain the job class/union relationship.---Comments: Business Process = "Maintenance" (Priority 1)	BUA	BUA-CD-01 Assign BU Conceptual Design	Accepted
		BUA-PF-02 BU Assignment Rules Maint Process Flow Diagram	ReadyForReview

For example (2):

BizReqID	Pri	Major Area	DevTstItems DelivID	Deliv Name	Status
BR_LR_01	1	BUA	BUA-CD-01	Assign BU Conceptual Design	Accepted
BR_LR_01	1	BUA	BUA-DS-02	Bargaining Unit Assignment DB Modification Description	Accepted
BR_LR_01	1	BUA	BUA-PF-01	Derive Bargaining Unit-Process Flow Diagram	Accepted

BizReqID	Pri	Major Area	DevTstItems DelivID	Deliv Name	Status
BR_LR_01	1	BUA	BUA-UCD-01	BU Assign LR UseCase Diagram	ReadyForReview
BR_LR_01	1	BUA	BUA-UCT-001	BU Assignment by PC UseCase - Add Appointment and Derive UBU	Reviewed
BR_LR_01	1	BUA	BUA-UCT-002	BU Assignment by PC UseCase - Add Appointment (UBU Not Found)	Reviewed
BR_LR_01	1	BUA	BUA-UCT-006	BU Assignment by PC UseCase - Modify Appointment (Removed UBU)	Reviewed
BR_LR_09	1	BUA	BUA-CD-01	Assign BU Conceptual Design	Accepted
BR_LR_09	1	BUA	BUA-DS-02	Bargaining Unit Assignment DB Modification Description	Accepted
BR_LR_09	1	BUA	BUA-PF-02	BU Assignment Rules Maint Process Flow Diagram	Accepted
BR_LR_09	1	BUA	BUA-UCD-03	BU Assign Rules Maint UseCase Diagram	Reviewed
BR_LR_09	1	BUA	BUA-UCT-045	BU Assignment Rules Maint: Successfully Add New Assignment Rule	Reviewed
BR_LR_09	1	BUA	BUA-UCT-051	BU Assignment Rules MaintUseCase: Modify Rule	Reviewed
BR_LR_09	1	BUA	BUA-UCT-053	BU Assignment Rules MaintUseCase - Review Assignment Rules	Reviewed
BR_LR_09	1	BUA	BUA-UCT-057	BU Assignment Rules MaintUseCase: Inactivate Last Rule for a BU	Reviewed
BR_LR_09	1	BUA	BUA-UI-02	BU AssignRules Maint UI Mockups	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-021	BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Success	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-027	BU Assignment Rules Maint TestCase: Modify Rule - Success	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-035	BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Error Condition	ReadyForReview
BR_LR_09	1	BUA	BUA-TC-049	BU Assignment Rules Maint TestCase: Modify Rule - Error Condition	ReadyForReview

For example (3):

BizReqID	CD01	CD02	CD03	CD04	UI01	UI02	UCT01	UCT02	UCT03	TC01	TC02	TC03	TC04
BR_LR_01			X		X		X			X		X	
BR_LR_09	X			X		X			X		X		X
BR_LR_10	X			X					X		X		

BizReqID	CD01	CD02	CD03	CD04	UI01	UI02	UCT01	UCT02	UCT03	TC01	TC02	TC03	TC04
BR_LR_11		X											

Appendix D. Organizing the Requirements

This section is for information only as an aid in preparing the requirements document.

Detailed requirements tend to be extensive. Give careful consideration to your organization scheme. Some examples of organization schemes are described below:

By System Mode

Some systems behave quite differently depending on the mode of operation. For example, a control system may have different sets of functions depending on its mode: training, normal, or emergency.

By User Class

Some systems provide different sets of functions to different classes of users. For example, an elevator control system presents different capabilities to passengers, maintenance workers, and fire fighters.

By Objects

Objects are real-world entities that have a counterpart within the system. For example, in a patient monitoring system, objects include patients, sensors, nurses, rooms, physicians, medicines, etc. Associated with each object is a set of attributes (of that object) and functions (performed by that object). These functions are also called services, methods, or processes. Note that sets of objects may share attributes and services. These are grouped together as classes.

By Feature

A feature is an externally desired service by the system that may require a sequence of inputs to affect the desired result. For example, in a telephone system, features include local call, call forwarding, and conference call. Each feature is generally described in a sequence of stimulus-response pairs, and may include validity checks on inputs, exact sequencing of operations, responses to abnormal situations, including error handling and recovery, effects of parameters, relationships of inputs to outputs, including input/output sequences and formulas for input to output.

By Stimulus

Some systems can be best organized by describing their functions in terms of stimuli. For example, the functions of an automatic aircraft landing system may be organized into sections for loss of power, wind shear, sudden change in roll, vertical velocity excessive, etc.

By Response

Some systems can be best organized by describing all the functions in support of the generation of a response. For example, the functions of a personnel system may be organized into sections corresponding to all functions associated with generating paychecks, all functions associated with generating a current list of employees, etc.

By Functional Hierarchy

When none of the above organizational schemes prove helpful, the overall functionality can be organized into a hierarchy of functions organized by common inputs, common outputs, or common internal data access. Data flow diagrams and data dictionaries can be used to show the relationships between and among the functions and data.

Additional Comments

Whenever a new Requirements Specification is contemplated, more than one of the organizational techniques given above may be appropriate. In such cases, organize the specific requirements for multiple hierarchies tailored to the specific needs of the system under specification.

There are many notations, methods, and automated support tools available to aid in the documentation of requirements. For the most part, their usefulness is a function of organization. For example, when organizing by mode, finite state machines or state charts may prove helpful; when organizing by object, object-oriented analysis may prove helpful; when organizing by feature, stimulus-response sequences may prove helpful; and when organizing by functional hierarchy, data flow diagrams and data dictionaries may prove helpful.