SOFTWARE PROJECT MANAGEMENT PLAN (SPMP)

SPMP-FSES-SG-V1.00

For the

First Stage Evaluation System **(FSES)**

Prepared For:
Faculty of Artificial Intelligence

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Date:

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CHANGE HISTORY

REVISION	DESCRIPTION
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1. Overview

1.1 Project summary

1.1.1 Purpose, scope, and objectives

- Purpose: The document specifies management plans for the First Stage Evaluation System (FSES) to facilitate the evaluation process for research students at the Advanced Informatics Department.
- Scope: The system will interface with the Office Assistant, Research Supervisor, and Program Coordinator, providing functionalities for managing student evaluations and related processes.
- Objectives: The objectives include establishing user requirements, determining system scope, identifying future expansion needs, and providing a foundation for system development.
- Deliverables: The project will deliver a Project Plan, Analysis Model, Design Model, Test documentation, and the running application with its source code.

1.1.2 Assumptions and constraints

- Assumptions: It is assumed that users will have basic computer skills, the necessary hardware and software will be available, and that stakeholders will provide timely feedback during development.
- Constraints:
    - Schedule: The project must adhere to a predefined timeline for completion.
    - Budget: Financial resources are limited, requiring efficient allocation and management.
    - Resources: The project team will consist of members with specific skill sets, and availability may impact progress.
    - Software Reuse: Existing software components may be reused where applicable to save time and costs.
    - Technology: Object-oriented development techniques with UML notation will be employed.
    - Product Interfaces: The system must interface seamlessly with the Office Assistant, Research Supervisor, and Program Coordinator systems.

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1.1.3 Project deliverables

The project deliverables are as per below table.

Work product	Delivery date	Delivery location	Quantity
SPMP	14-Dec-2024	UTM e-Learning	1
SRS	14-Dec-2024	UTM e-Learning	1
SDD	27-Dec-2024	UTM e-Learning	1
STD	11-Jan-2025	UTM e-Learning	1
STR	11-Jan-2025	UTM e-Learning	1
Web application	19-Jan-2025	TBD	1
Source code	19-Jan-2025	https://github.com/adilelli/master-project/tree/develop/frontend	1

Table 1 : Project Deliverables

1.1.4 Schedule and budget summary

The project is scheduled as per Gantt chart (refer Annex A).
No budget is allocated for this project.

1.2 Evolution of the plan

Not applicable.2. References

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3. Definition

3.1 Definition of the First Stage Evaluation System (FSES)

The **First Stage Evaluation System (FSES)** is a software platform designed to streamline and automate the process of evaluating research proposals for graduate students in academic institutions. The system serves as a centralized interface for various stakeholders, including Office Assistants, Research Supervisors, and Program Coordinators, to manage evaluation-related tasks efficiently.

3.1.1 Core Features

1. **Student Management**: Enables the entry and management of student information, including evaluation eligibility and research details.
2. **Examiner Nomination**: Allows supervisors to nominate examiners based on predefined eligibility criteria.
3. **Chairperson Assignment**: Facilitates the assignment of chairpersons for evaluation sessions, adhering to institutional policies.
4. **Evaluation Reporting**: Provides tools for generating detailed reports on evaluations, examiner workloads, and chairperson assignments.
5. **Data Visualization**: Summarizes evaluation activities with graphical representations for quick insights.

3.1.2 Purpose

The FSES aims to replace manual processes with a structured, automated system to reduce errors, save time, and ensure compliance with academic guidelines.

3.1.3 Users

1. **Office Assistants**: Responsible for preparing and managing the list of students eligible for evaluations.
2. **Research Supervisors**: Tasked with nominating suitable examiners for their students.
3. **Program Coordinators**: Assign chairpersons, finalize evaluation sessions, and oversee system operations.

3.1.4 Benefits

- Enhances **efficiency** by automating repetitive tasks.
- Ensures **accuracy** through integrated validation checks.
- Improves **accountability** with a clear, role-based workflow.
- Provides **scalability** to support future expansion to additional programs or departments.

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4. Project organization

4.1 External interfaces

The external interfaces is as per below diagram
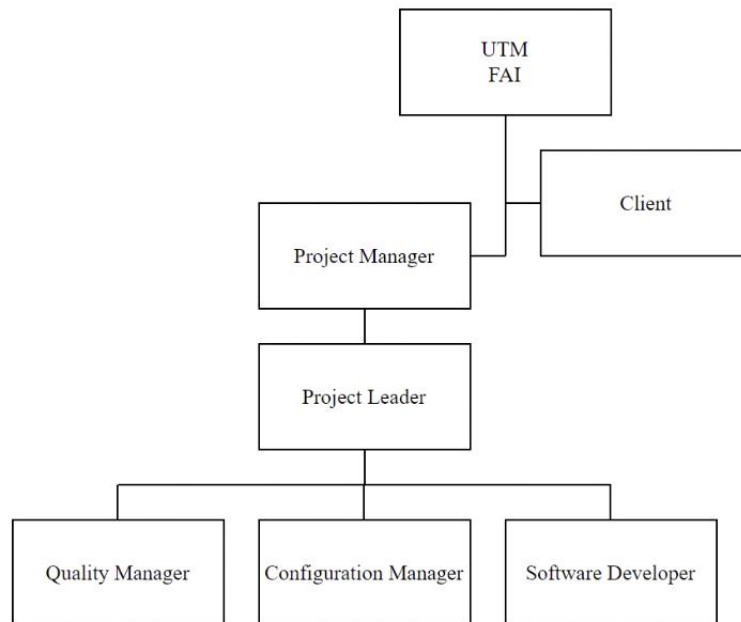
Figure 1 : External Interfaces

4.2 Internal structure

The internal structure is as per below diagram
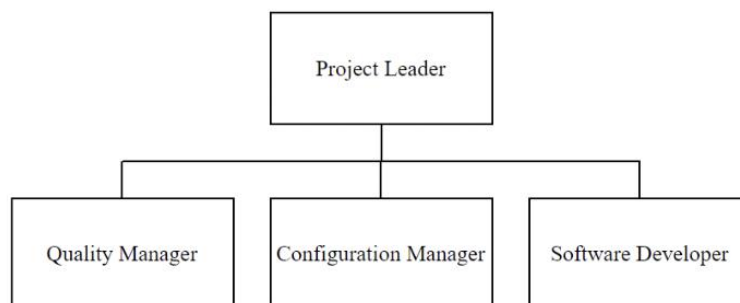
Figure 2 : Internal Structure

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4.3 Roles and responsibilities

The roles and responsibilities are as per below table.

TASK TITLE	TASK OWNER
Project Planning	
Produce SPMP	SWPM
Review SPMP with PM	SWPM
Revise SPMP (if required)	QM
Requirement Gathering & Analysis	
Understand requirement	QM
Read URS	QM
Meet client (if required)	QM
Produce SRS	QM
Conduct SSR	SWPM
Revise SRS (if required)	CM
System Design	
Produce SDD	CM
Conduct PDR	SWPM
Revise SDD (if required)	QM
Development	
Write code	Developer
Conduct peer review	Developer
Revise code (if required)	Developer
Testing	
Produce STD	QM
Conduct testing	Developer
Produce STR	Developer
Conduct TRR	SWPM
Revise STD (if required)	CM
Project Closure	
Demonstrate project	CM

Table 2 : Roles & Responsibilities

5. Managerial process plans

5.1 Start-up plan

5.1.1 Estimation plan
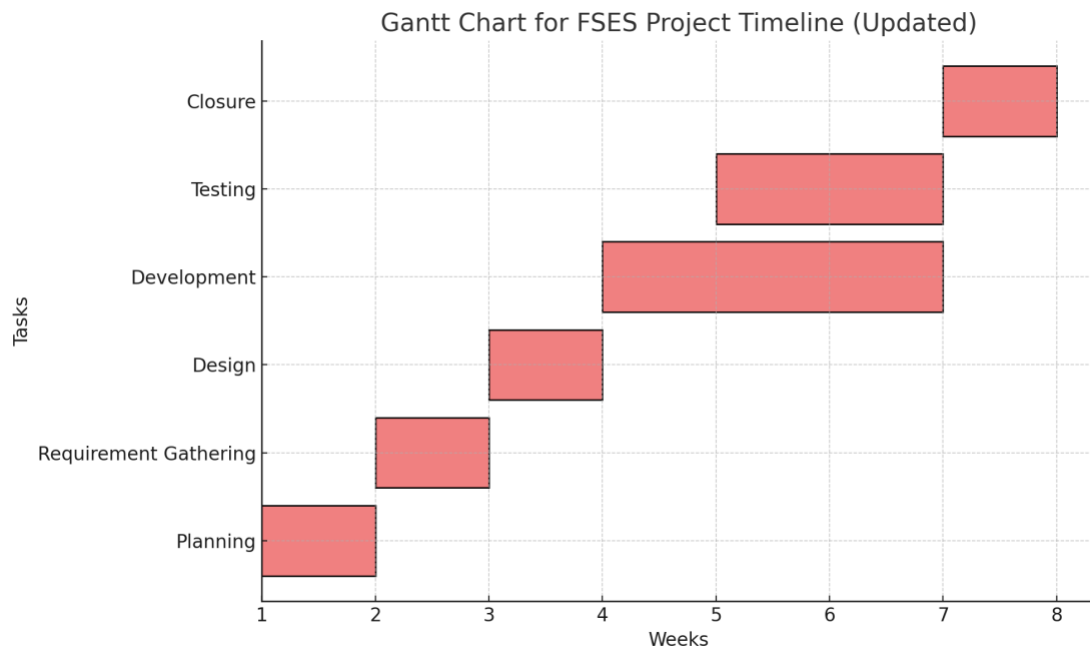
Figure 3 : Gantt Chart for FSES Project Timeline

5.1.2 Staffing Plan

Role	Responsibilities	Required Skills	Duration	Assigned Personnel
Project Manager (PM)	- Overall project planning and coordination. - Ensuring timelines and deliverables are met. - Managing risks and resources.	- Project management - Risk management - Leadership skills	Full project lifecycle	Ajla/Khadijah
Quality Manager (QM)	- Overseeing quality standards for all deliverables. - Reviewing testing results and feedback.	- Quality assurance - Analytical skills	Full project lifecycle	Adil
System Analyst (SA)	- Designing system architecture. - Creating technical workflows and	- UML design - System analysis	Requirement and design	Ajla/Khadijah/Adil

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	design models.	- Technical problem solving	phases (Weeks 2–3)	
Business Analyst (BA)	- Gathering and analyzing user requirements. - Preparing the Software Requirements Specification (SRS).	- Communication - Stakeholder management	Requirement phase (Week 2)	Ajla/Khadijah/Adil
UI/UX Designer	- Designing user-friendly interfaces. - Developing wireframes and prototypes for review.	- UI/UX design - Creative tools	Design phase (Week 3)	Ajla
Developers	- Coding and implementing system modules. - Conducting code reviews and unit tests.	- Python, React - Debugging and integration	Development phase (Weeks 4–6)	Ajla/Khadijah/Adil
QA Testers	- Conducting system testing to validate functionality and performance. - Reporting and resolving defects.	- Testing tools (Postman) - Test case design	Testing phase (Weeks 5–6)	Ajla/Adil
Technical Writer	- Preparing project documentation (e.g., user manuals, technical documents).	- Technical writing - Document formatting	Full project lifecycle	Ajla/Khadijah/Adil

Table 3 : Staffing Plan

5.1.3 Resource acquisition plan

Phase	Role Involved	Weeks
Planning	PM, BA	Week 1
Requirement Gathering	BA, QM	Week 2
Design	SA, UI/UX Designer, PM	Week 3
Development	Developers, PM	Week 4 - 6
Testing	QA Testers, QM	Week 5 - 6
Documentation	Technical Writer, PM	Week 1 - 7

Table 4 : Resources Acquisition

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5.1.4 Project staff training plan

Task	Duration (Days)	Start Day	End Day	Participants
Orientation & Introduction	1	1	1	All team members and stakeholders
System Familiarization	2	2	3	Office Assistants, Supervisors, Coordinators
Data Management	1	4	4	Office Assistants
Examiner and Chairperson Nomination	1	5	5	Supervisors, Coordinators
Troubleshooting & Maintenance	7	6	12	Team Members
Security Awareness	1	13	13	All users
Advanced Features	2	14	15	Users needing advanced training

Table 5 : Project Staff Training Plan
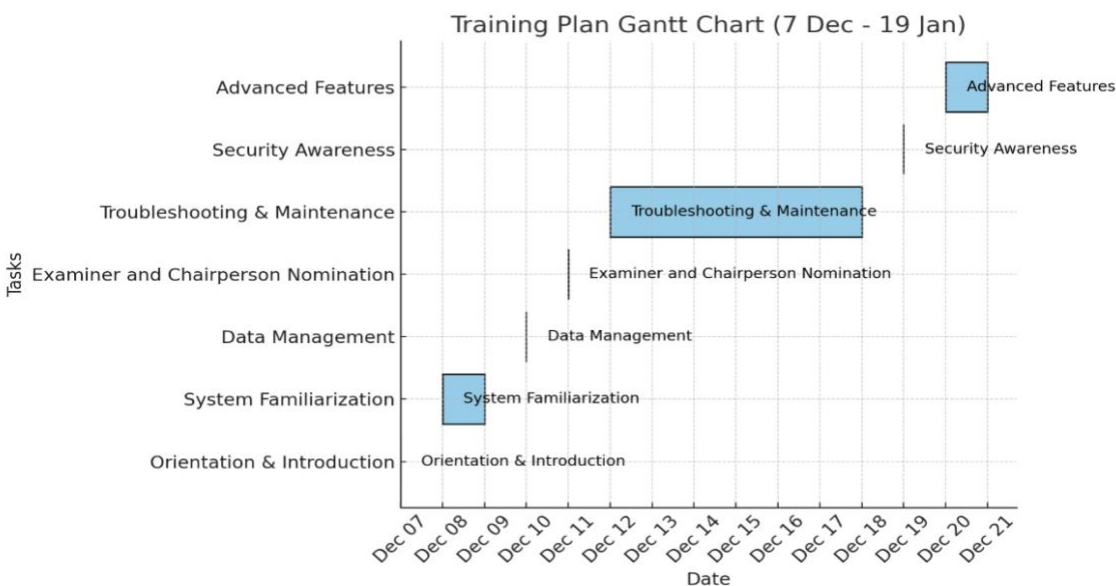
Table 6 : Gantt Chart for Training Plan

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5.2 Work plan

5.2.1 Work activities

All activities involved throughout this project is as per below WBS.

Figure 4 : Work Activities

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5.2.2 Schedule allocation

The project timeline is as per below PERT chart.
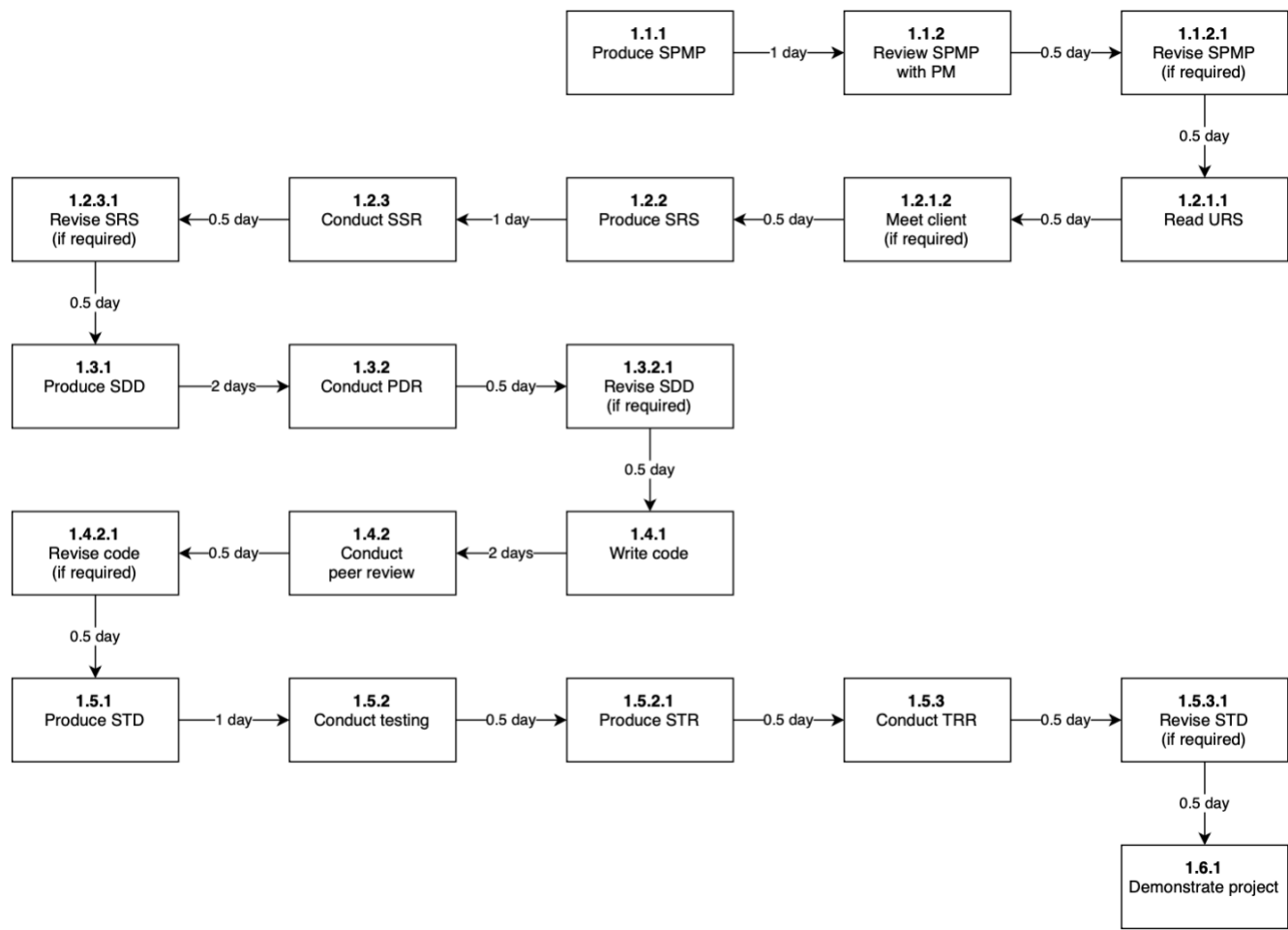
Figure 5 : Schedule Allocation

5.2.3 Resource allocation

5.2.3.1 Resource Identification

Resources are classified into two main categories:

- Human Resources: Team members with specialized skills.
- Non-Human Resources: Tools, software, hardware, and facilities.

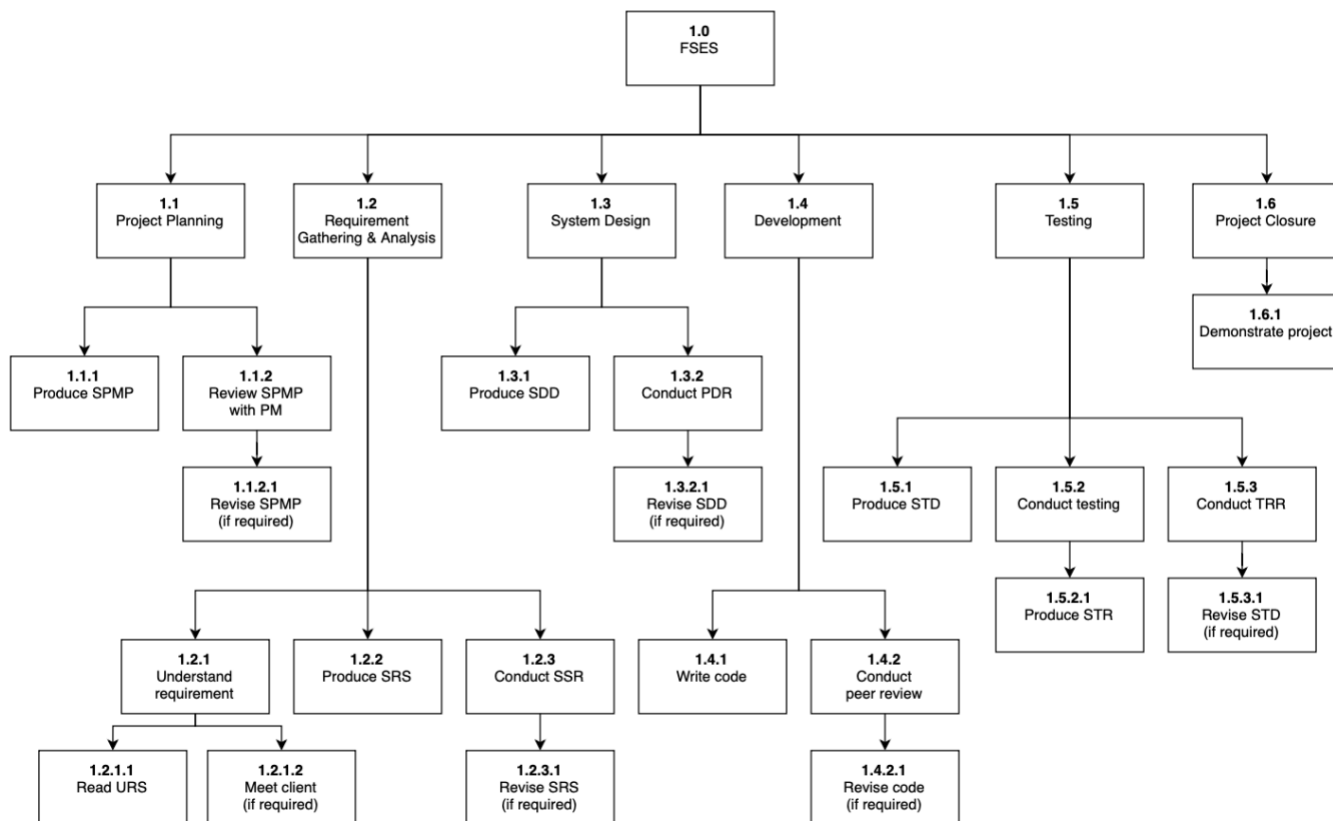| Resource Type	Details	Purpose
Project Manager (PM)	Experienced PM	To plan for overall project management and coordination.
System Analyst (SA)	Skilled system analyst	For system design and architecture.
Business Analyst (BA)	Requirements specialist	To conduct requirements gathering and analysis
UI/UX Designer	Design professional	Specifically, to create user interface and experience design
Developers	Skilled programmers	Code and integrate software modules.
QA Testers	Test engineer	Testing the system to ensure quality
Technical Writer	Documentation expert	Prepare project manuals and documentation.
System Admin	Deployment engineer	To deploy software and system setup
Tools & Hardware	GitHub, VS Code, Python, React	Project management, development, and version control
Hardware	Laptops	Development and testing infrastructure
Meeting Space	UTM Class / Virtual Tools (Gmeet & Webex)	For team discussions and client meetings

Table 7 : Resource Identification

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5.2.3.2. Resource Acquisition Strategy

Resources	Acquisition Method	Timeline	Responsible Personnel
Human Resources (HR)	Through internal hiring based on skills required.	Week 1	Project Manager
Software Tools	GitHub, VS Code, Python, React	Week 1	Project Manager
Hardware Tools	Laptops	Week 1	System Admin
Work Environment	UTM Class / Virtual Tools (Gmeet & Webex)	Week 1	Project Manager

Table 8 : Resource Acquisition Strategy

5.2.3.3. Resource Budget Allocation

Not Applicable

4. Resource Allocation Timeline

Resources	Phase Needed	Duration
Project Manager	Throughout the whole phase	Week 1 - 7
Business Analyst	Initial Phase (during requirement)	Week 2
System ANalyst	Designing phase	Week 3
UI/UX Designer	Designing phase	Week 3
Developers	Development & Testing phase	Week 4 - 6
QA Testers	Testing phase	Week 5 -6
Technical Writer	Throughout the whole documentation process	Week 1 - 7
System Admin	Deployment phase	Week 7

Table 9 : Resource Allocation Timeline

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5.2.3.4. Resource Management and Monitoring

- **Weekly Check-Ins:**
    - Conduct weekly resource status meetings to ensure all team members are on track and properly equipped.
- **Tools for Management:**
    - Use GitHub for version control, and shared calendars (google calendar) for scheduling.
- **Performance Review:**
    - Regular performance evaluations will be conducted to monitor team productivity.

5.3 Control plan
5.3.1 Requirements control plan.

Table 10 : Requirements control plan

Activity	Purpose	Process	Tool Used	Responsible Party
Requirement Documentation	Capture and formalize user requirements.	Develop and review the Software Requirements Specification (SRS)	Microsoft Word, Google Docs	Business Analyst, Quality Manager
Requirement Review	Validate the feasibility of requirements.	Conduct stakeholder meetings and review sessions.	Meeting platforms (GMeet, Webex)	Project Manager, System Analyst
Change Management	Handle any changes in requirements.	Implement a change request process: document, evaluate impact, and approve/reject changes.	Change Request Tracker	Project Manager
Requirement Traceability	Track requirements throughout the project lifecycle.	Use a traceability matrix to link requirements with design, development, and testing activities.	Traceability Matrix	Quality Manager

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5.3.2 Schedule control plan

Activity	Purpose	Process	Tool Used	Responsible Party
Baseline Schedule Creation	Establish the initial timeline.	Use Gantt charts to set milestones and deadlines.	Microsoft Project, Excel	Project Manager
Weekly Progress Monitoring	Track progress and identify delays.	Track progress and identify delays.	Shared calendars, GitHub	Project Manager
Schedule Adjustment	Address delays or bottlenecks.	Address delays or bottlenecks.	Project management tools	Project Manager
Milestone Reviews	Ensure critical phases are completed on time.	Conduct milestone reviews for design, development, and testing phases.	GMeet/Webex	Quality Manager

Table 11 : Schedule control plan

5.3.3 Budget control plan

Not applicable.

5.3.4 Quality control plan

Activity	Purpose	Process	Tool Used	Responsible Party
Quality Standards Definition	Define quality benchmarks.	Set criteria for system performance, usability, and security.	Microsoft Word	Quality Manager
Peer Code Reviews	Identify and resolve coding issues early.	Conduct structured reviews of code by team members.	GitHub, VS Code	Developers, QA Testers
Functional Testing	Ensure all features work as intended.	Execute test cases for each feature against the requirements.	Postman	QA Testers
User Acceptance Testing	Validate the system from the user's perspective.	Test workflows and gather feedback from users (Office Assistants, etc.).	Testing environments (Staging	QA Testers

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Defect Log Maintenance	Track and resolve all identified defects.	Maintain a log and verify that all issues are resolved before release.	Microsoft Excel	QA Testers

Table 12 : Quality control plan

5.3.5 Reporting plan

Report	Purpose	Frequency	Contents	Audience	Responsible Party
Weekly Status Report	Summarize weekly progress and risks.	Weekly	Task completion, risks, and upcoming tasks.	Team, Project Manager	Project Manager
Milestone Review Report	Provide a detailed review of milestone completion.	At each milestone	Deliverables achieved, test results.	Stakeholders	Quality Manager
Risk Management Report	Update on identified risks and mitigations.	Bi-weekly	Risk status, mitigation strategies.	Project Team	Project Manager
Final Project Report	Summarize overall project outcomes.	End of project	Goals achieved, lessons learned.	Stakeholders	Project Manager

Table 13 : Reporting Plan

5.3.6 Metrics collection plan

Table 14 : Metrics Collection Plan

Metric	Purpose	Method of Collection	Frequency	Responsible Party
Requirement Stability	Measure changes to initial requirements.	Count requirement changes recorded in the tracker.	Weekly	Quality Manager
Schedule Adherence	Track task completion vs. planned timeline.	Compare actual task dates to Gantt charts.	Weekly	Project Manager
Defect Density	Evaluate code quality.	Calculate defects per module from the defect log.	Testing Phase	QA Testers
Resource Utilization	Track resource productivity.	Analyze hours logged against planned hours.	Bi-weekly	Project Manager

5.4 Risk management plan

The risk management plan is as per below table.

Level	Risk	Trigger Point	Control	PIC
High	User Acceptance	Negative feedback during user acceptance testing.	Involve users early in the development process and gather feedback continuously.	QM
High	Resource availability	Key team members become unavailable due to other commitments.	Maintain a resource allocation plan and have backup personnel identified.	PM
Medium	Technical challenges	Encountering unforeseen technical issues during development.	Conduct regular technical reviews and allocate time for troubleshooting.	CM
Medium	Scope creep	Requests for additional features after project initiation.	Implement a change management process to evaluate and approve changes.	SWPM

Table 15 : Risk Management Plan

5.5 Closeout plan

5.5.1 Objectives

- To Verify that all project deliverables meet the agreed requirements.
- Act as a document of lessons learned to improve future projects.
- Transition the system to end-users and support teams for regular use and maintenance.
- Officially close the project and release team resources.

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5.5.2 Key Activities

Activity	Description	Responsible Party	Output/Deliverable
Deliverable Validation	Confirm that all deliverables meet project requirements (e.g., SPMP, SRS, system functionality).	Project Manager, QA Team	Approved deliverable checklist.
User Acceptance	Conduct final user acceptance testing (UAT) to ensure the system meets stakeholder needs.	QA Team, Stakeholders	Signed UAT approval document.
System Deployment	Deploy the final system in the production environment.	System Administrator	Fully operational system.
Training Completion	Ensure all users and support staff have completed training and can operate the system.	Training Team	Training attendance and competency report.
Documentation Handover	Provide all documentation to the client (e.g., user manuals, technical documentation).	Technical Writer	Final documentation package.
Resource Release	Reassign project team members to other tasks or projects.	Project Manager	Team member availability report.
Project Review	Analyze project performance, successes, and issues encountered.	Project Manager, Team Leads	Lessons learned document.
Final Report Submission	Summarize project outcomes, metrics, and financials for stakeholders.	Project Manager	Final project report.

Table 16 : Key Activities

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5.5.3 Deliverables Checklist

Deliverable	Description	Status
SPMP	Software Project Management Plan	In progress
SRS	Software Requirements Specification	In progress
SDD	Software Design Document	Open
Functional System	Fully operational FSES system	Open
User Manual	Step-by-step usage guide	Open
Final Project Report	Comprehensive project summary	Open

Table 17 : Deliverables Checklist

5.5.4 Success Criteria

Criteria	Description
Deliverables Approval	All key deliverables meet quality standards and are signed off by stakeholders.
User Acceptance Testing (UAT)	The system passes UAT, with users confirming it meets their needs and expectations.
On-Time Deployment	The system is successfully deployed within the planned timeline.
User Readiness	All users demonstrate sufficient knowledge to use the system independently.

Table 18 : Success Criteria

5.5.5 Transition to Operations

Step	Details	Responsible Party
System Handover	Transfer control of the system to the client or operational team.	Project Manager, System Admin
Support Setup	Assign support team members for ongoing maintenance and issue resolution.	System Administrator
Monitoring and Follow-Up	Monitor the system for an initial period to resolve post-deployment issues promptly.	QA Testers, System Admin

Table 19 : Transition to Operations

5.5.6 Lesson Learned

Area	Successes	Challenges	Recommendations
Requirement Management	Clear documentation reduced confusion.	Requirement changes caused delays.	Implement stricter change control

Table 20 : Lesson Learned

5.5.7 Closeout Approval

Stakeholder	Approval Role	Signature/Date
Project Manager	Confirm completion of all activities.	
Client Representative	Approve deliverables and project outcome.	
QA Manager	Verify quality and compliance.	

Table 21 : Closeout Approval

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6. Technical process plans

6.1 Process model

Process Model: Incremental Development
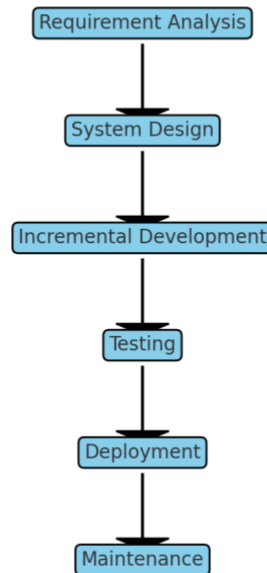
Figure 6 : Process Model Incremental Development

This project will follow the **Incremental Development Model**, which allows functionalities to be developed, tested, and delivered in smaller, manageable increments.

Phase	Description	Output
Requirement Analysis	Collect and document user needs and system requirements.	Software Requirements Specification (SRS)
System Design	Create the system architecture and design detailed workflows.	Software Design Document (SDD)
Incremental Development	Implement features in increments,	Functional modules of the FSES

	integrating them progressively.	
Testing	Conduct unit, integration, and user acceptance testing (UAT) on completed increments.	Tested modules ready for deployment
Deployment	Deploy the fully integrated system in the production environment.	Operational FSES system
Closure/Maintenance	Address post-deployment issues, provide updates, and support.	Stable and supported system

Table 22 : Incremental Development Model Phase

6.2 Methods, tools, and techniques

Aspect	Description	Tools/Techniques Used
Requirements Gathering	Gather and document functional and non-functional requirements.	Interviews, Surveys, Use Cases
Design	Create detailed designs using diagrams and modeling.	UML diagrams, Wireframes
Development	Code, test, and integrate software components.	Python, React, VS Code, GitHub
Testing	Verify that the system meets functional and performance criteria.	
Collaboration	Enable communication and document sharing among team members.	Google Drive, GMeet, Webex
Version Control	Maintain code repositories and track changes.	GitHub
Documentation	Prepare technical and user documentation.	Microsoft Word,

Table 23 : Methods, tools, and techniques

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6.3 Infrastructure plan

Component	Description	Details
Hardware	Physical resources required for development and deployment.	Laptops
Software Tools	Development and collaboration tools.	Python, React, VS Code, GitHub
Hosting Environment	Infrastructure for running the system post-deployment.	
Testing Environment	Dedicated space for testing the system before production deployment.	Local and staging environments.
Communication Tools	Platforms for team collaboration and client communication.	GMeet, Webex

Table 24 : Infrastructure plan

6.4 Product acceptance plan

Step	Activity	Output	Responsible Party
Acceptance Criteria Definition	Establish clear criteria for functionality, performance, and security.	Documented acceptance criteria	Quality Manager
User Acceptance Testing (UAT)	Perform tests with end-users to ensure the system meets their expectations and use cases.	UAT Report	QA Team, Stakeholders
Feedback Collection	Gather feedback from stakeholders on UAT results and system usability.	Feedback forms, suggestions log	QA Team, Project Managers
Defect Resolution	Resolve identified issues and retest.	Fixed defects	Developers
Final Approval	Obtain formal approval from stakeholders confirming that the system meets all requirements.	Signed acceptance document	Client, Project Manager

Table 25 : Product acceptance plan

7. Supporting process plans

7.1 Configuration management plan

7.1.1 Identification methods

The numbering scheme for the components for the PG project use the following method:

CSCI identification: FSES-SG

Where FSES - System name
SG - Company name

Document and article of the Developmental Configuration for the FSES project are:

DOCNAME: REF XXX-FSES-SG-VX.XX

Where XXX - Abbreviation for document name FSES - Product name SG - Company abbreviation VX.XX - Revision number (e.g. V1.00, V1.12, V2.00, …)

Documentation
      SPMP: REF SPMP-FSES-SG-VX.XX
      SRS: REF SRS-FSES-SG-VX.XX
      SDD: REF SDD-FSES-SG-VX.XX
      STD: REF STD-FSES-SG-VX.XX
      STR: REF STR-FSES-SG-VX.XX

 Source Code
      Front End: REF FE-FSES-SG-VX.XX
      Back End: REF BE-FSES-SG-VX.XX

7.1.2 Semantic Versioning

The semantic versioning uses the VX.XX numbering. This follows the format of:

Major.Minor

1. **Bug Fix or Minor Feature Addition (Bump Version .01)**
   Example: 1.05 → **1.06**
2. **New Feature (backwards-compatible) (Bump Version Floor .10)**
   Example: 1.05 → **1.10**

3. **Breaking Changes (Bump Version Floor 1.00)**
   Example: 1.05 → **2.00**

7.1.3 Source Code Configuration Control for Front End (FE) and Backend (BE)
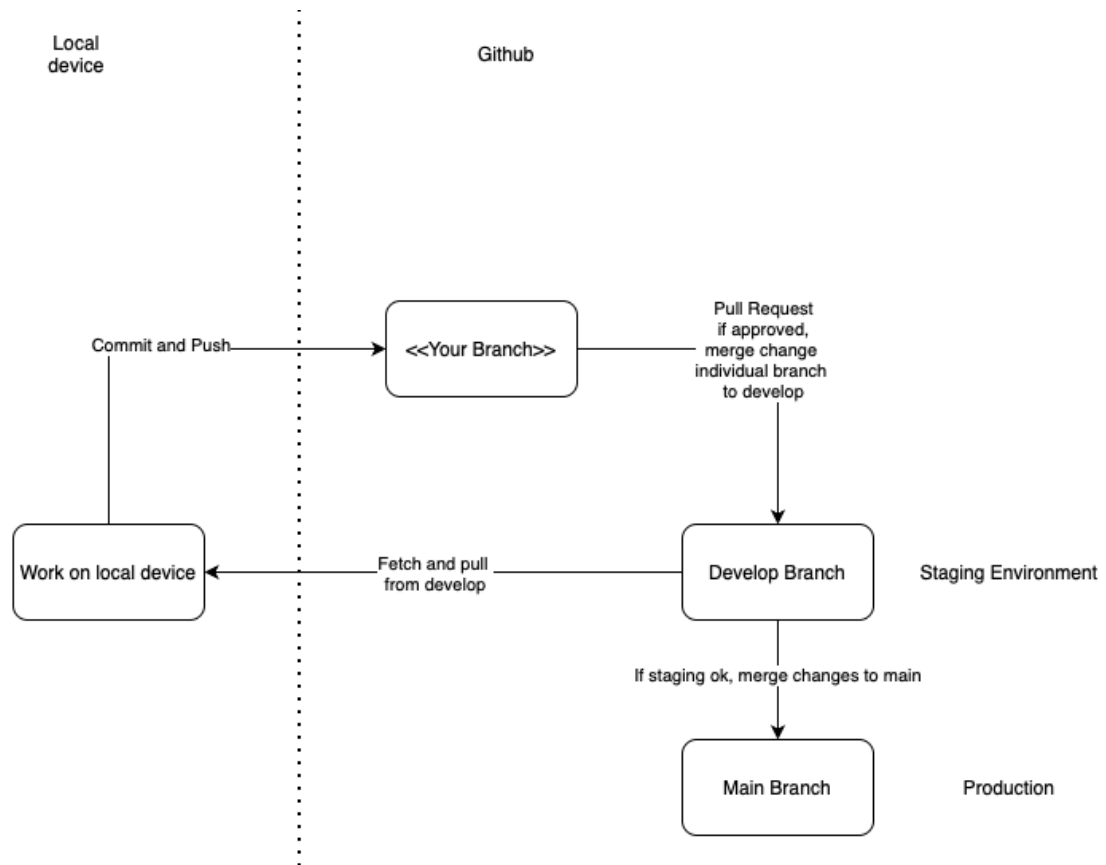
Figure 7 : Source Code Configuration Control for Front End (FE) and Backend (BE)

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7.1.4 Documentation Configuration Control (SPMP, SRS, SDD, STD, STR)
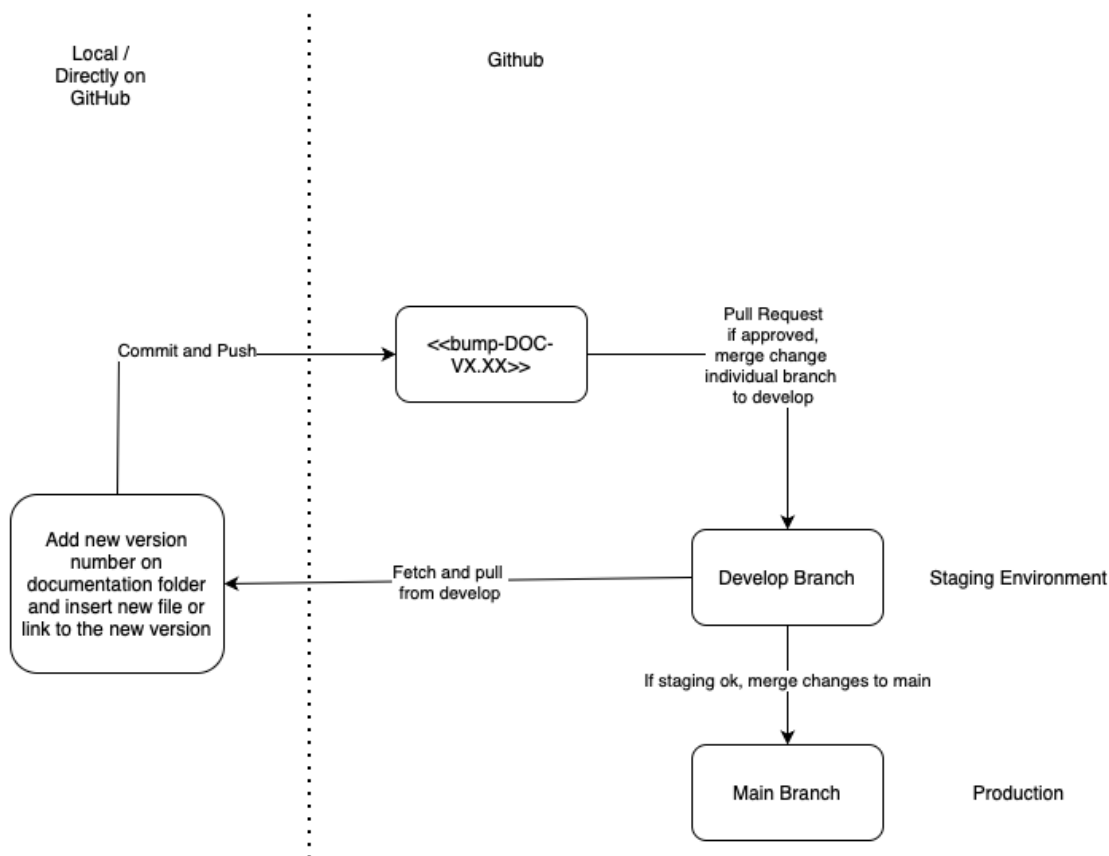

Figure 8 : Documentation Configuration Control (SPMP, SRS, SDD, STD, STR

7.2 Verification and validation plan

The Verification and validation plan is as per below table.

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Section	Details
1. Purpose and Scope	Purpose: Ensure the product meets system requirements Scope: Modules, systems, or components to test. Exclude third-party integrations.
2. Definitions	Verification: "Are we building the product right?" Focuses on following requirements during development. Validation: "Are we building the right product?" Meeting user expectation
3. Verification Activities	- Code Reviews: Peer reviews, walkthroughs, static analysis tools. - Unit Testing: Test individual components. - Integration Testing: Test module interactions. - Traceability Analysis: Map requirements to design, code, and tests.
4. Validation Activities	- System Testing: End-to-end tests to verify functionality. - User Acceptance Testing (UAT): Stakeholder testing in real-world conditions. - Performance and Stress Testing: Test under load or extreme scenarios. - Prototype Testing: Early iterative feedback.
5. Test Cases and Scenarios	Include functional tests (to validate requirements) and non-functional tests (usability, scalability, security, performance). Specify test data and expected outcomes.
6. Tools and Environments	- Testing Tools: Selenium, PostmanAPI, Mocha, Chai, PyTest - Environments: Local development, staging, production-like setups. - Include simulators or emulators for specific scenarios.
7. Roles and Responsibilities	- Developers: Unit and integration testing. - QA Team: Functional and system tests. - Stakeholders/End Users: UAT and feedback.
8. Deliverables	- Test plans and cases. - Test reports and defect logs. - Validation results and UAT sign-off.
9. Schedule	Align with milestones: - Unit Testing: Weeks 2–4. - Integration Testing: Week 4. - System Testing: Weeks 4-5. - UAT: Weeks 6-7.
10. Success Criteria	- No critical defects unresolved. - Critical requirements verified and validated. - UAT stakeholders approve the system.
11. Risk Management	- Risks: Incomplete requirements, unavailable tools or environments. - Mitigation: Regular requirement reviews, early environment setup.

Table 26 : Verification and validation plan

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7.3 Documentation plan

The documentation plan is as per below table.

Document	Standard	Prepared by	Reviewed by	Deadline	Distributed to
SPMP	IEEE	SWPM	QM	14-Dec-2024	Project team & client
SRS	IEEE	QM	CM	14-Dec-2024	Project team & client
SDD	IEEE	CM	QM	27-Dec-2024	Project team & client
STD	IEEE	QM	CM	11-Jan-2025	Project team & client
STR	IEEE	Developer	SWPM	11-Jan-2025	Project team & client
Source code	Coding standard	Developer	SWPM	19-Jan-2025	Project team & client

Table 27 : Documentation plan

7.4 Quality assurance plan

Section	Description
1. Purpose	To ensure the software meets quality and performance requirements.
2. Scope	All covered inside FSES. exclude any test on external modules, external libraries or external API(s)
3. Reference Documents	IEEE standards for SPMP, SRS, SDD, STD, STR
4. Management	- Organization Structure: Specifies roles and responsibilities for QA personnel.
	- Task Scheduling: Includes timelines for QA activities.
	- Budget Allocation: Provides resource estimates for QA tasks.
5. Documentation	Software Test Report (STR)
6. Standards, Practices, and Conventions	IEEE
7. Tools, Techniques, and Methods	Github pull request, Postman API, Mocha
8. Reviews and Audits	- Technical Reviews (e.g., code reviews, design reviews).
	- Audits (e.g., process compliance checks).
9. Test	- Unit Tests: Test individual functions or components.
	- Integration Tests: Verify module interactions.
	- System Tests: Ensure the entire system functions as intended.

	- Acceptance Tests: Validate the system against user requirements.
10. Problem Reporting and Resolution	Reporting Issue under Github issues: https://github.com/adilelli/master-project/issues/new - include labels
	Report Issue under Google Sheet
11. Metrics	- Defect density: Number of defects per unit of code.
	- Test coverage: Percentage of code tested.
	- Mean time to detect (MTTD) and Mean time to resolve (MTTR) defects.
12. Training	Github Issues, Postman API, Mocha
13. Risk Management	- Risk: Tight deadlines may limit testing scope.
	- Mitigation: Prioritize high-risk areas for early testing.
14. Records Collection, Maintenance, and Retention	Google sheet, github issues
15. Glossary	Provides definitions for terms and acronyms used in the QA plan to ensure clarity and consistency.
16. Annexes	Includes supplementary information such as templates, diagrams, or detailed procedures.
Based on IEEE 730	

Table 28 : Quality assurance plan

7.5 Reviews and audits plan

Only reviews will be conducted throughout this project. The reviews plan is as per below table.

Review	Agenda	Attendee	Date
SRR	Review SRS	Project team, PM & client	15-Dec-2024
PDR	Review STD	Project team, PM & client	28-Dec-2024
TRR	Review STD	Project team, PM & client	12-Jan-2025

Table 29 : Reviews and audits plan

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7.6 Problem resolution plan

Section	Description
1. Problem Identification	Identify and describe the issue that needs resolution. Consider factors such as symptoms, context, and stakeholders involved.
2. Root Cause Analysis	Investigate the underlying causes of the problem. This may involve reviewing historical failure, asking for further details on the issue, or running tests.
3. Resolution Strategy	Proposing and selecting a method to fix the identified problem.
4. Action Plan	Break down the solution into clear, actionable steps. This includes who is responsible, timelines, and resources needed.
5. Impact Analysis	Evaluate how the solution will affect the project, team, or organization. This includes any potential risks or changes to the system.
6. Testing & Verification	Test if the implemented solution works as expected. This may involve testing, feedback from users, or monitoring the system post-implementation.
7. Monitoring & Follow-up	Track the effectiveness of the resolution and make necessary adjustments. Follow up periodically to ensure the problem does not recur.
8. Documentation & Reporting	Record the problem, analysis, actions taken, and outcomes. Provide a final report on the resolution success.
9. Risk Management	Identify potential risks during resolution
10. Success Criteria	Identify criteria that will determine whether the resolution is successful.

Table 30 : Problem resolution plan

7.7 Subcontractor management plan

Not applicable.

7.8 Process improvement plan

Not applicable.

8. Additional plans

Not applicable.

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Annexes

TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PLANNING WEEK 1		REQUIREMENT GATHERING WEEK 2		DESIGN WEEK 3		DEVELOPMENT WEEK 4		WEEK 5	TESTING WEEK 5	WEEK 6		CLOSURE WEEK 7	
					7-Dec	8-Dec	14-Dec	15-Dec	21-Dec	22-Dec	28-Dec	29-Dec	4-Jan	5-Jan	11-Jan	12-Jan	18-Jan	19-Jan
Project Planning																		
Produce SPMP	SWPM	12/7/24	12/7/24	1														
Review SPMP with PM	SWPM	12/8/24	12/8/24															
Revise SPMP (if required)	QM	12/8/24	12/8/24	1														
Requirement Gathering & Analysis																		
Understand requirement	QM	12/14/24	12/14/24															
Read URS	QM	12/14/24	12/14/24															
Meet client (if required)	QM	12/14/24	12/14/24	1														
Produce SRS	QM	12/14/24	12/14/24															
Conduct SSR	SWPM	12/15/24	12/15/24	1														
Revise SRS (if required)	CM	12/15/24	12/15/24															
System Design																		
Produce SDD	CM	12/21/24	12/22/24	2														
Conduct PDR	SWPM	12/28/24	12/28/24	1														
Revise SDD (if required)	QM	12/28/24	12/28/24															
Development																		
Write code	Developer	12/28/24	12/29/24	2														
Conduct peer review	Developer	1/4/25	1/4/25	1														
Revise code (if required)	Developer	1/4/25	1/4/25															
Testing																		
Produce STD	QM	1/5/25	1/5/25	1														
Conduct testing	Developer	1/11/25	1/11/25	1														
Produce STR	Developer	1/11/25	1/11/25															
Conduct TRR	SWPM	1/12/25	1/12/25	1														
Revise STD (if required)	CM	1/12/25	1/12/25															
Project Closure																		
Demonstrate project	CM	1/19/25	1/19/25	1														
				14														

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