Project X: Project Management Plan

Software Project Management (SE430)

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1. Project Overview

1.1 Project Scope

ProjectX is an academic project marketplace designed specifically for university students to buy and sell completed academic and technical projects. The platform provides a centralized digital space for students to monetize their completed work and for buyers to access high-quality academic resources, including project guides and tutorials.

The scope of ProjectX includes the development of core features such as user authentication, project listing with categorization, search and filter functionalities, order tracking, an admin panel, and access to supplementary learning materials. Supporting systems include UI/UX frameworks, communication tools, email notification systems, and basic security protocols.

The scope does not include freelancing services, physical product shipment, plagiarism or authenticity checking, advanced licensing or copyright management, and multi-language support.
Major constraints for our project are fixed 7-week development timeline, budget limitations, and a six-member team size.

Our Stakeholders are university students (sellers) and faculty advisors.The risks involved in our project are low student engagement and copyright infringement identified.

The project aims to meet defined quality standards, achieve specific user adoption and transaction targets, and maintain a positive user satisfaction rate upon launch

1.2 Project Purpose, Goals and Objectives

Project Purpose	
The purpose of ProjectX is to create a secure, user-friendly, and efficient digital marketplace where university students can sell their completed academic projects and buyers can easily discover, purchase, and utilize these projects for academic growth and reference. It promotes the free flow of academic knowledge, encourages student monetization, and supports supplemental learning through tutorials and documentation resources.	
Project Goal	**Project Objectives**
Goal 1: Provide a centralized marketplace for academic projects	Enable users to securely list and purchase projects.
	Achieve a high number of active project listings and successful transactions.
Goal 2 : Enhance knowledge sharing through supplementary educational resource	Integrate tutorials and guides with project listings
	Track and ensure majority access (clicks) to learning resources.
Goal 3 : Support student	Enable 30% of active sellers to earn over Rs. 5,000 within the first 6 months.
	Implement transparent tracking of earnings through the admin dashboard.

monetization opportunities	
Goal 4: Improve project discoverability through structured categorization and advanced search	Implement effective search filters and categories.
	Reduce project search time to ≤ 3 clicks for 80% of users
Goal 5: Ensure a user-friendly and intuitive platform experience	Develop a responsive and accessible UI based on Figma prototypes.
	Achieve 85% positive feedback in user satisfaction surveys.
Goal 6: Build trust and maintain content quality	Implement content moderation checklists.
	Facilitate peer review processes to maintain project quality.

2. Project Organization & Team Roles

2.1 Team Members and Assigned Roles

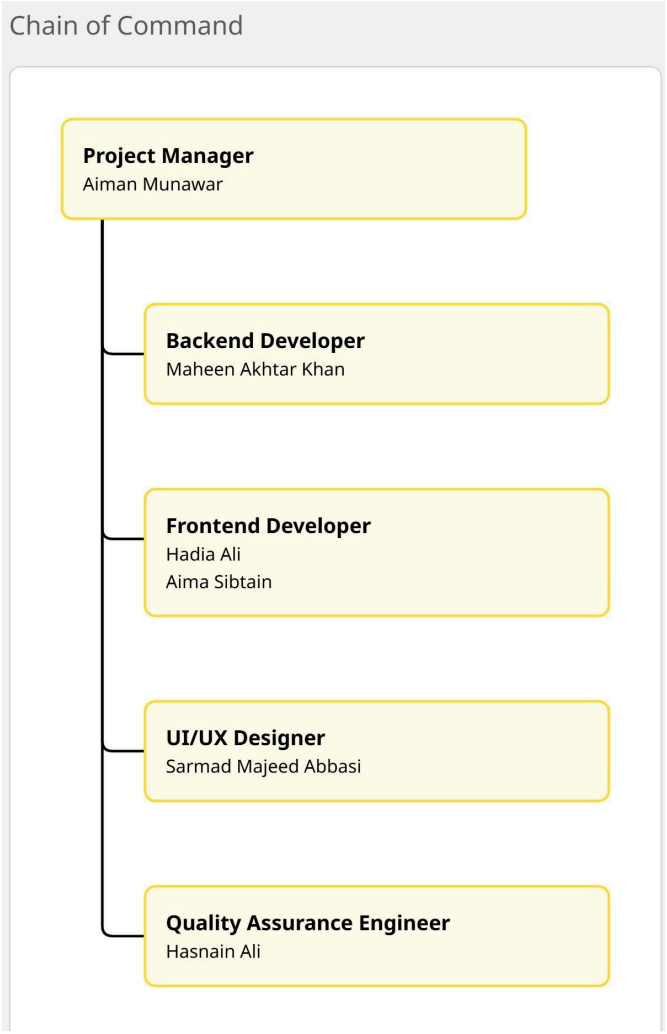
Name	Role	Responsibilities
Aimen Munawar	Project Manager & Backend Support	Project planning, task coordination, backend integration, stakeholder communication, risk management, deployment.
Maheen Akhtar Khan	Backend Developer	Designing and developing backend APIs, database management, server deployment and maintenance.
Hadia Ali	Frontend Developer	Implementing user interface from Figma designs, ensuring responsive and interactive UI.
Aima Sibtain	Frontend Developer	Assisting in frontend development, UI refinements, and user experience enhancements.
Sarmad Majeed Abbasi	UI/UX Designer	Designing wireframes, creating user-friendly Figma prototypes, gathering user feedback.
Hasnain Ali	Quality Assurance (QA) Tester	Writing and executing test cases, bug reporting, ensuring software quality, assisting in risk identification.

2.2 Roles Responsibilities

Area	Description	Responsible Role
Project Planning and Coordination	Setting goals, schedules, and managing overall project execution.	Aimen Munawar (Project Manager)
Backend Development and Integration	Handling backend APIs, server setup, database management, and integration.	Maheen Akhtar Khan (Backend Developer) + Aimen Munawar (Backend Support)
Frontend Development and UI Implementation	Designing and developing the user interface based on Figma prototypes.	Hadia Ali (Frontend Developer) + Aima Sibtain (Frontend Developer)
UI/UX Design	Designing intuitive user journeys, wireframes, and Figma prototypes.	Sarmad Majeed Abbasi (UI/UX Designer)
Quality Assurance and Testing	Conducting unit, integration, system, and user acceptance testing.	Hasnain Ali (QA Tester)

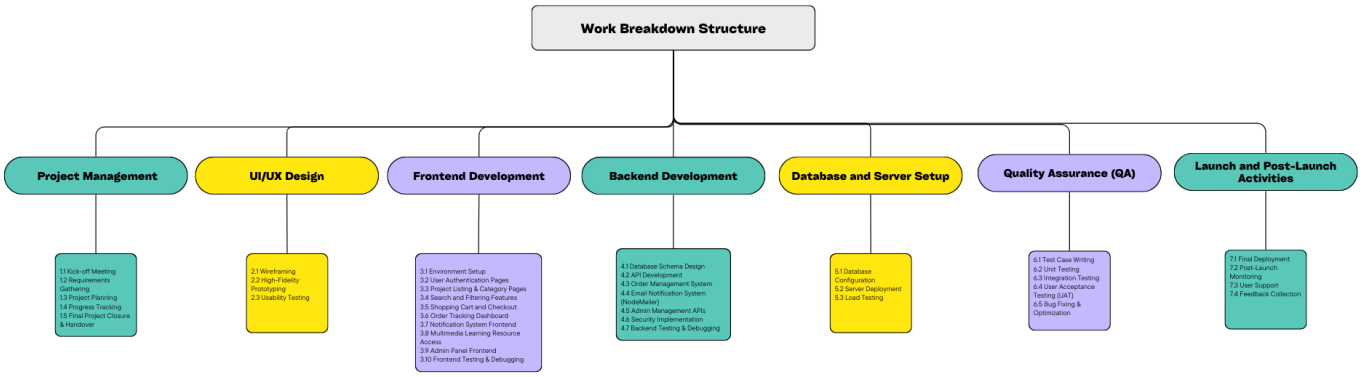
User & Stakeholder Communication	Gathering feedback from users and keeping stakeholders updated (like Mam Ayesha Maqbool).	Aimen Munawar (Project Manager) + Sarmad Majeed Abbasi (UI/UX Designer)
Deployment and Maintenance	Deploying the application to hosting servers and maintaining uptime.	Maheen Akhtar Khan (Backend Developer) + Aimen Munawar (Project Manager)
Risk and Issue Management	Identifying, monitoring, and mitigating project risks and technical issues.	Aimen Munawar (Project Manager) + Hasnain Ali (QA Tester)

2.3 Reporting Structure



3.Work Breakdown Structure (WBS)

3.1 WBS Hierarchical Diagram



3.2 WBS Sections

1. Project Management
1.1 Kick-off Meeting
1.2 Requirements Gathering
1.3 Project Planning
1.4 Progress Tracking
1.5 Final Project Closure & Handover

2. UI/UX Design
2.1 Wireframing
2.2 High-Fidelity Prototyping
2.3 Usability Testing

3. Frontend Development
3.1 Environment Setup
3.2 User Authentication Pages
3.3 Project Listing & Category Pages
3.4 Search and Filtering Features
3.5 Shopping Cart and Checkout
3.6 Order Tracking Dashboard
3.7 Notification System Frontend
3.8 Multimedia Learning Resource Access
3.9 Admin Panel Frontend
3.10 Frontend Testing & Debugging

4. Backend Development
4.1 Database Schema Design
4.2 API Development
4.4 Order Management System
4.5 Email Notification System (NodeMailer)
4.6 Admin Management APIs
4.7 Security Implementation
4.8 Backend Testing & Debugging

5. Database and Server Setup
5.1 Database Configuration
5.2 Server Deployment
5.3 Load Testing

6. Quality Assurance (QA) and Testing
6.1 Test Case Writing
6.2 Unit Testing
6.3 Integration Testing
6.4 User Acceptance Testing (UAT)
6.5 Bug Fixing & Optimization

7. Launch and Post-Launch Activities
7.1 Final Deployment
7.2 Post-Launch Monitoring
7.3 User Support
7.4 Feedback Collection

3.2 Task Descriptions

1. **Project Management**

a. Kick-off Meeting:

To initiate the project, we will schedule and conduct an initial meeting with all stakeholders and the development team. During this meeting, we will establish clear project goals, objectives, and expectations, ensuring alignment among all parties involved. We will define key roles and responsibilities for each team member, specifying who will handle which aspects of the project, and clarify communication protocols to facilitate smooth collaboration. Additionally, we will set up essential project management tools such as Slack for team communication, Linear for task tracking, and Google Drive for document sharing and collaboration, ensuring that all resources are easily accessible and organized throughout the project lifecycle. This meeting will lay the foundation for effective teamwork and project execution.

b. Requirements Gathering:

We will conduct a series of workshops and meetings with business owners, designers, and technical leads to gather comprehensive system requirements, business rules, and UI/UX expectations. These discussions will help us understand the functional and non-functional requirements of the project, ensuring that all stakeholders' needs are captured. Once the requirements are gathered, we will prioritize and categorize them into "must-have" and "nice-to-have" features, ensuring that the core

functionality is addressed first while also considering additional enhancements for future iterations. After finalizing the requirements, we will document them and circulate it to all stakeholders for review and approval, ensuring clarity and alignment before moving forward with the development process.

c. Project Planning:

In this phase, we will create detailed project schedules that outline major milestones, deadlines, and deliverables to ensure the timely completion of each task. Alongside the schedules, Resource Allocation strategies will be developed to assign the right resources, including developers, designers, testers, and other team members, to the appropriate tasks based on their expertise. Potential project risks will be identified early, and mitigation strategies will be drafted to minimize any disruptions to the project timeline or scope. A communication plan will also be put in place to ensure regular updates and effective stakeholder reporting, facilitating smooth communication throughout the project lifecycle. Additionally, a Change Management Process will be finalized to handle any scope changes, ensuring that all changes are tracked, assessed, and appropriately approved, helping to maintain the project's focus and alignment with its objectives.

d. Progress Tracking:

In this phase, we will establish a regular cadence of weekly sprint planning and review meetings to ensure continuous progress and alignment with project goals. These meetings will provide an opportunity to plan tasks for the upcoming sprint, review completed work, and address any obstacles. Progress will be updated regularly in project management tools such as Linear, ensuring all team members are informed of the current status and next steps. We will also monitor the risk register closely, proactively addressing potential issues and handling any escalations early to mitigate impact. Continuous visibility over timelines, budget, and deliverables will be maintained to ensure the project remains on track.

e. Final Project Closure & Handover:

At the end of the project, we will conduct a thorough review of all deliverables to ensure they meet the initial requirements, performing both verification and validation processes. A final review or demo meeting will be organized with stakeholders to showcase the completed work and ensure it aligns with their expectations. All project artifacts, including the code repository, documentation, user manuals, and training materials, will be delivered to the stakeholders. Formal sign-off from project sponsors and key stakeholders will be obtained to confirm that the project has met all the objectives and requirements. Finally, a project retrospective session will be held to reflect on the entire project, capturing lessons learned, identifying areas for improvement, and ensuring that any valuable insights are documented for future projects.

2. UI/UX Design

a. Wireframing:

Create initial sketches or wireframes to visualize the structure of key pages such as the homepage, user dashboards, and admin panel. This provides a clear layout of content and functionality before high-fidelity designs are made.

b. High-Fidelity Prototyping:

Design polished, interactive prototypes using Figma to demonstrate the user experience flow and interface design for feedback and validation.

c. **Usability Testing**:

Conduct user testing on the prototypes to ensure that the design meets user needs, is intuitive, and is easy to navigate. Gather feedback to make design improvements.

3. **Frontend Development**

a. **Environment Setup**:

Configure development environments, set up repositories, and integrate necessary tools and frameworks. This setup ensures that all team members have a consistent working environment.

b. **User Authentication Pages**:

Develop the frontend for user authentication, including sign-up, login pages. These pages allow users to securely access the platform.

c. **Project Listing & Category Pages**:

Build the user interface for displaying and categorizing projects, allowing users to browse through available listings based on various filters.

d. **Search and Filtering Features**:

Implement search functionality and filtering options (e.g., domain, price, popularity) to enhance user experience and enable users to easily find relevant projects.

e. **Shopping Cart and Checkout**:

Develop the frontend for managing items in a shopping cart and placing orders. Users should be able to view, modify, and confirm their orders before proceeding to checkout.

f. **Order Tracking Dashboard**:

Create a dashboard for users to track the status and history of their orders, allowing them to see real-time updates on delivery or completion.

g. **Notification System Frontend**:

Implement a notification system for newsletter subscription confirmations

h. **Multimedia Learning Resource Access**:

Design a section where users can access tutorials, guides, or other multimedia learning resources related to the platform.

i. **Admin Panel Frontend**:

Develop the user interface for administrators to manage project listings, sales, and other platform activities.

j. **Frontend Testing & Debugging**:

Test and debug all frontend components to ensure functionality, performance, and cross-browser compatibility.

4. **Backend Development**

a. **Database Schema Design**:

Design the database schema, defining the structure of tables (users, projects, orders) and their relationships to ensure data is organized and easily accessible.

b. **API Development**:

Create RESTful APIs to handle user management, project management, cart handling, and order processing. These APIs will allow the frontend to interact with the backend.

c. **Order Management System**:

Build the backend logic to track and update the status of orders, ensuring users and administrators can monitor and manage their orders.

d. **Email Notification System (NodeMailer)**:

Develop the backend logic to send email notifications to users for newsletter subscription confirmations, and to administrators for contact form submissions.

e. **Admin Management APIs**:

Build APIs for admins to perform CRUD operations on users, projects, and other platform data, ensuring efficient management of content.

f. **Security Implementation**:

Implement security best practices like role-based access control, and input validation to protect the platform from vulnerabilities and unauthorized access.

g. **Backend Testing & Debugging**:

Conduct thorough testing of backend APIs, logic, and database interactions to ensure stability and performance.

5. **Database and Server Setup**

a. **Database Configuration**:

Set up and configure the database (MongoDB), ensuring that data storage and retrieval are efficient, secure, and scalable.

b. **Server Deployment**:

Deploy the backend and frontend applications on a cloud provider (Vercel) ensuring high availability and performance.

c. **Load Testing**:

Perform load testing to simulate high traffic and ensure that the server can handle the expected number of concurrent users without performance degradation.

6. **Quality Assurance (QA) and Testing**

a. **Test Case Writing**:

   Write detailed test cases for all core modules, covering functional and non-functional aspects of the application.

b. **Unit Testing**:

   Test individual components of the system (functions, APIs, UI components) to ensure that they perform as expected.

c. **Integration Testing**:

   Test how the different modules (frontend, backend, APIs) work together and ensure that data flows smoothly between them.

d. **User Acceptance Testing (UAT)**:

   Perform testing with actual users to validate that the platform meets the original business requirements and user needs.

e. **Bug Fixing & Optimization**:

   Identify and fix bugs, performance issues, and potential improvements to optimize the application's functionality and user experience.

7. **Launch and Post-Launch Activities**

a. **Final Deployment**:

   Deploy the platform to the live environment, making it accessible to users. Ensure that all features are functional, secure, and stable.

b. **Post-Launch Monitoring**:

   Continuously monitor server performance, error rates, and user activity to identify any issues and address them promptly.

c. **User Support**:

   Set up a support system (e.g., contact email) to assist users with any questions or issues they encounter after launch.

d. **Feedback Collection**:

   Collect feedback from users through surveys or feedback forms to understand user satisfaction and identify areas for improvement.

4. Gantt Chart & Schedule Plan

4.1 Project Timeline

Gantt Chart : Link

4.2 Milestone List

WBS Task	Start Date	End Date	Duration (Days)	Dependencies	Milestone
1. Project Management					
1.1 Kick-off Meeting	Apr 6, 2025	Apr 6, 2025	1	None	M1
1.2 Requirements Gathering	Apr 7, 2025	Apr 9, 2025	3	1.1	
1.3 Project Planning	Apr 10, 2025	Apr 14, 2025	3	1.2	M2
1.4 Progress Tracking	Apr 15, 2025	May 21, 2025	27	1.3	
1.5 Final Project Closure & Handover	May 25, 2025	May 26, 2025	2	7.1	M8
2. UI/UX Design					
2.1 Wireframing	Apr 10, 2025	Apr 14, 2025	3	1.2	
2.2 High-Fidelity Prototyping	Apr 15, 2025	Apr 17, 2025	3	2.1	
2.3 Usability Testing	Apr 18, 2025	Apr 21, 2025	2	2.2	M3
3. Frontend Development					
3.1 Environment Setup	Apr 15, 2025	Apr 15, 2025	1	1.3	
3.2 User Authentication Pages	Apr 16, 2025	Apr 18, 2025	3	3.1, 2.3	
3.3 Project Listing & Category Pages	Apr 21, 2025	Apr 23, 2025	3	3.2	
3.4 Search and Filtering Features	Apr 24, 2025	Apr 25, 2025	2	3.3	
3.5 Shopping Cart and Checkout	Apr 28, 2025	Apr 30, 2025	3	3.4	
3.6 Order Tracking Dashboard	May 1, 2025	May 5, 2025	3	3.5	
3.7 Notification System Frontend	May 6, 2025	May 7, 2025	2	3.6	
3.8 Multimedia Learning Resource Access	May 8, 2025	May 9, 2025	2	3.7	
3.9 Admin Panel Frontend	May 1, 2025	May 5, 2025	3	3.5	
3.10 Frontend Testing & Debugging	May 6, 2025	May 9, 2025	4	3.6–3.9	M4
4. Backend Development					
4.1 Database Schema Design	Apr 15, 2025	Apr 17, 2025	3	1.3	

4.2 API Development	Apr 18, 2025	Apr 29, 2025	8	4.1	
4.3 Order Management System	May 5, 2025	May 7, 2025	3	4.3	
4.4 Email Notification System	May 8, 2025	May 9, 2025	2	4.4	
4.5 Admin Management APIs	May 5, 2025	May 7, 2025	3	4.2	
4.6 Security Implementation	May 8, 2025	May 12, 2025	3	4.2–4.6	
4.7 Backend Testing & Debugging	May 13, 2025	May 16, 2025	4	4.7	M5
5. Database and Server Setup					
5.1 Database Configuration	Apr 18, 2025	Apr 21, 2025	3	4.1	
5.2 Server Deployment	May 13, 2025	May 14, 2025	2	5.1, 4.8	
5.3 Load Testing	May 15, 2025	May 16, 2025	2	5.2	M6
6. Quality Assurance (QA) and Testing					
6.1 Test Case Writing	Apr 30, 2025	May 2, 2025	3	2.3, 4.2	
6.2 Unit Testing	May 5, 2025	May 7, 2025	3	6.1, 3.10, 4.8	
6.3 Integration Testing	May 8, 2025	May 12, 2025	3	6.2	
6.4 User Acceptance Testing (UAT)	May 22, 2025	May 23, 2025	2	6.3	
6.5 Bug Fixing & Optimization	May 22, 2025	May 26, 2025	5	6.4	M7
7. Launch and Post-Launch Activities					
7.1 Final Deployment	May 22, 2025	May 22, 2025	1	6.5, 5.3	M8
7.2 Post-Launch Monitoring	May 23, 2025	May 26, 2025	3	7.1	
7.3 User Support	May 23, 2025	May 26, 2025	3	7.1	
7.4 Feedback Collection	May 23, 2025	May 26, 2025	3	7.1	

5. Resource Plan

5.1 Resource Identification and Allocation

Human Resources:

Resource	Role	Description/Justification
Aimen Munawar	Project Manager/Backend Support	Leads project planning, coordination, risk management, user/stakeholder communication, and deployment. Provides backend support for APIs, server setup, and integration. Ensures alignment with scope objectives.
Maheen Akhtar Khan	Backend Developer	Handles backend APIs, server setup, database management, integration, and deployment. Ensures platform uptime and security, supporting financial benefits.
Hadia Ali	Frontend Developer	Develops frontend components (e.g., user authentication, project listings) based on Figma prototypes. Supports operational benefits.
Aima Sibtain	Frontend Developer	Develops frontend components (e.g., shopping cart, admin panel). Collaborates with Hadia for consistent UI, enhancing academic benefits.
Sarmad Majeed Abbasi	UI/UX Designer	Designs intuitive wireframes and Figma prototypes. Gathers user feedback to refine designs, supporting professional benefits.
Hasnain Ali	QA Tester	Conducts unit, integration, system, and user acceptance testing. Manages risks to ensure quality, contributing to administrative benefits.

Tools:

Tool	Category	Purpose	Cost	Justification
Figma	UI/UX Design	Wireframing, prototyping, usability testing	Free (Education Plan)	Supports Sarmad's UI/UX tasks, ensuring intuitive designs for students and researchers (scope objective: 80% users find projects in ≤3 clicks).
Visual Studio Code	Development	Code editing for frontend and backend	Free	Used by Hadia, Aima, Maheen, and Aimen for React and Node.js development, supporting platform efficiency.
Git	Version Control	Source code management	Free	Ensures code versioning for peer reviews, aligning with quality standards (scope document).
GitHub	Version Control/Collaboration	Repository hosting, issue tracking	Free (Public Repository)	Centralizes code for Hadia, Aima, Maheen, and Aimen, supporting collaborative development.
Postman	API Testing	Testing backend APIs	Free (Basic Plan)	Validates APIs for Maheen and Aimen, ensuring reliable project

				transactions (financial benefits).
Linear	Project Management	Task tracking, sprint planning	Free (Unlimited members, 250 issues)	Used by Aimen for progress tracking (WBS 1.4), supporting administrative benefits (30% efficiency improvement).
Slack	Communication	Team and stakeholder communication	Free	Facilitates Aimen and Sarmad's user/stakeholder communication, enhancing collaboration.
Google Meet	Communication	Virtual meetings for reviews, demos	Free	Supports Aimen's stakeholder communication (e.g., Mam Ayesha Maqbool), per scope's stakeholder matrix.
Google Drive	Documentation	Storing SRS, design files, artifacts	Free	Centralizes documentation for project closure (WBS 1.5), accessible to and .
JMeter	Load Testing	Server performance testing	Free	Used by Maheen and Hasnain to ensure scalability for 1,000 users (scope objective).
Selenium	Cross-Browser Testing	Frontend testing across devices	Free	Optional for Hadia and Aima to ensure UI compatibility, enhancing user satisfaction.

Technologies

Technology	Purpose	Version	Cost	Justification
React	Frontend Framework	18.x	Free	Used by Hadia and Aima for responsive UI, supporting students and freelancers (scope: 80% users find projects in ≤3 clicks).
Node.js	Backend Runtime	20.x	Free	Supports Maheen and Aimen's backend APIs and NodeMailer, enabling project sales (financial benefits).
Express	Backend Framework	4.x	Free	Simplifies API development for Maheen and Aimen, supporting platform efficiency (administrative benefits).
MongoDB	Database	7.x	Free (Community Edition)	Used by Maheen for flexible schema design, supporting project listings for (scope objective).

TypeScript	Programming Language	5.x	Free	Enhances code quality for Hadia, Aima, Maheen, and Aimen, aligning with scope's quality standards.
NodeMailer	Email Notifications	Latest	Free	Supports Maheen's email notifications, enhancing user experience for researchers (scope: user satisfaction).
JSON Web Tokens (JWT)	Security	Latest	Free	Implements secure authentication for Maheen and Aimen, protecting student data (scope: security protocols).
Jest	Testing Framework	Latest	Free	Used by Hasnain for frontend and backend testing, ensuring quality for innovators (scope: 85% user satisfaction).
Vercel	Cloud Integration	Latest	Free (Free Tier)	Supports Maheen and Aimen's server deployment, ensuring scalability for and hubs (scope: 1,000 users).

Infrastructure

Resource	Purpose	Specification	Cost	Justification
Vercel	Server Hosting	Functions & Edge Middleware Automatic CI/CD from GitHub	Free	Serverless hosting that scales automatically for up to 1 GB runtime execution & 100 GB-hours—enough for the pilot (1 k users) while keeping ops simple for Maheen & Aimen.
MongoDB Atlas (M0 Free Tier)	Database Hosting	512 MB storage, shared RAM, 100 max connections	Free (M0 Tier)	Manages database for Maheen, supporting academic benefits (access to learning materials).
Google Drive	File Storage	Standard storage	Free	Stores project files for Hadia, enhancing academic benefits for students and researchers.
Domain Name	Website Access	projectx.org	Rs. 2,200	Professional URL for Aimen's deployment, enhancing trust for and freelancers (scope: user trust).
SSL Certificate	Security	Let's Encrypt	Free	Ensures HTTPS for Maheen's security tasks, protecting student data (scope: security protocols).
Internet	Connectivity	Average-speed connection (1.75 months)	Rs. 6,125	Supports team collaboration and deployment, essential for all roles (cost: Rs. 3,500 × 1.75 months).

Electricity	Power Supply	Office usage (1.75 months)	Rs. 26,250	Powers team's workstations and servers, prorated for 2.5 months (cost: Rs. 15,000 × 1.75).
Rent	Office Space	Floor rental (1.75 months)	Rs. 122,500	Provides workspace for team, prorated for 2.5 months (cost: Rs. 70,000 × 1.75).

5.2 Risks Assessments and Mitigations

5.2.1 Overview

The risk management plan for ProjectX identifies potential risks that could impact the project's scope, schedule, budget, quality, or stakeholder satisfaction. Each risk is assessed for probability and impact, assigned a risk score, and paired with proactive and reactive mitigation strategies. The plan aligns with the project's constraints (7-week timeline, 6-member team, Rs. 839,575 budget) and objectives (1,000 users, 85% user satisfaction, 30% sellers earning Rs. 5,000). Risk ownership is assigned to team members per the 1.4 Roles and Responsibilities table, with Aimen Munawar (Project Manager) overseeing monitoring and reporting. The 5-day quality testing buffer (May 22–26, 2025) is leveraged to mitigate schedule and quality risks, ensuring delivery by May 26, 2025.

5.2.2 Risk Assessment Framework

A. **Probability Ratings**:
   a. Low: 1–30% (unlikely to occur).
   b. Medium: 31–60% (possible but not certain).
   c. High: 61–90% (likely to occur).

B. **Impact Ratings**:
   a. Low: Minimal impact (<Rs. 10,000, <2-day delay, no scope compromise).
   b. Medium: Moderate impact (Rs. 10,000–50,000, 2–5-day delay, minor scope adjustment).
   c. High: Significant impact (>Rs. 50,000, >5-day delay, scope failure, stakeholder dissatisfaction).

C. **Risk Score**: Probability × Impact (Low: 1–3, Medium: 4–6, High: 7–9).

D. **Mitigation Approach**:
   a. Proactive: Prevent risk occurrence.

b. Reactive: Minimize impact if risk occurs (e.g., reprioritization, external support).

E. **Monitoring**: Aimen tracks risks via Linear (WBS 1.4), with weekly reviews.

5.2.3 Risk Register

Risk ID	Risk Description	Category	Probability	Impact	Risk Score	Mitigation Strategy	Risk Owner
R1	**Schedule Delays Due to Compressed Timeline** The 7-week timeline (April 6–May 26, 2025) may lead to delays if tasks (e.g., API development, WBS 4.2) take longer than planned.	Schedule	Medium (50%)	High (7-day delay, scope failure)	Medium (5)	**Proactive**: Use Linear for task tracking (WBS 1.4), conduct daily stand-ups to monitor progress, and parallelize tasks (e.g., UI/UX and backend design). Compress durations using reusable templates (e.g., React components). Reserve 5-day buffer (May 22–26, 2025) for catch-up. **Reactive**: Reprioritize non-critical tasks (e.g., notification system, WBS 3.7) or reduce scope (e.g., simplify admin panel features) with stakeholder approval.	Aimen Munawar (PM)
R2	**Team Overload Due to Small Team Size** Six team members,	Resource	Medium (40%)	High (5-day delay, quality issues)	Medium (4)	**Proactive**: Balance workloads by splitting tasks (e.g., Hadia/Aima on frontend, WBS	Aimen Munawar (PM)

	with Aimen's dual role (PM/Backend Support), may face burnout or bottlenecks, especially during development (WBS 3, 4).					3.2–3.9). Aimen focuses on PM early (WBS 1) and backend later (WBS 4). Provide cross-functional support (e.g., Hasnain assists frontend testing, WBS 3.10).	
R3	**Technical Issues in Backend Development** Complexities in API development (WBS 4.2) may cause delays or defects, impacting financial benefits (break-even).	Technical	Medium (40%)	Medium (3-day delay, Rs. 20,000)	Medium (4)	**Proactive**: Use Postman for API testing and reusable Node.js/Express templates. Maheen leads backend with Aimen's support (WBS 4). **Reactive**: Roll back to simpler API versions or defer non-critical features (e.g., advanced analytics) to post-launch.	Maheen Akhtar Khan (Backend)
R4	**Quality Issues Due to Rushed Testing** Compressed QA phase (WBS 6, May 22–26, 2025) may miss defects, risking 85% user satisfaction goal.	Quality	Medium (50%)	High (scope failure, stakeholder dissatisfaction)	Medium (5)	**Proactive**: Hasnain writes test cases early (WBS 6.1, Apr 30). Use Jest/Mocha/Chai and GitHub Actions for automated testing (WBS 6.2–6.3). Conduct peer reviews via GitHub. Reserve buffer for UAT and	Hasnain Ali (QA)

						bug fixing (WBS 6.4–6.5). **Reactive**: Prioritize critical bugs in buffer. Release with known non-critical bugs and patch post-launch (May 26, 2025).	
R5	**Stakeholder Misalignment** Miscommunication with stakeholders (e.g., Mam Ayesha Maqbool) may lead to scope creep or dissatisfaction, impacting professional benefits (40% job placement).	Stakeholder	Low (30%)	Medium (2-day delay, Rs. 10,000)	Low (3)	**Proactive**: Document requirements (Google Drive) and validate with stakeholders early (Apr 7–9, 2025). Use Linear for change requests. **Reactive**: Escalate scope changes to Mam Ayesha Maqbool for approval. Adjust non-critical deliverables (e.g., reduce multimedia features, WBS 3.8) to meet timeline.	Aimen Munawar (PM), Sarmad Majeed Abbasi (UI/UX)
R6	**Budget Overrun** Unexpected costs) may exceed Rs. 839,575, risking financial benefits.	Financial	Low (20%)	High (>Rs. 50,000, project halt)	Low (2)	**Proactive**: Use free tools (Figma, Free Tier) and open-source technologies (React, MongoDB). Monitor variable costs (electricity,	Aimen Munawar (PM)

						rent) weekly. **Reactive**: Reallocate budget from miscellaneous or negotiate lower rent. Defer non-critical expenses to post-launch.	
R7	**Infrastructure Failure** Vercel Free Tier limits or internet outages may disrupt deployment (WBS 5.2, 7.1) or testing (WBS 5.3, 6), impacting scalability for 1,000 users.	Technical	Low (30%)	High (5-day delay, scope failure)	Medium (3)	**Proactive**: Maheen configures Vercel/MongoDB Atlas/AWS S3 early (WBS 5.1, Apr 18). **Reactive**: Use backup internet (e.g., mobile hotspot) or offline testing for non-critical tasks.	Maheen Akhtar Khan (Backend)
R8	**User Adoption Challenges** Low student/freelancer engagement may fail to achieve 60% engagement or 30% sellers earning Rs. 5,000, impacting financial benefits.	Stakeholder	Medium (40%)	Medium (reduced revenue, stakeholder concern)	Medium (4)	**Proactive**: Sarmad designs intuitive UI/UX (WBS 2, Apr 10–21) based on Figma prototypes. Aimen promotes via free social media (cost table). Gather user feedback early (WBS 2.3, Apr 18). **Reactive**: Enhance post-launch marketing (May 23–26, 2025) via WhatsApp	Aimen Munawar (PM), Sarmad Majeed Abbasi (UI/UX)

						channels for students. Offer initial discounts to boost adoption, funded by post-launch revenue.	
R9	**Security Vulnerabilities** Inadequate security (WBS 4.7) may lead to data breaches, risking student trust and 85% satisfaction goal.	Technical	Low (20%)	High (scope failure, legal issues)	Low (2)	**Proactive**: Maheen/Aimen implement JWT and Let's Encrypt (WBS 4.7, May 8). Conduct security testing (WBS 4.8, May 13). **Reactive**: Patch vulnerabilities in buffer (May 22–26, 2025). Notify users transparently per scope protocols.	Maheen Akhtar Khan (Backend)
R10	**External Disruptions** Power outages or unforeseen events (e.g., holidays, team illness) may disrupt work, especially in the compressed timeline.	External	Low (30%)	Medium (3-day delay, Rs. 10,000)	Low (3)	**Proactive**: Budget electricity (Rs. 26,250) for backup generators. Schedule around holidays (e.g., avoid Eid al-Fitr, ~Apr 9, 2025). Promote team health with breaks. **Reactive**: Use buffer (May 22–26, 2025) to recover delays. Shift to remote work via Google Meet/Slack if	Aimen Munawar (PM)

						office access is disrupted.	

5.2.4 Risk Monitoring and Control

a. **Risk Tracking**:

   Aimen logs risks in Linear, updating status weekly during progress tracking (WBS 1.4, Apr 15–May 21, 2025). Risks are reviewed in daily stand-ups to identify new issues.

b. **Escalation Process**:

   High-risk issues (score 7–9) are escalated to Mam Ayesha Maqbool for decision-making (e.g., scope reduction, budget reallocation).

c. **Quality Assurance Integration**:

   Hasnain's QA tasks (WBS 6, May 22–26, 2025) prioritize risks R4 (quality) and R9 (security), using the buffer to resolve defects.

5.2.5 Risk Mitigation Summary

a. **Schedule Risks (R1)**:

   Daily stand-ups, parallel tasks, and the buffer ensure on-time delivery by May 26, 2025.

b. **Resource Risks (R2)**:

   Workload balancing and cross-functional support prevent burnout.

c. **Technical Risks (R3, R7, R9)**:

   Free tools (Postman), Vercel Free Tier, and budget address complexities and failures.

d. **Quality Risks (R4)**:

   Automated testing (Jest, GitHub Actions) and QA buffer ensure 85% user satisfaction.

e. **Stakeholder Risks (R5, R8)**:

   Regular demos and social media marketing align with and drive student adoption.

f. **Financial Risks (R6)**:

   Free tools and budget monitoring keep costs within Rs. 839,575.

g. **External Risks (R10)**:

   Backup power and remote work options mitigate disruptions.

5.2.6 Alignment with Project Objectives

a. **Scope**:

   Mitigation strategies protect deliverables (e.g., intuitive UI) and quality standards (85% satisfaction).

b. **Benefits**:

   Risks R4, R8, and R9 directly address engagement (60%), revenue (break-even), and efficiency (30% improvement) goals.

c. **Stakeholders**:

   R5 and R8 ensure students receive a platform meeting their needs.

d. **Constraints**:

   R1, R2, and R6 manage the tight timeline, small team, and fixed budget.

6. Cost & Budget Estimation

6.1 Estimated Cost Breakdown

The cost breakdown provides a detailed estimation of expenses for ProjectX, covering human resources, technical tools/software, and hardware/infrastructure. Costs are aligned with the fixed budget of Rs. 839,575, reflecting the 7-week timeline and real-time market rates in Pakistan (2025). The breakdown accounts for the project's scope (1,000 users, 85% user satisfaction, student-focused marketplace) and leverages free-tier tools to minimize technical costs.

Human Resources

Cost Item	Description	Rate (Rs.)	Duration	Total Cost (Rs.)	Justification
Junior Project Manager/Backend Support	Aimen Munawar: Leads project management (WBS 1), stakeholder communication, and backend support (WBS 4, 5).	Rs. 80,000	1.75 months	Rs. 140,000	Standard rate for a PM with backend skills in Pakistan .
Junior Backend Developer	Maheen Akhtar Khan: Develops APIs, database, and deployment (WBS 4, 5).	Rs. 80,000	1.75 months	Rs. 140,000	Standard rate for a mid-level Node.js developer. Ensures 50% search time reduction and break-even within 1 year.
Junior Frontend Developer	Hadia Ali: Develops frontend components (authentication, listings, dashboard, WBS 3.2, 3.3, 3.6, 3.8).	Rs. 60,000	1.75 months	Rs. 105,000	Reflects React/TypeScript expertise. Supports 80% users finding projects in ≤3 clicks.

Junior Frontend Developer	Aima Sibtain: Develops frontend components (cart, admin panel, notifications, WBS 3.5, 3.7, 3.9).	Rs. 60,000	1.75 months	Rs. 105,000	Matches Hadia's rate for workload balance. Enhances 40% job placement via portfolios.
Junior UI/UX Designer	Sarmad Majeed Abbasi: Designs wireframes, prototypes, and conducts usability testing (WBS 2).	Rs. 60,000	1.75 months	Rs. 105,000	Standard for Figma expertise in Pakistan. Drives 85% user satisfaction via intuitive UI.
Junior QA Tester	Hasnain Ali: Conducts unit, integration, and UAT testing (WBS 6).	Rs. 50,000	1.75 months	Rs. 87,500	Standard for QA with Jest/Mocha expertise. Ensures 30% efficiency improvement.
Subtotal				**Rs. 682,500**	Fixed labor cost, justified by team's contribution to academic, financial, and professional benefits.

Technical Tools/Software

Cost Item	Description	Quantity	Rate (Rs.)	Total Cost (Rs.)	Justification
Figma	UI/UX design for wireframes and prototypes (WBS 2).	1	Free (Education Plan)	0	Used by Sarmad for intuitive designs, supporting 85% user satisfaction. Education plan is accessible for academic projects.
Visual Studio Code	Code editing for frontend and backend (WBS 3, 4).	6	Free	0	Standard IDE for Hadia, Aima, Maheen, and Aimen, ensuring efficient development.
Git	Version control for source code (WBS 3, 4).	1	Free	0	Ensures code quality via peer reviews, aligning with scope standards.
GitHub	Repository hosting and CI/CD via GitHub Actions (WBS 3, 4, 6).	1	Free (Public Repository)	0	Centralizes code and automates Hasnain's testing, supporting 30% efficiency.
Postman	API testing for backend (WBS 4).	1	Free (Basic Plan)	0	Validates Maheen/Aimen's APIs, ensuring reliable

					transactions for financial benefits.
Linear	Project management and task tracking (WBS 1).	1	Free (Unlimited members, 250 issues)	0	Used by Aimen for progress tracking, enhancing administrative benefits.
Slack	Team and stakeholder communication (WBS 1, 7).	1	Free	0	Facilitates Aimen/Sarmad's communication, supporting stakeholder engagement.
Google Meet	Virtual meetings for demos and reviews (WBS 1, 7).	1	Free	0	Supports Aimen's demos for , aligning with professional benefits.
Google Drive	Documentation storage (WBS 1, 6).	1	Free	0	Stores SRS and artifacts, accessible to and hubs for project closure.
JMeter	Load testing for server performance (WBS 5.3).	1	Free	0	Ensures Maheen/Hasnain's scalability for 1,000 users, per scope objective.
Selenium (Optional)	Cross-browser testing for frontend (WBS 3.10).	1	Free	0	Optional for Hadia/Aima to ensure UI compatibility. Supports 85% user satisfaction (risk R4).
Subtotal				**0**	No costs due to free tools.

Hardware/Infrastructure

Cost Item	Description	Quantity	Rate (Rs.)	Total Cost (Rs.)	Justification
Vercel	Server hosting for platform (WBS 5, 7).	1	Free	0	Hosts Maheen/Aimen's platform for 1,000 users, supporting 50% search time reduction. Free Tier covers project duration.
MongoDB Atlas (M0 Free Tier)	Database hosting for MongoDB (WBS 5).	1	Free (M0 Free Tier)	0	Manages Maheen's database, supporting academic benefits (60% engagement).
Google Drive	File storage for project files (WBS 3.8).	1	Free	0	Stores Hadia's multimedia files, enhancing student access per scope.
Domain Name	Website access (projectx.org, WBS 7).	1	2,200	2,200	Professional URL for Aimen's deployment, supporting user trust (professional benefits).

SSL Certificate	Security for HTTPS (WBS 7).	1	Free (Let's Encrypt)	0	Ensures Maheen's security, protecting student data (scope: security protocols).
Internet	Average-speed connectivity (WBS 1–7).	1	3,500/month × 1.75 months	6,125	Supports team collaboration and deployment (Pakistan rate e.g., PTCL 100 Mbps).
Electricity	Office power supply (WBS 1–7).	1	15,000/month × 1.75 months	26,250	Powers workstations and servers (Pakistan rate). Mitigates risk R10.
Rent	Office space for team (WBS 1–7).	1	70,000/month × 1.75 months	122,500	Small workspace in urban Pakistan (e.g., Islamabad). Supports team operations.
Subtotal				**157,075**	Prorated costs and free infrastructure minimize expenses.

Total Estimated Costs

Category	Total Cost (Rs.)	Percentage of Budget
Human Resources	682,500	81.29%
Technical Tools/Software	0	0%
Hardware/Infrastructure	157,075	18.71%
Total	**839,575**	**100%**

6.2 Budget Control Measures

Budget control measures ensure ProjectX expenditures remain within Rs. 839,575, addressing risks (R6: budget overrun, R7: infrastructure failure) and supporting financial benefits (break-even within 1 year). Measures include monitoring, cost thresholds, stakeholder approvals, tailored to the real-time environment and compressed timeline.

6.2.1 Monitoring Strategies

1. **Weekly Cost Tracking**:
    a. **Tool**: Aimen uses Google Sheets and Linear (WBS 1.4) to log expenses (labor, internet, electricity, rent, miscellaneous) weekly (Apr 15–May 21, 2025).
    b. **Process**: Compare actual costs against the budget (Rs.839,575). Track costs (labor: Rs. 682,500, domain: Rs. 2,200, electricity, rent) to identify any variances.
    c. **Responsibility**: Aimen reviews with the team during daily stand-ups, escalating variances >Rs. 5,000 to Mam Ayesha Maqbool.

    d. **Justification**: Ensures early detection of overruns (risk R6), maintaining financial discipline in Pakistan's volatile economic environment (2025).
2. **Real-Time Expense Logging**:
    a. **Tool**: Google Sheets for real-time updates, accessible to Aimen and Maheen (for infrastructure costs).
    b. **Process**: Log expenses as incurred (e.g., internet bills, electricity bills, rent payments). Cross-check with invoices stored in Google Drive.
    c. **Responsibility**: Aimen for operational costs, Maheen for Vercel/MongoDB Atlast usage (e.g., M0 Tier limits).
    d. **Justification**: Provides granular visibility, critical for variable costs (electricity, rent).
3. **Stakeholder Reporting**:
    a. **Tool**: Google Meet for biweekly updates with student sellers in NUST (WBS 1.2, 7.4).
    b. **Process**: Present cost status, variances, and mitigation plans.
    c. **Justification**: Aligns with scope's stakeholder matrix, ensuring transparency and trust (risk R5).

6.2.2 Cost Control Strategies

1. **Cost Thresholds and Approvals**:
    a. **Threshold**: Any expense >Rs. 5,000 requires Aimen's approval.
    b. **Process**: Document approvals in Google Drive, linking to Linear tasks. Reject unbudgeted expenses (e.g., premium tools).
    c. **Justification**: Prevents unauthorized spending, critical in a fixed-budget project (risk R6).
2. **Prioritization of Free Tools**:
    a. **Approach**: Use free-tier tools (Figma, Vercel, GitHub, Linear) and open-source technologies (React, MongoDB, Node.js) for all tasks (WBS 2–7).
    b. **Process**: Aimen and Maheen verify Free Tier eligibility (e.g., Vercel, 5 GB S3) before deployment (WBS 5.2). Avoid premium plans unless justified (WBS 3.10).
    c. **Justification**: Aligns with cost table's "free technical costs," minimizing expenses while meeting scope requirements (1,000 users, 85% satisfaction).
3. **Variable Cost Optimization**:
    a. **Approach**: Minimize electricity (Rs. 26,250) and rent (Rs. 122,500) through efficient usage.
    b. **Process**: Use energy-efficient equipment (e.g., laptops vs. desktops) and schedule high-power tasks (e.g., server testing) during low-tariff hours. Negotiate rent discounts for short-term lease (1.75 months) or share office space.
    c. **Responsibility**: Aimen monitors usage, supported by Maheen for server efficiency.
    d. **Justification**: Reduces variable costs in Pakistan's high-cost utility environment (2025), mitigating risk R6.
4. **Risk-Based Cost Control**:
    a. **Approach**: Integrate with 5.3 risk mitigation (R6: budget overrun, R7: infrastructure failure, R10: external disruptions).
    b. **Process**: Avoid costs for low-probability risks (e.g., premium security tools, R9). Use backup generators (electricity budget) for outages (R10).
    c. **Responsibility**: Aimen for budget risks, Maheen for infrastructure, Hasnain for quality-related savings (e.g., automated testing).
    d. **Justification**: Aligns cost control with risk priorities, ensuring financial benefits (break-even) and scope delivery.

6.3 Budget Control Workflow

1. **Initiation (Apr 6, 2025)**:

    a. Aimen sets up Google Sheets for cost tracking, linking to Linear for task alignment. Budget baseline (Rs. 839,575) is shared with the team via Slack.
2. **Monitoring (Apr 15–May 21, 2025)**:
    a. Weekly reviews during stand-ups, with Aimen logging expenses (e.g., internet bills, electricity readings). Variances >Rs. 5,000 trigger corrective actions.
3. **Corrective Actions**:
    a. If costs approach Rs. 1,000,000, Aimen reduces miscellaneous or negotiates rent.
4. **Closure (May 25–26, 2025)**:
    a. Aimen finalizes cost report in Google Drive, documenting savings (e.g., free tools). Report is handed over to stakeholders (WBS 1.5).

This cost and budget estimation ensures ProjectX is delivered within Rs. 839,575, leveraging free tools, prorated operational costs, and robust control measures to meet scope objectives by May 26, 2025, in a real-time environment.

7. Revenue Model

7.1 Projected Revenue and Cost

Year 1 (Launch Year)

Revenue (target = Rs 965 520)

Stream	Key Y1 Assumptions	Monthly Rev. (Rs.)	Annual Rev. (Rs.)
Transaction Commission (10 %)	120 projects /mo × Rs 2 000	24 000	288 000
Premium Listings (Featured + Urgent)	8 Featured & 6 Urgent boosts	23 200	278 400
Subscriptions	15 Pro-Seller @ Rs 500 + 20 Pro-Buyer @ Rs 300	13 500	162 000
Advertising	2 banner ads + 3 sponsored projects	13 000	156 000
Certifications	20 badges & 10 seller certs	**6 760**	**81 120**
Total	—	**80 460**	**965 520**

Cost (total = Rs 839 575)

Category	Annual Cost (Rs.)	Notes

Human Resources	682 500	6-member team
Technical Tools / Software	0	All free-tier / education plans
Hardware & Infrastructure	157 075	Domain, internet, electricity, rent, etc.
Grand Total	**839 575**	

Net profit = 965 520 – 839 575 = **125 945** (matches 15 % ROI).

Year 2

Revenue (target ≈ Rs 1 158 415)

Stream	Growth vs Y1	Monthly Rev.	Annual Rev.
Transaction Commission	+20 %	28 800	345 600
Premium Listings	+20 %	27 840	334 080
Subscriptions	+25 %	16 875	202 500
Advertising	higher fill-rate	14 820	177 840
Certifications	+20 %	8 200	98 395
Total	—	**96 535**	**1 158 415**

Cost (total = Rs 990 500)

Category	Annual Cost	Notes
Human Resources	600 000	Two full-time dev-ops & customer-support pair
Technical Tools / Software	40 000	Paid analytics, e-mail API
Hardware & Infrastructure	350 500	Internet 48 000, Electricity 60 000, Cloud add-ons 25 000, Marketing 185 000, Misc 32 500
Total	**990 500**	

Net profit = 1 158 415 – 990 500 = **167 915** (20 % ROI).

Year 3

Revenue (target ≈ Rs 1 354 154)

Stream	Growth vs Y2	Monthly Rev.	Annual Rev.
Transaction Commission	+15 %	33 120	397 440
Premium Listings	+15 %	32 016	384 192
Subscriptions	+18 %	19 913	238 950
Advertising	+24 %	18 377	220 522
Certifications	scale-up & micro-credentials	9 413	112 950
Total	—	**112 839**	**1 354 154**

Cost (total = Rs 1 144 260)

Category	Annual Cost	Notes
Human Resources	700 000	Dev-ops trio + CX lead
Technical Tools / Software	60 000	Pro plans, monitoring SaaS
Hardware & Infrastructure	384 260	Internet 55 000, Electricity 70 000, Cloud scale-units 50 000, Marketing 180 000, Misc 29 260
Total	**1 144 260**	

Net profit = 1 354 154 – 1 144 260 = **209 894** (25 % ROI).

Year 4

Revenue (target ≈ Rs 1 544 111)

Stream	Growth vs Y3	Monthly Rev.	Annual Rev.
Transaction Commission	+14 %	37 757	453 082
Premium Listings	+14 %	36 498	437 978
Subscriptions	+16.5 %	23 249	278 992
Advertising	+11.5 %	20 440	245 284

Certifications	+14 %	10 731	128 775
Total	—	**128 675**	**1 544 111**

Cost (total = Rs 1 292 238)

Category	Annual Cost	Notes
Human Resources	820 000	Five-person ops / growth team
Technical Tools / Software	70 000	BI suite, paid support tools
Hardware & Infrastructure	402 238	Internet 60 000, Electricity 80 000, Cloud burst-capacity 75 000, Marketing 160 000, Misc 27 238
Total	**1 292 238**	

Net profit = 1 544 111 – 1 292 238 = **251 873** (30 % ROI).

7.2 Return-on-Investment (ROI) - 4-Year Outlook with Discounted Cash-Flow

Year	Projected Net Profit(after operating costs, PKR)	Annual ROI(Net Profit ÷ Initial Cost)	Discount Factor(r = 12 %)	Discounted Cash-Flow
1	**Rs 125 945**	**15 %**	0.893	Rs 112 500
2	Rs 167 915	20 %	0.797	Rs 133 800
3	Rs 209 894	25 %	0.712	Rs 149 500
4	Rs 251 873	30 %	0.636	Rs 160 000
Σ (4 yrs)	**Rs 755 618**	—	—	**Rs 555 772**

8. Communication & Stakeholder Engagement Plan

8.1 Communication Strategy

The communication strategy ensures effective coordination within the ProjectX team and engagement with external stakeholders, aligning with the project's scope, 7-week timeline (April 6–May 26, 2025), and objectives (85% user satisfaction, 1,000 users, break-even within 1 year). It leverages free tools (Slack, Google Meet, Linear, Google Drive) to minimize costs, adhering to the budget (Rs. 839,575) and Pakistan's software industry practices (Agile, frequent updates) while meeting international standards (PMI/PMBOK, structured communication). The strategy addresses internal team needs (risk R1: schedule delays, R2: team

overload) and external stakeholder expectations (risk R5: misalignment, R8: user adoption), ensuring transparency and collaboration.

Communication Objectives:

- **Internal**: Facilitate daily coordination among the 6-member team (Aimen, Maheen, Hadia, Aima, Sarmad, Hasnain) to manage the compressed timeline and deliver scope deliverables (e.g.,backend APIs, UI/UX).
- **External**: Gather feedback from students/freelancers to ensure 60% engagement and 85% satisfaction.
- **Risk Mitigation**: Address risks R5 (stakeholder misalignment) through clear reporting and R8 (user adoption) via user feedback loops.
- **Efficiency**: Use free, accessible tools to streamline communication, supporting 30% platform efficiency and staying within budget.

Communication Channels and Tools:

Audience	Purpose	Tool	Frequency	Responsibility	Details
Internal Team (Aimen, Maheen, Hadia, Aima, Sarmad, Hasnain)	Daily coordination, task updates, issue resolution	Slack	Daily	Aimen (PM)	Dedicated Slack channels (#general, #development, #design, #qa) for real-time updates. Used for daily stand-ups (WBS 1.4) and quick queries. Aligns with Pakistan's Agile practices and risk R1.
Internal Team	Task tracking, progress monitoring	Linear	Daily/Weekly	Aimen (PM)	Tracks WBS tasks (e.g., WBS 3.2, 4.2), risks (5.3), and milestones (4.2). Team logs hours and updates statuses. Supports 30% efficiency and international Agile standards.
Internal Team	Virtual meetings, sprint reviews	Google Meet	Daily/Biweekly	Aimen (PM)	Hosts daily stand-ups (15 minutes) and biweekly sprint reviews (1 hour). Ensures alignment in compressed timeline (risk R2). Free tool aligns with budget.

Internal Team	Document sharing, collaboration	Google Drive	As needed	Aimen (PM), Sarmad (UI/UX)	Stores SRS, design files, test cases, and reports. Accessible to all, supporting project closure (WBS 1.5) and Pakistan's collaborative culture.
End-Users (Students, Freelancers)	User feedback, adoption	Google Forms/Slack	Weekly (Apr 18–May 20)	Sarmad (UI/UX), Aimen (PM)	Collects feedback on prototypes (WBS 2.3) and beta platform (WBS 6.4). Google Forms for beta testers. Drives 60% engagement (risk R8).
End-Users	Marketing, engagement	Social Media (X, LinkedIn)	Weekly	Aimen (PM), Sarmad (UI/UX)	Free marketing posts to promote ProjectX, targeting students/freelancers. Aligns with cost table and supports 30% seller monetization.

8.2 Meeting Schedules

The meeting schedule outlines planned meetings to ensure team coordination and progress tracking, tailored to the 7-week timeline and Agile practices. Meetings are frequent (daily for team) to manage the compressed schedule and mitigate risks R1, R2, and R5.

Meeting Type	Audience	Frequency	Day/Time	Duration	Tool	Responsibility	Purpose
Daily Stand-Up	Internal Team (Aimen, Maheen, Hadia, Aima, Sarmad, Hasnain)	Daily (Mon–Fri)	9:00 AM PKT	15 min	Google Meet/Slack	Aimen (PM)	Review progress, blockers, and tasks (WBS 1.4). Aligns with Agile/Scrum and mitigates R1 (schedule delays).
Sprint Planning	Internal Team	Biweekly	Mon, 10:00 AM PKT (Apr 7, Apr 21, May 5)	1 hr	Google Meet	Aimen (PM)	Plan tasks for 2-week sprints (e.g., WBS 2–3, 4–5). Updates Linear. Supports 30% efficiency and R2 (team overload).

Sprint Review	Internal Team	Biweekly	Fri, 2:00 PM PKT (Apr 18, May 2, May 16)	1 hr	Google Meet	Aimen (PM)	Demo deliverables (e.g., prototypes, APIs) and update milestones (4.2). Ensures quality and R4 (quality issues).
User Feedback Session	Students, Freelancers (Beta Testers)	Weekly (Apr 18–May 20)	Fri, 4:00 PM PKT	30 min	Google Meet/Slack	Sarmad (UI/UX), Aimen (PM)	Gather feedback on prototypes (WBS 2.3) and beta platform (WBS 6.4). Drives 60% engagement (R8).
Kick-Off Meeting	Internal Team	Once	Apr 6, 2025, 10:00 AM PKT	1 hr	Google Meet	Aimen (PM)	Align on scope, timeline, and roles (WBS 1.1, M1). Sets expectations per scope's stakeholder matrix.
Project Closure Review	Internal Team, Mam Ayesha Maqbool,	Once	May 26, 2025, 2:00 PM PKT	1 hr	Google Meet	Aimen (PM)	Review deliverables, costs, and lessons learned (WBS 1.5, M8). Ensures handover to stakeholders.

8.3 Reporting Formats

Reporting formats standardize communication of project status, costs, risks, and deliverables to internal and external stakeholders, ensuring transparency and alignment with scope objectives. Formats are stored in Google Drive, leveraging free tools to stay within budget, and reflect Pakistan's preference for concise, visual reports and international standards for structured documentation.

Report Type	Audience	Frequency	Format	Content	Responsibility	Delivery Method
User Feedback Summary	Internal Team, Mam Ayesha Maqbool	Weekly (Apr 18–May 20)	Google Docs (1–2 pages)	Feedback from students/freelancers (WBS 2.3, 6.4), usability issues, suggestions, action items. Includes Google Forms analytics (e.g., satisfaction ratings).	Sarmad (UI/UX), Aimen (PM)	Google Forms
Cost Report	Mam Ayesha	Once (May 26, 2025)	Google Docs	Budget vs. actuals (6.1), fixed costs	Aimen (PM)	LMS

	Maqbool, Internal Team			(labor: Rs. Rs. 682,500), variable costs (electricity, rent)		
Milestone Report	Mam Ayesha Maqbool, , Internal Team	Per Milestone (M1–M8, 4.2)	Google Docs (1–2 pages)	Milestone details (e.g., M4: frontend completion), deliverables (e.g., APIs, WBS 4.2), status, issues, stakeholder actions needed.	Aimen (PM)	LMS
Final Project Report	Mam Ayesha Maqbool, , , Internal Team	Once (May 26, 2025)	Google Docs (5–7 pages)	Project summary, deliverables (WBS 1–7), cost summary (6.1), benefits achieved (e.g., 60% engagement), risks resolved (5.3), lessons learned, handover details (WBS 1.5, M8).	Aimen (PM)	LMS, Final Project Demo

8.4 Stakeholder Approval Process

The stakeholder approval process defines how and when stakeholders (Mam Ayesha Maqbool, ,) provide approvals or feedback, ensuring alignment with scope and timely decision-making in the 7-week timeline. It integrates with communication channels (7.1), meeting schedules (7.2), and reporting formats (7.3), reflecting Pakistan's collaborative culture and international standards for formal approvals.

8.4.1 Approval Process

1. **Identification of Approval Needs**:
    a. **Scope Deliverables**: SRS (WBS 1.2, Apr 9), UI/UX prototypes (WBS 2.3, Apr 21), beta platform (WBS 6.4, May 23), final deployment (WBS 7.1, May 22).
    b. **Changes**: Scope changes (e.g., feature additions), budget reallocation (>Rs. 10,000), schedule adjustments (>2 days).
    c. **Responsibility**: Aimen identifies approval needs during requirements gathering (WBS 1.2) and progress tracking (WBS 1.4).
2. **Submission for Approval**:
    a. **Method**: Aimen submits deliverables via LMS.
    b. **Content**: Includes deliverable details (e.g., SRS, prototype screenshots), impact (cost, schedule, benefits), and recommended actions.
    c. **Timing**: Approvals are requested from stakeholders.
3. **Stakeholder Review**:
    a. **Primary Approver**: Mam Ayesha Maqbool for scope, budget, and schedule changes. Students provide feedback on deliverables (e.g., prototypes, beta platform).
    b. **Process**: Stakeholders review deliverables/reports submitted via LMS.
    c. **Feedback**: Provided via LMS comments or Google Forms, focusing on alignment with scope (e.g., 85% satisfaction, 1,000 users).
4. **Approval or Revision**:

a. **Approval**: Mam Ayesha Maqbool confirms on LMS.
b. **Revision**: If revisions are needed (e.g., prototype adjustments), Aimen assigns tasks (e.g., Sarmad for UI/UX, WBS 2.3) in Linear, with re-submission within 2–3 days.
c. **Escalation**: Disagreements (e.g., scope creep) are escalated to Mam Ayesha Maqbool for final decision within 1 day, mitigating risk R5.

5. **Documentation**:
   a. **Method**: Approvals are documented in Google Drive (e.g., "Approvals" folder) and linked to Linear tasks.
   b. **Responsibility**: Aimen maintains records, ensuring auditability for project closure (WBS 1.5).
   c. **Justification**: Ensures transparency and traceability, per international PMI standards and Pakistan's documentation practices.

8.4.2 Key Approval Milestones

Milestone	Deliverable	Approval Needed	Stakeholder	Timing	Method
M2 (Apr 14)	SRS, Project Plan	Scope and requirements	Mam Ayesha Maqbool,	Apr 16 meeting	Google Meet, Email
M3 (Apr 21)	UI/UX Prototypes	Design and usability	Mam Ayesha Maqbool, Students	Apr 18–21 feedback sessions	Google Meet, Google Forms
M4 (May 9)	Frontend Completion	Frontend functionality	Mam Ayesha Maqbool,	May 22 meeting	Google Meet, Email
M5 (May 16)	Backend Completion	APIs	Mam Ayesha Maqbool	May 22 meeting	Google Meet, Email
M6 (May 26)	QA Completion	Beta platform quality	Mam Ayesha Maqbool, Students	May 22–23 UAT	Google Meet, Google Forms
M7 (May 26)	Final Deployment	Platform launch, handover	Mam Ayesha Maqbool	May 26 meeting	Google Meet, Email