Project X: User-Centered Requirement Gathering and Specification

Human Computer Interaction (CS261)

Submitted by:

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Student Marketplace for Academic & Research Projects - Project X: Problem Statement

Context:

Every semester, several students from universities like NUST invest their time and university resources in completing their capstones, course assignments, design projects, and even mini-research studies. However, once graded, most of this work goes into personal drives or maybe into some departmental repository, never to be again referred to or iterated. Meanwhile, the new cohort suffers by looking for good references, not to mention the budding entrepreneurs who could launch their ideas yet have nowhere to showcase them. Currently available options-freelance sites (like Upwork) and general e-commerce platforms-are actually not suited to the academic model: they do not have stringent project categorization, peer-review cues, domain-specific search filters, or supportive learning artifacts: documentation, reports, source codes. Thus, a useful segment of the knowledge capital remains stuck while students are denied the possibility of earning income and professional visibility. Main Problem There is no single, trusted market for the exchange, discovery, and reuse of student-built academic and technical projects. This manifests itself in four related pain points:

1. **Student Output Invisibility** - Completed projects are all "lost" after submission, leaving the academic community bereft of reusable codebases, data, and design blueprints.
2. **Inefficient Knowledge Transfer** - Students who search tested references spend too much time sorting through disparate blogs, GitHub snippets, and poorly indexed institutional archives.
3. **Monetization & Motivation Gap** - Without an opportunity to sell or license their work, students have little financial motivation to go beyond grading rubrics in their project development; potential sources of revenue remain untapped.
4. **Quality & Credibility Concerns** - Where ad-hoc sharing does take place, there is little transparency around the project scope, completeness of documentation, or technology stack, making it risky for buyers to invest effort or money.

Scope of the Problem:

The problem focuses on digital academic artifacts such as software, research reports, hardware drawings, and datasets and does not concern the modality of physical shipment or plagiarism detection grids or generic freelance services brokering. Stakeholders include students-both sellers and buyers-academic mentors, innovation hubs, and potential recruiters.

Opportunity Statement:

If Project X could secure and deliver such a marketplace, based on student-centric architecture and rich capabilities for categorization, searching, and transacting, then:

1. Work long dormant in academia could find application in solving real-world problems
2. Learners would access credible referents more swiftly
3. Students would derive income from their efforts while at the same time building public portfolios
4. The universities would benefit from increasing visibility and impact of student innovation.

Primary Stakeholders:

1. Student Sellers
2. Buyers
3. Project Team Members (Developers, Designers, QA)

Requirement Elicitation Methods:

- **Questionnaires:**

Published Link:
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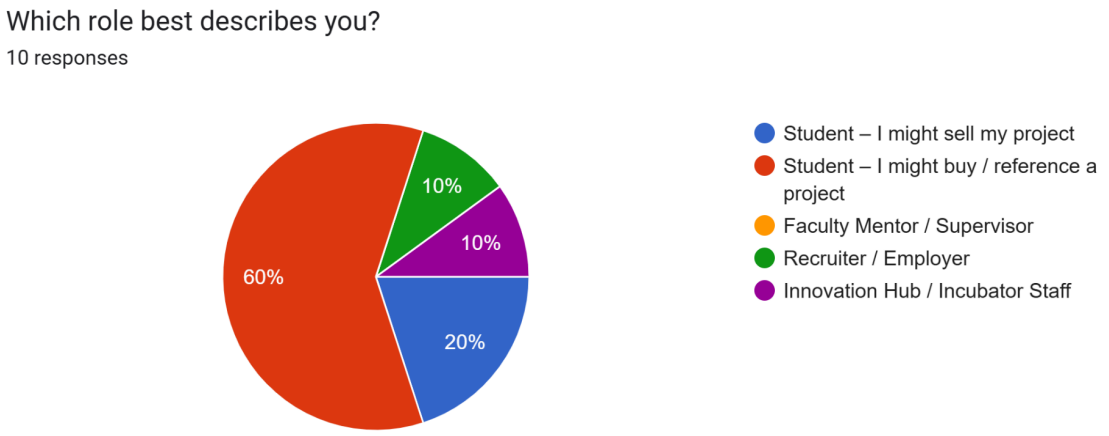
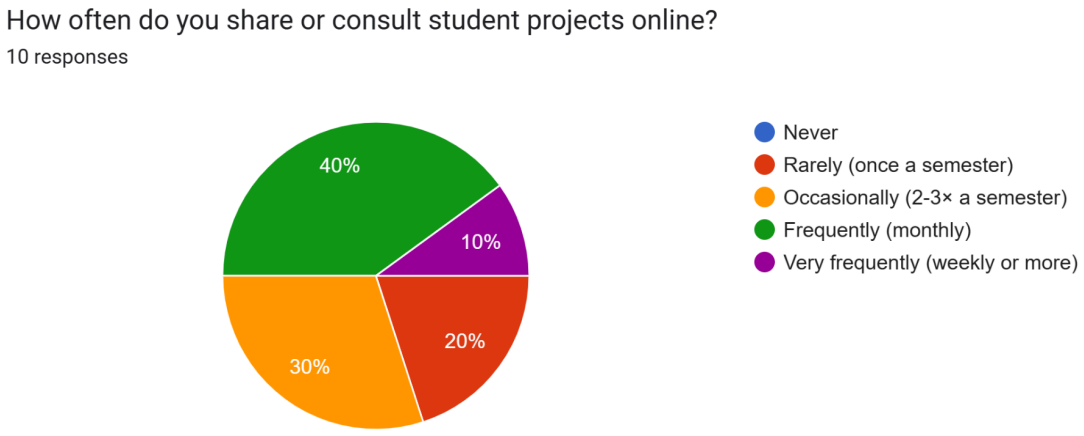
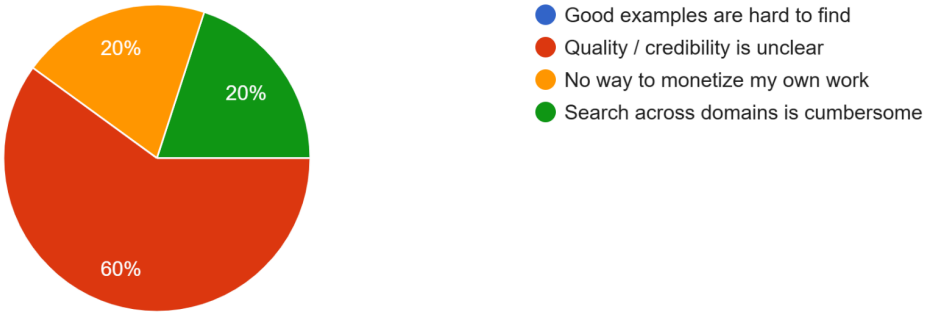




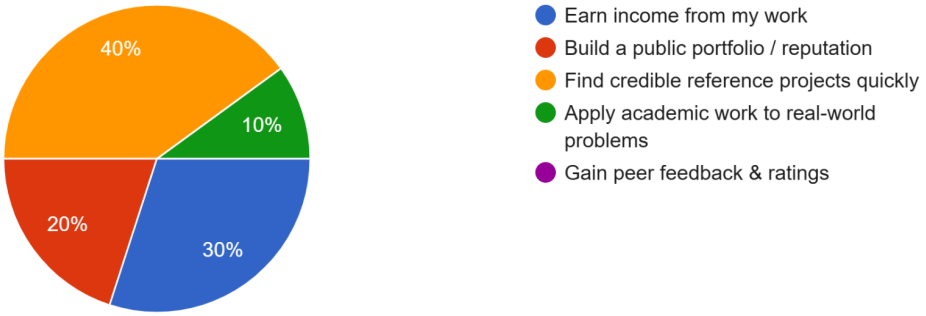
What is your biggest pain point with student projects today?

10 responses



Which outcome of Project X matters most to you?

10 responses



- **Interviews:**

Interview 1:

Name: Muqaddas Zahra

Customer Segment : Student Sellers

1. **What challenges have you faced in trying to sell your academic projects online or offline?**

   I'm a freelancer. I always find difficulty in managing payments because upwork has its own selling policies, which are resistive sometimes.

2. **What factors would motivate you to upload and sell your project on a platform like ProjectX?**

User friendly interface, clear instructions and submission method and safest method for transaction would motivate me.

3. **How important are things like project visibility, categorization, and featured listings to you as a seller?**

   All these features are important because it gives a high chance to sell the project and attract the customer because the customer finds ease in its selection.

4. **Would you be comfortable if your project was downloaded multiple times? Why or why not?**

   It depends on multiple factors like whether the platform offers proper licensing and I'm being compensated fairly for each download, and ownership rights retained. .

5. **What kind of support or tools would you expect from a platform to help you sell your work effectively (e.g., analytics, pricing suggestions, marketing help)?**

   I like to have an analytics tool. It is kind of a help for me in knowing where I am standing and what improvements I need to make.

Interview 2:

Name: Sara

Customer Segment : Student Sellers

1. **Where do you usually look for academic or project references when starting your own work?**

   I usually check research papers on NCBI or Google Scholar, GitHub for code, and sometimes Reddit or Kaggle discussions**.**

2. **What features would be most useful to you when searching for a relevant project?**

   Filters by biological topic genomics, proteomics, etc, tools used like Python, R, BLAST, sample datasets, and detailed project descriptions.

3. **What concerns do you have when purchasing a project online?**

   Whether the project uses real or dummy biological data, if it's scientifically accurate, and if the results are reproducible. Price also matters.

4. **Would you find value in additional resources like tutorials or implementation guides?**

   Yes, especially guides that explain the pipeline or workflow (like preprocessing → analysis → result).

5. **What would make you choose ProjectX over free sources like GitHub or forums?**

   If ProjectX offers complete, ready-to-present bioinformatics projects with working scripts, datasets, reports, and guides it saves a lot of time and effort compared to piecing things together from free sources.

Interview 3:

Name: Kasifa

Customer Segment : Student Sellers

1. **Where do you usually look for academic or project references when starting your own work?**

   I usually check YouTube for similar topics, Google for articles, Scribd or SlideShare for sample reports, and sometimes I get old projects from seniors through WhatsApp or Facebook groups.

2. **What features would be most useful to you when searching for a relevant project?**

   Filters by topic like PR, film studies, digital journalism, medium (video/report), language, and examples of past work like reports or video content. A small preview or table of contents also helps.

3. **What concerns do you have when purchasing a project online?**

   Whether the content is original and updated, if it's relevant to our local media context, and if the report follows proper structure with references. Also, price matters a lot since students can't always afford expensive stuff.

4. **Would you find value in additional resources like tutorials or implementation guides?**

   Yes, things like how to make media surveys, how to analyze interviews, or even tips on editing videos using tools like Premiere Pro or CapCut would be super helpful.

5. **What would make you choose ProjectX over free sources like GitHub or forums?**

   If ProjectX gives me a complete, ready-to-submit project with report, data including survey results, interviews, and maybe guidance on tools like Canva, InShot, or MS Word formatting it's worth paying for. Free online stuff usually isn't complete or suitable for our syllabus

Interview 4:

Name: Zaina Zia

Customer Segment: Buyers

1. **Where do you usually look for academic or project references when starting your own work?**

   Mainly YouTube, GitHub, and sometimes I ask seniors or search on Google Scholar. For Pakistani projects, I also check platforms like SlideShare, ResearchGate, or ask in WhatsApp/Facebook groups related to CS.

2. **What features would be most useful to you when searching for a relevant project (e.g., filters, previews, price)?**

   Filters are actually a big deal, such as ML ones, difficulty level, and code-only vs. report inclusion. Report or project video demo previews are big helps. And naturally, cost is a significant consideration since students have limited budgets.

3. **What concerns do you have when purchasing a project online (e.g., quality, originality, price, relevance)?**

   Biggest concern is originality. Many projects are just copied from GitHub and sold with new names. Also, whether the code runs properly or not. Relevance to the final year project requirements

4. **Would you find value in additional resources like tutorials or implementation guides with purchased projects?**

   Yes, absolutely. If there is a tutorial or implementation guide with screenshots or video walkthrough, it becomes relatively easier to grasp and explain while viva or presenting. Particularly useful for busy students.

5. **What would make you choose ProjectX over free sources like GitHub or forums?**

   If ProjectX offers clean, ready-to-submit projects with proper documentation including SRS, reports and PPTs and it also guarantees that the code is working and original, then it's worth paying for. Also, if it has local support or a way to get help in case something doesn't work, that's a big plus compared to GitHub

Interview 5:

Name: Asma

Customer Segment : Buyers

1. **Where do you usually look for academic or project references when starting your own work?**

   GitHub, YouTube, Google Scholar, and sometimes I ask seniors or use WhatsApp groups.

2. **What features would be most useful to you when searching for a relevant project?**

   Category and language filtering, previews (demo or screenshots), transparent pricing, and

full documentation.

3. **What concerns do you have when purchasing a project online?**

   Originality, working code, complete report, relevance to my course, and fair pricing.

4. **Would you find value in additional resources like tutorials or implementation guides?**

   Yes, they help in understanding the project and preparing for viva.

5. **What would make you choose ProjectX over free sources like GitHub?**

   Original, ready-to-submit projects with full documentation, local relevance, and support.

Interview 6:

Name: Irtaza

Customer Segment : Buyers

1. **Where do you usually look for academic or project references when starting your own work?**

   Mostly from seniors' past projects, department library, and sometimes YouTube for concept explanations.

2. **What features would be most useful to you when searching for a relevant project?**

   Search by topic e.g. soil mechanics, water treatment, software used, a sample of calculations or drawings, and price under budget.

3. **What concerns do you have when purchasing a project online?**

   Main concern is if the project is too general or not based on local standards like NESPAK or PEC. Also, whether it's plagiarism-free and worth the cost.

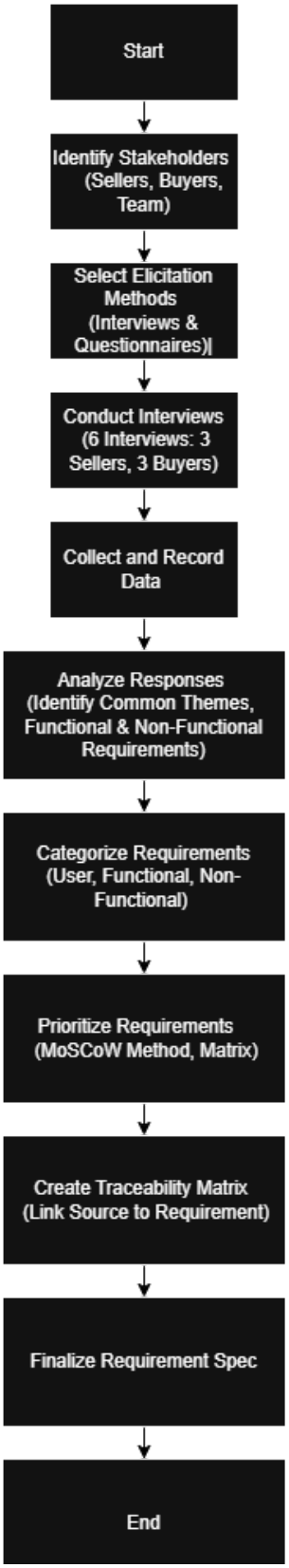
4. **Would you find value in additional resources like tutorials or implementation guides?**

   Definitely. A guide showing how to run the design or prepare drawings step-by-step would be very useful.

5. **What would make you choose ProjectX over free sources like GitHub or forums?**

   If ProjectX provides civil-specific projects with Pakistani standards, BOQ sheets, AutoCAD files, and complete reports then it's superior to random files from GitHub or forums.

Flow Diagram of the Gathering Process:



Requirements Analysis & Categorization:

User Requirements:

Requirement	Description
Easy Registration & Login	Users (buyers/sellers) must be able to register and log in with role-based access.
Project Upload & Search	Upload academic projects with documentation, search using filters like category, price, popularity.
Transaction Management	Buyers can add to cart, checkout, and make payments; sellers can manage listings and view sales.
Learning Resources	Access to tutorials, guides, and documentation for better understanding.
Order Tracking	Buyers can view the real-time status of their orders.

Functional Requirements:

Feature	Description
Authentication	Role-based authentication system with secure login and password management.
Project Listings	Sellers can upload projects under predefined categories with descriptions and media.
Search & Filter	Search bar and filter options e.g, category, keyword, price to enhance

System	discoverability.
E-commerce Features	Shopping cart, secure checkout, payment gateway integration, and order tracking.
Notifications	Email alerts for project uploads, order updates, and admin messages via NodeMailer.
Admin Panel	Admin dashboard for managing users, listings, and monitoring platform activity.

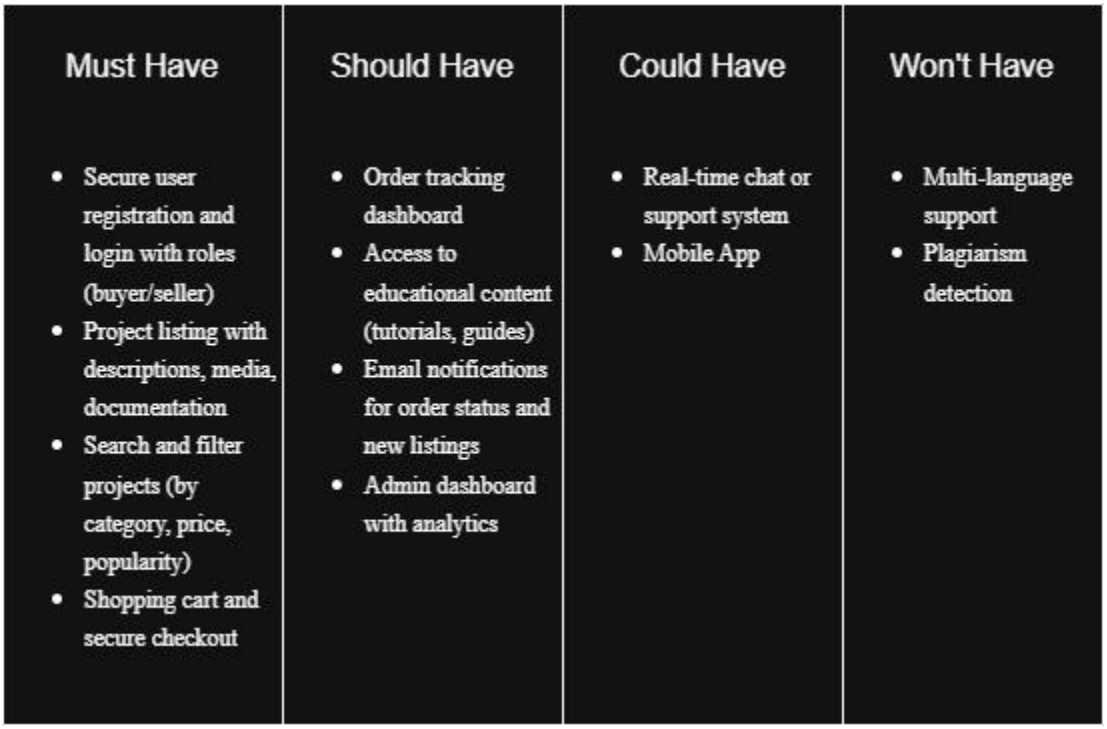
Non-Functional Requirements:

Aspect	Requirement
Performance	Handle 1,000+ concurrent users without performance drop.
Scalability	Accommodate growing numbers of users, projects, and transactions.
Security	Role-based access control, and secure data handling.
Usability	Intuitive interface with clean navigation and responsive UI across devices.
Availability	Platform should maintain 99.9% uptime for uninterrupted access.

Requirements Mapping Diagram:

User Requirement	Mapped Functional Requirement(s)
Easy Registration & Login	Authentication
Project Upload & Search	Project Listings, Search & Filter System
Transaction Management	E-commerce Features, Order Tracking
Learning Resources	Project Listings (with tutorial support), Admin Panel
Order Tracking	E-commerce Features (specifically tracking), Notifications

Requirement Prioritization:

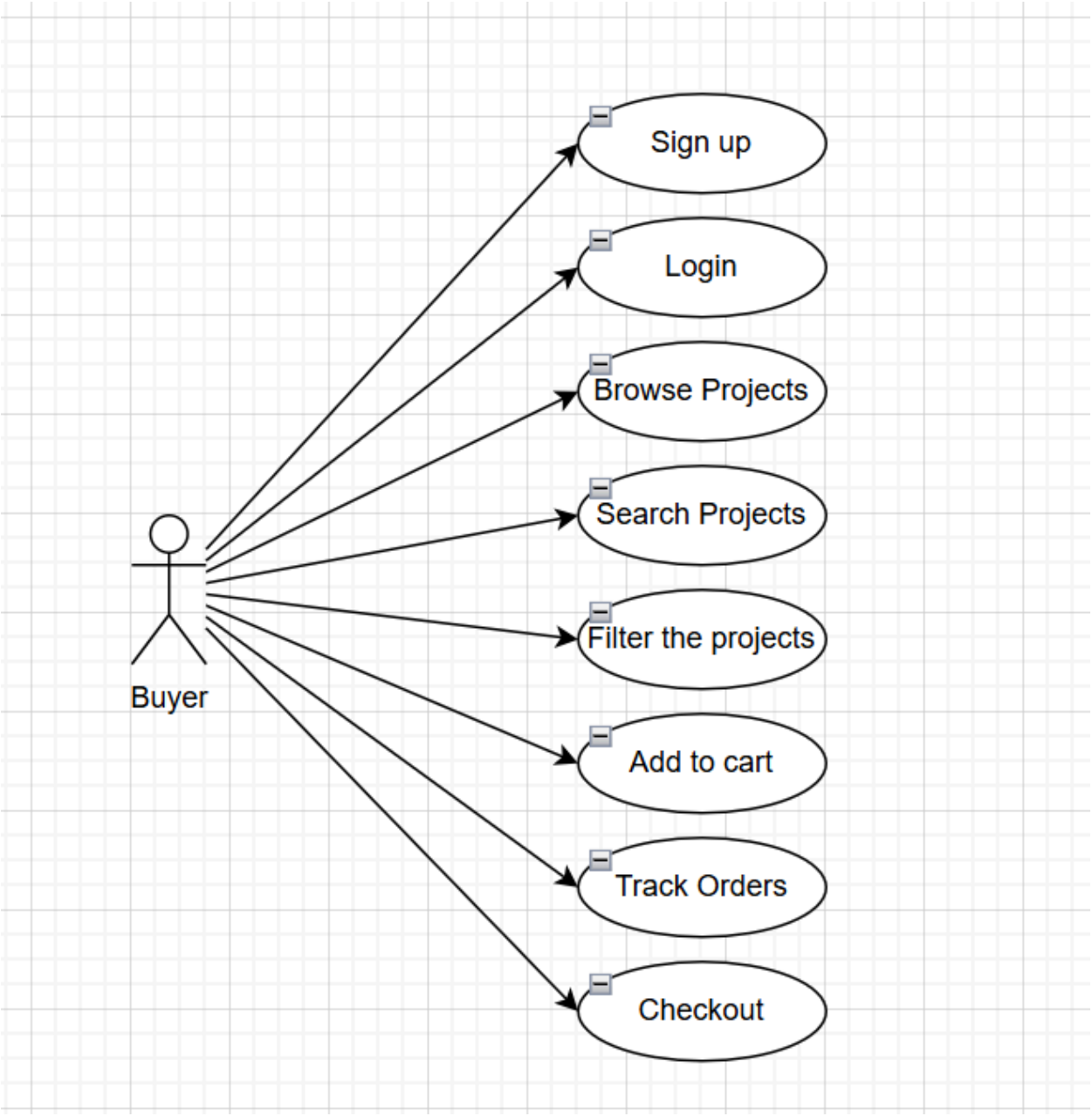


Traceability Matrix (linking requirements to sources & priorities):

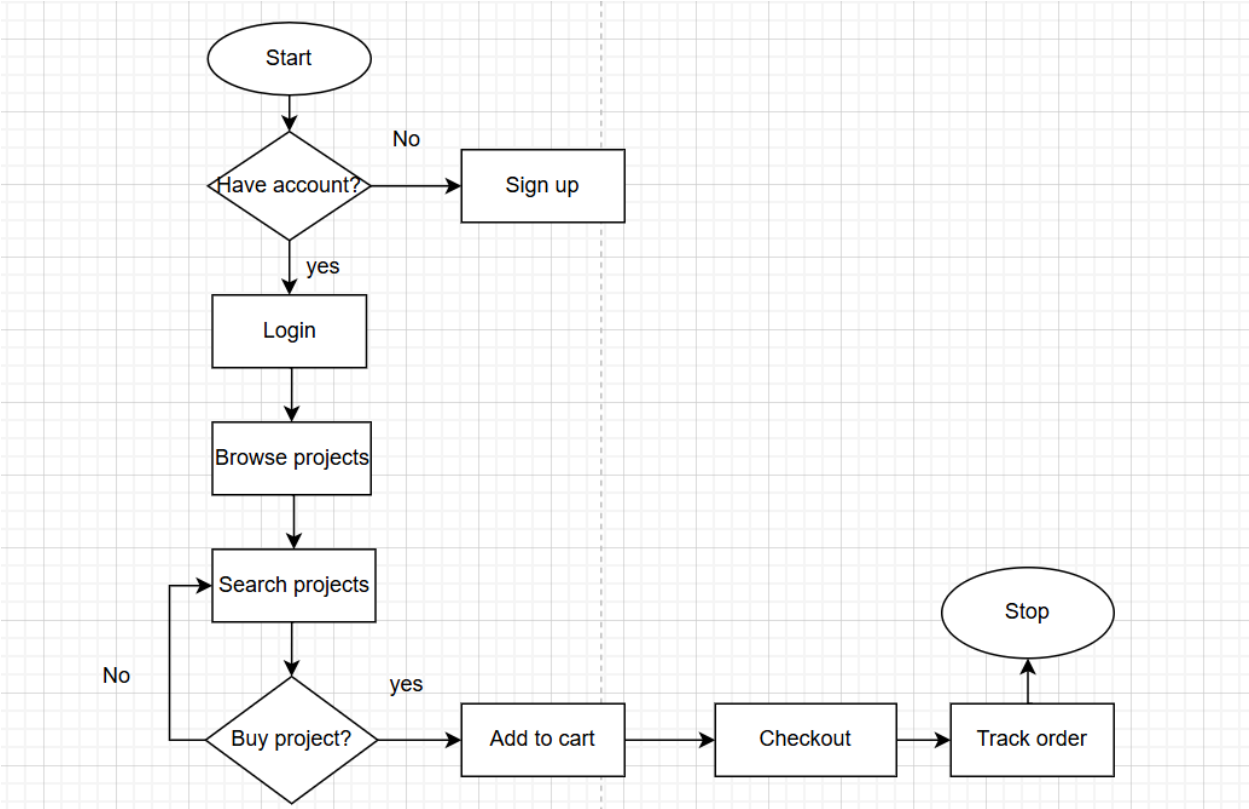
Requirement ID	Requirement Description	Source	Priority (MoSCoW)	Functional/Non-Functional	Linked Deliverables
R1	Role-based login system	User Requirements	Must	Functional	3.1 Core Features
R2	Project listing with media and documentation	User Requirements	Must	Functional	3.1 Core Features
R3	Search and filter functionality	Functional Requirements	Must	Functional	3.1 Core Features
R4	Cart, checkout and payment integration	Functional Requirements	Must	Functional	3.1 Core Features
R5	Order tracking for buyers	Functional Requirements	Should	Functional	3.1 Core Features
R6	Access to learning resources	User Requirements	Should	Functional	3.1 Core Features
R7	Email notifications via	Functional Requireme	Should	Functional	3.1 Core Features

	NodeMailer	nts			
R8	Admin dashboard for transaction monitoring	Functional Requirements	Should	Functional	3.1 Core Features
R9	Data encryption & access control	Non-Functional Requirements	Must	Non-Functional	3.2 Supporting Systems
R10	Mobile App version	Exclusions	Could	Non-Functional	N/A
R11	Multilingual support	Exclusions	Won’t	Non-Functional	N/A
R12	Project plagiarism check	Exclusions	Won’t	Functional	N/A

Use case Diagram:



Flow diagram of Project:



Conclusion:

Project X offers students a safe and reliable platform to trade school projects so that anyone looking for quality work can find them quite quickly. With well-defined categories, secure payments, and helpful guides, it increases learning, motivation, and student success.