

## **ThaparMart**

### **UCS 503 Software Engineering Project Report Mid-Semester Evaluation**

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**BE Third Year- COE**

**Group No: 3**

**Team Name: InnovateX**

**Submitted to:**  
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**Computer Science and Engineering Department**

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## 1. Project Selection Phase

Our team observed that some students after graduating wants to sell their books and stuff while there are many freshers looking to buy new things for their hostel and classes. We found a solution to help them meet.

ThaparMart allows students or faculty to meet at a platform and complete transactions. It even helps small businesses to sell their goods. We finance our app using advertisements and allow a person to display their product on our app for a fee.

### 1.1 Software Bid

#### UCS 503- Software Engineering Lab

Group : \_\_3CO29\_\_

Dated: 1/8/2024

**Team Name: InnovateX**

**Team ID (will be assigned by Instructor):**

Please enter the names of your Preferred Team Members. :

- You are required to form **a three to four person** teams
- Choose your team members wisely. You will not be allowed to change teams.

Name	Roll No	Project Experience	Programming Language used	Signature
Bhavya Goyal	102203638	Real Estate management system, FeedVey App	C, C++, Python, SQL, HTML	
Shreyansh Srivastava	102203642	Photo Editor, Email Authentication, Calculator, Weather App	C, C++, Python, JavaScript, SQL, HTML, CSS	
Somya Bansal	102203682	Research Internship on Still Birth prediction And prevention ,Research on Electricity load forecasting , Ongoing Research internship automation and configuration for beyond 5G network(Samsung),Traffic Flow management with congestion forecasting.	C, C++, Python, SQL, HTML, CSS	
Harsukhdit Singh	102103670	Calculator, Mobile APP	C,C++, Python,SQL	

## Programming Language / Environment Experience

List the languages you are most comfortable developing in, **as a team**, in your order of preference. Many of the projects involve Java or C/C++ programming.

1. Python
2. C/C++
3. JavaScript

## Choices of Projects:

Please select **4 projects** your team would like to work on, by order of preference: *[Write at-least one paragraph for each choice (motivation, reason for choice, feasibility analysis, etc.)]*

	Project Name	Unique Selling Point
First Choice	Thapar OLX: A platform for students to buy, sell, and exchange goods and services within their university community.	Our unique 'Verified Student Network' ensures all users are current students, enhancing trust and security. Also, a 'Campus Exchange' feature will allow users to trade items and services directly, fostering a collaborative and resourceful campus community.
Second Choice	Thapar Tutor: Campus Peer Tutoring offers students personalized academic help from their peers for a fee. It connects those needing extra support with tutors looking to earn money.	The platform includes a 'Success Tracker' to monitor progress and provide feedback, ensuring a tailored and effective tutoring experience.
Third Choice	A Personalized learning platform: Students can set and achieve their own educational goals. Users can add any YouTube videos or questions they want to tackle, creating a customized learning experience that fits their unique needs and interests.	It tracks progress and suggest tailored content based on their learning style and performance. This ensures a continuously evolving and highly personalized educational experience.
Fourth Choice	OpenCV project for college landmarks and Navigator : Freshers or visitors can scan buildings using their smartphones to instantly recognize which building it is and receive real-time information about its purpose and optimal path to nearby locations, enhancing their campus experience and navigation.	It includes a 'Smart Route Planner' that suggests the most efficient paths to nearby locations. Also, provide images of the landmarks for easy recognition.

## 1.2 Project Overview:

**Project Name:** ThaparMart

**Goal:** Create a website for students to buy and sell goods within their university.

**Target Users:** Freshers in need of textbooks and hostel supplies, Graduating students or Faculty with dispensable supplies, Societies with extra items from events, Students with small businesses.

**Target Market:**

- 1) **University Community:**
  - **Current Students:** Freshers and old students in need of buying and selling supplies.
  - **Faculty and Graduates:** Professors and Graduates with supplies that are no longer useful for them.
- 2) **Campus Entrepreneurs:** Students offering services like tutoring or running small businesses within the university.
- 3) **Societies:** Extra stuff accumulated after events or promotion of their events through advertisements.

**Market Needs:**

- Affordable and Accessible Supplies.
- Convenient and Safe Transactions.
- Visibility for Campus Entrepreneurs.
- Promotion of Society events
- Sustainable Work like Recycling
- Community Connection

**Competitive Analysis:**

- Existing solutions: The Global OLX app
- Differentiation: Focus on university campus. More trusted website. Helpful for college students to showcase their businesses. Connection between juniors, seniors and faculty. Helpful for societies in marketing.

**Market Size & Growth:**

- Significant student population and increasing student enrollment.
- Growing trend of digital in a technical university.
- University efforts to promote sustainability.
- Demand for Affordable Goods.

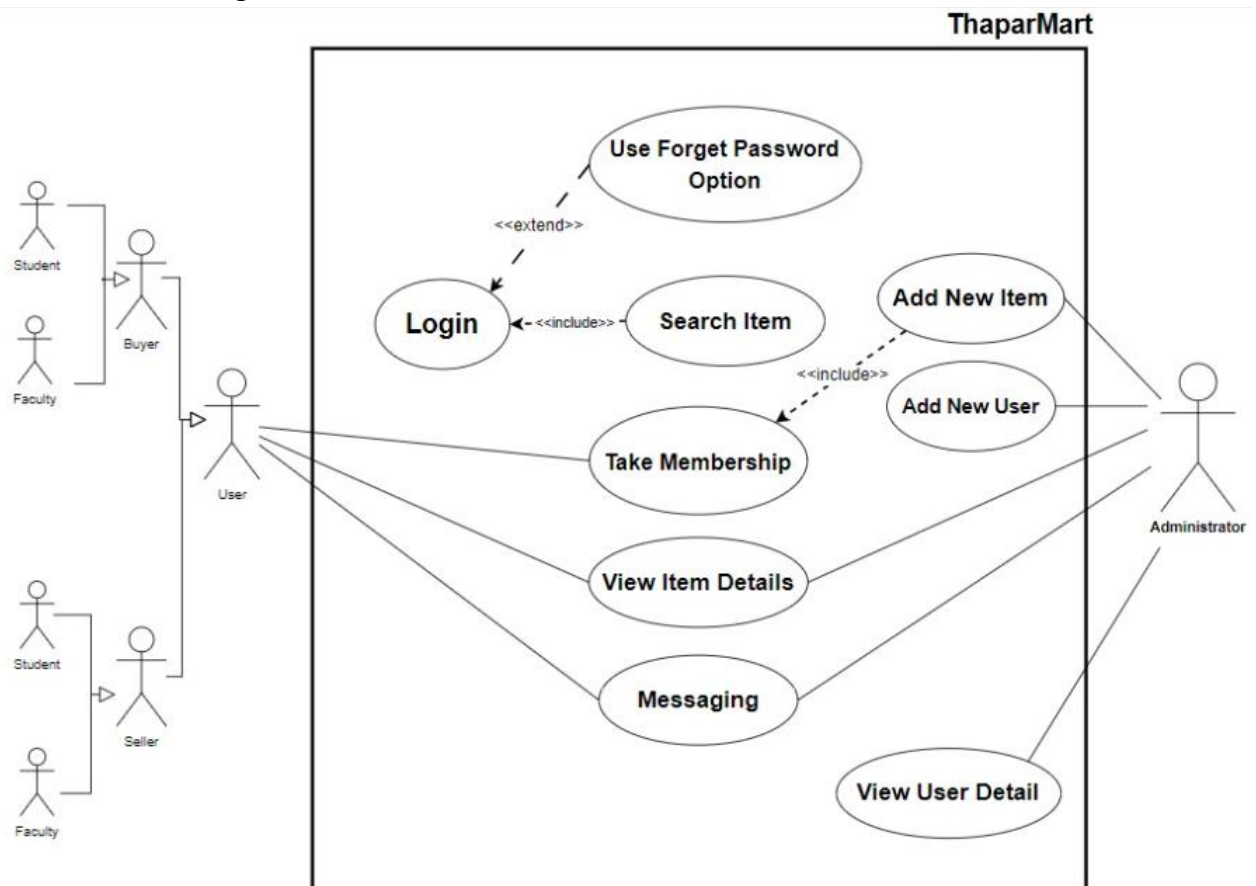
**Conclusion:**

ThaparMart will provide a simple and effective way for Thapar University's students and faculty to buy and sell items and services. By focusing on user needs, using the right technology, and following legal guidelines, ThaparMart will improve campus life and make it easier for everyone to connect and trade within the university.

## 2. Analysis Phase

### 2.1 Use Cases:

#### 2.1.1 Use Case Diagram



#### 2.2.2 Use Case Templates

Use Case Title	View User Detail
Actors	Admin
Purpose	The admin wants to see a user's details.
Description	Though not the main activity of the website, but user details can be viewed at any time by the admin for any purpose.
Pre-condition	<ul style="list-style-type: none"><li>The user is logged into the system.</li><li>The user's profile exists in the system.</li></ul>
Post-condition	The system displays the requested user's details.
Success Scenarios	<ul style="list-style-type: none"><li>The user navigates to the user profile section.</li><li>The user selects a profile to view (either their own or another user's).</li><li>The system retrieves and displays the user's details, including name, bio, contact information (if permitted), and membership status.</li></ul>
Alternate Scenarios	If the profile is not available (e.g., user has deleted their account), the system displays an appropriate message.
Type	Secondary

Use Case Title	Take Membership
Actors	User, Payment Gateway
Purpose	The user wants to become a member to access key functionalities.
Description	With this membership facility, the user can add new items for selling, remove advertisements etc.
Pre-condition	<ul style="list-style-type: none"> <li>• The user is logged into the system.</li> <li>• The user does not already have an active membership.</li> </ul>
Post-condition	The user's membership is activated and their account is updated with membership privileges.
Success Scenarios	<ul style="list-style-type: none"> <li>• The user navigates to the membership page.</li> <li>• The user selects a membership plan.</li> <li>• The system directs the user to the payment gateway.</li> <li>• The user enters payment details and completes the transaction.</li> <li>• The payment gateway processes the payment and confirms success to the system.</li> <li>• The system updates the user's account with membership privileges.</li> <li>• The system displays a confirmation message, showing the membership details.</li> </ul>
Alternate Scenarios	<ul style="list-style-type: none"> <li>• If payment fails, the system notifies the user and allows them to retry or choose a different payment method.</li> <li>• If the user cancels the payment process, the system returns them to the membership page without making any changes.</li> </ul>
Type	Secondary

Use Case Title	View Item Details
Actors	User
Purpose	The user wants to view the details of an item.
Description	With this view item facility, the user can see the details of the item in which he/she is interested.
Pre-condition	<ul style="list-style-type: none"> <li>• The student is logged into the system.</li> <li>• The item exists in the system.</li> </ul>
Post-condition	The student views the detailed information of the selected item.
Success Scenarios	<ul style="list-style-type: none"> <li>• The student navigates to the list of items.</li> <li>• The student selects an item to view its details.</li> <li>• The system retrieves and displays the item's information, including images, description, and price.</li> </ul>
Alternate Scenarios	If the item has been removed or is unavailable, the system displays an appropriate message.
Type	Primary



Use Case Title	Add New User
Actors	Admin
Purpose	A new user wants to be a part of marketplace.
Description	With this facility, Admin can add new verified user. Verified user is a part of the University.
Pre-condition	The user has not yet created an account on the platform. The user is a valid University student/faculty.
Post-condition	A new user account is created and the user is registered in the system.
Success Scenarios	<ul style="list-style-type: none"> <li>The new user navigates to the registration page.</li> <li>The user enters their details (name, email, password, etc.).</li> <li>The system validates the details and checks for any duplicates (e.g., email already registered). <ul style="list-style-type: none"> <li>The system creates the new user account.</li> </ul> </li> <li>A confirmation message is displayed, and the user is logged into the system.</li> </ul>
Alternate Scenarios	<ul style="list-style-type: none"> <li>If the user's details fail validation (e.g., invalid email format, weak password), the system prompts the user to correct the errors.</li> <li>If the email is already registered, the system informs the user and suggests password recovery.</li> </ul>
Type	Primary

Use Case Title	Add new Item
Actors	User
Purpose	The user wants to find a buyer for his/her product.
Description	With this add item facility, the user can put this on the marketplace for selling in search for potential buyers.
Pre-condition	The users must be logged into the system. The users must be a member.
Post-condition	The new item is added to the inventory and is visible to other users.
Success Scenarios	<ul style="list-style-type: none"> <li>The student navigates to the "Add New Item" page.</li> <li>The student fills in the item details (name, description, price, etc.). <ul style="list-style-type: none"> <li>The student submits the item details.</li> </ul> </li> <li>The system saves the new item and confirms the addition.</li> </ul>
Alternate Scenarios	If the submission fails (e.g., missing required fields), the system prompts the student to correct the errors.
Type	Primary

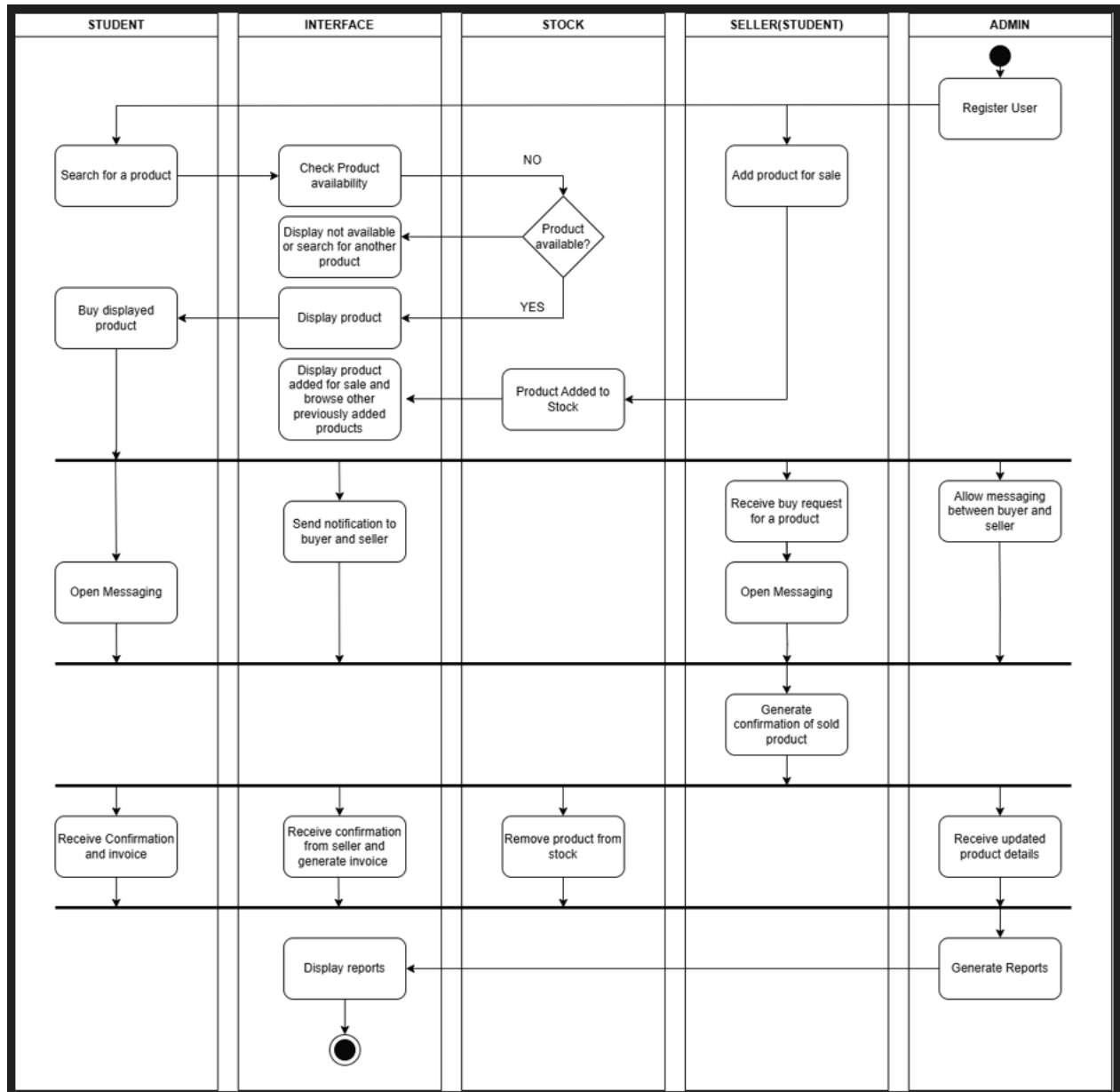


Use Case Title	Messaging
Actors	User, Other User
Purpose	The user wants to contact buyer or seller to ask about the product.
Description	With this messaging facility, the seller can advertise the product specifically to the user's requirements and the buyer can enquire about the product
Pre-condition	The users must be logged into the system.
Post-condition	A message is sent to the recipient, and both users can view the conversation.
Success Scenarios	<ul style="list-style-type: none"> <li>• The student navigates to the messaging interface.</li> <li>• The student selects a contact or enters a recipient's name. <ul style="list-style-type: none"> <li>• The student composes a message and sends it.</li> <li>• The system delivers the message to the recipient.</li> </ul> </li> </ul>
Alternate Scenarios	If the recipient is offline, the message is queued for delivery when the recipient comes online.
Type	Primary

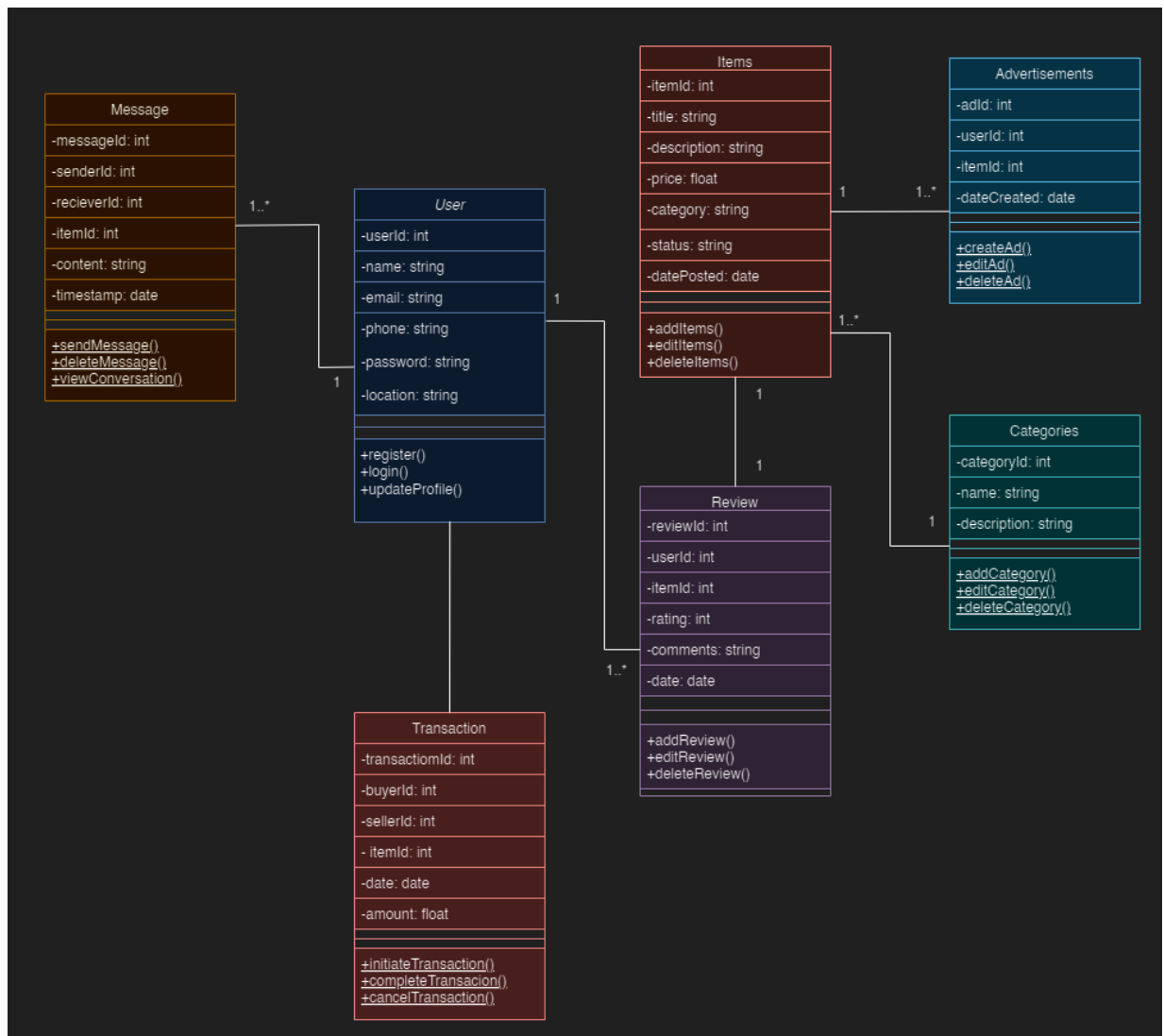
Use Case Title	Login
Actors	User
Purpose	The user wants to access their account on ThaparMart
Description	With this login facility, the user can access various facilities offered by ThaparMart like find buyers for second hand good, find seller, etc.
Pre-condition	The user must have valid login credentials (username and password).
Post-condition	The user is logged into the system and can access relevant functionalities.
Success Scenarios	<ul style="list-style-type: none"> <li>• The user selects the "Login" option.</li> <li>• The system prompts the user to enter their credentials. <ul style="list-style-type: none"> <li>• The user inputs valid credentials.</li> <li>• The system verifies the credentials.</li> </ul> </li> <li>• The user is successfully logged into ThaparMart.</li> </ul>
Alternate Scenarios	<ul style="list-style-type: none"> <li>• The user enters incorrect credentials.</li> <li>• The system displays an error message: "Invalid credentials, please try again."</li> <li>• The user retries or uses the "Use Forget Password Option."</li> </ul>
Type	Primary

Use Case Title	Search Item
Actors	User
Purpose	The user wants to search a seller for an item he/she needs.
Description	With this search facility, the user can find if the item of interest is available for selling or not.
Pre-condition	The user must be logged into the system.
Post-condition	The search results are displayed to the student.
Success Scenarios	<ul style="list-style-type: none"> <li>• The student enters a search query into the search bar.</li> <li>• The system processes the search query and retrieves matching items.</li> <li>• The system displays the search results to the student.</li> </ul>
Alternate Scenarios	If no items match the search query, the system displays a "No results found" message.
Type	Primary

## 2.2 Swimlane Diagrams

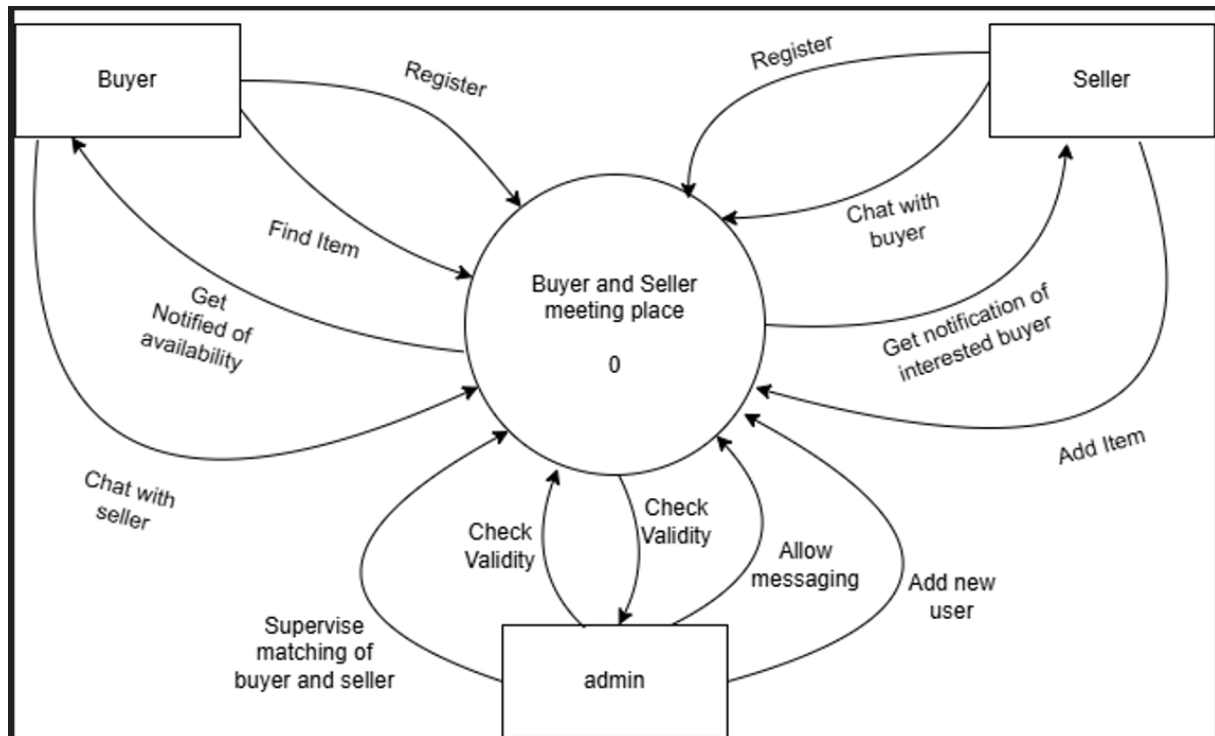


## 2.3 Class Diagram

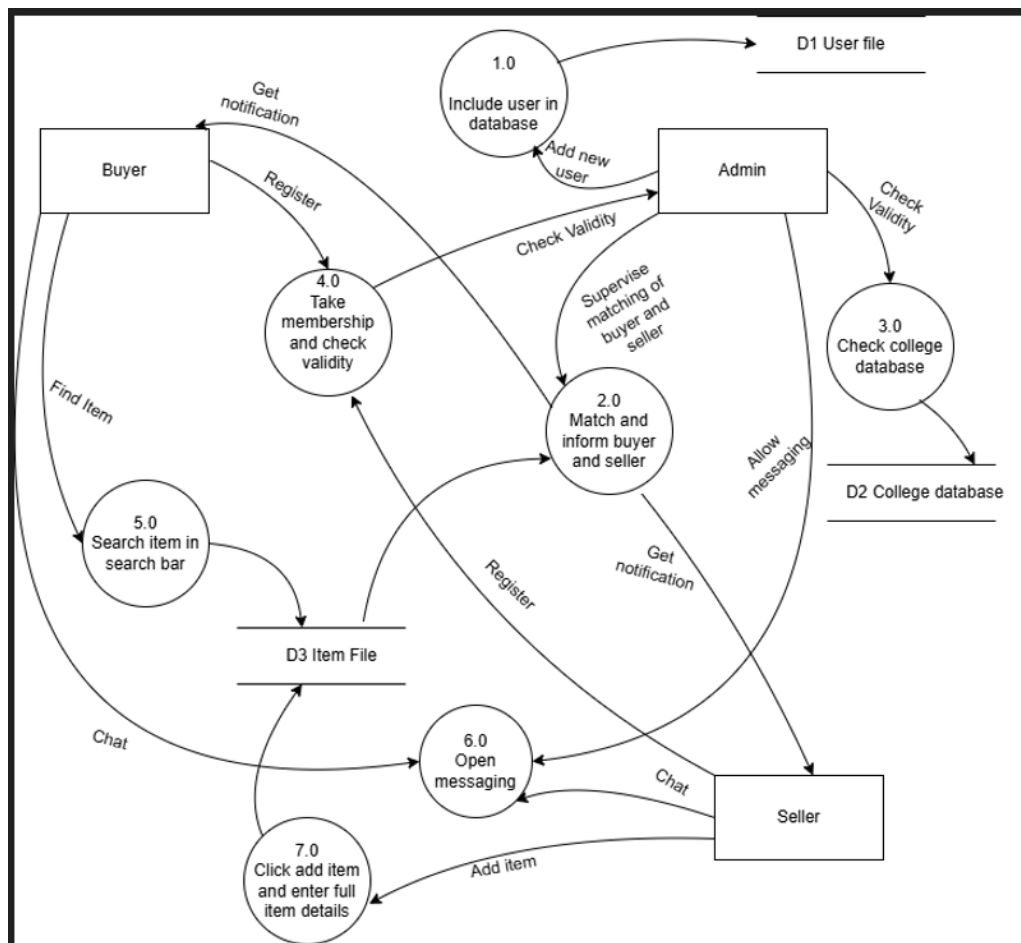


## 2.4 Data Flow Diagrams (DFDs)

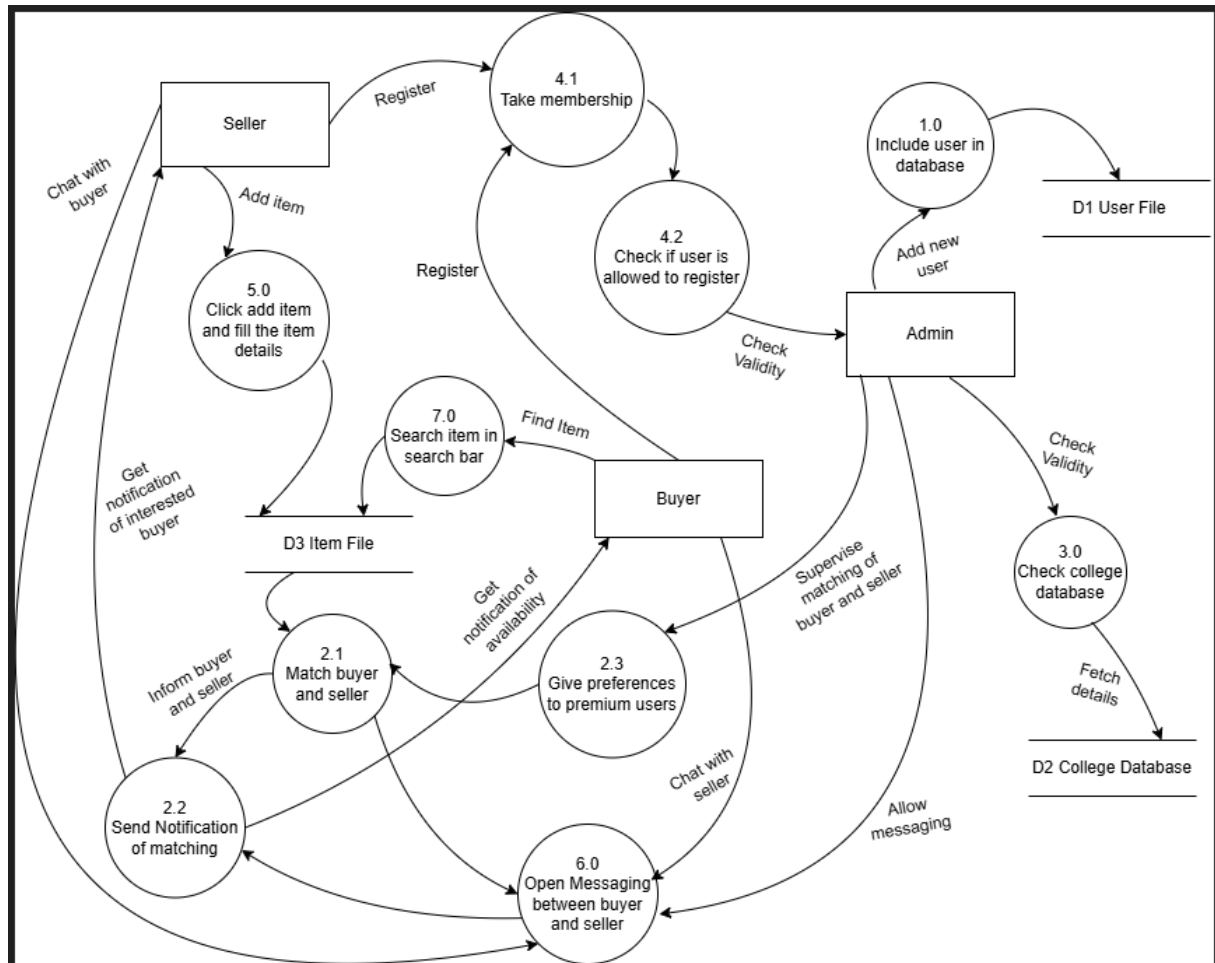
### 2.4.1 DFD Level 0



### 2.4.3 DFD Level 1



### 2.4.3 DFD Level 2





## **2.5 Software Requirement Specification in IEEE Format**

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# 1. Introduction

## 1.1 Purpose of this Document

This Software Requirements Specification (SRS) document outlines the functional and non-functional requirements for the development of ThaparMart, a web-based platform designed for students, faculty, and societies at Thapar University to buy, sell, and exchange goods. The primary goal of ThaparMart is to facilitate an easy and secure way to access second-hand books, hostel supplies, and other items necessary for university life.

## 1.2 Scope of the Development Project

The ThaparMart project aims to create an online marketplace for the Thapar University community, focusing on:

- Enabling freshers to find textbooks and hostel supplies at affordable prices.
- Allowing graduating students to sell their used items easily.
- Providing faculty members with a platform to dispose of dispensable items.
- Allowing societies to sell surplus items from events.
- Offering a platform for students running small businesses to sell their products.

The scope includes developing a user-friendly website with various functionalities, including account creation, product listing, search and filter options, messaging for negotiation and transaction history.

## 1.3 Definitions, Abbreviations, and Acronyms

- **SRS:** Software Requirements Specification
- **UI:** User Interface
- **UX:** User Experience
- **ThaparMart:** The online marketplace platform being developed
- **Admin:** Administrator responsible for managing ThaparMart
- **User:** Any individual using ThaparMart, including students, faculty, and societies
- **Seller:** A user listing items for sale on ThaparMart
- **Buyer:** A user looking to purchase items on ThaparMart

## 1.4 References

- Thapar University Software Engineering PPTs
- Online Marketplace Best Practices

## 1.5 Overview

This document provides an overall description of the ThaparMart project and details specific requirements for its implementation.

Section 2 outlines the assumptions, product functions, and user characteristics.

Section 3 specifies the functional, performance, and quality requirements.

Section 4 documents the change history.

Section 5 lists the document approvers.

## 2. Overall Description

### 2.1 Product Perspective

ThaparMart will be a standalone web application specifically tailored to the needs of the Thapar University community. It will integrate with existing university authentication systems for secure login and will be accessible on both desktop and mobile devices. ThaparMart will provide a platform for buying and selling various items, making it easier for users to connect and conduct transactions.

### 2.2 Product Functions

- **User Registration and Login:** Users can register using their university email and login using university credentials.
- **Product Listing:** Sellers can create listings for items they wish to sell, including images, descriptions, and pricing.
- **Search and Filter:** Buyers can search for items using keywords and apply filters for categories, price range, and condition.
- **Messaging:** Buyers and sellers can communicate through an internal messaging system to negotiate deals.
- **Transaction Management:** Tracking and history of transactions will be available for users.
- **Admin Panel:** Admin can manage user accounts, listings, and oversee transaction activities to ensure compliance with policies.

### 2.3 User Characteristics

- **Students:** Primarily freshers looking for affordable supplies and graduating students looking to sell items they no longer need.
- **Faculty:** Members looking to sell dispensable items or buy from other members.
- **Societies:** University societies wanting to sell extra items from events or buy supplies for future events.
- **Small Business Owners:** Students who run small businesses can use the platform to reach the university community.

## 2.4 General Constraints, Assumptions, and Dependencies

- The system will use the university's authentication system for secure login.
- Internet access is required to use ThaparMart.
- All transactions will be monitored to prevent fraudulent activities.
- The platform will comply with the university's IT and security policies.

## 2.5 Apportioning of the Requirements

The development will be split into multiple phases:

- **Phase 1:** Basic functionality including user registration, product listing, search, and messaging.
- **Phase 2:** Advanced features such as transaction tracking and admin panel.
- **Phase 3:** Additional functionalities based on user feedback.

# 3. Specific Requirements

## 3.1 External Interface Requirements

- **User Interface:** The website should be user-friendly, with clear navigation and responsive design for both desktop and mobile.
- **Hardware Interface:** Compatible with standard devices such as desktops, laptops, tablets, and smartphones.
- **Software Interface:** Integrate with university email system for authentication.
- **Communication Interface:** Support secure HTTP/HTTPS protocols.

## 3.2 Detailed Description of Functional Requirements

### 3.2.1 Functional Requirements for Student Welcome Screen

- Display recently listed items.
- Provide options to browse categories, view cart, and access user account.
- Show notifications for messages and updates.

### 3.2.2 Functional Requirements for Staff Welcome Screen

- Similar to student welcome screen with added options to access faculty-specific categories.
- Option to view and manage society-related items if applicable.

### 3.2.3 Functional Requirements for Student cum Staff Welcome Screen

- Unified interface for users with both student and staff roles.
- Options to switch between personal and society-related accounts.

### 3.3 Performance Requirements

- The system should handle up to 10,000 simultaneous users.
- Page load times should not exceed 3 seconds under normal conditions.
- Messaging delay should be minimal to ensure real-time communication.

### 3.4 Logical Database Requirements

- A relational database to store user information, product listings, transaction history, and messages.
- Secure storage of user credentials and sensitive information.
- Regular backups to prevent data loss.

### 3.5 Quality Attributes

- **Usability:** The interface should be simple and intuitive, catering to all types of users.
- **Security:** Ensure data protection and user privacy, adhering to university IT policies.
- **Reliability:** The system should be available 99.9% of the time.
- **Scalability:** Ability to scale up as the number of users and listings increase.

### 3.6 Other Requirements

- Compliance with accessibility standards to ensure usability for users with disabilities.
- Multilingual support (if needed) based on user demographics.

## 4. Change History

Version 1.0: Global OLX app (January 2011)

Version 2.0: ThaparMart (January 2025)

## 5. Document Approvers

Name:

Designation:

Date: