Maynooth University
National University of Ireland Maynooth

EE308 Software Engineering

Requirements Specification Document

Project Name: Fzz -- Campus Second-hand Trading Platform

Group Name: FUZHUAN

Content

1. Introduction

1.1. Purpose of Writing

This requirement analysis document aims to provide clear guidance for the development of Fzz—a second-hand trading platform—to ensure that the development team fully understands user needs and system functions, facilitating efficient design, implementation, and testing of the platform.

1.2. Project Background

Based on various pain points encountered by students in the FZU QQ mutual assistance group, we have conducted a detailed requirement analysis and aim to create a second-hand trading platform targeted at Fuzhou University. The goal is to provide a convenient and secure trading environment for teachers and students on campus. With the increasing demand for second-hand trading within the campus, Fzz will offer users an efficient trading channel, promote the recycling of resources, and reduce the economic burden on students.

1.3. References

- User research report
- Analysis of the campus second-hand trading market
- Relevant laws and regulations (such as policies related to second-hand trading)
- Competitor platform analysis
- "The Method of Construction"

2. Overall Description

2.1. Objectives

2.1.1. Development Intention

The intent of developing Fzz is to build a user-friendly, secure, and reliable campus second-hand trading platform that provides a good communication and trading environment, promotes the efficient circulation of goods on campus, and enhances interaction among teachers and students.

2.1.2. Application goals

- Provide a simple product listing and search function to facilitate the buying and selling of second-hand items.
- Establish a user evaluation system to improve the transparency and security of transactions.
- Provide transaction records and chat features to facilitate communication and negotiation between users.

2.1.3. Scope of Application

- Targeted at all teachers and students of Fuzhou University, including undergraduates, postgraduates, and staff.
- Supports access via mobile and web platforms to ensure users can trade anytime and anywhere.
- The trading range covers various categories, including daily necessities, books, electronic devices, furniture, etc.

2.1.4. Product Prospects

Fzz has the potential to become the preferred second-hand trading platform for teachers and students at Fuzhou University. As awareness of sustainable development increases on campus, second-hand trading will become more popular. Future considerations may include partnerships with other organizations on and off campus to expand the user base and add features such as online payment, offline trading points, and campus delivery services to enhance the user experience.

3. Function Refinement

3.1. Class Diagram

User Class

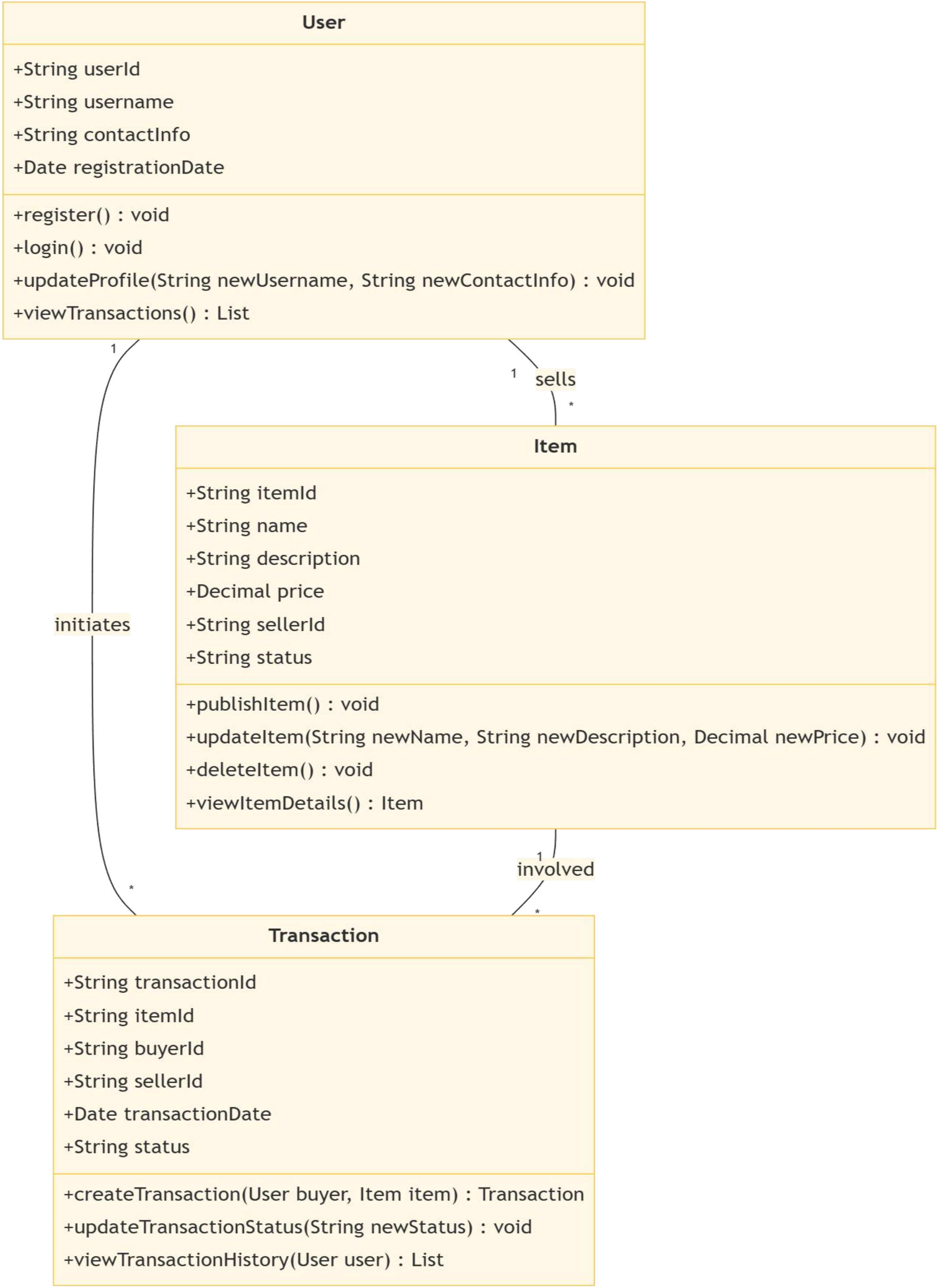
- Attributes: User ID, Username, Contact Information, Registration Time
- Methods: Register (register), Login (login), Update Profile (updateProfile), View Transaction History (viewTransactions)

Item Class

- Attributes: Item ID, Item Name, Item Description, Price, Seller ID, Status (Available/Sold)
- Methods: Publish Item (publishItem), Update Item Information (updateItem), Delete Item (deleteItem), View Item Details (viewItemDetails)

Transaction Class

- Attributes: Transaction ID, Item ID, Buyer ID, Seller ID, Transaction Time, Transaction Status (In Progress/Completed/Cancelled)
- Methods: Create Transaction (createTransaction), Update Transaction Status (updateTransactionStatus), View Transaction History (viewTransactionHistory)



3.2. Properties

3.2.1. Availability

- The system should support 24/7 availability, allowing users to access the platform for transactions at any time.
- The system should be able to handle at least 1,000 users online simultaneously.
- The system should have good load balancing capabilities to ensure a smooth user experience during peak times.

3.2.2. Security

- The user registration and login processes must use HTTPS protocol to ensure secure data transmission.
- User passwords should be stored encrypted, using a strong hashing algorithm (e.g., bcrypt) for protection.
- Sensitive data such as user information and transaction records should have access control to ensure that only authorized users can access them.
- The system should conduct regular security audits and vulnerability scans to promptly fix potential security issues.

4. Interface prototype

- Login Interface: Users enter their username and password, with a link to register.
- Item Browsing Interface: Displays a list of items, including images, names, prices, and statuses, with category filtering.
- Item Detail Interface: Shows detailed information about the item, including seller contact information and a purchase button.
- Transaction Record Interface: Displays the user's transaction history, supporting filtering and searching.

5. Function description and acceptance verification standards

5.1. Detailed unction description

User Registration Function

- Users fill out registration information, including username, password, and contact information, and the system validates the information before registering the user.

Item Publishing Function

- Users can upload item information, including name, description, price, and images, and the system saves it, generating an item ID.

Transaction Creation Function

- When a buyer clicks the purchase button, the system generates a transaction record, recording both buyer and seller information along with the item ID.

5.2. Input and output format

Input Format

- User Registration: JSON format ({ "username": "xxx", "password": "xxx", "contact": "xxx" })
- Item Publishing: JSON format ({ "itemName": "xxx", "description": "xxx", "price": "xxx", "sellerId": "xxx" })

Output Format

- Registration Success: JSON format ({ "status": "success", "userId": "xxx" })
- Item Details: JSON format ({ "itemId": "xxx", "itemName": "xxx", "price": "xxx", "sellerContact": "xxx" })

5.3. Interface Acceptance Criteria

- Interfaces should adhere to RESTful design principles, supporting GET, POST, PUT, DELETE request methods.
- All interfaces should return reasonable HTTP status codes (e.g., 200, 400, 404, 500) to indicate the result of the request.

5.4. Functional Acceptance Criteriaeria

- Functional testing should ensure that users can successfully register and log in, with accurate data storage.
- The item publishing function should allow users to successfully upload information and display it in the item list.
- The transaction function should ensure that buyers and sellers can successfully complete transactions, with accurate status updates.