**Software Engineering CSC648/848**

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SFSUMarketPlace

**Team 03 / Section 01**

Sanjana- Team Lead

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Lakshay Mittal – Backend Lead

Dinesh Arunraj – Frontend Support

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**“Milestone 1”**

**“User stories & High-Level Requirements”**

**Date - 09/28/22**

**Revision History Table**

|  |  |
| --- | --- |
| Revision ID | Revision Date Revised By |
| Zayed1 | 9/27/2022 Zahid Sayed |
| Sanjana | 9/28/2022 Sanjana G |
| Arjun | 9/27/2022 Arjun Sharma |

**1. Executive Summary**

In an increasingly developing world, technology in the e-commerce field has made impressive strides. Yet, most people still find it difficult to trust buyers online and many e-commerce websites leave their customers vulnerable to scams, money frauds and risks to personal safety. To address this issue, we have come up with ‘**SFSU MarketPlace’** - a platform dedicated especially for SFSU students to sell, rent and buy products sold by other students. **SFSU MarketPlace** is a web application that provides a trustworthy platform for students to buy and sell physical goods and products over the internet. We ensure all the buyers and sellers are verified individuals by ensuring there is only one unique shopping profile linked to their student IDs. Our Marketplace model has been designed specifically to generate more sales and make your digital presence noticeable to other potential buyers. It also serves as a medium through which students can make earnings through their sales.

The marketplace consortium will utilize state of the art information technologies to build an open web-based integrated Materials Modeling and Collaboration platform. It acts as a one-stop-shop and open marketplace by providing all determining components that constitute for a successful and accelerated deployment of materials modeling in industry. This includes linking various activities and databases on models, information on simulation tools, communities’ events, buying and selling, and access to nearby donation campaigns and activities as well. The proposed marketplace will be a central hub for all materials that a student could ever need as well as information regarding activities on campus, to facilitate better connections among students.

The team working on SFSU marketplace comprises seven aspiring software engineers who are collectively responsible for integrating components and producing a state-of-the-art E-commerce website. As individuals with strong knowledge in programming and web development, our main goal is to establish an application that enables users to have a shopping experience like no other. We aim to create an efficient, aesthetically organized virtual marketplace that users can navigate with no trouble and find what they need.

**2. Personas and User Stories**

We define four different personas for our customer base -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | 1. **Emily** | 1. **Bob** | 1. **Anita** | 1. **Josh** |
| **General** | Emily is a 19-year-old student of Arts. | Bob is a 52-year-old technician. Married with 2 kids and attends SFSU as a grad student | Anita is a 34-year-old software engineer enrolled in an executive program | Josh is a 20-year-old guy enrolled for a bachelor’s degree in finance |
| **Hobbies** | Listening to Music, scrolling through Instagram | Grilling, Making craft beer | Having wine, going out for coffee with friends | Playing video games |
| **Skills** | Can work her way around the computer, moderately skilled | Has difficulty working with computers. Not in touch with technology | Highly skilled. Can do sophisticated tasks involving computers | Skills limited to playing video games |
| **Pain points** | Visually bad design | Complicated user interface | Lack of product choices to choose from | Budget constraints |

1. **Emily:**

As Emily, I want to order my school supplies and know precise and timely details on the delivery status of my order so that I can align it with my class schedule. But I hate visually displeasing interfaces on websites.

1. **Bob:**

As Bob, I want to sell my lawn mower and upgrade to an automatic model. I ain’t that good at using computers so I would appreciate it if I don’t have to go through a lot of hassle to do that. I want to create a new account to start selling my stuff.

1. **Anita:**

As Anita, I want to have a wider choice of products and detailed search filters to ensure I get the most suitable product for my needs. I’m very picky and I need the website to allow me to pick my preferences.

1. **Josh:**

As Josh, I like to order new games as soon as they release. I would like to be suggested new games as per my preferences.

**3. Data Definitions** 

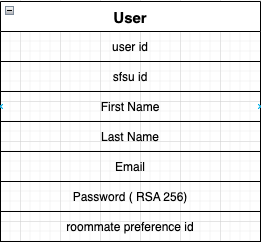
Our web app will use the NoSQL database MongoDB to store some major entities/ elements in database clusters. Each of these entities will have a separate uniquely structured layout.

The following entities will be required in the development of our Web App.

* **User**
* **Product**
* **Transaction**

**3.1 User**

The **User** entity will contain the authentication details and information about the users accessing the web app. One of the main attributes of the User entity will be the **sfsu\_id** attribute which will help us to restrict and verify that all the users that are accessing the website are actual SFSU students. The User entity will contain other commonly needed information like First and Last Name, SFSU email, and their **unique user\_id** (Which will help us to uniquely identify each user)



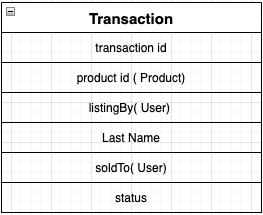
**3.2 Product**

The **Product** entity will contain information about all the products that are listed on the marketplace. Some of the key features of this entity are that it will contain **product pictures**, information about the **product type**, **and tags** specific to each product which will tell us if the product **has been donated** by someone, is it **sold**, **who bought the product**, etc.



**3.3 Transaction**

The **Transaction** entity will contain information about all of the transactions that are occurring on SFSU Marketplace. The **status** attribute in this entity will dictate if the transaction was successful or not. Since we'll be using a third-party API for payments, most of the data in this entity will be populated automatically.



**4. Initial list of functional requirements**

1. **Create an account - Priority 1**

**(Relates to User Story 2 - Bob)**

1. Users are required to create an account
2. We will ask the user for basic questions (username/email and password). If the user prefers to have a more accurate profile, they can choose to answer more questions which is the advanced mode (Course, Campus, Address, incoming student or current student)

2. **Post the items in the Marketplace of SFSU - Priority 1**

1. The user can post the items which they would like to sell (second-hand products) such as bed, cart, bicycle etc.

3. **Edit/manage their past posts. - Priority 1**

1. Users are able to change the price of the items that they have posted.
2. Users are able to delete their post if they sold the product or changed their mind.

4. **Comparison diagram - Priority 1**

**(Relates to User Story 3 - Anita)**

1. Help the users to keep aware of the rate of product and compare the products

5. **Product suggestions - Priority 3**

**(Relates to User Story 4 - Josh)**

1. Based on the comparison diagram the system will recommend products that fits the user’s budget, making it easier for the user to shop within his/her budget constraints. If not, there would be general suggestions available as well.

6. **Budget Tracker - Priority 3**

1. Allow user to track the amount remaining in their budget
2. Will design an easy-to-use interface

7. **Change the Theme - Priority 3**

**(Relates to User Story 1 - Emily)**

1. Users are able to customize their theme according to their liking.

8. **Post owners connect - Priority 1**

1. List the sellers on the marketplace with their contact information to allow users to get in touch with them in case of any negotiations.

**5. Non-Functional Requirements**

**Usability -** SFSU Marketplace web app will be easily accessible to all the SFSU students via their student id. All the pickup points for the donations will be popular places spread across the campus. Since university students are in general busy with their studies, this app saves a lot of their time and money.

**Security/Storage - User** information will be securely transmitted across the internet via a secure connection (https) and all the user data will be hashed with the industry standard RSA algorithm. The important information like passwords will be kept safe via cryptography (SHA algorithm).

**Reliability -** Since all the users would be SFSU students, it is much easier to keep track of all the transactions that are occurring on our platform and thus we can keep track of a list of verified users.

**Scalability -** Our application can be improved to handle more and more users by setting up multiple backend servers and load balancers if we need to add support for more students across the globe.

**Availability -** New module deployment mustn’t impact front page, product pages, and check out pages availability and mustn’t take longer than one hour. The rest of the pages that may experience problems must display a notification with a timer showing when the system is going to be up again.

**Compatibility-** Our app will be compatible with all the modern versions of popular browsers like Google Chrome, Mozilla Firefox, Brave, Chromium etc.

**6. Competitive Analysis**

|  |  |
| --- | --- |
| **SFSU MarketPlace** | **Competitors** |
| **Buy Products (Students)** | **Buy products (ALL)** |
| **Sell Products (Students)** | **Sell Products (ALL)** |
| **Offer Donations** | **No Donations** |
| **Offer Strong Community** | **No Community Pages** |
| **Items available immediately on campus** | **Items in store or ship Only** |
| **Allows students to post a notice on anything** | **No notice boards** |

Although there are many marketplaces that offer a variety of services to their consumers, the interactions on such websites are limited with little to no scope of relationship between the sellers and buyers beyond the exchange of products. With this in mind, we have come up with an entirely new mode of selling online that exclusively connects students at San Francisco State University unlike anything seen before.

Our goal is to create a welcoming and trusted community for students to buy verified products from other students**. Having this student-to-student relationship is meaningful in enhancing the connections between one another on campus and creating a more welcoming community**. One of our top priorities is to ensure Safety among the students. Students will be able to **meet at designated spots on campus to buy and sell products**. An additional security measure is to verify student IDs when they create their online shopping profiles.

Another competitive feature we would like to incorporate in our project is a feature we call **“Hand Me Down”**. This feature allows students to **donate items such as clothing, accessories and books** to students in need**.** Students can safely pick up these items at designated spots to ensure safety and security.

Additionally, our project will include a **“Community Sections” where student members can plan events, large sales and donations or any other activities** that students wish to create among their fellow students and surrounding community.

**7. High-level system requirements**

**Server Host:** AWS EC2 t.2 micro 1 CPU 1GB Memory

**Operating System:** Amazon Linux 2 Kernel 5.1

**Database:** MongoDB 6.0 Community Edition

**Web Server:** NGINX 1.12.2

**Server-Side Language:** JavaScript

**Web Application Framework:** Express

**Frontend Framework:** React.js

**Additional Packages:** Slugify, mongoose

**IDE:** VS code

**8. Team**

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| Team Members |

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| --- | --- |
| Sanjana Devi | - Team Lead |
| Madina Ahmadzai | - Frontend Lead |
| Zahid Sayed | - Github Master |
| Arjun Sharma | - Scrum Master |
| Lakshay Mittal | - Backend Lead |
| Sanket Shah | - Backend Developer |
| Dinesh Arunraj | - Frontend Developer |

**Study Plan -**

Based on our familiarity, we set up the following study plan.

* Frontend Framework (React.js)

The Frontend lead Madina Ahmadzai along with Dinesh Arunraj are currently leading the study plan for this technology. They collected useful learning resources and shared it with the group and summarized React.js for the team on 09/26/22.

* Server-side language (JavaScript)

Sanjana (Team Lead) and Arjun Sharma went through JavaScript documentation and summarized useful key points that they presented to the team in the most recent team meeting i.e., on 09/26/22.

* Web Application Framework (Express)

The Backend lead Lakshay Mittal and Sanket Shah have taken the lead for the study plan for this technology. They are going to demonstrate a few sample pages using express during the next team meeting i.e., on 10/03/22.

* Database (MongoDB)

Lakshay Mittal (backend lead) has briefed the team on the basics of MongoDB and how we will be using it for our team project and will be addressing all queries regarding this technology during this week.

We have also set up a discord text channel that allows team members to put forth their questions and any relevant information regarding the above technologies. This has proved helpful so far in ensuring the entire team is up to date in the development process.

**9. Checklist**

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| --- | --- | --- | --- |
| **Task #** | **Task Description** | **Progress/Status** | **Remarks** |
| 1 | Team found a time slot to meet  outside of the class | DONE | We are holding team meetings in the library every Monday between 7:00PM to 9:00PM |
| 2 | Scrum Master shares the meeting  minutes with everyone after each  meeting. | ON TRACK |  |
| 3 | GitHub master chosen | DONE |  |
| 4 | Everyone sets up their local  development environment from the team’s git repo. | DONE |  |
| 5 | Team decided and agreed together  on using the listed SW tools and  deployment server | DONE |  |
| 6 | Team ready and able to use the  chosen back and front-end frameworks. | ON TRACK |  |
| 7 | Team lead ensured that all team members read the final M1 and agree/understand it before  submission | DONE |  |