Software Design Document

Section 1 - Project Description

1.1 Project

UniSell

1.2 Description

The UniSell software functions by allowing Fresno State students to list their textbooks for sale, search for specific course materials, communicate with peers, and ensure accessibility for all users while offering a user-friendly interface and cross-device compatibility. Some features may include chatrooms, search by filtering courses/instructors, and a friendly user interface that promotes a satisfying experience.

1.3 Revision History

Date	Comment	Author
10/08/2023	Initial additions	UniSell

Contents

Section 2 - Overview

2.1 Purpose

Higher education comes with a cost. With the increase of textbook pricing as well as tuition, according to the National Center of Education Statistics, the average cost of books and academic supplies for students in 2020 – 2021 was 1,226 dollars per year. According to the National Retail Federation, students also spend roughly another 1,200 dollars per year on dorm supplies and electronics. Yet the majority of these supplies and books are usable for 1 – 2 semesters before students upgrade or pass their classes. Nowadays, students usually sell their materials and supplies to fellow students, friends, and family at a lower cost. However, this is usually done by word of mouth or through social media, which can be inefficient when it comes to selling items in a timely manner. This project proposes a mobile application platform that streamlines and centralizes the selling and purchasing power strictly for Fresno State students at certain universities.

The purpose of Unisell is to simplify Fresno State Student's experiences of buying and selling college materials. Students that seek affordable academic resources will use this platform to find supplies for any course. Sellers will be able to create listings with photos and descriptions to reach potential buyers within campus. UniSell aims to have an interface where students can easily manage their school equipment.

Fresno State students will benefit from this as they can buy used textbooks, materials, and supplies from local students so they can reduce shipping and traveling costs and find specific textbooks for certain classes. The success of the project will be determined by a working prototype on a local machine with 2-3 features allowing students to upload contact information and images. Fresno State could later officially improve and continue the project to upload the application for all students, building a stronger community at Fresno State.

2.2 Scope

UniSell offers numerous benefits and primarily aims to reduce the financial burden of college education. The objective is to create a user-friendly application that streamlines the buying and selling of college and academic materials. This will make it easier for students to find and sell secondhand textbooks and supplies. The project's goal includes building a sense of community amongst students and expanding the application's reach campus-wide to promote affordable and accessible resources for students.

2.3 Requirements

Design Requirements:

- User-Friendly Interface: The application must have an intuitive and easy-to-navigate user interface to ensure that both buyers and sellers can use it effectively without extensive training.
- Responsive Design: UniSell should be accessible and functional on a variety of devices, including smartphones and tablets, to accommodate the diverse preferences of its student users.
- Search and Filtering: The software must include robust search and filtering capabilities, allowing users to find specific items efficiently by course, category, price, or location.
- User Accounts: A system for creating and managing user accounts with features like profile customization, transaction history, and messaging functionality must be integrated.
- Listing Creation: Sellers should be able to create detailed listings for their items, including photos, descriptions, prices, and contact information.
- Item Tagging: The ability to tag listings with relevant keywords and categories to enhance search results and organization is essential.
- Security: Strong security measures should be in place to protect user data, including personal information and transaction records.

- Scalability: The design should allow for future scalability to accommodate a growing user base and additional features.

Graphics Requirements:

- User-Friendly Visual Design: The application should employ an appealing and user-friendly visual design with clear icons, buttons, and intuitive layouts.
- Image Upload: The software must support image uploads for item listings, ensuring that users can provide clear and informative visuals of their products.
- Logo and Branding: Incorporation of a UniSell logo and branding elements to establish a consistent and recognizable visual identity.

Operating System Requirements:

- Cross-Platform Compatibility: UniSell should be compatible with both iOS
- Minimum OS Versions: The application must specify minimum supported OS versions to ensure a consistent and stable user experience.

2.3.1 Estimates

#	Description	Hrs. Est.
1	Brief description of task / module with link	# est
	TOTAL:	# est tot

2.3.2 Traceability Matrix

Cross reference this document with your requirements document and link where you satisfy each requirement

SRS Requirement	SDD Module
Req 1	5.1.1 (link to module), 5.1.2 (link)

Section 3 - System Architecture
No applicable yet as the project is still under development regarding the data

Section 4 - Data Dictionary
No applicable yet as the project is still under development regarding the data

(template of a database table description)

Table

Field	Notes	Type
ID	Unique Identifier from TABLE_SEQ	DECIMAL
NAME	The Name in Object.Name()	VARCHAR
VALUE	The Value output from somewhere	VARCHAR

Section 5 - Software Domain Design

5.1 Software Application Domain Chart
No applicable

5.2 Software Application Domain
We are still starting code for this project and the domain of the application is not applicable yet.

Section 6 – Data Design

The Data that is needed for the project is first the account data. We need data on how we can find who's account is who and how we can prove that the account is this person's account. Another thing that we need is how the Items being sold in the app are going to be stored. You would need for this data to have Location, Price, Name of the item, and who is selling the item.

6.1 Persistent/Static Data

The Data Model we are going to use is a model where we assign the post or account data to be able to easily identify which post or account. For example a post will need to be linked to the account that posted the selling item. It would need a name of the item, the price of the item, and the location the item will be transferred to the buyer. The name of the item, price of the item and the location will be with the post itself but the account will need the name, age, and gender attached to the post to know who it is.

6.1.1 Dataset
How we will connect data to other data is by referencing them. A post references the account to show that this is the person making the account.

6.1.2 Static Data
The static data would be the Unique ID that the account and post has which will always be

consistent. This ID cannot be changed by anyone.

6.1.3 Persisted data
The persistent data would be the name, prices, location, age, sex, etc on posts or accounts that are being used. The reason being is because sometimes we make mistakes so we would like to edit the post without making new posts.

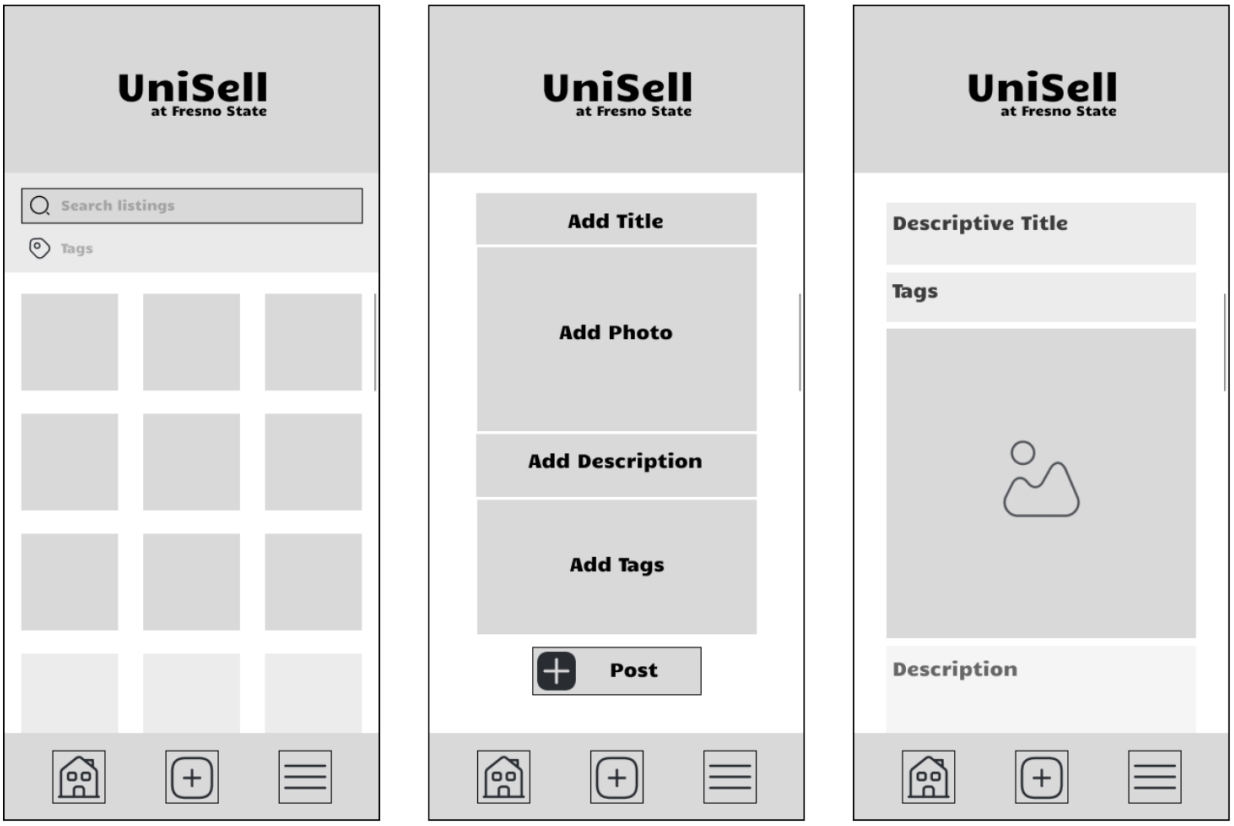
6.2 Transient/Dynamic Data
The dynamic data is the time the post has been posted. This dynamic data will always be updated so clients can see how old the post is and see if the item is still there or not.

6.3 External Interface Data
Unsure since the application is still being developed.

6.4 Transformation of Data
Unsure since the application is still being developed.

Section 7 - User Interface Design

7.1 User Interface Design Overview
Wireframe (in progress):

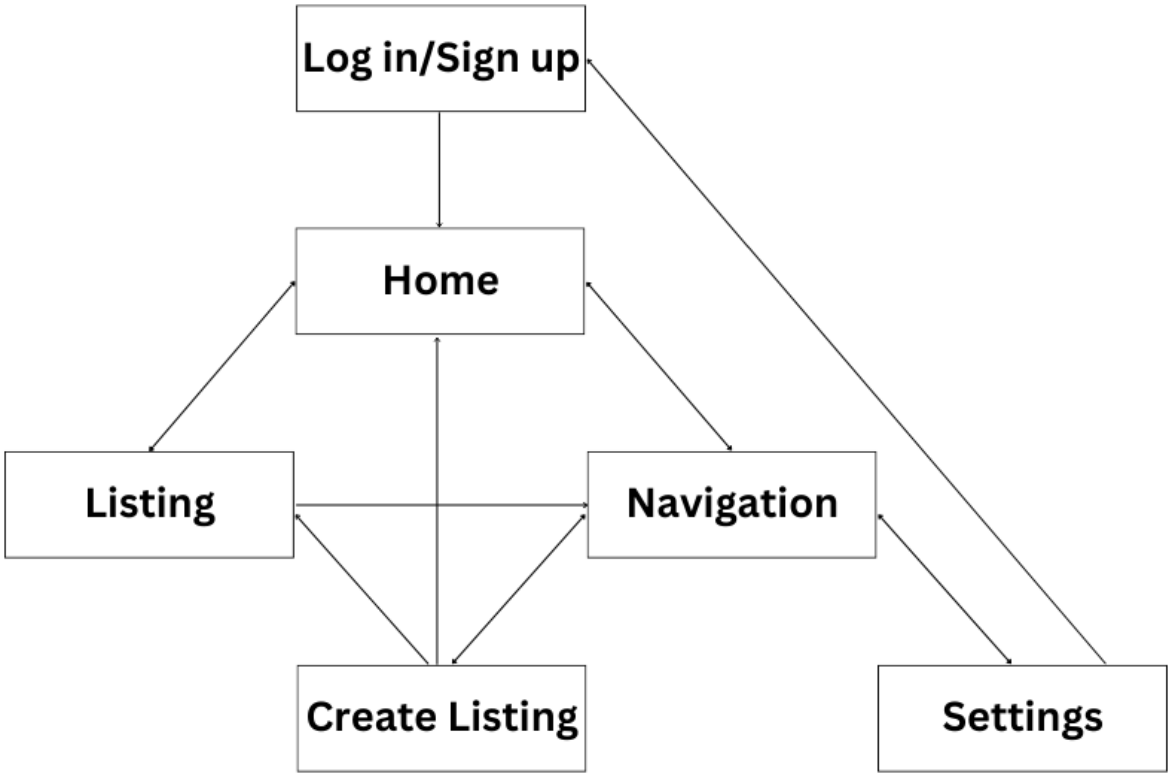


1st frame: Home page, 2nd frame: Create listing page, 3rd frame: Listing page

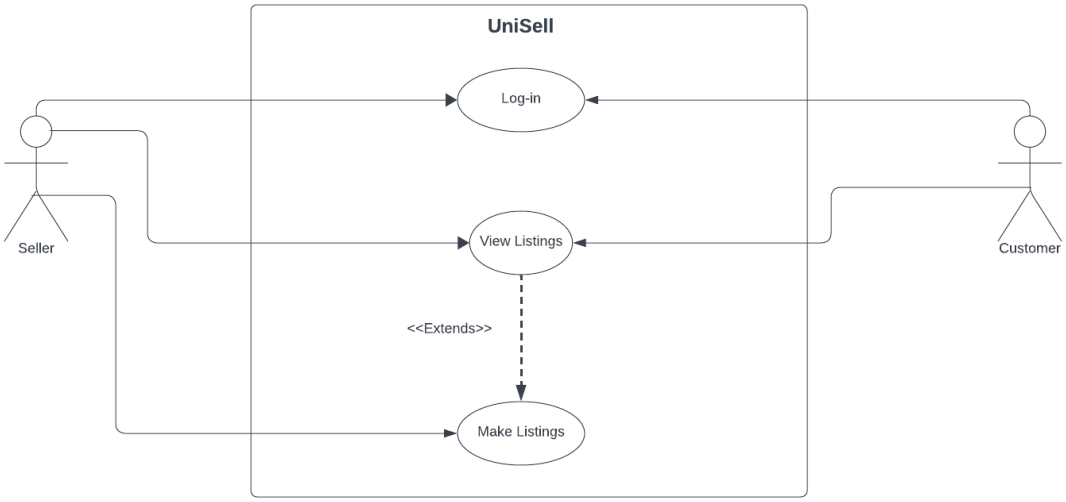
UI Requirements:
- Five pages

    - Log in/Sign up
        - Email and password fields
    - Home
        - Search bar for users to enter and submit text
        - Use tags as search filters
            - Drop down list or expand to show tag options with checkboxes
        - Photo grid displaying listing photos
    - Create listing
        - Title text field
        - Upload/take photo to submit
        - Description text field
        - Contact information text field
        - Tag checkboxes
        - Post button
    - View listing
        - Display:
            - Title text
            - Tags
            - Photo
            - Description
            - Contact information
    - Settings
        - Display account information
            - Email/username
        - Logout button
- Constant access to navigation bar
    - Home button
    - Post button
    - Settings button
- UniSell logo/name displayed at top of pages
- Vertical scrolling on pages

7.2 User Interface Navigation Flow



7.3 Use Cases / User Function Description



- Student is logging in
    - Enter username and password

    - Authenticates if user has an account
- Student is browsing listings
    - Scroll through home page
    - Click listing photo and view listing
    - Go back to home page and repeat
- Student wants to create a listing
    - Click plus button on navigation bar to create a listing
    - Enter the requested information in each field
    - Provide contact information (phone number/email) in respective field
    - Click the post button
    - View the listing just posted

Section 8 - Other Interfaces

External interfaces such as APIs, MySQL databases, and web services play a critical role in the functionality of UniSell:

- APIs (Application Programming Interfaces): The software may utilize various APIs for data exchange and integration.
- MySQL Database: MySQL is the chosen relational database management system (RDBMS) for storing and managing data within the software. The database stores information such as user profiles, textbook listings, and messaging history.
- Web Services: Web services may be used for various purposes, including data synchronization, content delivery, and integrations with external platforms. For example, a RESTful web service might be used to retrieve textbook information from external sources, such as ISBN databases.

8.1 Interface X

Interactions: These interactions can include product searches, browsing, adding listing items, and messaging others. Additionally, interactions may involve communication between the website and external services, such as storing user information in a database.

Protocols: E-commerce websites rely on several protocols to ensure seamless and secure communication. For instance, APIs (Application Programming Interfaces) often follow specific protocols for data exchange, allowing the website to interact with external services, such as updating listings, displaying listings, and holding account information.

Message Formats: Message formats in e-commerce refer to the structured representation of data exchanged between different components of the system. This includes the format of web pages displayed to users and the structure of listing data. Consistent and well-defined message formats ensure that information is presented clearly and accurately throughout the experience.

Failure Conditions: E-commerce websites must be robust in handling failure conditions to provide a reliable and satisfying user experience. Common failure conditions may include server outages and database errors. Effective error handling mechanisms and backup systems are essential to address these issues promptly, minimize disruptions, and maintain customer trust.

Login Handshake: In our authentication systems, a handshake occurs when a user attempts to log in. The server and client exchange credentials, such as a username and password or tokens, to verify the user's identity.

Section 9 - Extra Design Features / Outstanding Issues

No applicable yet as the project is still under development regarding the data

Section 10 – References

Any documents which would be useful to understand this design document or which were used in drawing up this design.

Section 11 – Glossary

Glossary of terms / acronyms

API - Application Programming Interfaces
iOS - iPhone Operating System
HTTP - HyperText Transfer Protocol Secure