

SW Engineering CSC648/848 Spring 2022

PurpleMarket

TEAM 8

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Contents

I	Executive Summary	2
II	Personae	3
A	Persona 1	3
B	Persona 2	3
C	Persona 3	3
D	Persona 4	4
III	Use Cases	4
IV	Main Data Items and Entities	7
V	List of Functional Requirements	7
VI	List of Non-Functional Requirements	8
VII	Competitive Analysis	9
VIII	System Architecture	10
IX	Team & Roles	11
X	Checklist	11

Section I: Executive Summary

PurpleMarket is a web application that will connect students, staff, and faculty from San Francisco State together via a virtual marketplace. In this marketplace, they will be able to communicate with each other, as well as buy and sell products on a user to user basis. There will be no intermediate and no surprises. What one user posts will be verified and will be exactly what is sold to another user. With this in mind we hope to create a safer, open community at San Francisco State, while also providing our users with a more convenient way to shop. The value of PurpleMarket is in its ability to provide an experience custom tailored to people associated with San Francisco State. Our vision is to provide a marketplace that facilitate the ability to sell and purchase the types of items and/or services that are most important to our users.

PurpleMarket plans to be easy to navigate, and easy on the eyes. There isn't any clutter which makes the site much more presentable to our users. Our users are presented with a clean design that will make it much easier for users to navigate our site to find exactly what they are looking for. If they have any trouble at all finding their specific product, they are able to narrow their search in three ways. The first method to finding their desired product is by browsing different categories. By providing categories that our users are most interested in, our users will be able to more easily sell or find the products that they want. The second method will be a simple and easy to use search that would allow the user to type specific titles, names, or descriptions where the user will be presented with the results of the search. Specific to the academic environment, the final method for finding a product is by finding products that are associated with a particular course. Once a user finds what they are looking for they can sign up and create a PurpleMarket account that will allow them to communicate with the user that listed the product directly on our site and the rest is history. So what about listing products? Any verified user who opens an account will be able to list a product. Finally, PurpleMarket will be able to facilitate on-campus meetings between buyer and seller, which simplifies the transaction experience.

Our team of passionate San Francisco State students know the frustrations of navigating online classifieds and the unique needs of the people associated with the school. It is because of this that we are exceptionally equipped to understand the San Francisco State community and provide them with the experience that they desire.

Section II: Personae

Persona 1

Actor: Kobe (Admin)

About:

- Busy student
- Loves to explore computer technologies
- Likes simple and clean user interfaces
- Expert in maintaining and troubleshooting computer technologies

Goals & Scenario:

- Wants to ensure a safe and efficient user experience for students, staff, and faculty of San Francisco State University.
- Loves to explore computer technologies
- Likes simple and clean user interfaces
- Expert in maintaining and troubleshooting computer technologies

Persona 2

Actor: Claire (Student)

About:

- Busy student that's proud of attending SFSU.
- Spends most of time at the university library or attending classes
- Active and loves to exercise
- Very comfortable with web apps

Goals & Scenario:

- Decided to go to the library. Checks to see if she has all her required notes and materials on her laptop.
- While at the library, she likes the idea of finding SFSU merchandise for sale by other students.
- Carries her gym clothes in her bag so she can go exercise after her study session.

Persona 3

Actor: Anna (Faculty)

About:

- Likes to have everything in order.
- Not very comfortable with web apps.
- Plans far into the future.

- Interested in e-textbooks and other e-content for her students.
- Loves reading literature and exploring different texts.

Goals & Scenario:

- Is reading a research paper on the community history of geographies of displacement and taking mental notes of points that must be shared to her students at class today.
- She uses her notebook and pens them down. She creates a questionnaire for students using google docs which must be uploaded on ilearn later.

Persona 4

Actor: Curry (Staff)

About:

- Has a regular working schedule
- Work in an establishment with administrative functions such as accounting and finance.
- Have a university educational level.
- Have higher-level responsibilities of being a university administrator.
- Prefer to follow their job orders and university principles

Goals & Scenario:

- When he has a meeting with someone, he always wants the person arrives on time. As a result, he desires that the person will have a reminder when the meeting comes soon.
- When he sets up a meeting to buy something from other people associated with SFSU, he wants to be able to set up a meeting place and time that is convenient for him, since his schedule is very tight.

Section III: Use Cases

Use Case 1: Administrative Functions (Kobe)

Kobe is an admin user of the app. He opens his laptop and browses to the web page of the app while he is sitting in front of a desk at his home. After logging into his account, he needs to troubleshoot the app to ensure all features and functionalities of the app are working correctly. After that, he wants to review and validate the new posts of products to ensure that they are appropriate and follow company guidelines. Valid posts will be approved by Kobe and can be viewed by all users. Kobe will deny invalid posts and give an explanation for why the post is invalid. Finally, Kobe reviews the feedback from app users and decides any future actions need to handle.

Use Case 2: Purchase SFSU Apparel (Claire)

Claire is laying on her bed while she thinks about her next swimming event. She thinks that her SFSU

suit is worn out and definitely needs an upgrade. She takes her smartphone and opens the web browser. She googles PurpleMarket and opens the website. She goes on categories and clicks “SFSU Apparel”. She browses through the different options on her phone and reads their reviews. While browsing, she decides to also look for more SFSU merchandise and browses through SFSU mugs, keychains and SFSU notebooks for her desk. While she is at it, she also goes through some of the notes which are offered by past students for her classes. Finally, she’s happy and when she attempts to message the sellers in the web application to set up a time and place to meet to purchase the items, the web application prompts her to login or register. Because Claire is on campus most of the time, it is easy for her to meet up on campus to complete the transaction. When she shows up to the agreed location to complete the transaction, one of the sellers does not show up. She is not too upset because she was able to complete a couple of other things, so she leaves a message to the seller on the website to see if they can schedule another meeting. The second time around, the seller shows up and the transaction is completed. She leaves a mediocre review of the seller because the seller did not let her know of the cancellation ahead of time.

Use Case 3: Request Items (Anna)

Anna is sitting on her front desk one day before the beginning of the first day of instruction. She wants to share handwritten notes of her past student and is hoping to contact him for the same. She opens the www website and looks for the notes under the class. Thankfully she finds the student having a post about the same. When she attempts to contact him about it, the website prompts her to login or register. Once logged in and/or registered she is able to message her past student and set up a meeting on campus to complete the transaction.

Use Case 4: Purchase through browsing (Curry)

Curry is an SFSU full-time university staff. He wants to shop for some items on the secondary market held by the SFSU community, so he opens the web application and browses posts of items in his office during his break. First, he just randomly browsed items by categories including books, electronic products, and household supplies. After a couple of minutes, he realizes that there is a book that he was interested to buy recently. He enters the name of that book to search listed posts, and then there are a couple of listed posts that show up. He clicks on one post in order to find more information about the item and sell information. He messages the seller telling him that he wants to buy the book. Finally, using the website, Curry sets up a meeting time and place on campus to complete the transaction. His experience is great, so he leaves a positive review of the seller.

Use Case 5: Selling furniture (Anna)

Anna feels like her house is too cluttered with some old furniture she no longer uses. One item she

wants to sell is a small bookshelf. She has looked at eBay and the process to sell items seems too complicated and she does not want to deal with having to ship something or coordinating a meetup with someone who might be coming from farther away. In addition, Anna has heard that Craigslist has a lot of scammers, so she is uncomfortable with providing any sort of contact information there. Because PurpleMarket only allows people associated with SFSU, she feels safer to meet with a potential buyer. Also, the website gives her a simple way to be contacted without providing her personal contact information and coordinate a meeting to complete the transaction. Once she goes onto the website, she is able to easily find the button to sell her items. Through some simple prompts, she is able to enter in a title, description, price, and photos of her items. Once she composes her sales listing, the website prompts her to login or register. Once she requests the listing, the website informs her of the required administrative approval process. An admin quickly approves the post and she is notified that her listing was approved and published. Three days later, she gets a message directly on the website inquiring about her bookshelf. Through the website, she is able to respond and suggest a meeting spot on-campus. After agreeing on a price and location, she is able to put the meeting on her schedule. When she shows up to the agreed upon location, the buyer never shows up. Because of this, she leaves a bad review for the buyer.

Use Case 6: Selling textbook (Claire)

Before the new semester starts, Claire thinks it is a good time to sell a history textbook she used last semester. Since she knows that her book is required for the class, she is certain that students will need that exact textbook for the history class in the coming semester. Because of this, she understands that she will be able to sell it quickly to students at SFSU without the hassle of shipping or coordinating a meeting someone that is not associated with the school. Since she is at the library, she decides that using her phone would be the easiest way to post her listing. With a prominent post button on the main page, it is easy for her to start her listing. Once on the composition page, she is able to quickly run through the prompts to list her book. One feature she is grateful for is the ability to associate the book with the specific class that requires it. Once she snaps a quick photo on her phone, she completes the listing and the website then prompts her to login or register. Once logged in, the website informs her of the required administrative approval process. Once approved, Claire is notified that her listing was approved and published. To her pleasant surprise, she is immediately contacted on the website by another student inquiring about her book. Through the website, she is able to respond and suggest a meeting spot on-campus. After agreeing on the price and location, she is able to complete the transaction on-campus. Because she was happy with the transaction, she leaves a glowing review of the purchaser.

Section IV: Main Data Items and Entities

user: The users are the people expected to use the web application. This entity will contain all the pertinent information that describes our user like their name, email address, and other identifying information.

item: This entity are the items that are being bought, sold, or provided. This entity contains all the information that helps users find what they want. For example, this entity will have a name, a description, price, a category that it belongs to, and photos so that they can see what the item looks like.

category: This is the category a particular item will belong to. For example, items may be furniture, books, electronics, etc. We want this data item to be easily changed or expanded if necessary in case our users find categories that they want.

account: This will contain all the account information of our users as well as describe their permissions. This entity will contain the user's account password, the account type (e.g. Admin, Registered User, etc), and the permissions that are associated with the account type.

location: This will contain different locations that can be used on-campus where transactions can be completed. This is meant to provide an easy way for buyers and sellers to coordinate a meeting to complete a transaction.

message: This entity exists to contain all the messages that are sent from one user to another. This will contain not only the message, but also the sender, recipient, and a time stamp of when the message was sent and received/read.

review: This data item contains the reviews for all users. This entity will contain the review itself, the recipient of the review as well as the person who wrote the review, the time stamp of the review, and also the associated transaction/item that goes with the review.

Section V: List of Functional Requirements

Unregistered User

1. Unregistered users shall be able to search the site for certain posts.
2. Unregistered users shall be able to filter search results.
3. Unregistered users shall be able to register for an account.

Registered User

6. Registered users shall be able to do everything an unregistered user can do.
7. Registered users shall be able to create posts.

8. Registered users shall be able to get in contact with the poster/seller.
9. Registered users shall be able to edit and correct and/or delete their own post after it was submitted.
10. Registered users shall be able to report violations of terms of service of another user.
11. Registered users shall be able to login to their account.
12. Registered users shall be able to logout of their account.
13. Registered users shall be able to request/reset their password if they forgot.
14. Registered users shall be able to leave reviews of other users regarding completed transactions.
15. Registered users shall be able to propose meeting locations or modify location proposals to complete transactions.
16. Registered users shall be able to inspect their transaction history.

Admin

17. Admins shall be able to do everything a registered user can do.
18. Admins shall be able to delete and edit posts done by any user.
19. Admins shall be able to contact any user.
20. Admins shall be able to ban users.
21. Admins shall be required to approve posts before they can go live.
22. Admins shall be able to inspect any user's transaction history.

Section VI: List of Non-Functional Requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0
2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
3. All or selected application functions must render well on mobile devices
4. Data shall be stored in the database on the team's deployment server.
5. No more than 50 concurrent users shall be accessing the application at any time
6. Privacy of users shall be protected
7. The language used shall be English (no localization needed)
8. Application shall be very easy to use and intuitive
9. Application should follow established architecture patterns
10. Application code and its repository shall be easy to inspect and maintain

11. Google analytics shall be used
12. No e-mail clients shall be allowed. Interested users can only message to sellers via in-site messaging.
One round of messaging (from user to seller) is enough for this application
13. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
14. Site security: basic best practices shall be applied (as covered in the class) for main data items
15. Media formats shall be standard as used in the market today
16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
17. The application UI (WWW and mobile) shall prominently display the following exact text on all pages *"SFSU Software Engineering Project CSC 648-848, Spring 2022. For Demonstration Only"* at the top of the WWW page nav bar. (Important so as to not confuse this with a real application).

Section VII: Competitive Analysis

Specification	PurpleMarket	Amazon	Ebay	Craigslist
Short time to make post	-	+	++	+
Easy to contact seller	++	+	+	++
Seller associated with SFSU	++	-	-	-
Ability to meet seller in person	++	-	+	+
Propose on-campus meeting location	++	-	-	-

++ = Specification is Outstanding

+ = Specification is Good

- = Specification is Bad

Our web app has numerous planned advantages compared to our competitors. We make sure that all users of our app are SFSU students, staff, or faculty. We make sure that buyers can easily contact the seller. Another advantage is that our seller and buyer will be able to meet in person, in a safe and public environment, whether it be on campus or otherwise. We also have a site administrator that guarantees the validity of each item posted and swiftly approves each post or rejects inappropriate posts.

Section VIII: System Architecture

Server Host:	Amazon EC2 2vCPU 4GB Ram
Operating System:	Amazon Linux 2
Database:	MySQL v8.0.19
Web Server:	Nginx v1.19
Server-Side Language:	JavaScript/Node.js 10.19.0
Web Framework:	React.js 16.14.0
IDE:	VSCode
Web Analytics:	Google Analytics

Section IX: Team & Roles

Name	Role
Ernesto Diaz	GitHub Master/Front End Dev
Jesus Cervantes Fajardo	Back End Dev
Khushboo Gandhi	Front End Lead
Cody Huang	Back End Lead
Mark Kim	Team Lead/Document Master
Vivian Kuang	Back End Dev
Jiasheng Li	Front End Dev

Section X: Checklist

Task	Status
So far all team members are engaged and attending ZOOM sessions when required	ON TRACK
Team found a time slot to meet outside of the class	DONE
Back end, Front end leads and Github master chosen	DONE
Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing	ON TRACK
Team lead ensured that all team members read the final M1 and agree/understand it before submission	DONE
Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	ON TRACK