San Francisco State University

SW Engineering CSC648/848 Spring 2020

Snapster

TEAM 06

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1. Executive Summary

The growing use of online shopping provides an opportunity for many ideas and the amount of money spent on purchases online has been significantly increasing. This indicates a great opportunity to develop our idea. At San Francisco State University we want to create a web platform where the students and faculty members can buy, sell and share digital media with ease and transparency. Particularly, our company will offer the ability to post items for sale or free of charge only for the students and faculty at San Francisco State University, as well as for purchase or downloads for free.

By limiting our users market to San Francisco State University, we want our users to have a personal and cultural experience only available at this university. The faculty can post digital media for sale or free of charge to the corresponding classes, veteran students can get discounts on digital media, all while supporting academic publications and university research. Additionally, we will contribute three percent of each transaction profit to local students who cannot afford digital media. Our application will have such functionalities for users as posting digital media to sell, buy or share digital media online. Our company will protect the rights of the faculty members to make their research and publications, and accessible only for the local students.

We are a motivated start up of seven students at San Francisco State University who want to build an easy to use and versatile online marketplace to serve the needs of the Gator community, and improve student cooperation across academic disciplines. Our mission is to provide reliable, secure, and practical functionality to our fellow students and faculty.

2. Personae and Main use cases

2.a Personas:

Vanessa

- Characteristics
  - Third year SFSU student
  - Biology Major
  - Taking a full class load and works a part time job
- Goals
  - To be successful in her classes.
  - To balance school/work/life.
- Skills
  - Competent computer user.
  - Familiar with browsing and searching the internet
  - Unfamiliar with programming
- Pain Points
  - Time Management

Photo by Court Cook on Unsplash

Chris

- Characteristics
  - Second year SFSU Student
  - Art Major, emphasis in Digital Design
- Goals
  - To build his portfolio.
  - To earn compensation for his work.
- Skills
  - Artistic
  - Competent computer user
  - Familiar with programs such as Photoshop and GIMP
  - Unfamiliar with programming
- Pain Points
  - Getting his work out there for others to see.

Photo by Lucas Sankey on Unsplash

Tina

- Characteristics
  - Second Semester SFSU Student
  - MBA Major, emphasis in entrepreneurs
- Goals
  - To complete her research paper for her major class
- Skills
  - Microsoft Office Software Expert
  - Strong reading and writing skills
  - Has knowledge of programming and how to use Python to get images
- Pain Points
  - Having low quality images to put on her research and the image that contains watermarks that did not meet paper requirements.

Photo by Justin Essah on Unsplash

Johanne ● Characteristics ○ Computer Science Major ○ Discerning ● Goals ○ To maintain the site and database effectively. ○ To ensure no inappropriate content becomes visible on the site. ● Skills ○ Competent computer user ○ Strong DB Management skills ○ Is familiar with programming and SE best practices ● Pain Points ○ Managing inappropriate content and problematic users	 **Photo by KAL VISUALS on Unsplash**

Eugene Pederman, Ph.D. ● Characteristics ○ Economics Professor at SFSU ○ Undergraduate Advisor ○ Dedicated to his students ● Goals ○ To help his students learn and be successful in his classes. ● Skills ○ Competent computer user. ○ Familiar with browsing and searching the internet ○ Unfamiliar with programming ● Pain Points ○ Providing all of his students with the help and resources they need. ○ Busy schedule	 **Photo by LinkedIn Sales Navigator on Unsplash**

2.b Use Cases:

1. **Vanessa** needs to find very specific images of cells for a class project she is working on. She is very busy: She has an upcoming exam she needs to study for in another class and has a shift scheduled for later this afternoon. While she is on the bus heading to work, Vanessa visits our site on her phone and browses for images of cells. She notices her class has been registered with the site and filters the resulting images based on her class. She is

able to quickly locate suitable and free images perfect for her project. She is able to download the free full resolution images without registering an account, and has time remaining in her commute to clear her mind and relax before her shift begins.

2. **Chris** has recently finished a piece of digital artwork and he thinks the content could be useful to other students. Chris decides he would like to post his work, and receive some compensation for it. Chris visits the site and clicks a link to upload his content. He uploads his work and fills out a form describing his content and sets a price. Before he can post his work, Chris is prompted to either login or register an account. He fills out the brief registration form and submits his post. He is taken to his dashboard where he can see his post is pending administrator approval. From the dashboard, he is able to review any future items he may post to the site, as well as his items sold and messages he receives from potential buyers of his work.

3. **Tina** has been working on a final project which she must present to her class at the end of the semester. She wants to quickly find high quality images and other media for her slides. Most free images she can find on the internet are not high enough resolution for her to use in her slides. She visits our site and browses the images by category, filtered for paid content. She finds an image she really likes, and after logging into the site sends a short message to the content creator expressing her interest in the image. The creator promptly responds, and they arrange for payment through Paypal. Tina is granted access to the full resolution image and is able to download it and use it for her presentation.

4. **Johanne** logins into the system through her administrator account and examines her dashboard. She sees a list of pending items posted by users the night before. She begins reviewing the posted content, making sure each post is appropriate for the site, and performs a sanity check on the labels provided by the users. Most of the posted items are acceptable and she approves them for the site. There is however one questionable post. She denies the item and looks into the user's profile who posted the item. It seems this user has a history of posting questionable content. Johanne decides to ban the account.

5. **Professor Pederman** wants to help his students by providing them online resources for his classes. He goes to the site and begins browsing by classes. He sees that one of the classes he is teaching this semester has not yet been registered to the site. He clicks the post link and begins posting resources for his class. After his first post he is prompted to either login or register with the site. He logs into his account and when posting his materials he makes sure to add the class name as a label in the description. When his students search the site for their class, they will be able to quickly find the resources Professor Pederman has posted for use in class assignments.

3. List of main data items and entities

1. **Unregistered user**
   1.1. Can search and browse digital media on www without registration or logging in.

2. **Registered user**
   2.1. A registered user and can to sell, buy or share digital media on www.
   2.2. Can own digital media copyrights and post them on www, needs to register/login

3. **Admin**
   3.1. Can access all the data and content, can modify the database, view companies income, needs to register/login
   3.2. Can approve the registration of users, posts, can blacklist or report the illegal activities, needs to register/login

4. **Categories**
   4.1. Items posted by the authors must be categorized by the author for easy and fast search; categories selected by the authors for the sale of their items need to be approved by the moderator.
   4.2. Users shall see suggested items

5. **Digital Media**
   5.1. Digital Media contains image, items that registered users want to sell.

6. **Messaging**
   6.1. Message is the only way that users and buyers can connect with each other.
   6.2. At the very beginning of the message, there will be a little notification shows to both users that do not share their information with each other.

4. Initial list of functional requirements

1. **Unregistered users**

1.1. Users shall be able to search and browse digital media on our online marketplace
1.2. Users shall be able to search and browse by digital media categories
1.3. Users shall be able to search and browse by San Francisco State University course numbers
1.4. Users shall be able to search and browse with filter
1.4. Users shall be able to see digital media metadata

1.5. Users shall be able to see reviews on digital media
1.6. Users shall register with their names, email and password
1.7. Users shall be able to register in order to sell, buy or share digital media

2. Registered users

2.1. Satisfy all functionality requirements of unregistered users
2.2. Users shall login in order to sell, buy or share digital media
2.3. Users shall perform transactions confidentially
2.4. Users shall have transaction history on their profile
2.5. Users shall be able to write reviews after purchasing digital media
2.6. Users shall be able to message the seller to buy the digital media

3. Admin

3.1. Admin shall be able to track active users and company's activity
3.2. Admin shall review and approve content posted
3.3. Admin shall report illegal activities of the users
3.4. Admin shall block suspicious registered users
3.5. Admin should be able to connect registered users if necessary

5. Non-functional requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0 (some may be provided in the class, some may be chosen by the student team but all tools and servers have to be approved by class CTO).
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. Selected application functions must render well on mobile devices
4. Data shall be stored in the team's chosen database technology on the team's deployment server.
5. Full resolution free media shall be downloadable directly, and full resolution media for selling shall be obtained after contacting the seller/owner
6. No more than 50 concurrent users shall be accessing the application at any time
7. Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
8. The language used shall be English (no localization needed)
9. Application shall be very easy to use and intuitive.
10. Google analytics shall be used
11. No email clients shall be allowed
12. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.

13. Site security: basic best practices shall be applied (as covered in the class) for main data items
14. Media formats shall be standard as used in the market today
15. Media material shall be either free or for sale, as determined by media owner
16. Each media material shall have its license info as one of the following: a) free use and modification; b) free but only allowed for SFSU related projects; c) for sale
17. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
18. The website shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Spring 2020. For Demonstration Only" at the top of the WWW page. (Important so as to not confuse this with a real application).

6. Competitive analysis

Features	Amazon	eBay	Alibaba	iLearn	Snapster
Search by Categories	++	++	++	+	++
Contact Users/Admin	+	++	+	+	+
Student/Veteran Discounts	+	-	-	-	+
Price Negotiation	-	+	-	-	+
Access to Free Digital Media Content for Users (non - subscription)	-	-	-	+	+
Content Licence for SFSU Students	-	-	-	+	+
SFSU Class Search	-	-	-	+	++

+ = good - = not available ++ = excellent

On our website, Snapster, we want to focus on how we can provide the best user experience and benefits for our target demographic. Instead of broadening our scope to the general public, our website focuses on providing convenient features that cater to SFSU students and faculty. In comparison to websites such as Amazon, eBay, iLearn and Alibaba, Snapster provides similar functionalities such as searching by categories and contacting users about their listed items. Some of the benefits we provide include access to free digital media content without having to sign up for a monthly subscription as well as providing licenced content that's unique to SFSU students and faculty. Although existing websites such as iLearn provide similar types of services for SFSU students and faculty, our websites allows

users to distribute and sell digital media while having a better user interface to search for items within specific categories. We also provide buyers the ability to negotiate prices and discounts with sellers.

7. High level system architecture

- Server Host: Amazon AWS EC2
- Operating System: Ubuntu 18.04 Server
- Database: MySQL 8.0.18, SQLAlchemy (ORM)
- Web Server: NGINX 1.16.1
- Server-Side Language: Python
- Web Framework: Flask
- Front-End: Bootstrap
- IDE: PyCharm IntelliJ, VSCode
- Web Analytics: Google Analytics

8. Team and roles

Role	Name
Team Lead	Bakulia Kurmant
GitHub Master	Akhil Gandu
Back End Lead	Chris Eckhardt
Front End Lead	Elliot Yardley
Back End SE	Avery Chen
Front End SE	Thomas Yu

9. Checklist

- Team found a time slot to meet outside of the class. **Done**
- Github master chosen. **Done**
- Team decided and agreed together on using the listed SW tools and deployment server. **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. **On Track**
- Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.) **Done**