SW Engineering CSC648/848 Fall 2020

GatorMart

Team 6

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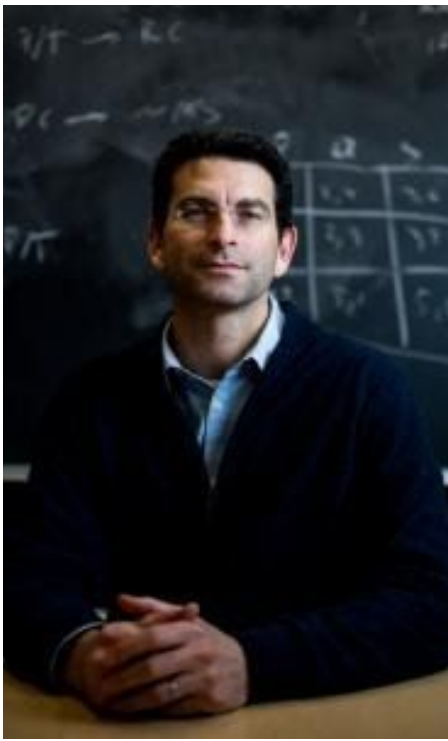Date Submitted: 09/24/2020

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Executive Summary

GatorMart is a sleek and functional website where SFSU students and faculty can go to buy, sell, or exchange select goods and services. By keeping a narrow focus and restricting registration to SFSU students and faculty, we are able to offer more streamlined services to our target audience, as well as greater security through verification, which sets us apart from our more generalized competitors. The site allows buyers to contact sellers through a built-in messaging system. Users can browse through categories or search with keywords or for articles related to specific classes, and if they don't find what they're looking for, they may post a request, so that potential sellers can see what is in demand. Of course, all postings must be approved by an admin, so users are protected from anything untoward. We offer our users great flexibility in how they handle payment methods, and these can be arranged privately through the messaging system. We as a team are very excited to bring these features to the potential users of GatorMart.

Personae and Main Use Cases

Elan Mosk, Ph.D.
Characteristics
● First year lecturer at SFSU. ● Works as a Senior Engineering Manager. ● Has a wife and two children.
Goals
● Shape students to be successful post graduation. ● Provide free or affordable resources to students.
Skills
● Experience as a software developer and engineer. ● Thorough knowledge of online buying.
Pain Points
● Busy schedule with family and work. ● Keep costs low in the Bay Area for his students.

Ricardo
Characteristics
● Majoring in Business Administration. ● South American native. ● Works part-time at a local cafe.
Goals
● Purchase a home in the Bay Area. ● Be financially stable.
Skills
● Fluent in the Spanish and English language. ● Knowledgeable in basic laws and regulations.
Pain Points
● Not experienced in using computer systems. ● Struggles with time management.

Liang	
Characteristics	
● Senior in SFSU Bachelor in Nursing program. ● Volunteer at local nursing and hospice homes. ● Relocating to Minnesota post graduation.	
Goals	
● Save money for medical school. ● Volunteer for local healthcare services.	
Skills	
● Familiar with web browsing and shopping. ● Great communication skills.	
Pain Points	
● Owns unused and space-consuming furniture. ● Tight on money and busy schedule.	

Nadia	
Characteristics	
● SFSU senior in Computer Science program. ● Admin of GatorMart site. ● Working abroad, originally from India.	
Goals	
● Maintain a safe environment on the website. ● Develop the website to assist all student and staff needs.	
Skills	
● Backend web developer experience. ● Former intern at Amazon India Software Team.	
Pain Points	
● Time management between school and job. ● Managing influx of posts by students.	

Use Cases
Elan Mosk, Ph.D.
Dr. Mosk has just finished a faculty meeting discussing the emotional and financial impact on current San Francisco State (SFSU) Students as a result of the global pandemic and seasonal local wildfires. As a professor that cares for the wellbeing of his students, Dr. Mosk was able to get a textbook that was being offered for free by a reputable academic institution online approved by the Computer Engineering department for one of his courses. Knowing that the class occupancy was low due to textbook costs, Dr. Mosk decided to motivate future students to enroll in the course by making his cost-free materials known to the university community through GatorMart. He logs on to our website on his laptop and proceeds to search for his course ID. When he finds out that there has been no resources posted for this course, Dr. Mosk proceeds to create a post in GatorMart specific to his course ID with the appropriate information that directs SFSU students to download the free course textbook from the reputable educational website. Upon submission, he is prompted to register and log in to ensure he has the appropriate credentials to post. Dr. Mosk is prompted with an error message when submitting his registration because he accidentally entered the wrong SFSU designated email. He is redirected to register and correctly fills out his information this time around and is able to post his pre-filled post upon admin approval.
Ricardo
Ricardo has just woken up late for his first day as a freshman at San Francisco State University (SFSU). He is excited for this day, but is also exhausted from finishing up an overnight shift the day prior at a local cafe shop and is now running late for school. As Ricardo is traveling on the BART to SFSU, he realizes that he forgot to purchase the required textbook for his first class. He immediately goes to the GatorMart mobile site, logs in with his active account, and seamlessly searches for the title of the book he needs. He notices that there is one post created by a reliable and 5/5 Gator Star seller offering the textbook he required. Ricardo quickly utilizes the simple one-way system from our site to inform the seller of his interest while providing his contact information for their scheduling convenience. Upon successful contact from the seller, both users set up a time to meet up at the university's J. Paul Leonard Library which is on his way to his first class. Ricardo meets his seller at their public appointed place and time and safely purchases his textbook by paying his seller through an external money exchange application. On his way to his course, Ricardo enthusiastically rates the seller another 5 Gator Stars.
Liang
Liang is an avid volunteer at her local nursing home and is currently preparing to relocate to Minnesota for a job opportunity. However, due to her constant volunteer jobs, she does not have enough money to purchase a plane ticket to Minnesota. As she is cleaning out her room, Liang realizes that she cannot take multiple furniture pieces from her dorm. Liang decides to go onto the mobile GatorMart site and logs in with her already active account. She creates a

single post and attaches all of the images from her phone of the furniture she has for sale and annotates their respective price point in the post description. After Liang's post is approved, an incoming freshman at SFSU interested in the item for sale immediately sends a message to Liang with their contact information. Liang and the freshman exchange information through their mutual desired means of communication and meet up to purchase one item from Liang's post. After the sale, Liang returns to the mobile GatorMart site, and because she is already logged in, she goes directly to her post and updates it to only reflect the images of the furniture currently available for sale without needing reapproval.

Nadia

Nadia is trying to keep up with her last semester set of courses at San Francisco State University (SFSU) while concurrently reviewing an influx of post submissions by faculty, staff, and students for the GatorMart website. As a busy individual, Nadia is glad to have an easy and efficient system set up in our website to quickly review and approve or deny posts. At the beginning of her shift at GatorMart, Nadia travels to our website utilizing a GatorMart employee laptop, logs in with her administrator account, and goes to her work queue. She filters her work queue by posts pending approval and begins reviewing each post. Nadia encounters a post with an inappropriate image and content. She denies the publication of this post and immediately deletes the seller's account for going against GatorMart terms and conditions. The next post Nadia reviews has a buyer requesting materials for a specific course ID which abides by GatorMart's terms and policies, she approves this post. Before finishing her shift, Nadia filters her work queue by reported posts. She encounters a highly reported post that did not comply with the terms and conditions to a certain degree. She deletes the post and informs the poster of their error.

Data Glossary

GatorMart users can be:
1. ***Unregistered users (not logged in):*** Can browse and search for items for sale
2. ***Registered users (logged into SFSU account):*** Can post items to sell or requests that will be reviewed by the website administrator. They can privately message a seller for an item they are interested in.
3. ***Administrator:*** Have access to a work queue of posts pending to be approved. Also have access to delete posts and users that go against the website policy and procedures.

Types of posts on GatorMart:
4. ***For-sale:*** An admin approved post created by a registered user about an item that they want to sell. The user provides a description, image, and price of the item. There is an option for other users to message the poster that they are interested in buying the item.
5. ***Requests:*** An admin approved post created by a registered user in search of a specific item. Other users with access to the original request can fulfill this sale.
6. ***Resource:*** An admin approved post created by a registered user that offers supplemental tools and resources specific to a course ID.
7. ***Wishlist:*** A compiled list of posts that a registered or unregistered user that wishes to save for future viewing
8. ***Work Queue:*** A queue only accessible to the website administrator. This work queue contains all posts pending approval and posts approved. The administrator will have access to either approve or deny posts from being published on a website from this feature.
9. ***Review:*** Our website's user review system set in place for the safety of our clients. This system includes personal statements written by other users about a specific user as well as a five star rating system called Gator Stars.
10. ***Report:*** A button functionality to flag posts not complying with the website terms and conditions. Administrators will be able to review flagged posts for inappropriate content.
11. ***Messaging:*** A one-way system for users to communicate to another user they are interested in buying an item and provide the seller with their contact information.

Functional Requirements

1. SFSU students, staff and faculty shall be able to register using a unique and valid SFSU email.

2. Users shall be able to search and browse items for sale without logging in. However, to post and purchase, one has to be logged in. Only SFSU faculty or students can contact the seller via messaging.

3. A rating (1-5 Gator Stars) and a review system shall also be in place for buyers to assess sellers.

4. A wish list shall also be present where logged-in buyers can store all the items they would like to purchase if they don't want to buy any items immediately.

5. Filters shall also be in place to assist the searching of items. Some of the filters include price range, sort by related class name etc.

6. Administrator shall be required to approve each posted item before it can go live, as well as to remove inappropriate items or users.

7. Users shall be able to flag posts not complying with the website terms and conditions.

8. Administrators shall be able to review such flagged posts.

9. The code for the application shall be well organised and maintainable to allow for modification for other customers.

10. The website shall be media rich and easy to use.

11. The application shall primarily be a web application that shall be able to render well on mobile devices.

12. For security issues, there shall not be any use of mail clients. hence, messaging between sellers and buyers shall be done via in-site messaging. The buyer shall be able to provide their info to the seller so that the seller can contact them.

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. 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 and all privacy policies will be appropriately communicated to the users.

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, Fall 2020. For Demonstration Only"* at the top of the WWW page. (Important so as to not confuse this with a real application).

Competitive Analysis

	SFSU Bookstore	Amazon	eBay	Craigslist	GatorMart
Requires SFSU login	+				+
Post selling and buying offers				+	+
Search by Course ID					+
One-way messaging system					+
Free Resources				+	+
Review System		+	+		+
Report System		+	+	+	+
Wishlist		+	+		+

GatorMart provides users with an array of services and features that are unique for San Francisco State (SFSU) students and staff. We require a valid SFSU email to register an account on our website to post selling or buying offers, similar to the SFSU Bookstore. This system is important as it only allows current SFSU students and staff to purchase or sell goods within our application. Competing companies such as Amazon and eBay allow users to buy items as a guest, but because GatorMart is specifically designed for SFSU members, requiring a unique SFSU email helps us maintain a safe environment for our clients. Additionally, GatorMart gives our registered users freedom to post, whether they are posting goods to sell or are simply looking for offers on goods to purchase. If users are searching for a specific good to purchase but don't see it being offered on our website, they can create a post describing the good they are looking for and how much they are willing to pay for it. The only other website with a similar feature to this is Craigslist, but our system provides a much secure and internal exchange between our clients. Furthermore, our website will provide a filtered search feature that allows users to filter

posts by course ID, which provides a more narrowed result than our competitors. Moreover, GatorMart will provide our registered users with a simple but secure one-way messaging system between the users to the original poster through our application. GatorMart will include a report system where users will be able to click on a button to report a post, which notifies the admins to review the post. GatorMart will also include a wishlist which allows users to save to view at a later time. Lastly, GatorMart prides itself in offering the ability for our registered SFSU students and staff to offer free supplemental resources and tutoring with admin approval. This is a unique feature our team is eager to offer in our goal to provide assistance to low income and financially struggling students and staff of the SFSU community to increase the overall success of our clients during difficult times.

High-Level System Architecture and Technologies

- Frameworks, APIs, Tools and Systems
  - **Node.js** backend to handle both serving the website as well as providing internal API endpoints. The versatility of Express's middleware/boilerplate allows us to internally implement features such as authentication, SQL access, etc.
  - **Mysql database** for storing users, media items, logs. Database is hosted locally on the same server.
  - **Github** allows the team to keep track of changes made to the code and provides version control.
  - **Bootstrap** is an HTML API that allows for cross browser support with built in features.
- Deployment platform (SW and server)
  - **AWS EC2 Ubuntu** this platform will allow us to host the site and accompanying data in an easily accessible place which has a lot of documentation.
- Supported Browsers
  - Chrome is the most commonly used web browser.
  - Safari for support on Apple devices.
  - Firefox for browser diversity.

Team and Roles

Team Member	Role
Lothar Narins	Team Lead
Aaron Colmenares	Backend Lead
Allyson Leung	Frontend Lead
Wilson Young	GitHub Master
Saloni Bhatia	Backend
Kevin Nunura	Frontend

Checklist

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**
Backend, frontend leads and 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 frontend 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.)	**DONE**