San Francisco State University

SW Engineering CSC648/848 Spring 2020
"Gator Crawl"

Section 02 Team 01

Team Lead: Francis Cruz
Front End Lead: George Freedland
Back End Lead: Francis Cruz
Github Master: Francis Cruz

Milestone 1
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Executive Summary:

Motivation and importance of the application?

Our goal is to create an easy to use website called "Gator Crawl", exclusively for San Francisco State students so that they can sell and buy furniture, electronics, books, etc. online to/from fellow classmates. We believe that when our team creates this website, it would greatly benefit and save costs for students trying to get necessary items for every new semester. With the rising costs of education and living in San Francisco, we as students ourselves, are greatly motivated to make this website a reality for students so we can start saving money and making money from buying/selling our items.

What functions and services application is providing? How does it helps the user?

With "Gator Crawl" Students will be able to register and login to the website from their PC/Laptop to confirm that they are in fact SFSU students. Students will be able to search for items they want, build their profiles with pictures and "about me" information. Students will be able to post items for sale and get in contact with interested buyers through messages on our website. Our website is going to be fast, reliable, and very user-friendly. Our website also offers access to an administrator to monitor posts that could be spam, not valid, or are offensive because this is meant for students and is university-oriented. Items for sale will have images, descriptions, and ratings to make it easier for students to assess the quality of the product they are buying, and not to accidentally buy the wrong thing. In our design students can pay with either debit/credit card, cash, or with bartering for tutoring services etc.

What is unique and special in our design?

What makes our design unique is we also will have a dark-mode feature to give users more options on how the website will look. We will also have a bidding system for items if the seller chooses to do so.

Our team student startup?

Our startup consists of a group of San Francisco State students. All of us are pursuing majors/masters in either Computer Science or Computer Engineering. We are known as "Team 1" in a San Francisco State University upper division computer science class, CSC 648 AKA Software Engineering.

Personas and main Use Cases:

Personas:

- **Anna, a SFSU student**:
  - About:
    - Art major
    - Low on money
    - Basic WWW skills
  - Goals and Scenario:
    - Just started college and her dorm is empty. She wants to get electronics/furniture to liven her dorm room.
    - Needs to get a book for her art class in order to start working on assignments.
    - Low on money so wants to buy for the cheapest price possible.

- **George, a SFSU Upperclassmen**:
  - About:
    - Upperclassmen
    - Low on money
    - Basic WWW skills
  - Goals and Scenario:
    - Senior wanting to get rid of stuff before graduation.
    - Wants to make a quick buck selling stuff they don't use anymore

- **Dr.Villar, a SFSU Professor** : Sell own books
  - About
    - Very busy
    - Has little to no WWW Skills
  - Goals and Scenario:
    - Biology professor wanting to sell digital versions of his book for his intro to biology class.
    - Frustrated with his current book distributor as they take too high of a percentage off of his book.

- **Mary, a SFSU Graduate Student**:
  - About
    - Computer Science Graduate Student
    - High WWW Skills
    - Has a lot of time on her hands
  - Goals and Scenario:
    - Wanting to use her skills as a Computer Scientist to make money or get cool gadgets.
    - Current private tutor wants more clients but doesn't know how to network.

Use Cases:

Anna is an undergraduate student at SFSU and just started her first semester. For her intro to design class, she is required to buy a book in order to complete several different readings and assignments. She goes to the SFSU bookstore and finds out the price of a new Art book is too high for her current budget. Anna then goes to Gator Crawl to search for used versions of the same book at a lower price, and find one for 70% off the bookstore price. She buys the book, messages the seller, and coordinates a time and place to retrieve the book.

George just started his last semester at SFSU and has lived in San Francisco for the last 4 years accumulating an abundance of old books, furniture, and electronics. He is currently looking for a way to get rid of some of his junk while also making a little bit of money in the process. George creates an account on Gator Crawl and puts up some of his unused books from freshman year on sale. He gets a notification from a person named Anna, confirming the purchase of said book. George and Anna then communicate through private messages to coordinate a time and place to meet so he can give the book to her.

Dr.Villar is a Biology professor at SFSU and sells his own book for his intro to biology class. He is frustrated with his current distributor as they are increasing the percentage taken off of his book price and is looking to switch distributors. Dr.Villar signs up for an account on Gator Crawl and puts an online version of his book for sale for his students.

Mary is a graduate student at SFSU getting her masters in Computer Science. She wants to leverage her knowledge of computer science to gain new furniture for her house and make some money on the side. Mary creates an account on Gator Crawl and puts up her computer science tutoring services in exchange for money or trades for electronics. Mary then gets a notification from an undergraduate student named Henry asking for bi-weekly tutoring services in exchange for a used gaming monitor. The two messages back and forth confirming the tutoring meetings.

List of main data items and entities

Type of Users :
Student - Only SFSU students with valid SFSU email and student ID will be allowed to use and access this site
Teacher - Only SFSU teachers with valid SFSU email will be allowed to use and access this site
Admin - The job of the admin will be to monitor interactions between sellers and buyers to ensure safety
Buyers - A teacher or student who want to purchase a product or service
Sellers - A teacher or student who want to sell or provide a product or service

Terms
Products - A physical item or article that is posted for sale.
Services - A physical action or work which is posted for sale
Accounts - A physical profile that a user owns
Username - An identification used by a user to access Gator Crawl,
Description - A written representation of a product/service
Payment Type - User can set their preferred payment of method (Debit/Credit, Paypal, Cash, Exchange Program)
Search - A tool used to find something like a product by keywords and names
Filter - A tool or device used for removing items/products from a list of results by categorizing the results
Exchange Program - Students have a choice of paying for a product or service with another service or product
Credit/Debit/Cash - A form of payment
PayPal - A form of electronic payment method partnered with Paypal

Items/Entities
Books - Second hand textbooks and other written works that can be purchased from other students and teachers
Notes - Written summarization of lessons and chapters that can be purchased from other students
Clothing - Used or discounted apparel that can be purchased from another student or teacher
Biograph - A small description about yourself and the classes you have taken which can be found on the user profile
SFSU Email - The email address which is required to register for a account with our website
Chatbox - A communication tool that can be used to talk with other users.

Data Structures

USER

This class hold all information about the customer who visited website

+Username: String
Unique username of the user to display and login

+First name: String
User's first name

+Lastname: String: String
User's lastname

-ID: Int
Auto generated by MySQL.

-Password: Password
Unique password for user to login to the website

-CC Number: String
Unique credit card number, containt 16 digit. User can use their debit or credit card to shop in our website.

-Expirated Date: Date/Time
In format of MM/YY, user need enter their expirated date of their credit card to valid their card

-Expirated Date: Date/Time
In format of MM/YY, user need enter their expirated date of their credit card to valid their card

-CCV2: Int
CCV2 contains 3 digit to valid user's card

-Home Address: String
Home address is the combination bettween number of your house, name of the street, the city, zip code and state

-Phone Number: String
The phone number of user use for recover password if the user forgot their password.

+Shipping Address: String
User can have different home address and shipping address. User can take advantage of this features to gif their product to someone else

+User's Picture: Image
Represent user's image.

+Purchased History: Object
Containing all purchased product of the user in the past

Data Structure Cont.

Products/Services
This class hold
all information
about the
product and
service that we
offer.

+Name: String
Name of products
or services

−ID: String
Products/Services
unique id,
auto-generated
by mySQL. Each
product/service
has its own set
of ID. The ID
could be
combination of
string and digit

+Description: String
User who posted
product/service
will filling
this box, the
more detail
about the
product/service
that they sell
is the best.
Description will
describe all of
most of the
details of
product/service

+Product/Service's Image: Image
Cointaining data
of the
product/service's
image. It may
have more than 1
image

+Rating: Int/Counter
Rating system is
for
product/service.
It counts all
evaluation about
the
product/service,
range from 1 -
5, 1 mean worst
and 5 mean best
product/service

+Price: Int
The price of

+Tag: String
Tag will stick
to the
prodcut/service
for better
search

+Catalog: String
Catalog used for
seperate and
organized items

−Commission/Discount: Percent
This value will
be added to
final price. It
may vary from
different time
period

+Count: Int
Counting the
sell number of
product/service.

+User's review: String
Review will show
the most recent
evaluation of
the user to the
specific item.
Review hold all
past comments
about the items

Initial list of functional requirements

While discussing the functionalities we wanted for our website, we wanted to keep in mind the actual user. We didn't want to make it complicated for them to shop on our site. So we focused our functional requirements on a better User Interface (UI) and User Experience (UX). The 17 functional requirements will be :

- A easy user registration process
  - Our website is targeted only for SFSU students and teachers.For users to access the website, they are required to have an account with us. The user will have to register with their school email. The user will need to set a username, password and user typer (student/teacher)
- User has to login
  - For a user to be able to view or sell a product, they would need to be logged in. Once The login credentials will be their username and password.
- Users can build profiles
  - Users can build a profile for their account. This can display their information about themselves. This will also show the items and products that the user is selling.
- User can edit their profile
  - Users can update and edit their profiles at any time. The changes will be seen by anyone viewing it. This will allow user to change and update product information and their
- User can post Items to sell
  - If a user wants to sell an item on our website. They would need to upload a picture of the item to the site, alongside a description and price.
- User can search for Items
  - Users can use the provided search bar to look up specific items by authors, classes, product types
- Users can view an item and description
  - Once a user searches and selects an item, they will be able to view the picture and description of the item.
- Users can add items to their cart
  - If a user likes an item and wants to buy it, they can add it to the shopping cart to purchase once they are done browsing.
- Users can buy and purchase items
  - Once a user is done browsing, they can purchase the items in their carts through us. They can buy either in cash, credit/debit or paypal.
- User can message other users if they have question about a product
  - Each item will have a "Message Seller" function which will allow a buyer to communicate with the seller. This will allow the buyer to ask questions about the product.

- Users can filter there searches by categories /classes
    - Filtering will help the user locate their item faster because you can narrow down the search results
- Users can bid on items for a cheaper price
    - Sellers have an option to set their products as a bidding option. This can allow buyers to purchase a product at a lower price.
- Users can enable a dark theme
    - Users can enable a dark theme which can be less strain on the eyes at night. This will change the white background to black and darken the accents.
- Rating systems for the best items, services (update on searching for the best quality products or services)
    - Once something is searched in the search bar, the results of that search will be listed in the best to worse rating system. This system is based on reviews and comments left by other users.
- User can Add comment/review for current product/services
    - Buyers can leave reviews on sellers profile rating the products and services that they received.
- Users can save their ideal form of payment (credit/debit/ cash/etc)
    - Users can set up their ideal form of payment. They can upload a debit or credit card to be used for purchasing. Users also have an option to link their paypal to their account.
- Users have an option to use exchange program
    - For the buyers who are not able to afford a service or product, they have an option to pay the seller with another product or service provided by the buyer. Meaning you pay for an item with another item which is equal or higher value.

List of non-functional requirements

- 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).
- Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
- Selected application functions must render well on mobile devices
- Data shall be stored in MySQL.
- No more than 50 concurrent users shall be accessing the application at any time
- Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
- The language used shall be English.
- Application shall be very easy to use and intuitive.
- Google analytics shall be added
- No email clients shall be allowed
- Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
- Site security: basic best practices shall be applied (as covered in the class)
- Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development

Competitive analysis:

Feature	Gator Crawl	Amazon	eBay	Craigslist
Search Filters	++	++	++	+
Price bidding	+	-	+	-
Shopping cart	+	+	+	-
comment/review for product/services	+	++	+	-
User profile	+	+	+	+
Exchange product/services as a payment option	+	-	-	-
Contact seller	++	+	++	+
Ease of use	++	+	+	+

KEY
+ Feature exists
++ Application excels at this feature
- Feature missing or ineffective

All competitors provide many filters for product searches, including different categories, product types, names of brands and other details. Like all of our competitors, our plan provides users the option for users to post items to sell on our website. They would need to upload a picture of the item to the site, alongside a description and price. Our registered users can have an option to set their products as a bidding option. This can allow buyers to purchase a product at a lower price. In our plan, the default search result will show listings in a list and we are providing our users to enable a dark theme which can be less strain on the eyes at night. This will change the white background to black and darken the accents. Our biggest advantage is the exchange program for our registered users. For the buyers who are not able to afford a service or product, they have an option to pay the seller with another product or service provided by the buyer. Meaning they can pay for an item with another item that is equal or higher value.

High-level system architecture and technologies used :

- Server Host: AWS t2.micro 1vCPU 1 GB RAM
- Operating System: Ubuntu Server 18.04
- Database: MySQL
- Web Server: NGINX 1.17.8 (latest version)
- Server-Side Language: JS
- Additional Technologies:
  - Web Framework: Express
  - ORM: Sequelize

Checklist:

- Team found a time slot to meet outside of the class: **ON TRACK**
- 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: **DONE**
- Github organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.): **ON TRACK**

Team and roles:

Team Leader: Francis Cruz
Front End Team Lead: George Freedland
Back End Team Lead: Francis Cruz
Github Master: Francis Cruz
Document Master: Zain Khan
Front End Team Members: Zain Khan, Jeffery Wan
Back End Team Members: Jugal Bhatt, Huy Phan