

SW Engineering CSC648/848 Fall 2022

MarketGator

Team 05

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1. Executive Summary

The purpose of MarketGator is to connect the San Francisco State University community and create a platform where students and faculty can buy, sell, or share for free digital media. This platform shall facilitate the process of gathering items which shall range from obtaining textbooks, finding media resources that can be used for university projects, or to share created content among students and faculty. Our technology shall empower the SFSU students and faculty to pursue their academic or business goals and create a culture of commerce that will undermine the old ways of purchasing works at high prices from online vendors who charge at a premium price.

MarketGator will allow users to browse its selection and register MarketGator accounts for free in order to advertise, sell, and or buy digital media. MarketGator users will also facilitate the communication between buyers and sellers in the case users need to ask about certain items listed on the market. MarketGator will also have Administrators who shall be required to approve each media item before it becomes advertised in order to verify that it conforms to SFSU rules on digital media and other common ethical rules. Items deemed unsuitable or inappropriate shall be deleted by MarketGator Administrators.

A component of MarketGator that makes it uniquely useful for SFSU students and faculty is the ability for users to not only buy their digital and or physical media with United States dollars, but also facilitate the trade of digital media for digital media. MarketGator users will be able to advertise or offer their media items for the exchange of other media items listed. The reason for this is that we are aware that as university students, money is a valuable tool that is also used to obtain nourishment and supplies, and we want not only to provide an online marketplace, but also make it easier for students to obtain the resources they need.

Another component of MarketGator will be a search by major and course. We believe that this feature will help students and faculty find the digital media that they need in a very

clean and organized way. This feature will also help users who are advertising their digital media for sale or for sharing become discovered in an easily accessible way by other users who are looking to find and or purchase the digital media that they may need.

As Team 05, we are dedicated to get MarketGator in production as we believe this ecommerce application will be beneficial for the students and faculty of SFSU. We believe we are the right fit for this project because we are all senior students of SFSU, and we know first-hand the challenges of searching for media for our courses. With our expertise, we want to apply our technological skills and build MarketGator to expedite and ease the access for the required media for our classes.

2. List of main data items and entities - data Glossary and Description

1. Users

- **Unregistered_user:** A general user without an account that can only search and navigate MarketGator and view seller posts.
- **Registered_user:** Inherits all functionality of unregistered users plus view all public pictures. Can post items for sale and buy items, but must be logged in.
- **Admin:** Inherits all functionality of registered users, but can modify user privileges, access all content, remove posts, modify database.
 - **Username:** Username identifier for each user
 - **Email:** Email address of each user

2. **Picture:** Public image accessible to all users

3. **Reviews:**

- **User_Review:** Review that users are able to write for other users after a transaction. These include a rating and a description of why that rating was given.
 - **User_review_id:** ID of review
 - **User_review_text:** Message body of the review
 - **Reviewing_user:** User who created review
 - **Reviewed_user:** User who is being reviewed
 - **Created:** Time the review was created
 - **Stars:** Rating system of 1 to 5 stars
- **Product_Review:** Review that users are able to write for products after a transaction. These include a rating and a description of why that rating was given.

- Product_review_id: ID of review
 - Product_review_text: Message body of the review
 - Item: Item ID of being reviewed
 - Sender: User who created review
 - Created: Time the review was created
 - Stars: Rating system of 1 to 5 stars
4. **Transaction:** Transaction information with two user IDs of buyer and seller, transaction status, and a timestamp of transaction completion date.
5. **Listing:** A media item with a listing price, sub-list items such as Course ID and or Major, description, and a single or multiple low-res photos of the digital media item.
- Listing_Id: Identification number to keep track of listings in database
 - Title: Title to be displayed on listing page
 - Price: Price of the item
 - Poster: Username of seller
 - Photopath: file path to photo of the item
 - Sold: Boolean value, 0 for available, 1 for sold
 - Created: Time the listing was created
6. **Messages**
- **Private_message:** Message between buyer and seller to exchange contact or item information to complete a transaction.
 - **Registration_record:** The record of registration of a MarketGator user that holds information such as registration date and SFSU email.
 - Memo_id: Message Id
 - Memotext: Message text body
 - Sender: Person who sent the message
 - Receiver: Person who receives the message

7. **Report:** Report for listings that violate terms of the website

- Report_id: Id number of the report
- Report_text: Message body of the report
- Listing: Listing ID that is being reported
- Sender: User who initiated the report
- Created: Time the report was created

3. Functional Requirements

- **Unregistered User**

- **Priority 1**

- Unregistered users shall be able to create a new account with valid SFSU email.
 - Unregistered users shall be able to access the homepage.
 - Unregistered users shall be able to browse listings.

- **Priority 2**

- Unregistered users shall be able to view the details of the listings such as price, pictures of the digital media, description of the digital media, classes and professors related to the digital media, ratings, and the reviews of sellers.

- **Priority 3**

- Unregistered users shall be able to sort and filter the items and the listings based on categories, price range, classes, reviews etc.

- **Registered User**

- **Priority 1**

- Registered users shall be able to sell items.
 - Registered users shall be able to buy items.
 - Registered users shall be able to log in with valid SFSU emails.
 - Registered users shall inherit all the access that unregistered users have.
 - Registered users shall be able to inquire about the items by sending a message to the sellers.
 - Registered users shall be able to receive responses from the sellers.
 - Registered users shall be able to respond to the messages from sellers.

- **Priority 2**

- Registered users shall be able to view the photos, conditions, and descriptions of the items they are selling.

- **Priority 3**

- Registered users shall be able to rate the sellers.
 - Registered users shall be able to write reviews on the items and the sellers.
 - Registered users shall be able to view the rating and reviews from the sellers.
 - Registered users shall receive the reviews and ratings on the items that have been sold to by another registered user.
 - Registered users shall be able to view the rating and reviews from the buyers.

- **Administrator**

- **Priority 1**

- Administrators shall be able to log in with valid SFSU emails.
 - Administrators shall inherit all the access of registered users.
 - Administrators shall be able to review the listings from the registered users who are currently advertising a digital item for sale.
 - Administrators shall be able to deny listings that violate the rules and policies of the MarketGator before they are published.
 - Administrators shall be able to ban the registered users who violate the rules and policies of the website.

- **Priority 2**

- Admins shall be able to ask feedback from registered users on new features, user experience, and suggestions to further improve the website.

- **Priority 3**

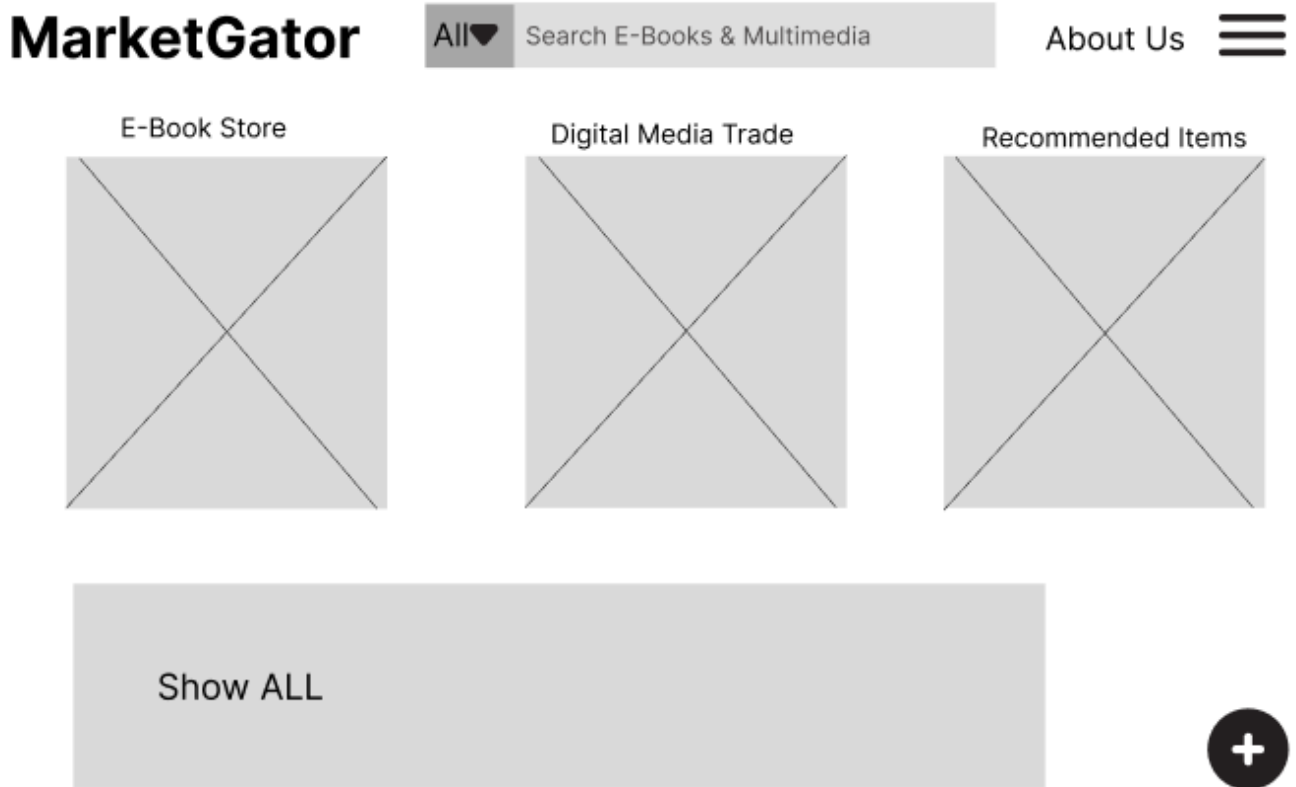
- Admins shall be able to create, update, remove and improve the features and overall usability and functionality of the website.

4. UI Storyboards for each main use case


Use Case: MarketGator Registration



In this case, Jane discovers MarketGator. She browses for the first time, views a listing that she is interested in, and ultimately registers to the site in order to message the seller.

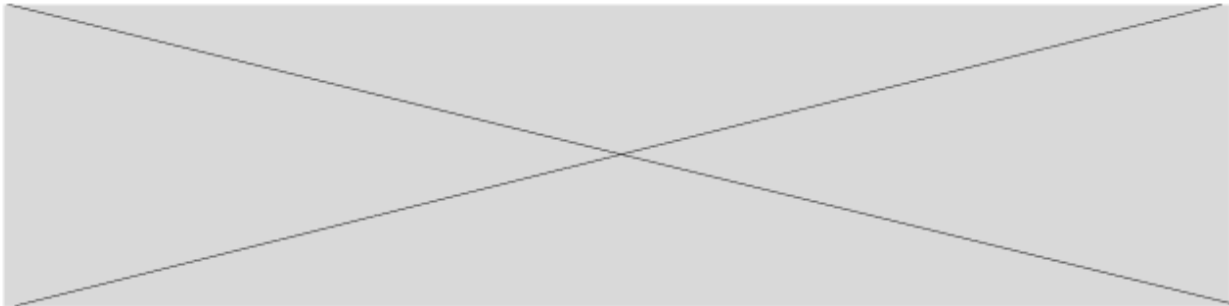
Jane is trying out MarketGator for the first time. She is browsing the homepage and looking at all the items.



Jane clicks on a listing to view an item she is interested in. MarketGator displays the webpage of the listing. At this point, she is very interested and has questions for the seller.



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Title of the Listing


Type Message to Seller Here

Send

Share

Seller Information

[Seller Details](#)



Seller Name

Ratings

Reviews

Item Details


Price

\$25

Condition

New

Item Description



When Jane wants to message the seller, she clicks the “Type Message to Seller Here” button. MarketGator responds by opening a new tab and showing them the webpage to register to MakerGator.

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Sign Up

First Name

Last Name

SFSU Email

Password

Confirm Password

☐

Check Here Agree with Terms and Conditions

Register

After Jane registers, she is shown a screen that confirms that she registered successfully and is prompted to login to her new account to resume her business.

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All▼

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You have successfully registered to MarketGator!
Please login below. You may close this window after you finish.

Login

At this point, Jane messages the seller regarding information about their listing.

Seller Name • Item Description

Report

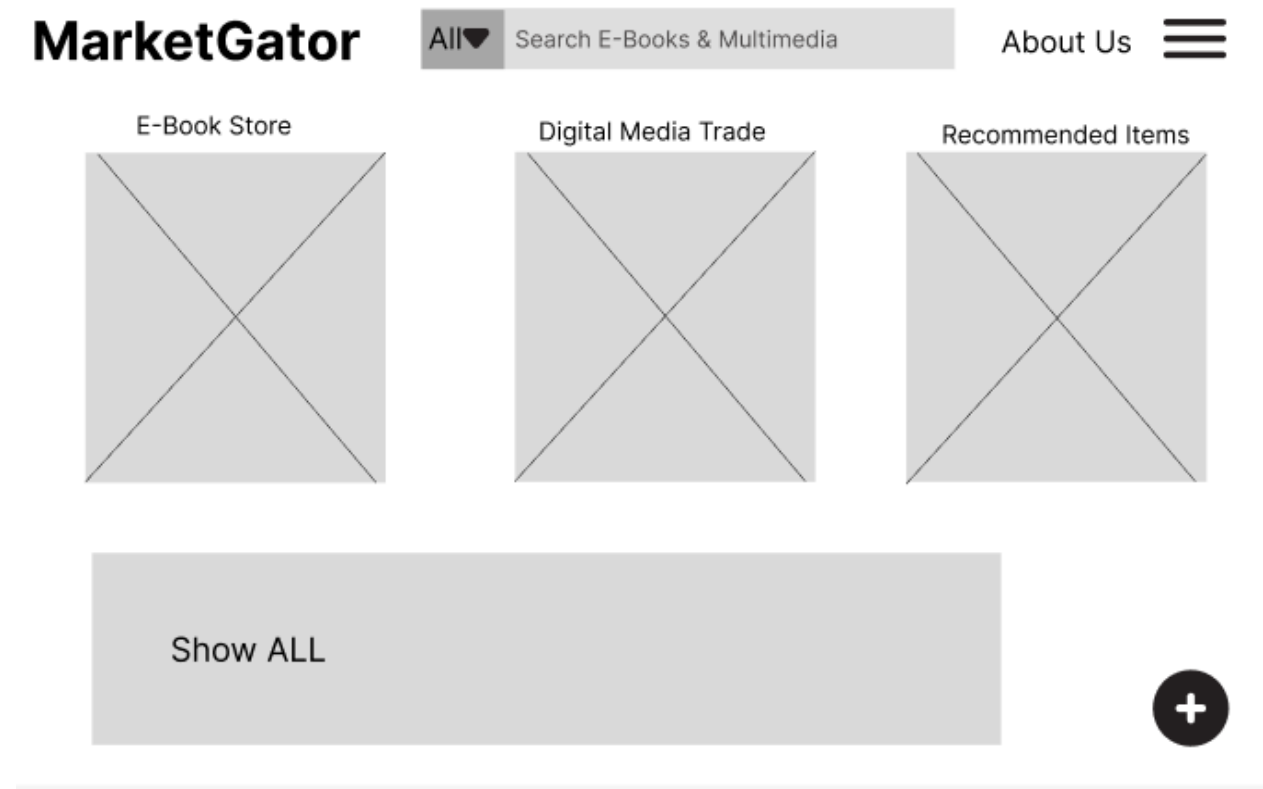
Type Message to Seller Here

Send

Use Case: MarketGator Selling Items

Jacob is a SFSU student who wants to sell his notes containing important information and chapter summaries from the textbook he read after he passed his CSC256 course in order to recuperate some of the money he spent on the textbook. However, Jacob does not have the time to go around in person and ask colleagues if they are interested in buying his notes. Jacob then discovers MarketGator, becomes impressed by the platform, and then registers a MarketGator account.

Now that Jacob has a registered account on MarketGator, he is ready to post a listing for his digital notes. On the MarketGator homepage, he clicks on the hamburger button on the top right corner of the webpage.



When Jacob clicks the hamburger button, a drop down menu appears showing the functions his account is able to access. Jacob clicks on 'Create Post' in order to begin creating the listing for his digital item.



Log Out

Dashboard

Create Post

After Jacob clicks the 'Create Post' button, he is brought to a new page called 'New Listing' which will be a form that he has to fill out such as title of content, price, condition, description, and photos. When Jacob is finished filling out the form, he will have to click the 'Create Listing' button which will have this listing be sent to the queue of listings waiting to be approved. Next to this button explicitly states that he must wait one to three days for his listing to be verified and approved by MarketGator administrators. At this point, Jacob has finished work on creating a listing and will wait on MarketGator to review his listing.

New Listing

Upload Photos Here

Title

Price

Condition

Description

Create Listing

Please wait 1 - 3 days for listing to be verified and approved by MarketGator administrators.

Use Case: MarketGator User Uses Dashboard to Access Personal Listings and Messages

The next day after creating his listing that he sent for approval to MarketGator, Jacob wants to check the status of it. On the homepage, he clicks on the hamburger button on the top right corner of the page.

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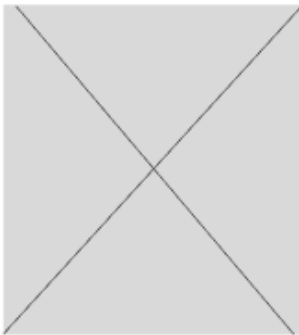
All▼

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At this point, Jacob clicks on the 'Dashboard' button to view information related to his personal account on MarketGator.



Log Out

Dashboard

Create Post

From here, Jacob is able to access functions such as viewing his personal messages, listings, profile, and settings. Since Jacob is curious about the status of his listing that he created, he clicks on the 'Listings' button.

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Messages

Profile

Listings

Settings



After clicking the 'Listings' button, Joe sees that his listing that posted has been approved. He discovers this as underneath his personal listing, there is a status field with the word 'Approved' next to it meaning that it has been reviewed and is now available for the public to access on MarketGator.



Jacob could verify this by looking up his listing through the MarketGator search function and he sees his listing is first as the listings are displayed by 'Newest'.


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E-Book

Newest ≡




CSC256 Textbook Notes
★★★★★
\$ 14
Description

Order



Short Guide to C++
★★★★★
\$ 10
Description

Order

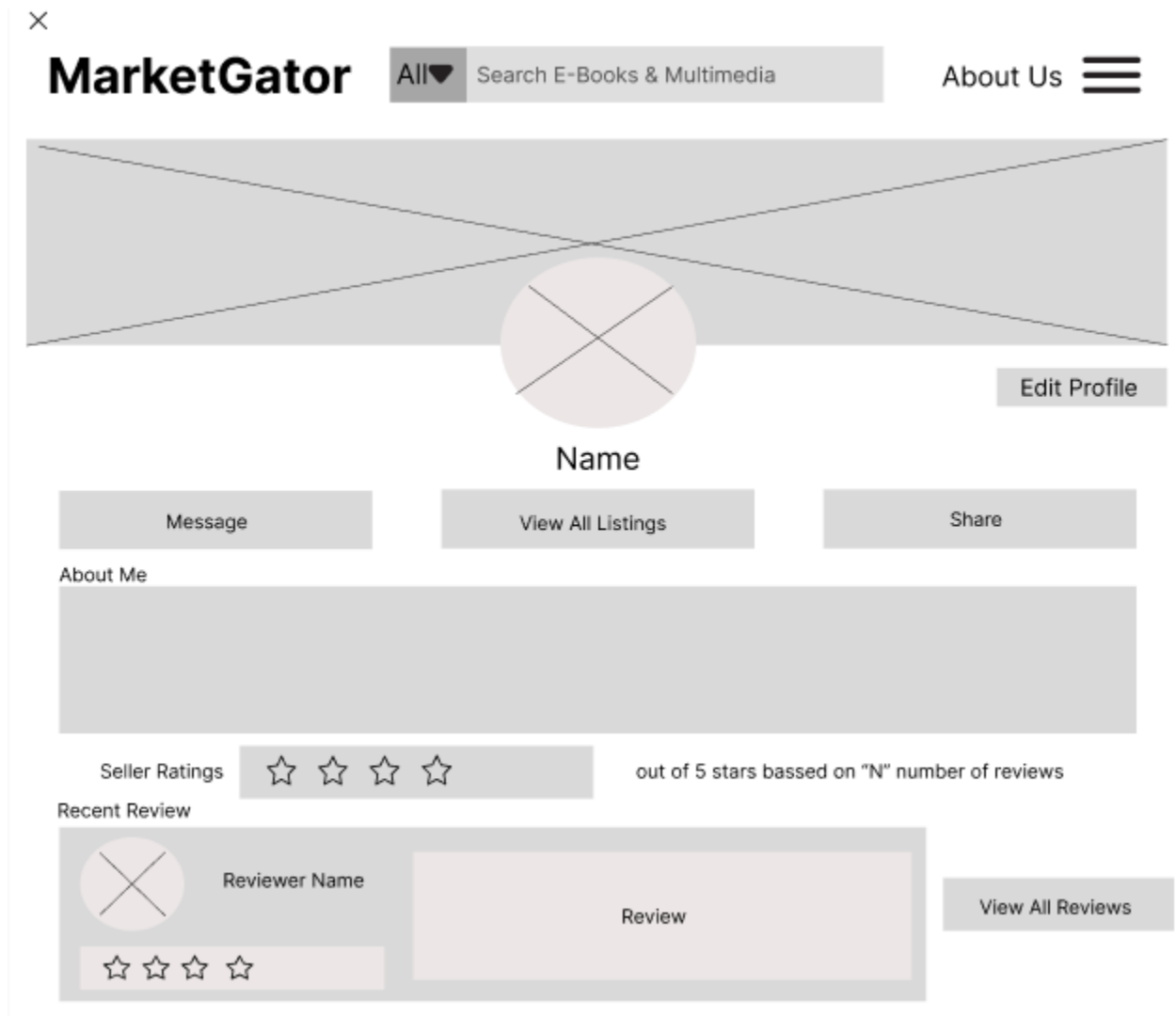


Handlebars-Express Tips and Tricks
★★★★★
Free
Description

Order

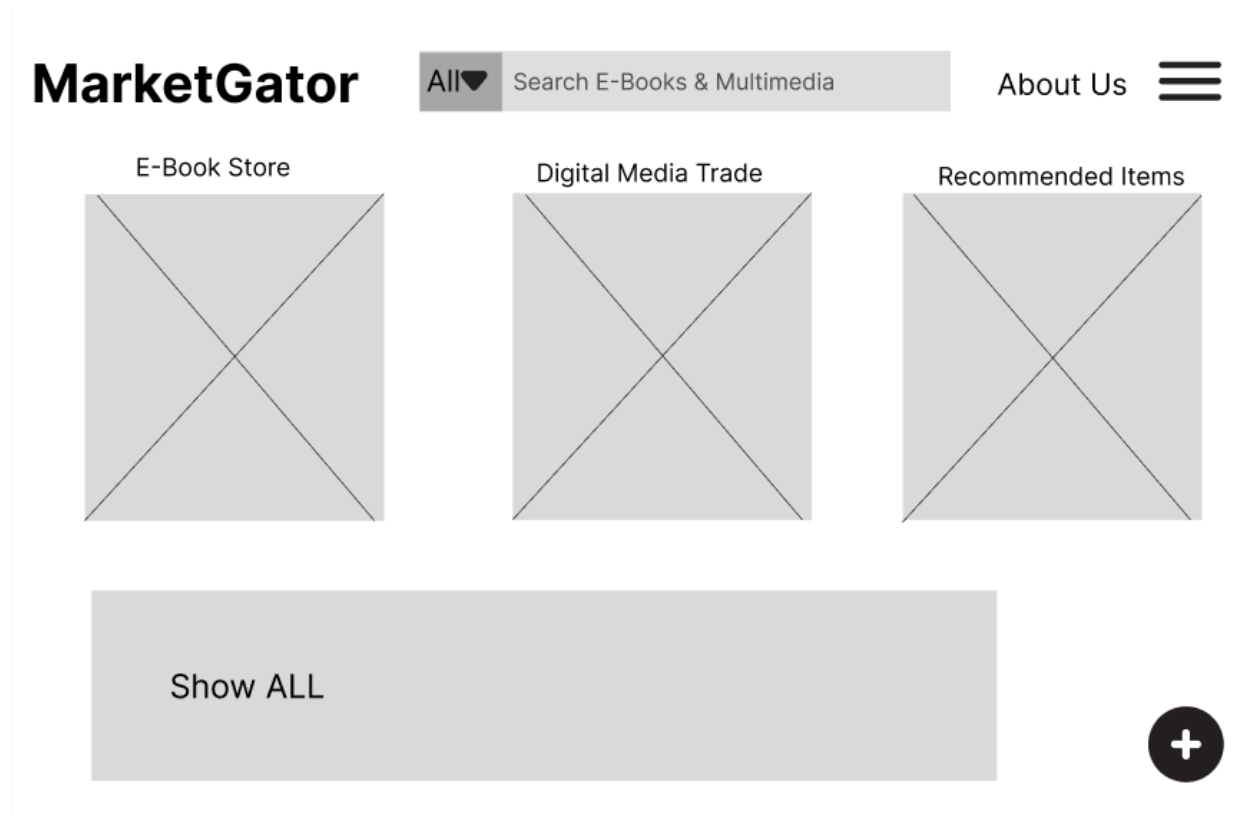
Page 1 - 5 | Next >

Jacob is excited that his listing has become public on MarketGator. He then thinks about his user profile so he goes back to his dashboard to view and edit his MarketGator account. He clicks the 'Profile' button inside his dashboard. It brings him to this page, and from here Jacob is able to view and edit his profile.



Use Case: MarketGator User Moderation and Administration

Joe is working as an administrator for MarketGator. He is logged in to MarketGator with his registered account that also has administrator privileges. Joe is required to check the queue of listings that are waiting to be published.



Joe clicks on the hamburger button on the top right corner of the screen. A drop down navigation menu appears. Joe clicks on 'Dashboard' in order to access his account's personal MarketGator tools.



Log Out

Dashboard

Create Post

Joe is now viewing his personal dashboard for his MarketGator account. Since his MarketGator account has administrator privileges, he is able to see the Admin Panel button in his dashboard. Joe clicks on the Admin Panel button.

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Admin Panel



After clicking the Admin Panel button, Joe is brought to this page where he is able to view the queue of listings waiting to be published. Joe is able to click and view the listings as if they are regular MarketGator listings however they are not public yet. He clicks each listing and verifies their content, and if they are within the standard of SFSU and MarketGator content rules, then he ultimately clicks the 'Allow' button attached to that listing in order to make it public for MarketGator.

MarketGator

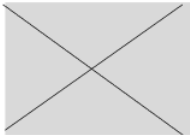
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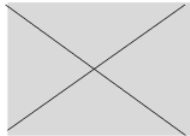
Listings Waiting To Be Published



Product Name
Description

Allow

Deny



Product Name
Description

Allow

Deny



Product Name
Description

Allow

Deny

Page 1 - 2

Next >

When Joe views a listing that breaks the standard of SFSU and MarketGator content rules, he ultimately clicks the 'Deny' button. This brings up a new tab prompting the administrator to send a response back to the account of that listing on why their listing has been denied.

Reason For Denying Listing

Product Name
Description

Please explain reason for denying listing here...

Send

Once Joe completes the deny listing form, he is prompted by a new screen which confirms his action and that the listing was deleted from the database. Joe can click the 'Exit' button which will close the tab on which this window was open and resume his work.

Reason For Denying Listing



This listing was successfully denied and will be deleted from database.



Product Name
Description

Exit

5. High Level Architecture, Database Organization Summary

High-Level System Architecture and Technologies Used

- Server Host: Amazon Web Servers 1vCPU 2 GB RAM
- Operating System: Ubuntu Server 16.04 LTS
- Database: MySQL Community v8.0.30
- Web Server: Express 4.16.1
- Server-Side Language: JavaScript
- Additional Technologies:
 - Web Framework: Handlebars 4.2.0
 - IDE: Visual Studio Code 1.70.2
 - Web Analytics: Google Analytics 4
 - Image upload: Multer 1.4.5

Database Organization

- User
 - User_id
 - Username
 - Email
 - Password
- Listing
 - Listing_ID
 - Title
 - Price
 - Poster
 - Photopath
 - Sold
 - Created
 - Itemname
- Message
 - Memo_id
 - Memotext
 - Sender
 - Receiver
- Feedback
 - Feedback_id
 - Feedback_text
 - Sender
 - Created
- Report
 - Report_id
 - Report_text
 - Listing
 - Sender
 - Created
- Product_Review
 - Product_review_id
 - Product_review_text
 - Item
 - Sender
 - Created
 - Stars

- User_review
 - User_review_id
 - User_review_text
 - Reviewing_user
 - Reviewed_user
 - Created
 - Stars

Media Storage

Media items will be kept in file systems rather than DB BLOBs.

Search/Filter Architecture and Implementation

Listings will have tags along with categories. Users will search in a category, and the tags will be used with AND with the category. Terms that will be searched are titles, categories, and tags such as the author, book name, and class that it is used in. SQL and %like will be used to perform this function.

6. Key Risks

Team 05 has identified actual and specific risks in our current work such as:

- MySQL setup and development knowledge
 - The back-end members of Team 05 have greater knowledge with MySQL development so they have been sharing their knowledge and resources they use as references to the rest of the team. They shall also be required to answer questions and offer help based on MySQL and database design.
- Team members have different schedules from each other
 - To work around our schedules, we have managed to find a short pocket of time within our weeks where we meet on Zoom for half an hour to discuss and update ourselves on the status of our tasks.
 - However, there may be times where we may not make a meeting. Therefore, we have established a Discord server to communicate through messages and also a Trello team board for the team to access and update for when we want to know the status of a certain task.
- MarketGator team has to figure out a general process to verify each content for moderation
 - Administrator shall be trained and given access to download content for viewing and shall be required to delete the content after survey of content is complete.

7. Project Management

For Milestone 02, Team 05 has been meeting and discussing every Monday to sync up and plan which project requirements are needed to be fulfilled before the deadline. We have divided each required task based on the skill needed. For example, the front-end team is handling the user interface mock-ups while the back-end team is handling the high level architecture and database organization.

To keep track of status for each task, I have created a Trello project which contains the Trello board for Milestone 02 and its required tasks to be fulfilled. Each member shall be required to update the board when they are finished, and Team Lead will check periodically to ensure that we are on track on fulfilling Milestone 02 on time.

For future tasks, we plan to continue using Trello, and also other tools such as Zoom and Discord to stay in communication with each other. We will also continue using team productivity tools such as Figma and Google Docs to work tasks together in real-time or individually as it has proven to be worthy to Team 05's productivity so far.