Midterm Project Proposal

Melodify

2/23/24

Prepared for

COM S 3190 - Construction of User Interfaces
Iowa State University Computer Science Department

Prepared by

Zephaniah Gustafson

Koushik Goud Shaganti

Table of Contents

1. Introduction

We, Zephaniah Gustafson and Koushik Shaganti are from team MN_8. We are a sophomore and junior from Iowa State majoring in Software Engineering and Computer Science. We both have some experience in HTML, CSS, and JavaScript, but are still making efforts to learn and grow in the field of web development. We believe that our equal levels of knowledge will lead to a very balanced work load on each of our ends and hopefully lead to a successful project.

2. Purpose and Proposal

We aim to develop a blog like website that educates users on some of our favorite musical artists and also empowers them to support them through buying their merch. We want to include a large number of artists using some sort of API database. To allow fans to purchase merchandise items, we plan to make an ecommerce page to allow fans of Artists to purchase merchandise from our website. We also aim to give them stats on what sort of music they are into.

3. Goals and Objectives

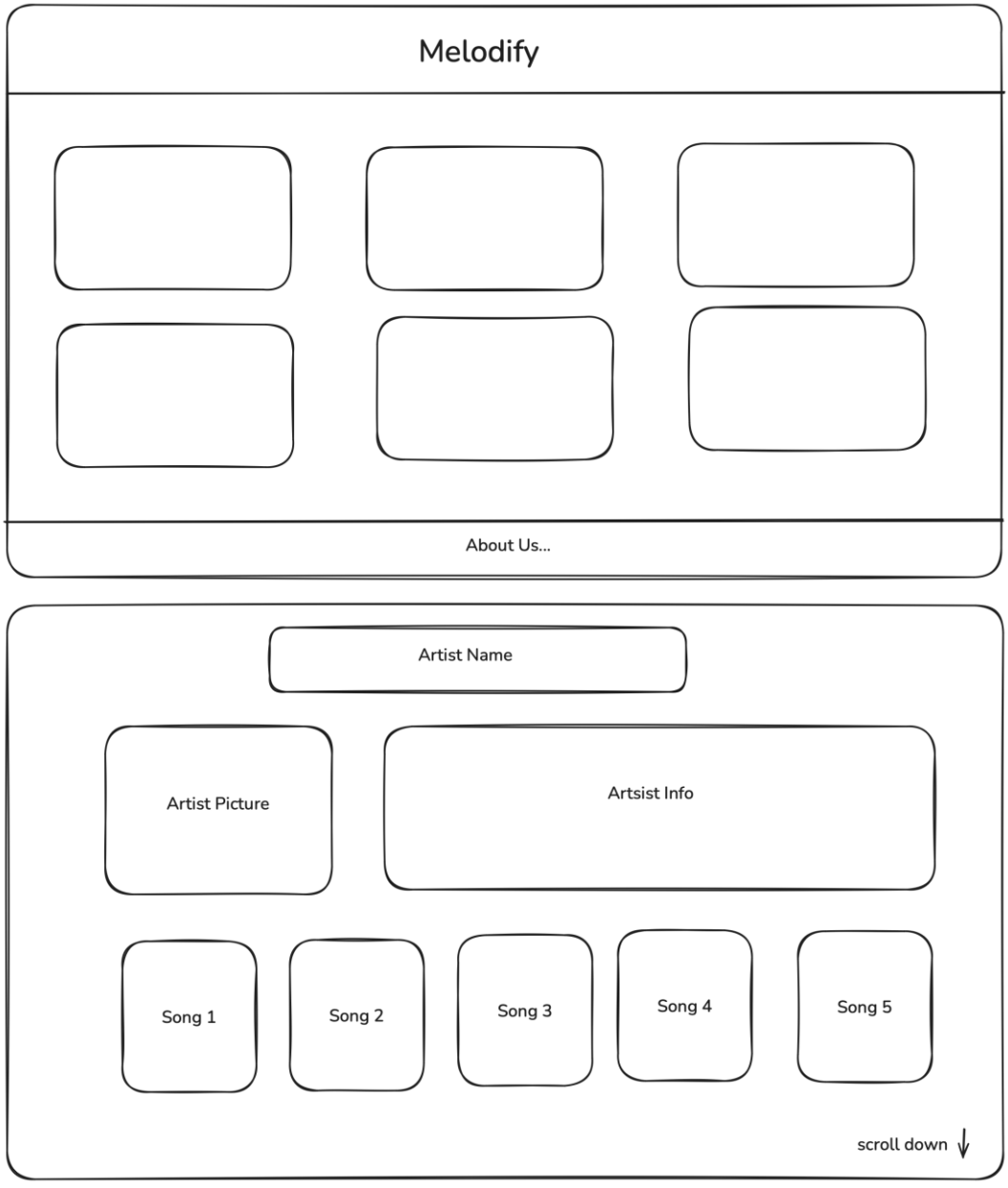
Our project's goals and objectives include the following

- Developing a user friendly design with fun user interactions that include animations.
- Dedicate an artist to each webpage and provide the history of that artist and examples of their songs with data pulled from APIs.
- Pull YouTube videos from playlist for featured artists, which will change weekly.
- Create an easy to navigate website that has everything the user in the navigation bar.
- Create a home page that shows featured artists and includes a search page for easy access to artists.
- Incorporate a counter that displays how many songs the user has played to demonstrate how much they have interacted with the website.
- Create a page that displays various albums from our chosen artists and their pricing to serve as a mock ecommerce store.
- Create an about page that explains we the authors.
- Create slide shows that add more interaction to the user experience with images of the different artists on each webpage.

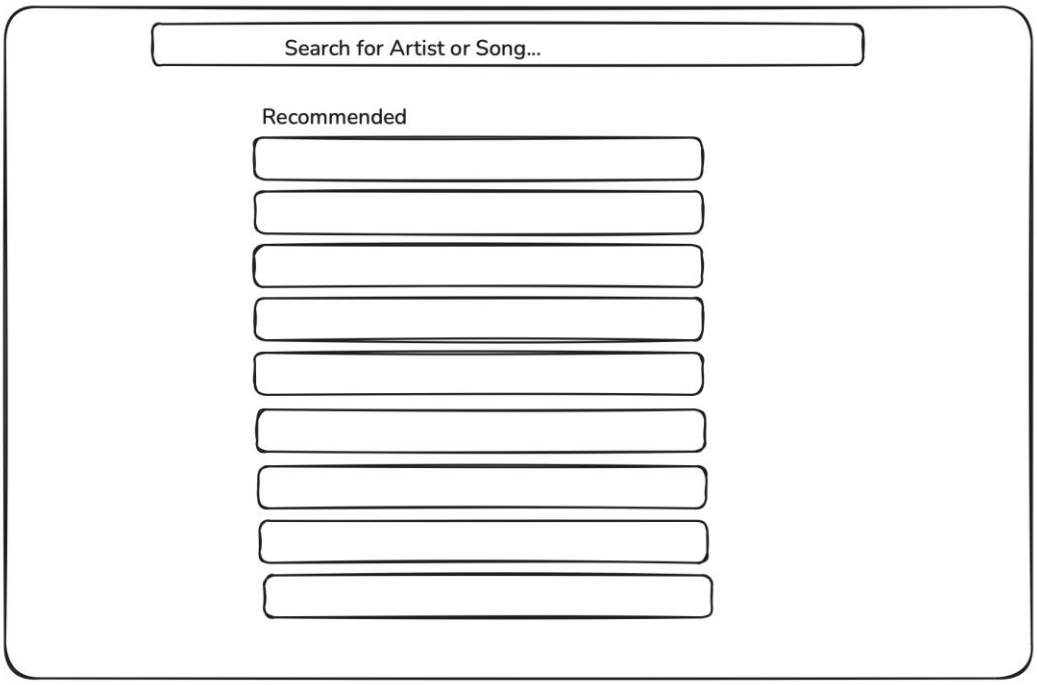
- Create a login page so that users can be remembered across multiple devices.
- Create a survey that records user feedback.

4. Project

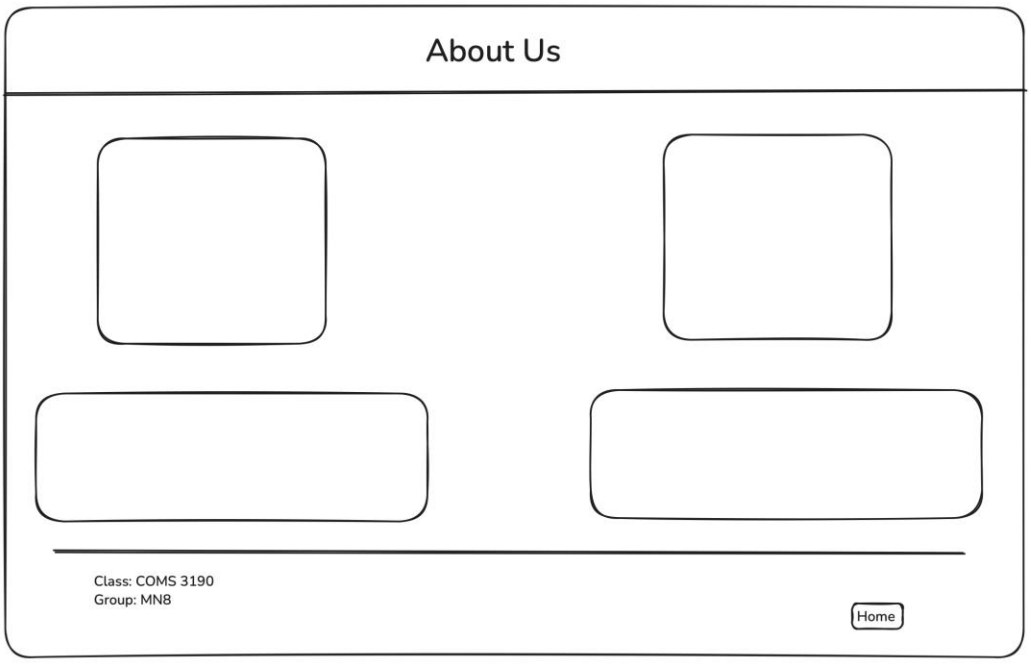
This is how the Home page looks like which includes different artists, by clicking the artist it will take us to the Artist page with has the Artist's picture, their information and their famous songs.

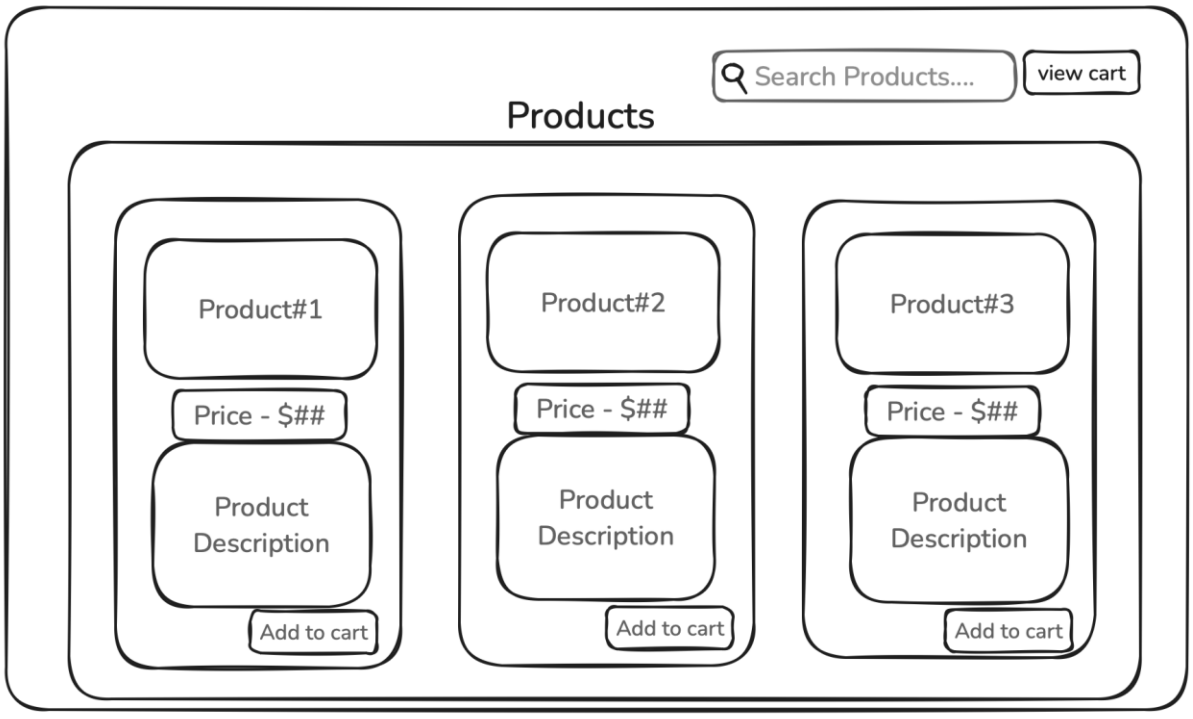


This is the search part of the home page, typically features a search bar at the top, allowing users to enter keywords (song title, artist, album). It also shows recommendations and shows search results in an organized list of artists and popular songs.



This is the Authors page, which includes the developers' pictures and information such as name, contact information, etc. It has a home button which takes the user to the home page.





Merchandise Page looks like the above.

There will also be a survey feedback page, which will not be tied to user data as to make it anonymous. However, we will still use database functionality with this. For the survey itself

we will utilize react components to create various forms for the user to interact with and collect data from.

There will also be a data page that will display user history and the stats on how many pages they have visited and their most common genre. We will try to empower users with as much information as possible on their musical tendencies.

5. Project Path Selection

For the final project, we will extend my Midterm Project, *Melodify*. This involves redeveloping the application using React (JSX) and Node.js as the core technologies. The key enhancements will include:

1. User Experience Improvements:
    a. The website will be redesigned with a more modern, responsive UI using React components.
    b. Interactive elements, such as smooth transitions and animations, will enhance user engagement.
2. Backend Integration:
    a. We will implement a Node.js backend to handle dynamic data and interactions (e.g., artist information, albums, and user activities like playing songs).
    b. Use of APIs to pull artist data and YouTube snippets.
3. E-commerce Features:
    a. A fully functional e-commerce page where users can view, and purchase merchandise or albums related to the artists featured on the website.
4. Counter and User Interactivity:
        a. Introduce a feature that tracks how many songs a user has listened to, stored in the React state or via backend storage.
        b. Use a backend database to track user sessions or preferences.

This new approach will provide a more dynamic, scalable, and interactive experience for users, aligned with the technologies and concepts learned during the course.

6. Feature Ownership

- Login and sign up, handled by Koushik. Important so that user experience is customized.

- E-commerce page and functionality (cart management, purchasing, calling product data API), handled by Zephaniah. Important so that users can purchase items based on their favorite artists.
- Search and filter, handled by Koushik. Important so that users can read up on the artists they like.
- Website feedback survey, handled by Koushik. Important so that we can see areas of improvement from users and know if there is a bug so we can be quick to fix it.
- Artists information pages with API data calls, handled by Zephaniah. Important so that users can learn about their favorite artists.
- Navigation bar, handled by Zephaniah. Important so that users can navigate the website easily.
- Stats and history page, handled by Koushik.

7. Resources

1. Use of React and Tailwind for front end experience.
2. Use of JSON files to store data about music artists and API to gather data.
3. Videos from YouTube's API from different music videos.
4. Use of DOM to include React scripts in JSX.
5. Time allocation: 4 hours per week.
6. Use GitLab for our version control to push and pull from a remote repository.
7. Use Excalidraw to create wireframes for our website pages.
8. Use Node.js for backend handling of dynamic data.
9. Use Mongo DB for database handling of user data.

8. File Structure and Project Organization

The file struct will include a front end folder that contains all react files. This includes assets like images, and react, and Main.jsx and App.jsx. The backend folder will include the express server, API routes, and database logic. The documents folder will include planning images, this document, and a video explaining our project.

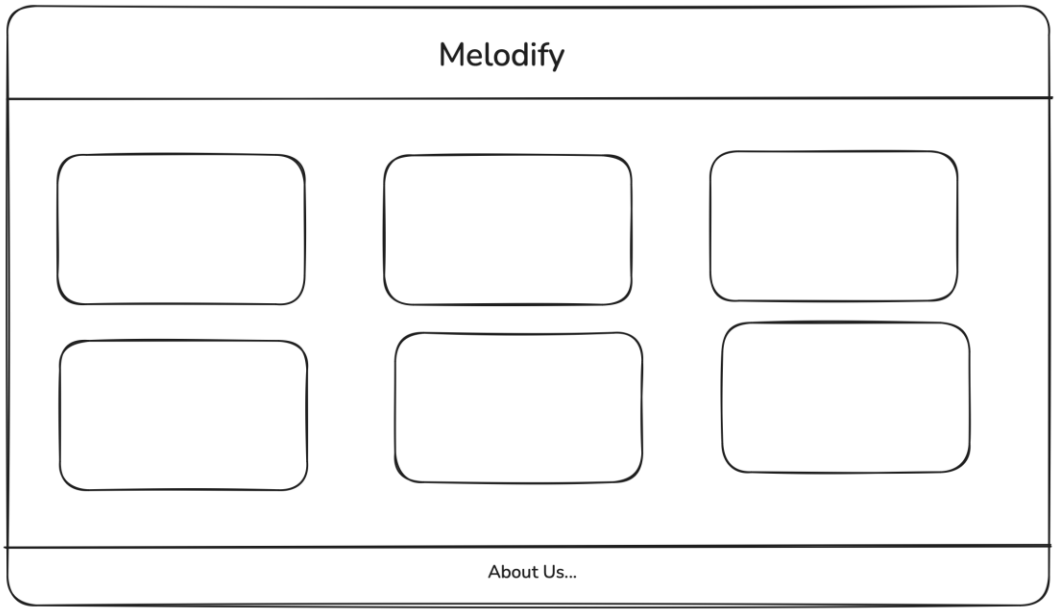
Explain how frontend and backend will communicate using RESTful APIs.

The frontend (React) sends requests to the backend. The backend processes these requests, interacts with data sources, and sends back responses. RESTful APIs use standard HTTP methods (GET, POST, PUT, DELETE) to send and receive data between the frontend and backend, typically in JSON format.

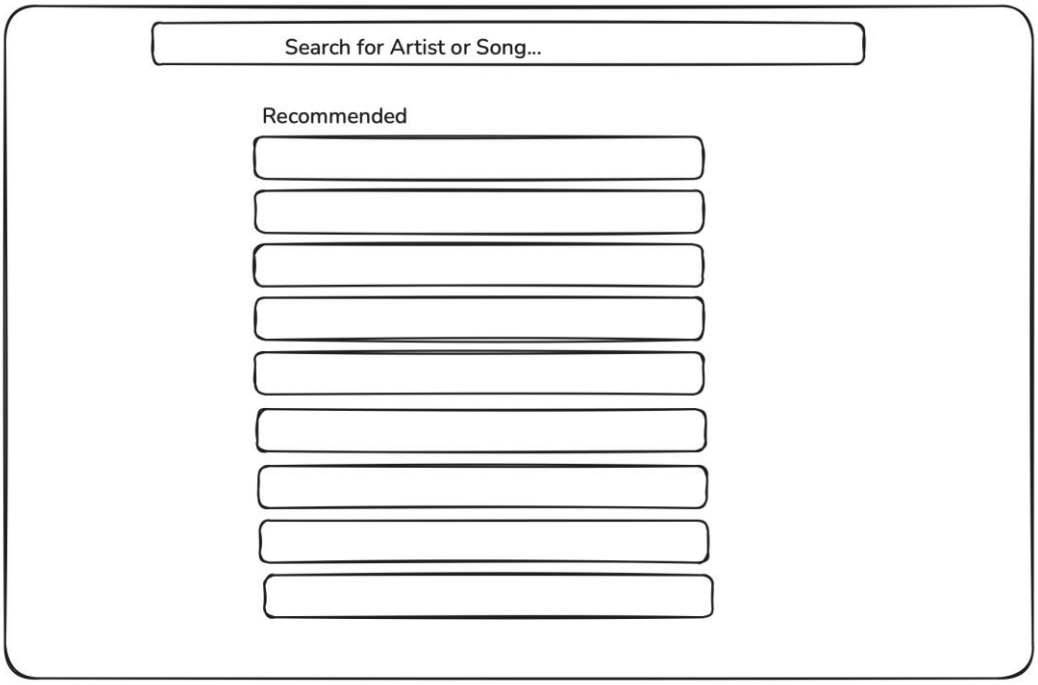
9. Data Sources and Management

The data for Melody will come third-party APIs as we will use services like the YouTube API to get song snippets and APIs to fetch details about artists and albums, local data will be used as some data (like artist name, picture and bios) will come from JSON files that are already stored in the app and user input data from users, like adding items to their shopping cart or playing songs, will be collected through forms or buttons on the website.

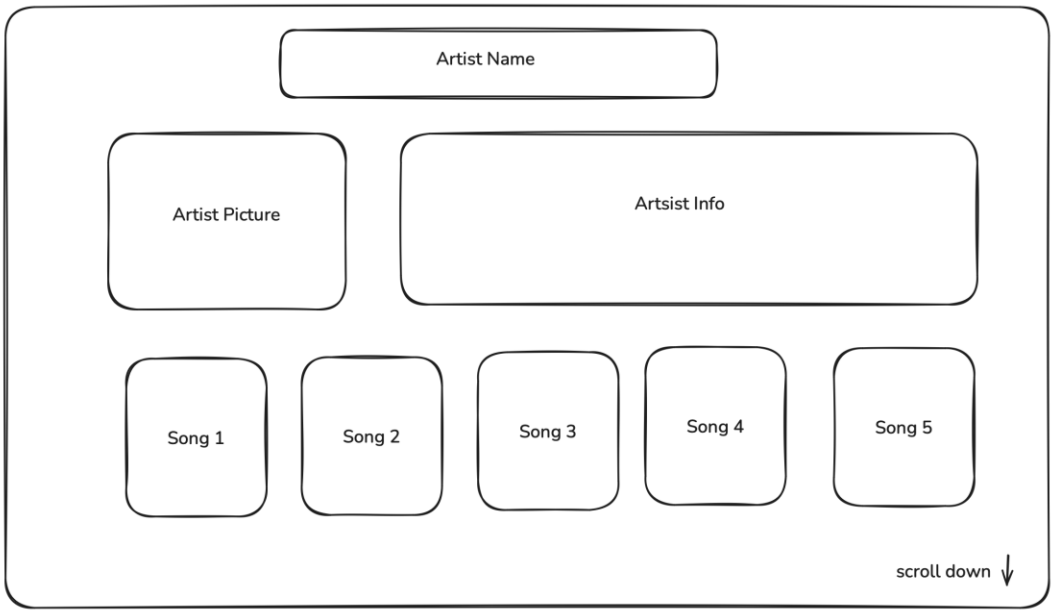
10. User Experience Views



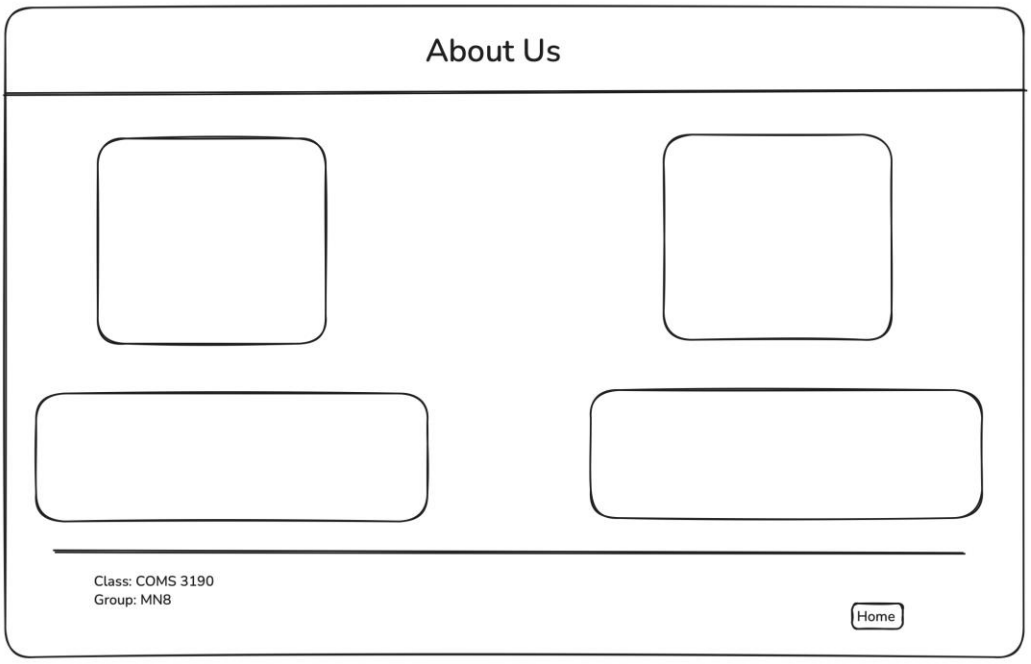
On the home page the user will be welcomed and an explanation of the website will be given. Then scrolling down the user will be able to see and interact with featured artists that we pick out from the data API.



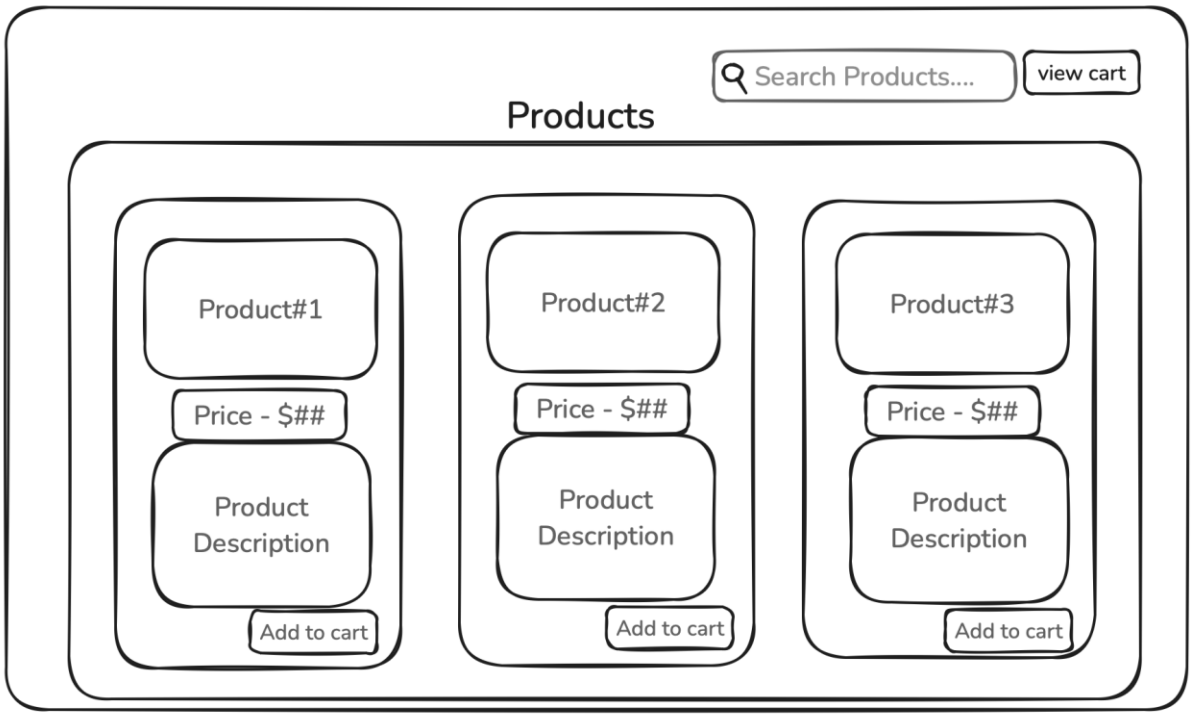
Below the featured artists will be the search and filter feature so that users can thorough explore the website and find all the information they want on their favorite musical artists.



Each artist page will have an artist's picture or slide show, along with information on that artists with a list of some of their most popular song or albums.



The about us page will feature we the authors along with information on the assignment.



The e-commerce page will give the user a view of all the products they can purchase with us on the website. There will also be a filter feature that allows users to search for products based on their taste in music.

11. Final comments

This is our proposal for the music artist history website called Melodify. This website will hopefully spread the love of music to all those who interact with it. Thank you for considering our project proposal. We are of course open to suggestions.

Reach us at zevang@iastate.edu and koushik9@iastate.edu.