

Match Melody - Demonstration Documentation

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The website which our group has created can be accessed by this URL -
<https://student.csc.liv.ac.uk/~sgcmccur/index.html>

Please log in with the following Spotify credentials when prompted:

Email address - sgrwrig2@liverpool.ac.uk

Password - LiverpooL123

The reason you will be unable to log in using your own Spotify credentials is because our website utilises the Spotify API. Due to this a person is required to request access by the host first before accessing our website, as we were not able to request Spotify permission to make the website live to everyone in time.

The group project video presentation can be accessed by this URL -
<https://stream.liv.ac.uk/9kbnukvd>

A copy of the slides that were used in the video presentation -

<https://docs.google.com/presentation/d/1r2quumx5BwomkrbL-4Uzgec91B-qWYzuQHuDws9Z9Qg/edit?usp=sharing> (There are subtitles provided for the video slides in this link)



Introduction

'Match Melody' is a website created for music lovers who wish to discover new artists and songs which they can share with other users.

Our aim is to make discovering new music that matches your tastes easier than ever before while also meeting like minded, music loving new friends.

We faced challenges such as timing constraints and choosing the right coding languages to integrate the different parts of our project.

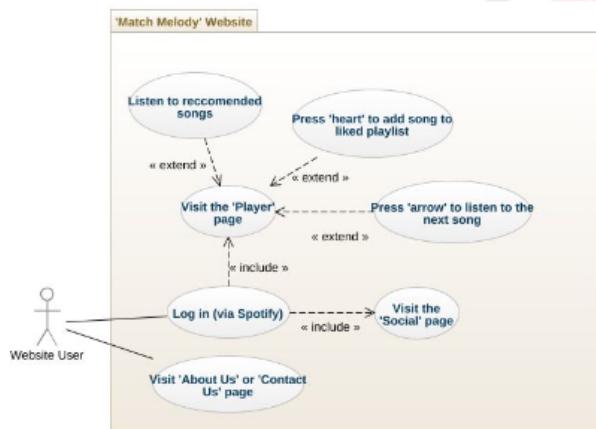
Music Recommendation Algorithm

For the music player, we created a music recommendation algorithm using the Spotify API to obtain music and user data.

Using the API, we generated a revolutionary recommendation algorithm which utilises the users previous listening history to recommend new songs particularly tailored to them.

We programmed the algorithm using JavaScript and JQuery.

Use Case Diagram (User View)



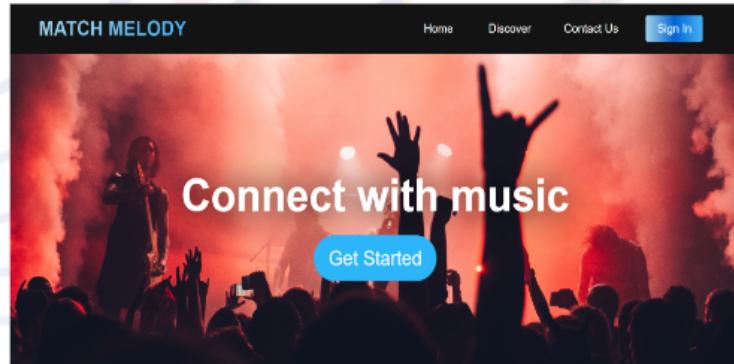
There is only one type of user for our program which is the 'Website User'.

The 'Website User' can view our website pages and, when logged in to the website, listen to their recommended music.

Front End Design

This is the homepage of the 'Match Melody' website.

We chose a black and red colour scheme to convey the feelings of love and passion that we have for music.



Front End Design

```
<body style="overflow: hidden;"><!-- Navbar Section --&gt;
&lt;nav class="navbar"&gt;
  &lt;div class="navbarContainer"&gt;
    &lt;a href="index.html" class="navbarLogo"&gt;MATCH MELODY&lt;/a&gt;
    &lt;ul class="navbarMenu"&gt;
      &lt;li class="navbarItem"&gt;
        &lt;a href="index.html" class="navbarLinks"&gt;Home&lt;/a&gt;
      &lt;/li&gt;
      &lt;li class="navbarItem"&gt;
        &lt;a href="discover.html" class="navbarLinks"&gt;Discover&lt;/a&gt;
      &lt;/li&gt;
      &lt;li class="navbarItem"&gt;
        &lt;a href="contact_us.html" class="navbarLinkLarge"&gt;Contact Us&lt;/a&gt;
      &lt;/li&gt;
      &lt;li class="navbarBtn"&gt;
        &lt;a href="player.html" class="button"&gt;Sign In&lt;/a&gt;
      &lt;/li&gt;
    &lt;/ul&gt;
  &lt;/div&gt;
&lt;/nav&gt;

&lt;div class="hero" id="home"&gt;
  &lt;div class="bg"&gt;&lt;/div&gt;
  &lt;h1 class="title"&gt;Connect with music&lt;/h1&gt;
  &lt;a href="player.html" class="hero__btn"&gt;Get Started&lt;/a&gt;
&lt;/div&gt;
&lt;/body&gt;</pre>
```

This is a snippet of the HTML code used to create the 'Match Melody' home page.

We added links to other HTML web pages and text.

Back End Design

```
function requestAttributes() {
  // Form api call to get track attributes as JSON
  $.ajax({
    url: "https://api.spotify.com/v1/audio-features?ids=" + trackList,
    type: "GET",

    beforeSend: function (xhr) {
      xhr.setRequestHeader("Authorization", "Bearer " + _token);
    },
    success: function (data) {
      //console.log("attributes");
      //console.log(data);
      data.audio_features.forEach(processValues);
      numSamples = data.audio_features.length;
    },
  });
}

function getRecommendations() {
  // Final api call to retrieve song recommendations
  danceability = danceability / numSamples;
  energy = energy / numSamples;
  valence = valence / numSamples;
  var v = valence.toFixed(3);
  var e = energy.toFixed(3);
  var d = danceability.toFixed(3);
  trackSeed = trackSeed.slice(0, -1);

  $.ajax({
    url: "https://api.spotify.com/v1/recommendations?limit=50&seed_tracks=" + trackSeed +
      "&target_danceability=" + d + "&target_energy=" + e + "&target_valence=" + v,
    type: "GET",
    beforeSend: function (xhr) {
      xhr.setRequestHeader("Authorization", "Bearer " + _token);
    },
    success: function (data) {
      console.log("recommendations");
      console.log(data);
      data.tracks.forEach(createRecList);
      done = true;
    },
  });
}
```

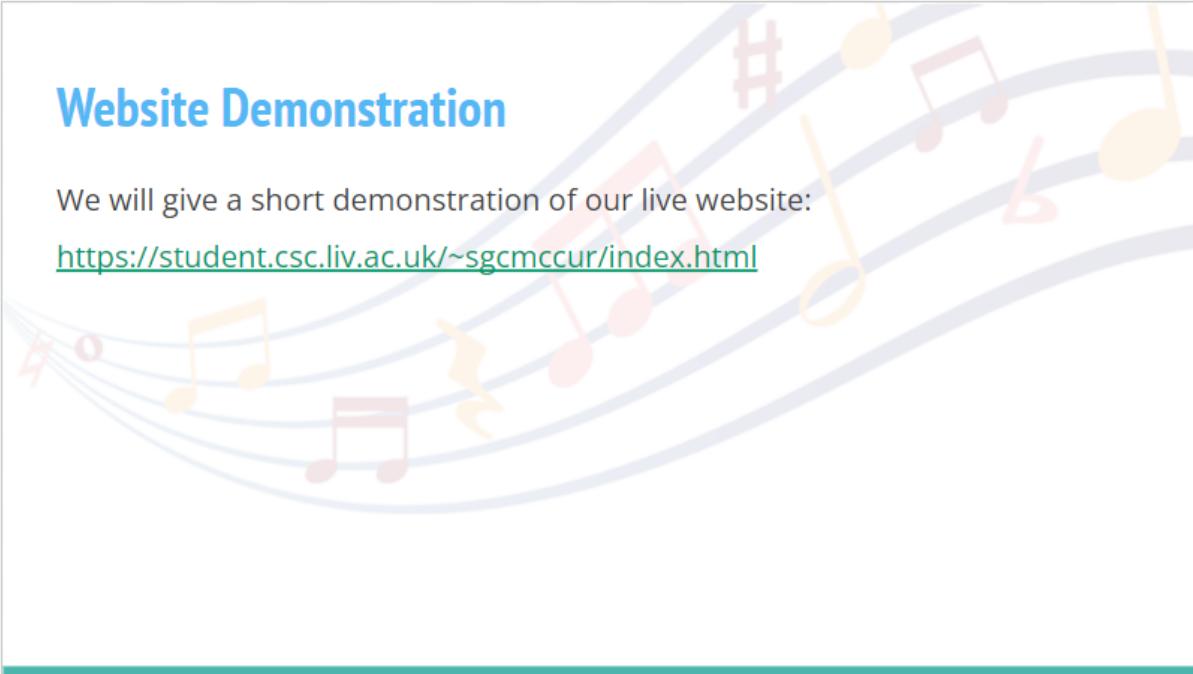
The 'requestAttributes' function is an API call to get attributes from each song in the tracklist.

The 'getRecommendations' function is used as the final API call to retrieve the song recommendations.

Website Demonstration

We will give a short demonstration of our live website:

<https://student.csc.liv.ac.uk/~sgcmccur/index.html>



Thank you for listening!

"Music is the universal language of mankind."

Henry Wadsworth Longfellow

As we created a website for our project, there will be only one type of user which would be any person who wishes to access and use the website.

User Manual for Website User

The only requirement for our website, 'Match Melody', is that any person who wishes to use it must have access to a Spotify account as the website uses Spotify user credentials to log in. A Spotify account is needed to gain access to that person's data such as username, followers and public playlists which are used within our website. 'Match Melody' makes use of the Spotify API to create a recommendation algorithm specific to each user.

To access the ‘Match Melody’ website, the person needs a device with access to the internet such as a computer or laptop. A person can then access the website via any internet browser using the domain link <https://student.csc.liv.ac.uk/~sgcmccur/index.html>. Once accessed, the person will be greeted with the following start up display which is the ‘Home’ page.

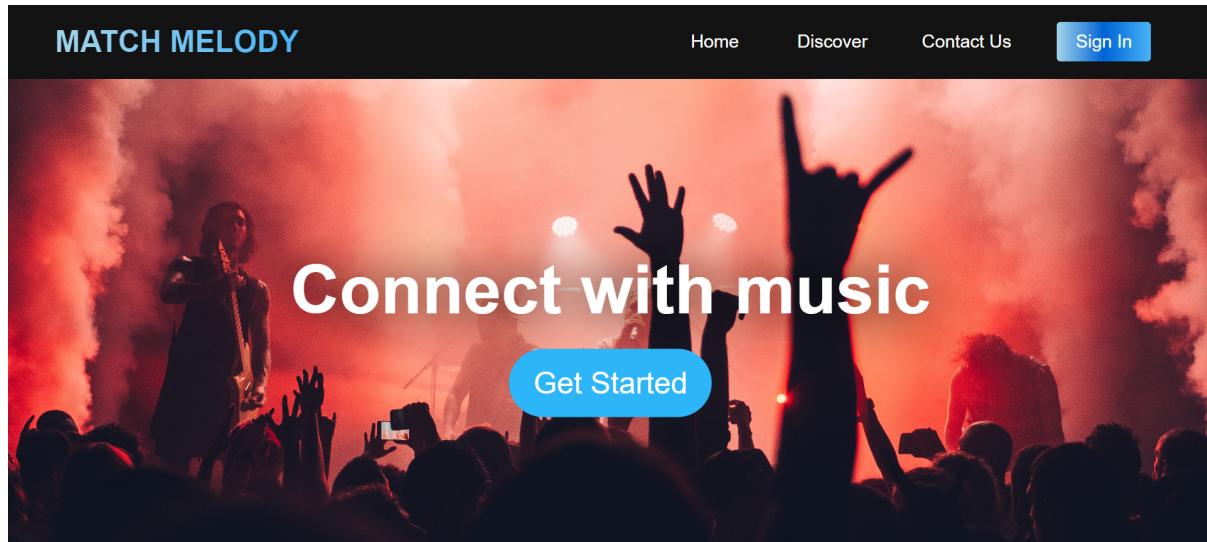


Figure 1 - ‘Match Melody’ Home Page

Before logging into the website, the person can browse through the ‘About Us’ page which is accessed through clicking the ‘Discover’ button. This webpage has information about how ‘Match Melody’ operates and the features that become available once the person has logged in via Spotify. The person can browse through this page and see if the website suits their interests before logging in.

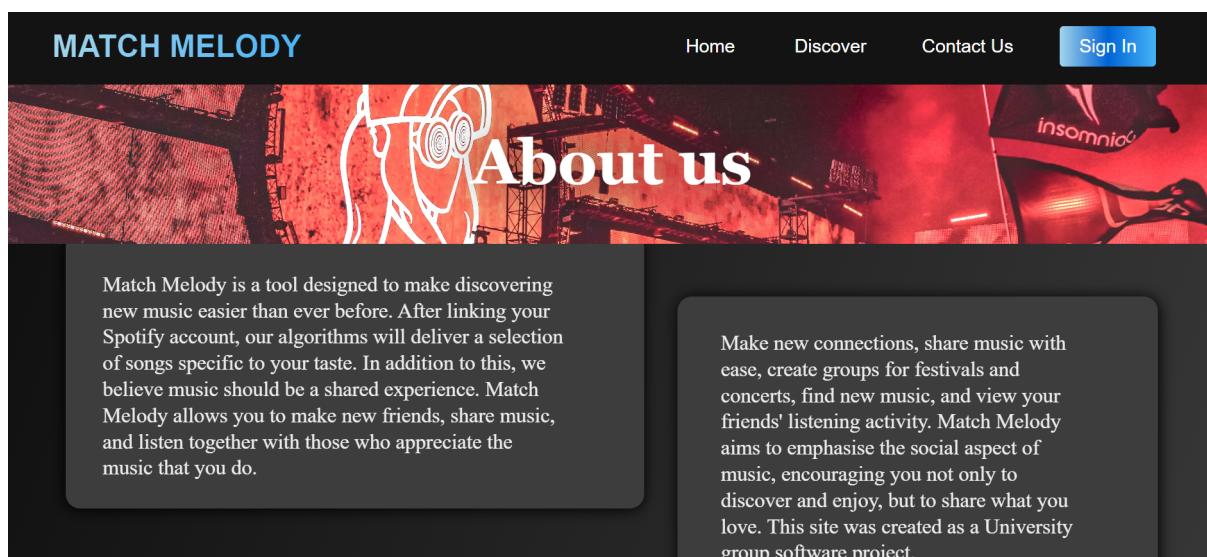


Figure 2 - ‘Match Melody’ About Us Page

If the person has any further enquiries about the ‘Match Melody’ website then they are able to contact us. By clicking the ‘Contact Us’ button, the person can access the web page which contains all our contact information. There is a phone number and an email available for use.

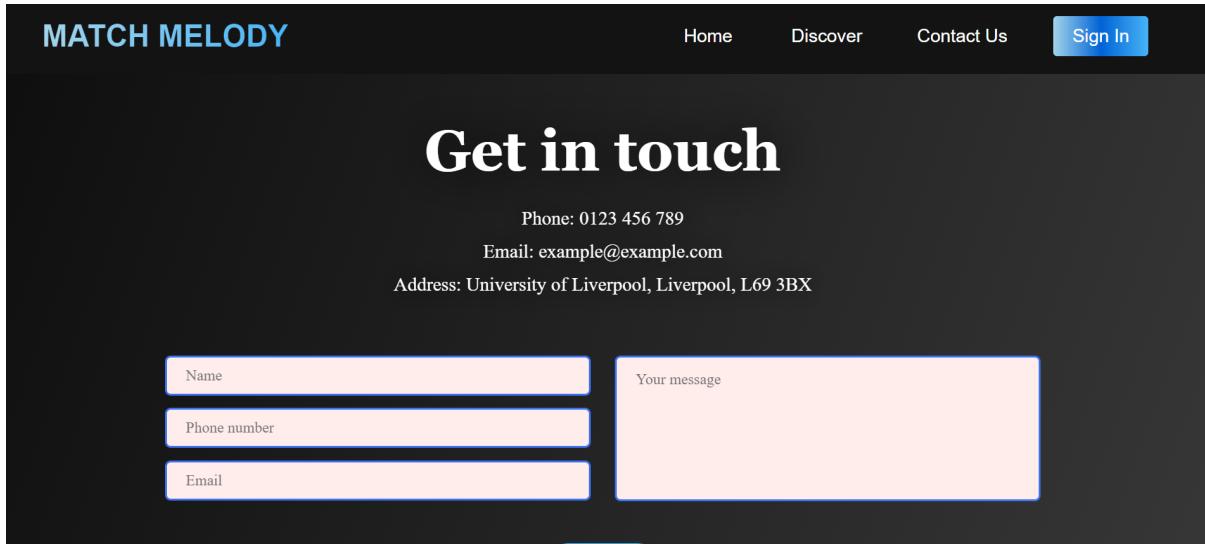


Figure 3 - 'Match Melody' Contact Us Page

To use the 'Match Melody' website to its full functionality, the person must sign in with their Spotify account and agree to certain conditions allowing access to their data. To sign in, the person should click the 'Sign In' button and they will be redirected to the Spotify login page.

The Spotify login page allows users to log in via Facebook, Apple, or Google, or by entering their email and password. It also includes a 'Remember me' checkbox and a 'LOG IN' button.

Figure 4 - Spotify Login Page

The 'Match Melody' permissions page from Spotify. It asks the user to agree to Match Melody's access to their Spotify account data, activity, and actions. It also provides a link to remove access and a privacy policy statement.

Figure 5 - Spotify 'Agree to Permissions' Page

The person can then enter their Spotify credentials into the login page. After clicking the 'Log In' button, they will be redirected to the 'Agree to Permissions' page. This page asks the person if they wish to agree with certain terms and conditions such as viewing their Spotify account data and taking actions within Spotify on their behalf. The person must agree to these terms and conditions if they wish to have further access to the 'Match Melody' website. Any 'Match Melody' user can remove their permission for the website to access their Spotify data at any time following the steps outlined here in the following link,

<https://community.spotify.com/t5/Implemented-Ideas/All-Platforms-Manage-Third-Party-Access-Permissions/idi-p/1242794>.

Once the person has logged in with their Spotify account and agreed to the access of data and permissions they are now an official 'Match Melody' User. The user can now utilise all functions of the 'Match Melody' website.

The website will now display a new web page to the user which presents the recommended music player. The user can also access this by clicking the 'Player' button. On this web page the user can click the 'heart' to add the song to their liked songs playlist and click the 'right arrow' to play the next recommended song. Adding a song to your liked playlist will further enhance the recommendation technology used for further songs.

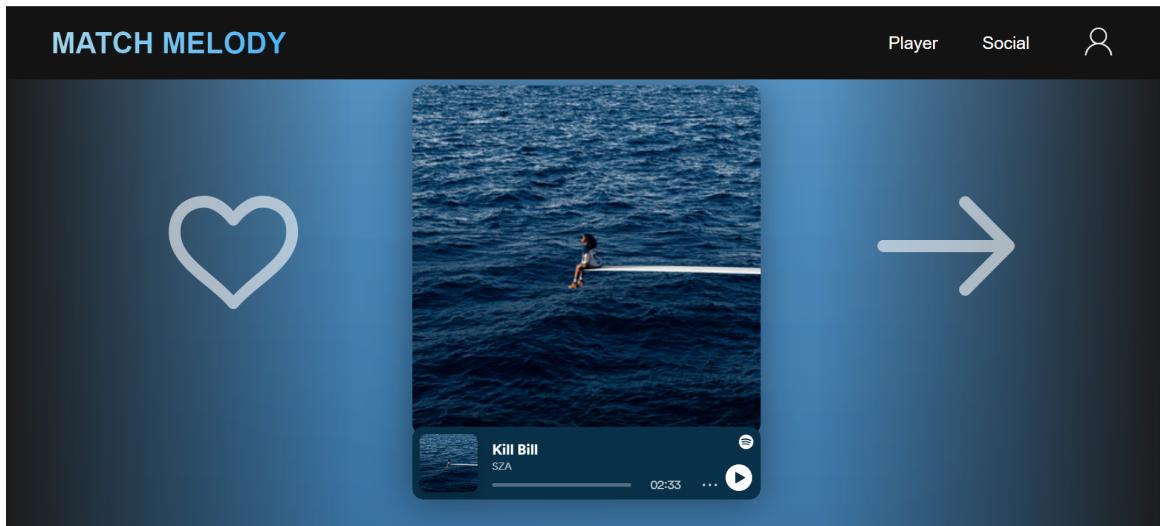


Figure 6 - 'Match Melody' Recommended Music Player

To access the social media page of the website, the user should click the 'Social' button. As of this moment, the social media page of 'Match Melody' is not completed and we have only implemented the basic front end design with no live functionality.

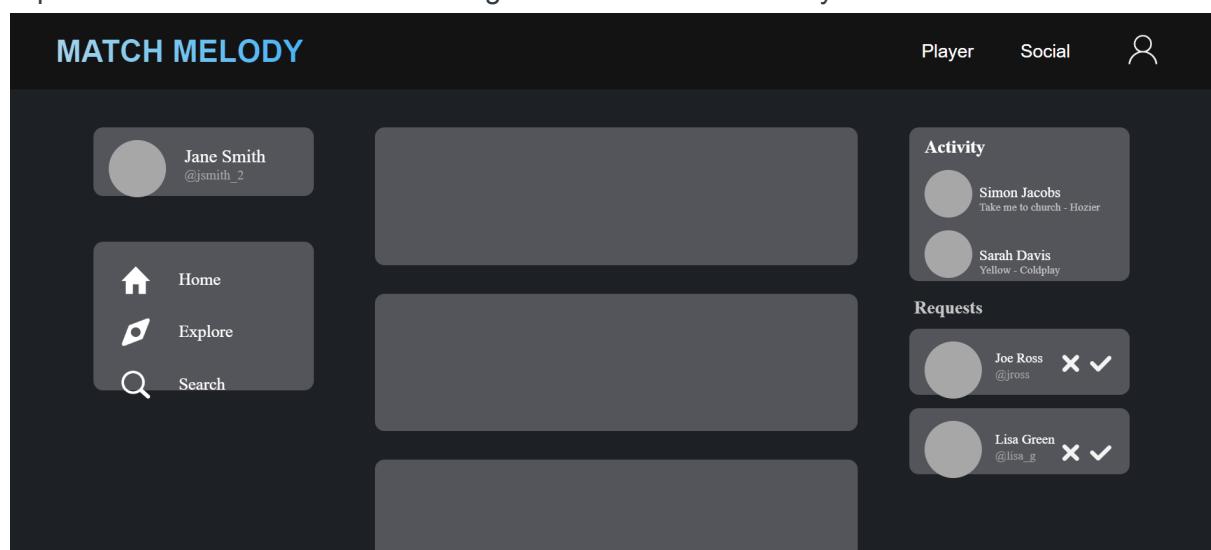


Figure 7 - 'Match Melody' Social Media Page

By clicking the 'Person' icon, you can sign out of this part of the website to be taken back to the 'Home' page.