Shworolipi

A Music Streaming Web Application

Team Skylark

Institute of Information Technology

University of Dhaka

Music Streaming Web Application

Project Report

Submitted to

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Letter of Transmittal

15th May, 2017
Emon Kumar Dey
Assistant Professor
Institute of Information Technology
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Subject: Submission of project report on "Music Streaming Web Application."

Sir,

With due respect, we are pleased to submit the final report of our project on Music Streaming Web Application We have tried our best for the report. However, it might lack perfection.

So, may we therefore, hope that you would be kind enough to accept our report and oblige thereby.

Sincerely yours,

Team Name: Skylark

Aquib Azmain (BSSE 0718)

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Acknowledgment

At first, we would like to thank almighty for helping us complete this project.

We would like to express our deepest gratitude to all those who provided us the support and encouragement to complete this project. Thanks to our Supervisor teacher Dr. Zerina Begum, Professor, Institute of Information Technology, University of Dhaka, whose continuous suggestions and guidance has been invaluable to us. Also special thanks to Dr. Mohammad Shoyaib sir, Dr. Kazi Muheymin-Us-Sakib sir, Dr. B M Mainul Islam sir, Emon kumar Dey sir and Saeed Siddik sir for their valuable opinions which help us to improve our insight. Without such stimulating suggestions, the project could not have made this much progress.

We are grateful to the Institute of Information Technology for giving us the opportunity to do such a project.

Lastly, we would like to thank our classmates. Although they were not on our team, they have always been helpful and provided valuable insights from time to time.

Abstract

This report is about the final report of project “Music Streaming Web Application”. It contains background, scope and objective of the project. It also described problem description, technology we have used, source code description and user manual.

This report has followed SRS report that we have been following. Hope it will help to understand the workflow of the website.

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CHAPTER 1: PROJECT DEFINITION

Shworolipi is a music streaming web application. People can avail this application to search and play Bengali songs. They can also manage their own account and make several playlists with their favorite songs.

1.1 Background

People who listen to the Bengali songs more often, do not have such platform of Bengali songs where they can make an online playlist. With this web application, members can easily enter to their account from anywhere and can get access to their own playlist. They can easily find any specific song as there are lots of categories to help to search the song

1.2 About the Project

The knowledge of SRS, OOP, web technology and Database has been implemented in this project. General users can get the trendy song in their song feed, which will help them to be updated. A registration system has been provided and the members can login into their account from anywhere to get their playlist through this application.

1.3 Scope of Our Project

The scopes of this project are-

- Since this is not a commercial web app, music piracy issues is not handled
- Admins can only upload mp3 format files
- Admin URL is not area specific
- Working resources is limited in this project
- There will be no retrieval of data if database gets lost or deleted or damaged
- Mobile interface for this web application is out of scope.

CHAPTER 2: IMPLEMENTATION OVERVIEW

This chapter aims to describe the implementation process of “Shworolipi”. Here the technologies that have been used to develop this system and the testing that have been done during this system development will be described in brief. Implementation is the final and important phase. Implementation is the stage in the project where the theoretical design is turned into a working system.

2.1 Problem Description

There is are two interfaces- admin interface and user interface.

Admins have their accounts to authenticate. They can add, remove songs, update song information, and remove members. They can update their information in the account. Admins can also play music from the website.

There is a common homepage for all the users. There they can search for songs and can authenticate for a personal account. A non-member can register to be a member. There is a different way to search a song. Users can search songs by- title, artist, genre, and mood. There is a music player to play the music after searching the song. Members can make playlists, update it and also can remove it, if necessary.

2.2 Technology Used in implementation

Development technologies are growing very rapidly with the increase of requirements. The technologies that have been used to develop this system is the most recent technologies and also very much appropriate to it.

2.1.1 CLIENT-SIDE TECHNOLOGY

The user interface is the working environment for the user. Various languages and libraries have been used to develop this project. They are:

- **Hyper Text Markup Language (HTML)**
  Hyper Text Markup Language (HTML) is the main markup language for web pages. HTML elements are the basic building-blocks of a webpage.

The latest HTML5 has been used for developing this system. [1][2]

- **Cascading Style Sheets (CSS)**

Cascading Style Sheets (CSS) is a stylesheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML. CSS3 have been used for developing this system. CSS3 is the latest standard for CSS. It is completely backwards-compatible with earlier versions of CSS. [3][4]

- **JavaScript(JS)**

JavaScript is a high-level, dynamic and interpreted run-time language. Alongside HTML and CSS, JavaScript is one of the three core technologies of World Wide Web content production. The majority of websites employ it and all modern Web browsers support it without the need for plug-ins. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage, or graphics facilities, relying for these upon the host environment in which it is embedded. [5][6]

- **JQuery**

JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. It is free, open-source software using the permissive MIT license. Web analysis indicates that it is the most widely deployed JavaScript library by a large margin. [7]

- **Bootstrap (front-end framework)**

Bootstrap is a free and open-source collection of tools for creating websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. The bootstrap framework aims to ease web development. Bootstrap is a front-end, that is, an interface for the user, unlike the server-side code which resides on the "back end" or server. It is also a web application framework, which is a software framework which is designed to support the development of dynamic websites and web applications. [8][9]

- **W3.CSS**

W3.CSS is a modern CSS framework with built-in responsiveness. It is smaller and faster than other CSS frameworks. It is easier to learn, and easier to use than other CSS frameworks. It uses standard CSS only (No jQuery or JavaScript library), speeds up and simplifies web development. This framework supports modern responsive design (mobile first) by default. [10]

2.1.2 SERVER-SIDE TECHNOLOGY

For back-end coding, various languages and libraries have been used-

- **PHP**

The most popular server-side language on the web, PHP is designed to pull and edit information in the database. It is most commonly bundled with databases written in the SQL language. PHP was designed strictly for the web and remains one of the most widely used languages around. It is easier to install and deploy, is staying competitive with lots of modern frameworks. [11][12]

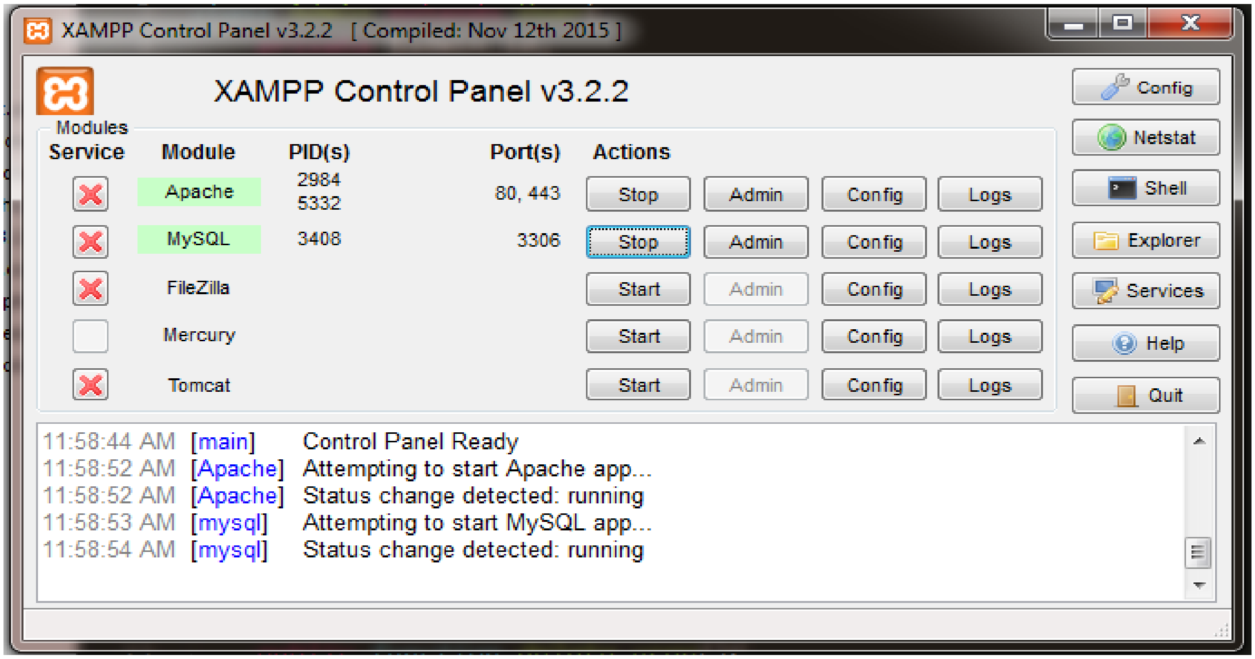
2.1.3 IMPLEMENTATION TOOLS

As types of software are increasing day by day, new implementation tools are also needed for their implementation. Nowadays, there are many implementation tools. Developers have to choose right tools for each part of their application. If they can utilize tools perfectly, their labor can be reduced.

- **XAMPP Control Panel v3.2.2**

XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP

Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. [14] Figure 1 has shown the XAMPP control panel-


XAMPP Control Panel v3.2.2 [Compiled: Nov 12th 2015]
XAMPP Control Panel v3.2.2
Modules
Config
Netstat
Shell
Explorer
Services
Help
Quit

Service	Module	PID(s)	Port(s)	Actions
☒	Apache	2984 5332	80, 443	Stop · Admin · Config · Logs
☒	MySQL	3408	3306	Stop · Admin · Config · Logs
☒	FileZilla			Start · Admin · Config · Logs
□	Mercury			Start · Admin · Config · Logs
☒	Tomcat			Start · Admin · Config · Logs

```
11:58:44 AM  [main]     Control Panel Ready
11:58:52 AM  [Apache]   Attempting to start Apache app...
11:58:52 AM  [Apache]   Status change detected: running
11:58:53 AM  [mysql]    Attempting to start MySQL app...
11:58:54 AM  [mysql]    Status change detected: running
```

Figure 1: XAMPP Control Panel

Major features as available in XAMPP:

- It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes.
- Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file.
- XAMPP is cross-platform, it works equally well on Linux, Mac and Windows.
- Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

Apache HTTP Server

The Apache HTTP Server, colloquially called Apache is the world's most used web server software. Released under the Apache License, Apache is free and open-source software. Apache supports a variety of features, many implemented as compiled modules which extend the core functionality. These can range from server-side programming language support to authentication schemes. [16]

MySQL

MySQL is an open-source relational database management system (RDBMS). Major features as available in MySQL: [15]

- Cross-platform support
- Stored procedures, using a procedural language
- Performance Schema that collects and aggregates statistics about server execution and query performance for monitoring purposes.
- A set of SQL Mode options to control runtime behavior, including a strict mode to better adhere to SQL standards.
- Query caching
- Embedded database library
- Unicode support
- Commit grouping, gathering multiple transactions from multiple connections together to increase the number of commits per second

Sublime Text 3

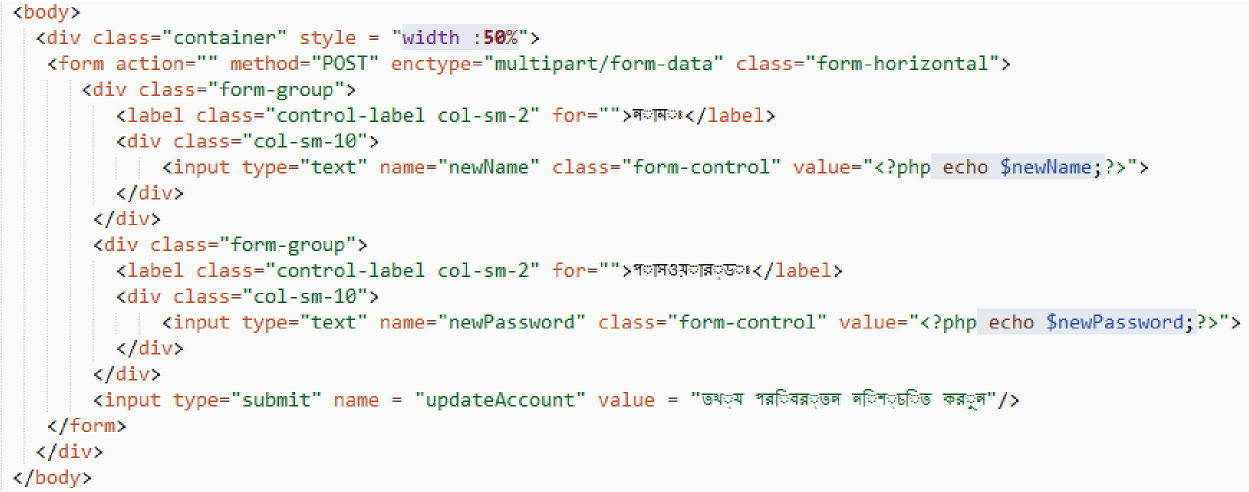
Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface (API). It natively supports many programming languages and markup languages, and its functionality can be extended by users with plugins, typically community-built and maintained under free-software licenses. [17]

CHAPTER 3: SOURCE CODE DESCRIPTION

This chapter can be categorized into two parts-

3.1 Front-end

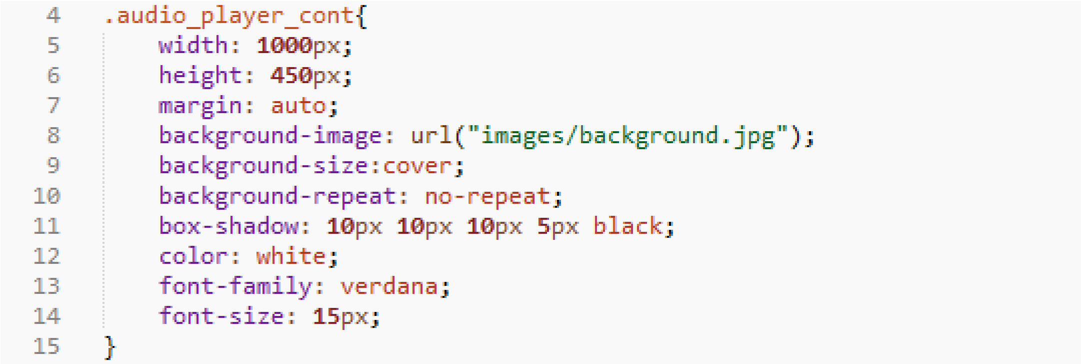
Front-end programming languages used in this web application are- HTML, CSS and JavaScript. To build the building block of this webpage, HTML has been use. Figure 2 has shown a code snippet-



```
<body>
  <div class="container" style = "width :50%">
   <form action="" method="POST" enctype="multipart/form-data" class="form-horizontal">
     <div class="form-group">
        <label class="control-label col-sm-2" for="">নামঃ</label>
        <div class="col-sm-10">
            <input type="text" name="newName" class="form-control" value="<?php echo $newName;?>">
        </div>
      </div>
      <div class="form-group">
        <label class="control-label col-sm-2" for="">পাসওয়ার্ডঃ</label>
        <div class="col-sm-10">
            <input type="text" name="newPassword" class="form-control" value="<?php echo $newPassword;?>">
        </div>
      </div>
      <input type="submit" name = "updateAccount" value = "তথ্য পরিবর্তন নিশ্চিত করুন"/>
   </form>
  </div>
</body>
```

Figure 2: HTML code snippet

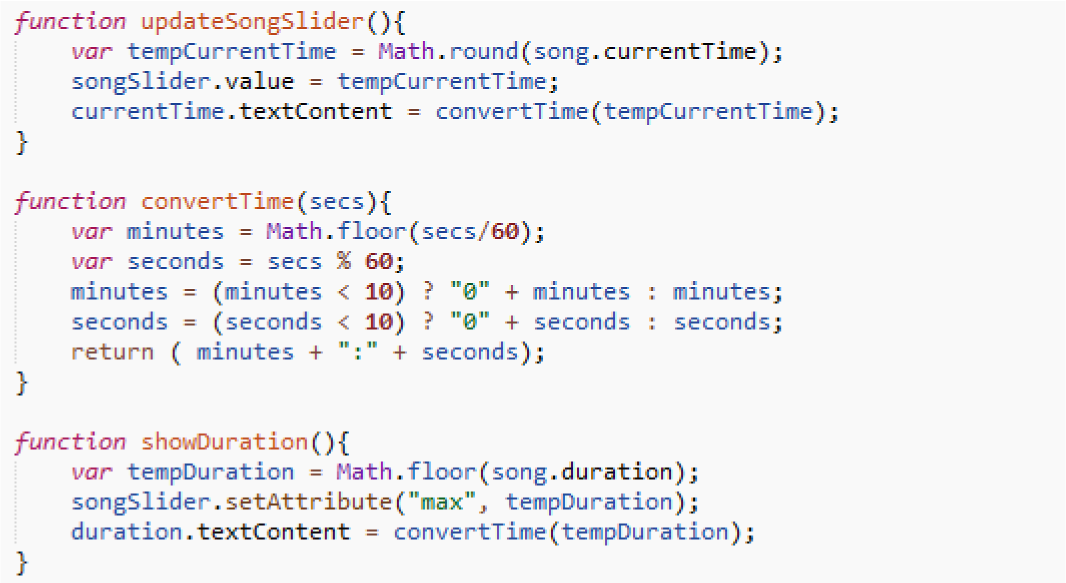
Other than using W3.CSS and bootstrap library, custom CSS file is also being used. Figure 3 has shown a code snippet-



```
.audio_player_cont{
    width: 1000px;
    height: 450px;
    margin: auto;
    background-image: url("images/background.jpg");
    background-size:cover;
    background-repeat: no-repeat;
    box-shadow: 10px 10px 10px 5px black;
    color: white;
    font-family: verdana;
    font-size: 15px;
}
```

Figure 3: CSS code snippet

JS has been used during different types of event handling. Figure 4 has shown a code snippet-



```
function updateSongSlider(){
    var tempCurrentTime = Math.round(song.currentTime);
    songSlider.value = tempCurrentTime;
    currentTime.textContent = convertTime(tempCurrentTime);
}

function convertTime(secs){
    var minutes = Math.floor(secs/60);
    var seconds = secs % 60;
    minutes = (minutes < 10) ? "0" + minutes : minutes;
    seconds = (seconds < 10) ? "0" + seconds : seconds;
    return ( minutes + ":" + seconds);
}

function showDuration(){
    var tempDuration = Math.floor(song.duration);
    songSlider.setAttribute("max", tempDuration);
    duration.textContent = convertTime(tempDuration);
}
```

Figure 4: JavaScript code snippet

3.2 Back-end

Our back-end programming language is PHP. There were eight analytic classes from the SRS document. Those are-

1. User
    - **a.** Member
    - **b.** Non-member
    - **c.** admin
2. Song
3. Music player
4. Playlist

Among this, song class does not have any function. So we will discuss about six classes-

3.2.1 USER CLASS

User class is an abstract class where a member, non-member and admin class will extend this class. Necessary front-end codes are connected through the include statement.

Attributes: This abstract class has no attributes.

Functions: The functions are given in the following table 1-

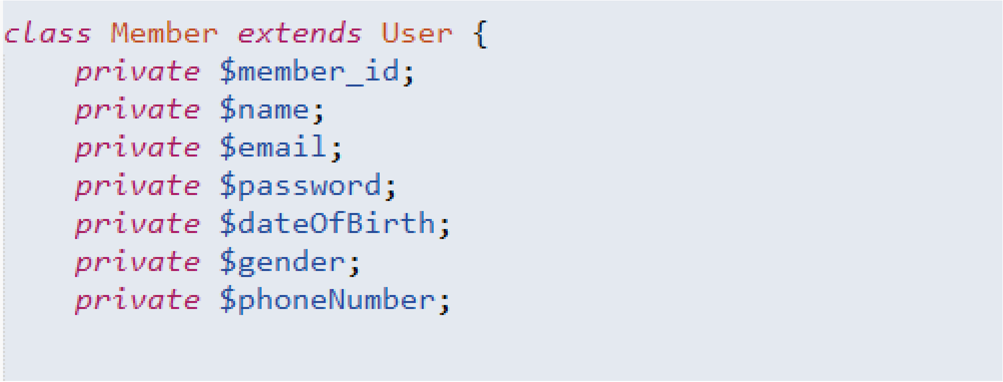
Table 1: Function description of User class

Functions	Description
search()	User can search for any songs. This
playSong()	After selecting songs from search list, the song id will be send to the database to retrieve the information and the song will be connected to the music player.
getGuideline()	This will show the user a user manual for each user. Member and admin class will change this method accordingly.

3.2.2 MEMBER CLASS

Member class is a child class of user class. Front-end codes are connected through the include statement.

Attributes: In figure 5, a code snippet of attributes of user class is shown.



```
class Member extends User {
    private $member_id;
    private $name;
    private $email;
    private $password;
    private $dateOfBirth;
    private $gender;
    private $phoneNumber;
```

Figure 5: Code snippet of attributes of Member class

Functions: The functions are given in the following table 2-

Table 2: Function description of Member class

Functions	Description
signIn()	Members need to sign in before entering to their account.
createPlaylist()	Members can create new playlist with this function.

showPlaylist()	Member can view
editPersonalAccount()	Members can add or update personal information.
deletePersonalAccount()	This function lets members to delete their account.
getGuideline()	Member can check the guideline to use this application.
signOut()	Members can end their session with this function.

3.2.3 NON-MEMBER CLASS

Non-member class is another child class of user class. Front-end codes are connected through the include statement.

Attributes: Non-member class does not need any attribute to carry out the function.

Functions: The functions are given in the following table 3-

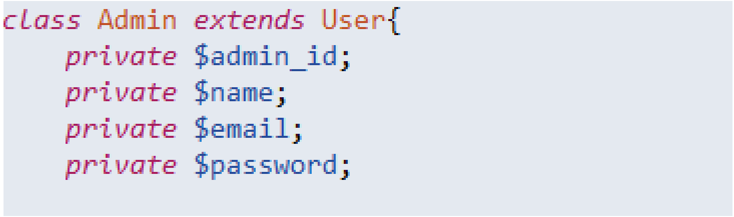
Table 3: Function description of Non-member class

Functions	Description
signUp()	Non-member will sign up to create an account as a member
getConfirmation()	This function ensures the validation of the registration request
getGuideline()	Member can check the guideline to use this application.

3.2.4 ADMIN CLASS

Admin class is another child class of user class. Front-end codes are connected through the include statement.

Attributes: In figure 5, a code snippet of attributes of admin class is shown.



```
class Admin extends User{
    private $admin_id;
    private $name;
    private $email;
    private $password;
```

Figure 6: Code snippet of attributes of Admin class

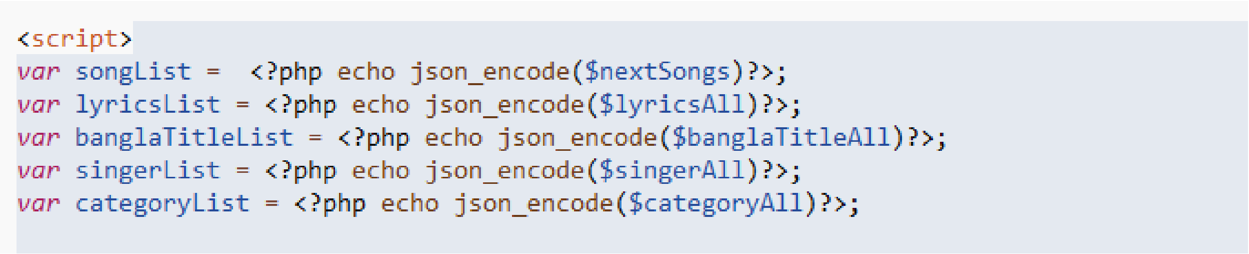
Functions: The functions are given in the following table 4-

Table 4: Function description of Admin class

Functions	Description
signIn()	Admin will sign in to enter to the admin account
signOut()	Admin can end their session with this function and close this website.
manageAccount()	This function allows an admin to update his/her personal information (name, password).
removeUser()	With this function, admin can remove the account of any member.
updateSong()	This function lets admin to update all the information of the song from the database
uploadSongs()	This function allows an admin to upload new song with its appropriate information
deleteSongs()	With this function, an admin can remove a song from database
getGuideline()	Admin can check the guideline to use this application.

3.2.5 MUSICPLAYER CLASS

Music player is a class where most of the functions are of JavaScript. And the front-end codes are added to fulfil its criteria.



```
<script>
var songList =  <?php echo json_encode($nextSongs)?>;
var lyricsList = <?php echo json_encode($lyricsAll)?>;
var banglaTitleList = <?php echo json_encode($banglaTitleAll)?>;
var singerList = <?php echo json_encode($singerAll)?>;
var categoryList = <?php echo json_encode($categoryAll)?>;
```

Figure 7: Code snippet of JS in MusicPlayer class

Attributes: The only attribute of this class is song.

Functions: The functions are given in the following table 5-

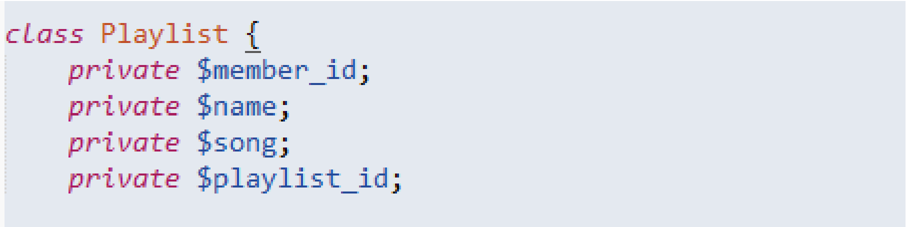
Table 5: Function description of MusicPlayer class

Functions	Description
showInformation()	This function will help to retrieve all the information of the selected song which is going to be played.
selectNextSong()	With this function, the music player will fetch the next song from the corresponding list.
selectPreviousSong	With this function, the music player will fetch the previous song from the corresponding list.

3.2.6 PLAYLIST CLASS

Music player is a class which is associated with song class and member class. The front-end codes are added to fulfil its criteria.

Attributes: The attribute of this class is given in the code snippet-



```
class Playlist {
    private $member_id;
    private $name;
    private $song;
    private $playlist_id;
```

Figure 8: Code snippet of attributes of Playlist class

Functions: The functions are given in the following table 6-

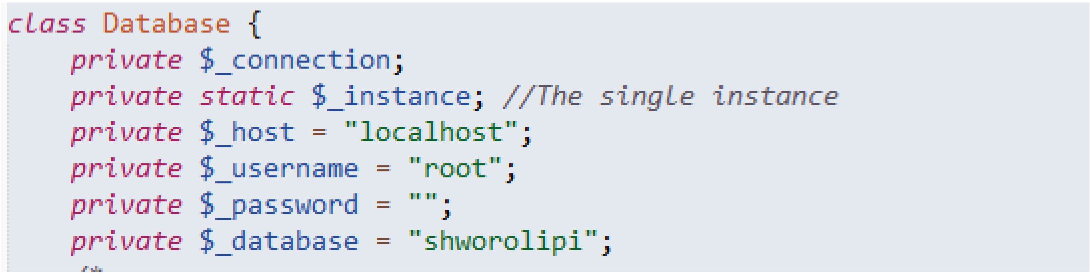
Table 6: Function description of Playlist class

Functions	Description
getSongs()	This function will help to get all the songs of associated with the playlist.
search()	Song from a playlist can be searched with this function.
playSongs()	The whole playlist or a single song from the playlist can be played with this function.
addSongs()	This function allows to add song to a playlist.
rename()	With this function, a playlist can be renamed.
deleteSong()	This function allows to delete song from a playlist.
deletePlaylist()	With this function, a playlist can be removed.

3.2.7 DATABASE CLASS

Database class is not an analytic class from the SRS of this project. It is necessary to connect the project with the database. This class has followed the singleton design pattern.

Attributes: The attribute of this class is given in the code snippet-



```
class Database {
    private $_connection;
    private static $_instance; //The single instance
    private $_host = "localhost";
    private $_username = "root";
    private $_password = "";
    private $_database = "shworolipi";
```

Figure 9: Code snippet of attributes of Database class

Functions: The functions are given in the following table 7-

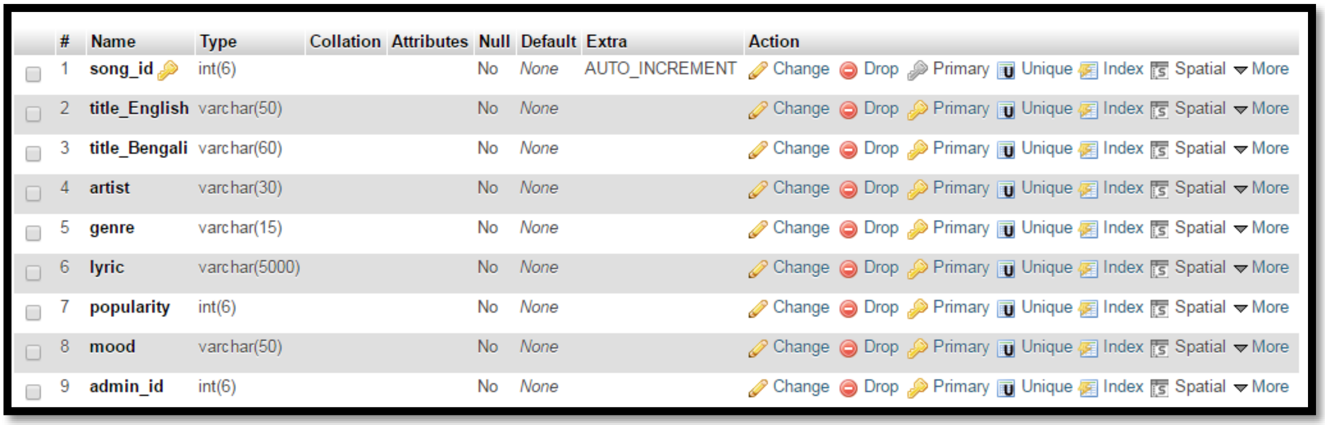
Table 7: Function description of Database class

Functions	Description
getInstance ()	This is a public function. It mainly check whether the database instance has been created or not. It returns the only instance of this class
__construct ()	This is a private function. It is responsible to connect with the SQL server.
__clone ()	This is a private function. It prevents to make duplicate connection with the SQL server.
getConnection ()	This function is a public function. It returns the connection attribute.

3.3 Data Table:

From SRS, we have seen that we need seven data table for this web application. Those are-

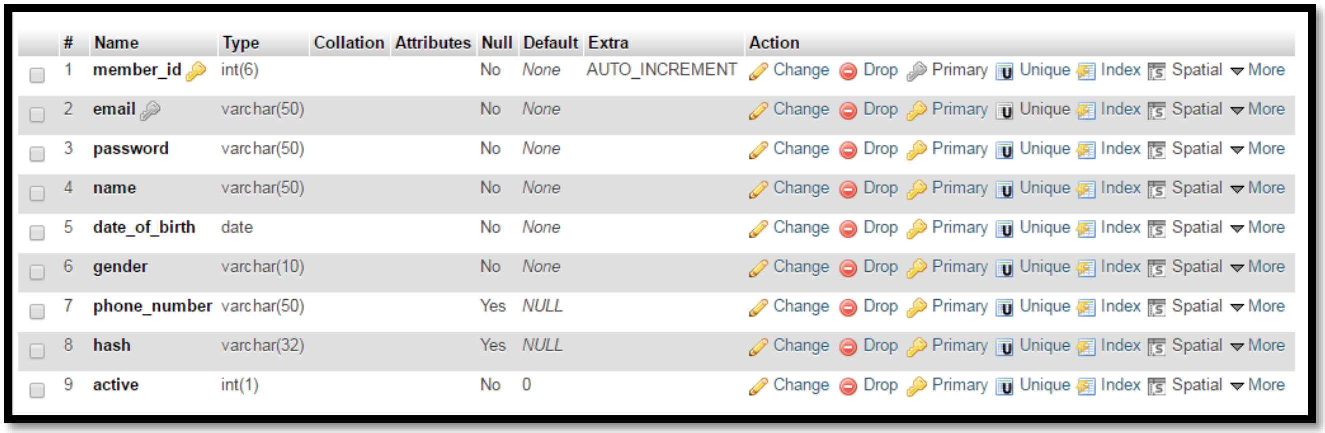
- **Song**: This table contains the attributes- song_id, title_English, title_Bengali, artist, genre, lyric, popularity, mood and admin_id. In figure 10, song table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	**song_id** 🔑	int(6)			No	*None*	AUTO_INCREMENT	Change Drop Primary Unique Index Spatial More
□	2	**title_English**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	3	**title_Bengali**	varchar(60)			No	*None*		Change Drop Primary Unique Index Spatial More
□	4	**artist**	varchar(30)			No	*None*		Change Drop Primary Unique Index Spatial More
□	5	**genre**	varchar(15)			No	*None*		Change Drop Primary Unique Index Spatial More
□	6	**lyric**	varchar(5000)			No	*None*		Change Drop Primary Unique Index Spatial More
□	7	**popularity**	int(6)			No	*None*		Change Drop Primary Unique Index Spatial More
□	8	**mood**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	9	**admin_id**	int(6)			No	*None*		Change Drop Primary Unique Index Spatial More

Figure 10: Song data table

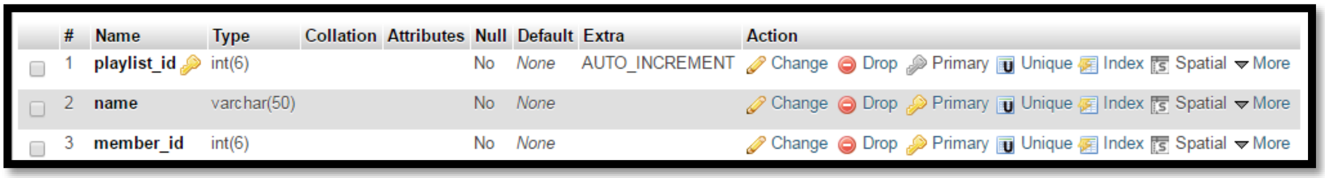
- **Member:** This table contains the attributes- member_id, email, password, name, date_of_birth, gender, phone_number, hash and active. In figure 11, member table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	**member_id**	int(6)			No	*None*	AUTO_INCREMENT	Change Drop Primary Unique Index Spatial More
□	2	**email**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	3	**password**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	4	**name**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	5	**date_of_birth**	date			No	*None*		Change Drop Primary Unique Index Spatial More
□	6	**gender**	varchar(10)			No	*None*		Change Drop Primary Unique Index Spatial More
□	7	**phone_number**	varchar(50)			Yes	*NULL*		Change Drop Primary Unique Index Spatial More
□	8	**hash**	varchar(32)			Yes	*NULL*		Change Drop Primary Unique Index Spatial More
□	9	**active**	int(1)			No	0		Change Drop Primary Unique Index Spatial More

Figure 11: Member data table

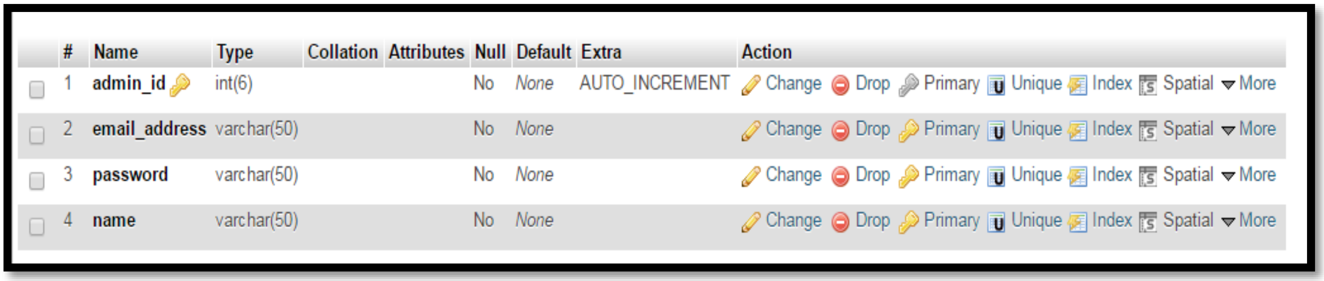
- **Playlist:** This table contains the attributes- playlist_id, name and member_id. In figure 12, playlist table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	**playlist_id**	int(6)			No	*None*	AUTO_INCREMENT	Change Drop Primary Unique Index Spatial More
□	2	**name**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	3	**member_id**	int(6)			No	*None*		Change Drop Primary Unique Index Spatial More

Figure 12: Playlist data table

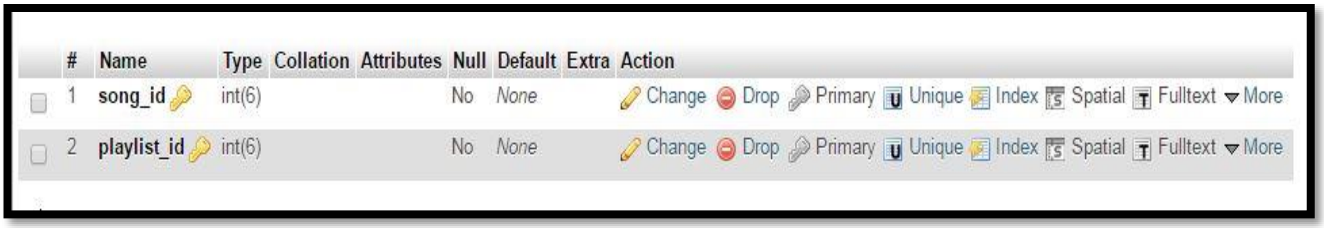
- **Admin:** This table contains the attributes- admin_id, email_address, password and name. In figure 13, admin table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	**admin_id**	int(6)			No	*None*	AUTO_INCREMENT	Change Drop Primary Unique Index Spatial More
□	2	**email_address**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	3	**password**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More
□	4	**name**	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial More

Figure 13: Admin data table

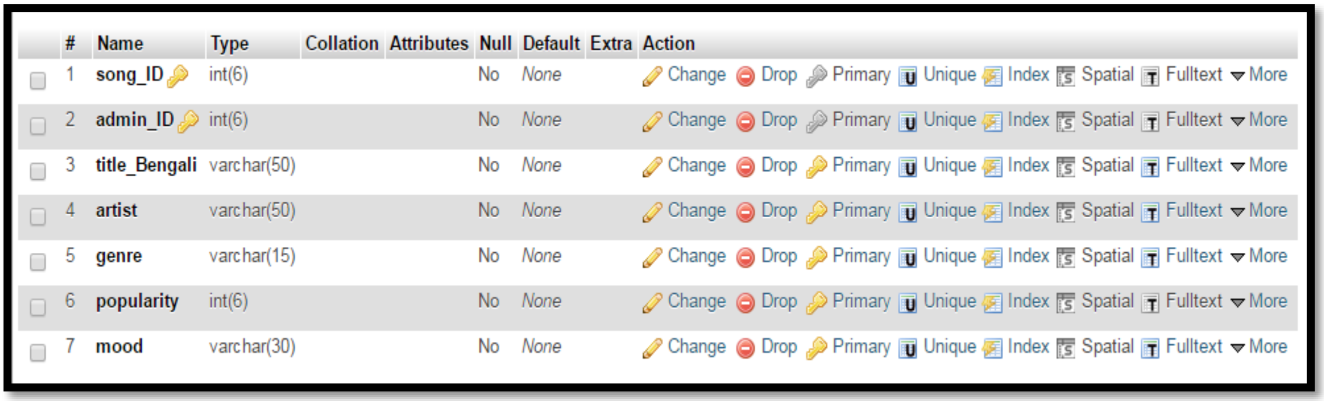
- **Adds:** This table contains the attributes- song_id and playlist_id. In figure 14, adds table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	song_id	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	2	playlist_id	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More

Figure 14: Adds data table

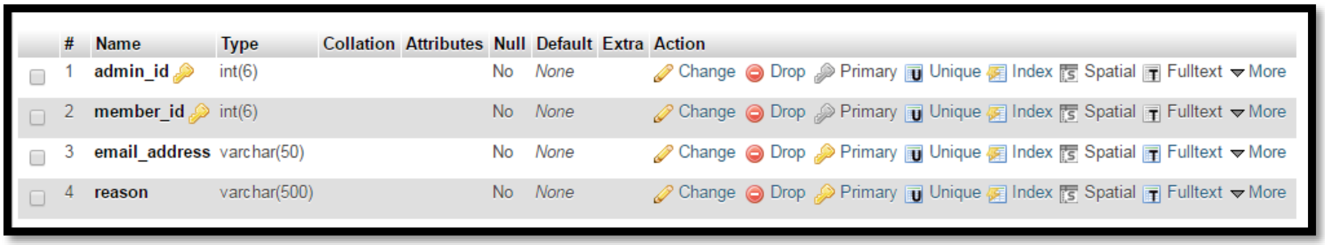
- **Deletes:** This table contains the attributes- admin_ID, song_ID, title_Bengali, artist, genre, popularity and mood. In figure 15, deletes table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	song_ID	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	2	admin_ID	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	3	title_Bengali	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	4	artist	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	5	genre	varchar(15)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	6	popularity	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	7	mood	varchar(30)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More

Figure 15: Deletes data table

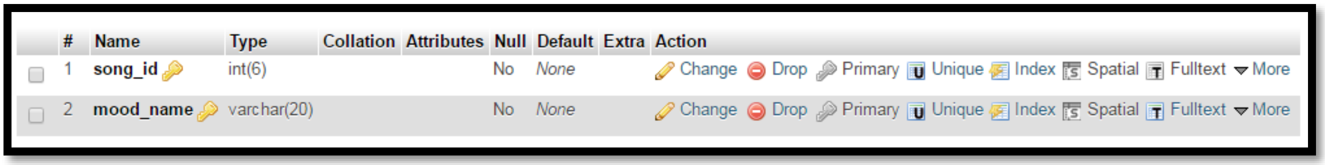
- **Remove:** This table contains the attributes- admin_id, member_id, email_address and reason. In figure 16, remove table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	admin_id	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	2	member_id	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	3	email_address	varchar(50)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More
□	4	reason	varchar(500)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext More

Figure 16: Removes data table

- **Mood:** This table contains the attributes- song_id and mood_name. In figure 17, mood table is shown.



	#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
□	1	**song_id** 🔑	int(6)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext ▼More
□	2	**mood_name** 🔑	varchar(20)			No	*None*		Change Drop Primary Unique Index Spatial Fulltext ▼More

Figure 17: Mood data table

These way we have done the data table required for the web application.

So, this is the basic source code description of shworolipi.

CHAPTER 4: USER MANUAL

There are two major portions of our web application. There is the user interface and admin interface. So the user manual is described in two section.

4.1 User-Side

There are six major module for user side. They are- homepage, search, music player, authentication, registration and personal account of a member.

4.1.1.HOMEPAGE

Both the member and non-member users get this homepage when they first enter to this website. In figure 18, we can see the interface of the homepage.

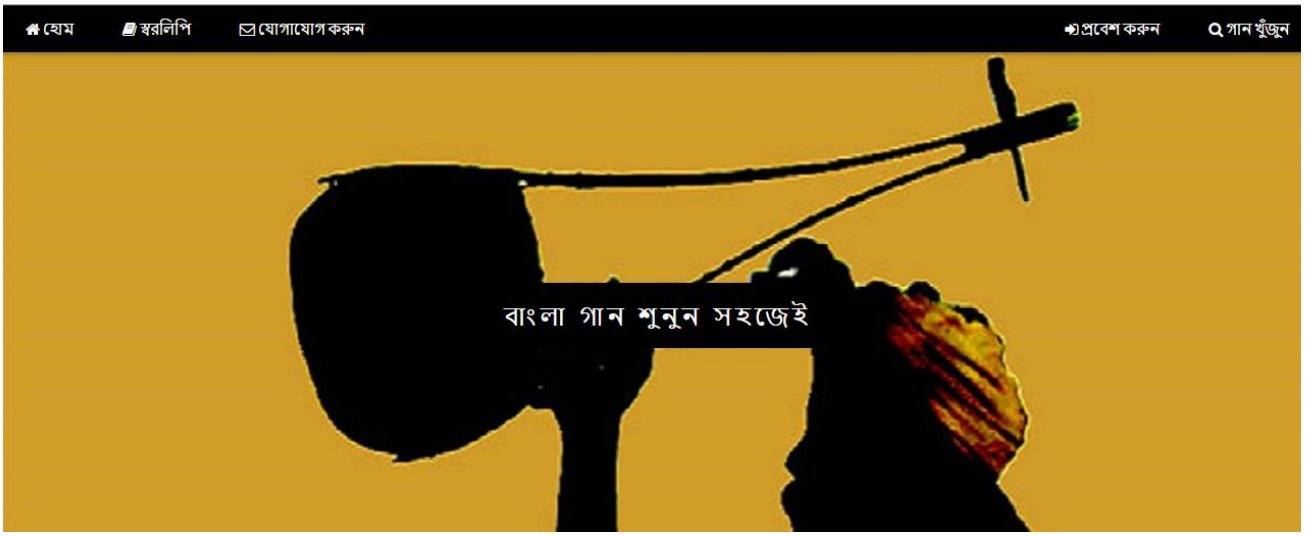
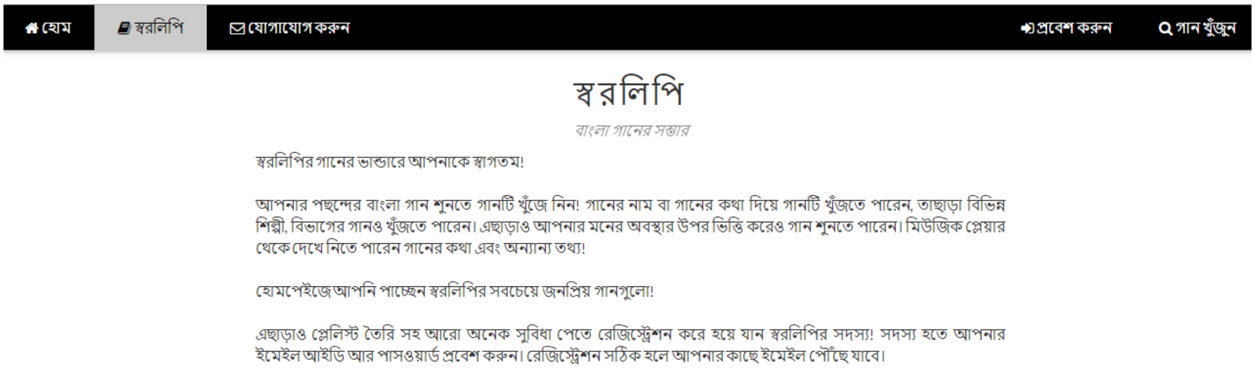


Figure 18: Homepage of Shworolipi

This page has some buttons-

- **Home:** This buttons leads to the main page or homepage of this website.
- **Shworolipi:** This button helps the user to get the basic guideline to explore this site. In figure 19, we can see the interface of the homepage.



স্বরলিপি

বাংলা গানের সম্ভার

স্বরলিপির গানের ভান্ডারে আপনাকে স্বাগতম!

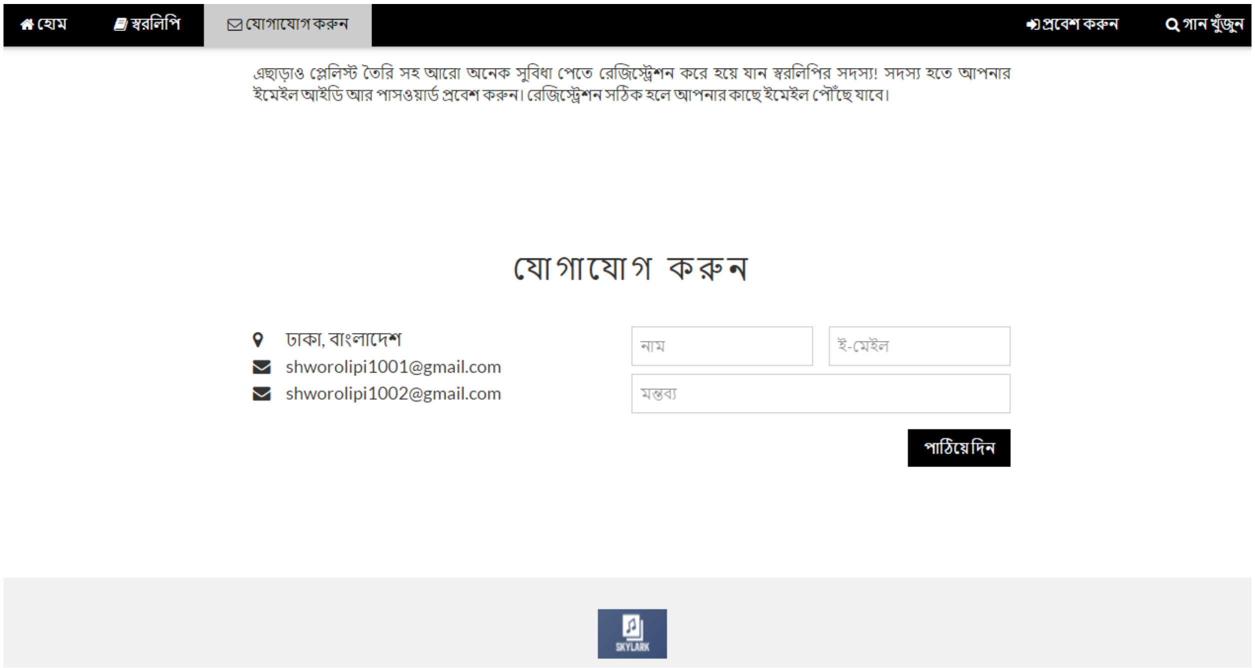
আপনার পছন্দের বাংলা গান শুনতে গানটি খুঁজে নিন! গানের নাম বা গানের কথা দিয়ে গানটি খুঁজতে পারেন, তাছাড়া বিভিন্ন শিল্পী, বিভাগের গানও খুঁজতে পারেন। এছাড়াও আপনার মনের অবস্থার উপর ভিত্তি করেও গান শুনতে পারেন। মিউজিক প্লেয়ার থেকে দেখে নিতে পারেন গানের কথা এবং অন্যান্য তথ্য!

হোমপেইজে আপনি পাচ্ছেন স্বরলিপির সবচেয়ে জনপ্রিয় গানগুলো!

এছাড়াও প্লেলিস্ট তৈরি সহ আরো অনেক সুবিধা পেতে রেজিস্ট্রেশন করে হয়ে যান স্বরলিপির সদস্য! সদস্য হতে আপনার ইমেইল আইডি আর পাসওয়ার্ড প্রবেশ করুন। রেজিস্ট্রেশন সঠিক হলে আপনার কাছে ইমেইল পৌঁছে যাবে।

Figure 19: Guideline of Shworolipi user

- **Contact:** With this button user may contact with the admins. In figure 20, we can see the contact page.



এছাড়াও প্লেলিস্ট তৈরি সহ আরো অনেক সুবিধা পেতে রেজিস্ট্রেশন করে হয়ে যান স্বরলিপির সদস্য! সদস্য হতে আপনার ইমেইল আইডি আর পাসওয়ার্ড প্রবেশ করুন। রেজিস্ট্রেশন সঠিক হলে আপনার কাছে ইমেইল পৌঁছে যাবে।

যোগাযোগ করুন

ঢাকা, বাংলাদেশ
shworolipi1001@gmail.com
shworolipi1002@gmail.com

Figure 20: Contact page

- **Authentication/Registration:** To become a member of Shworolipi, users need to register. The registration module is shown in figure 21. It needs an email address and a password. It sends a confirmation message to the email to verify the email address, which is shown in figure 22.

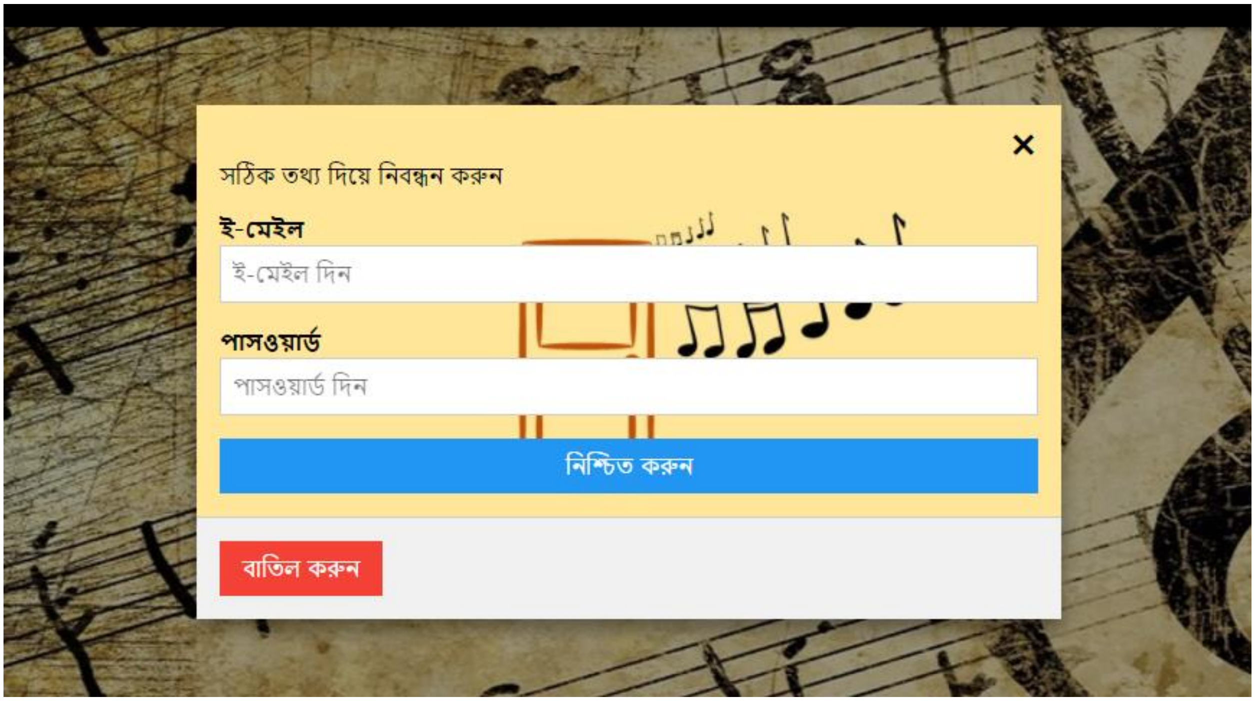
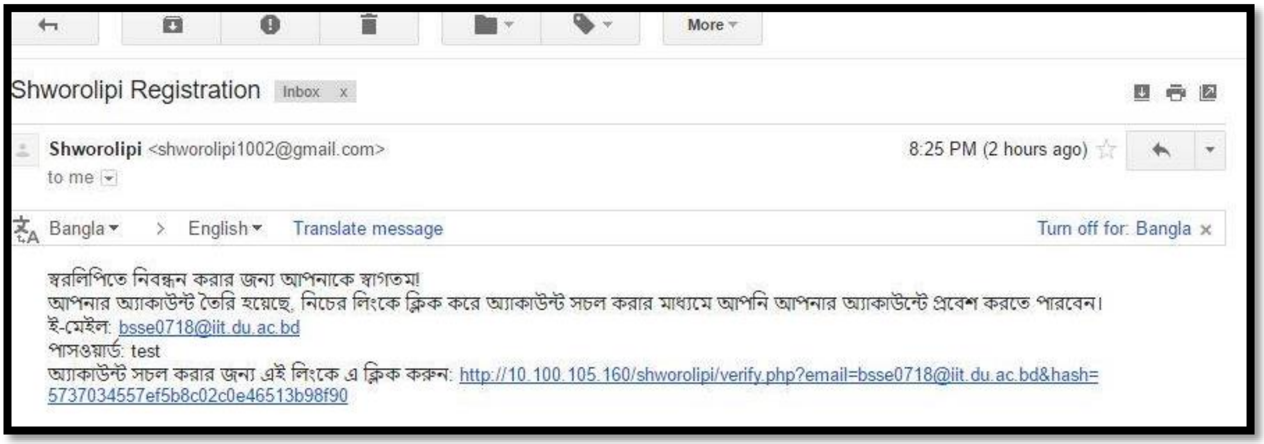


Figure 21: Registration



Shworolipi Registration

Shworolipi <shworolipi1002@gmail.com>
to me

8:25 PM (2 hours ago)

স্বরলিপিতে নিবন্ধন করার জন্য আপনাকে স্বাগতম!
আপনার অ্যাকাউন্ট তৈরি হয়েছে, নিচের লিংকে ক্লিক করে অ্যাকাউন্ট সচল করার মাধ্যমে আপনি আপনার অ্যাকাউন্টে প্রবেশ করতে পারবেন।
ই-মেইল: bsse0718@iit.du.ac.bd
পাসওয়ার্ড: test
অ্যাকাউন্ট সচল করার জন্য এই লিংকে এ ক্লিক করুন: http://10.100.105.160/shworolipi/verify.php?email=bsse0718@iit.du.ac.bd&hash=5737034557ef5b8c02c0e46513b98f90

Figure 22: Registration Confirmation e-mail

To enter to the personal account, members need to authenticate. The authentication module is shown in figure 23. This needs the email address and password of the member to confirm.

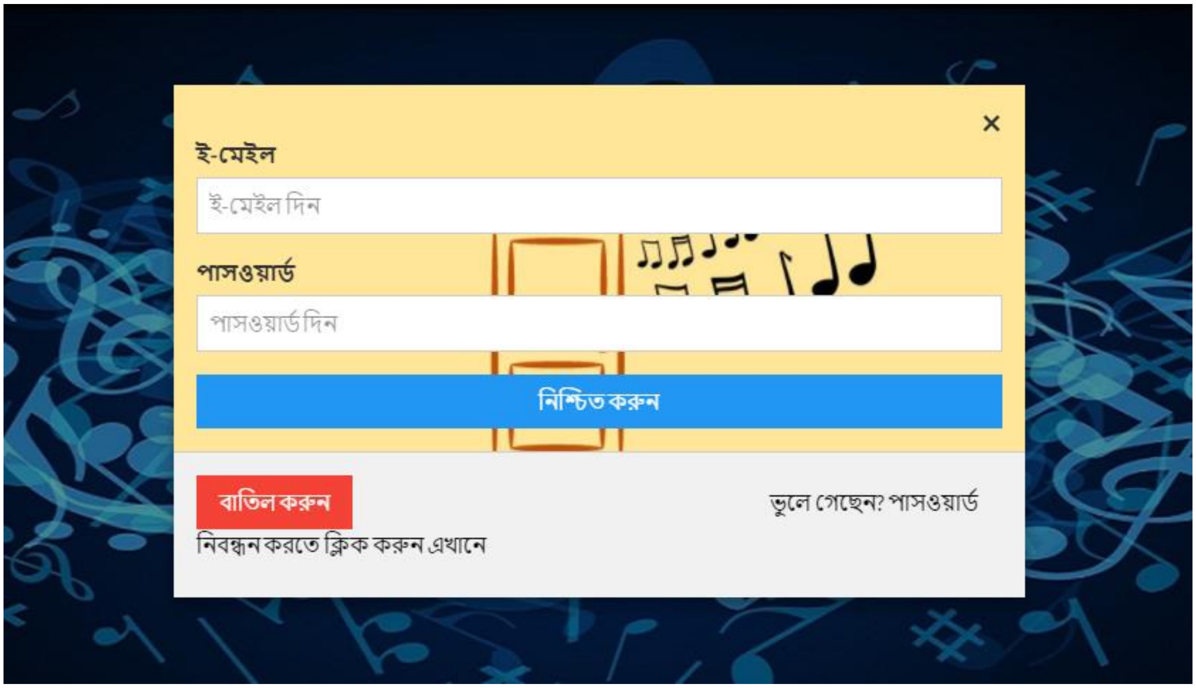


Figure 23: Authentication of members

If anyone forgets the password, he/she can click the forget password option to reset the password, which is shown in figure 24.

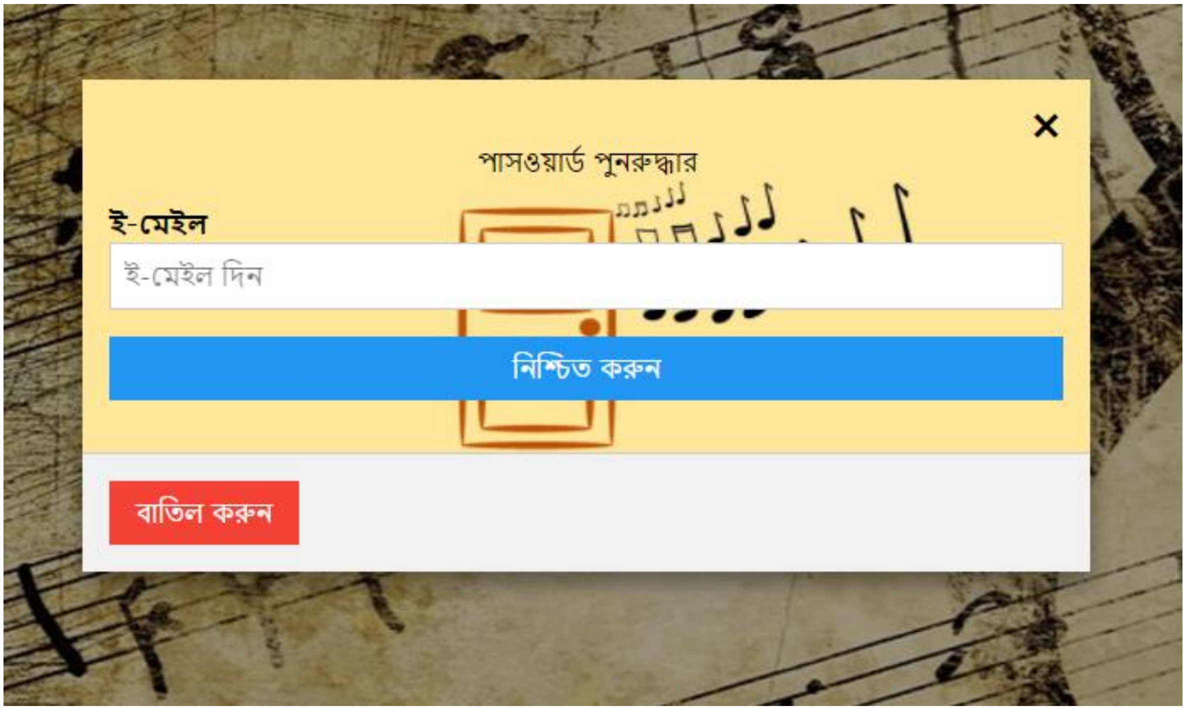
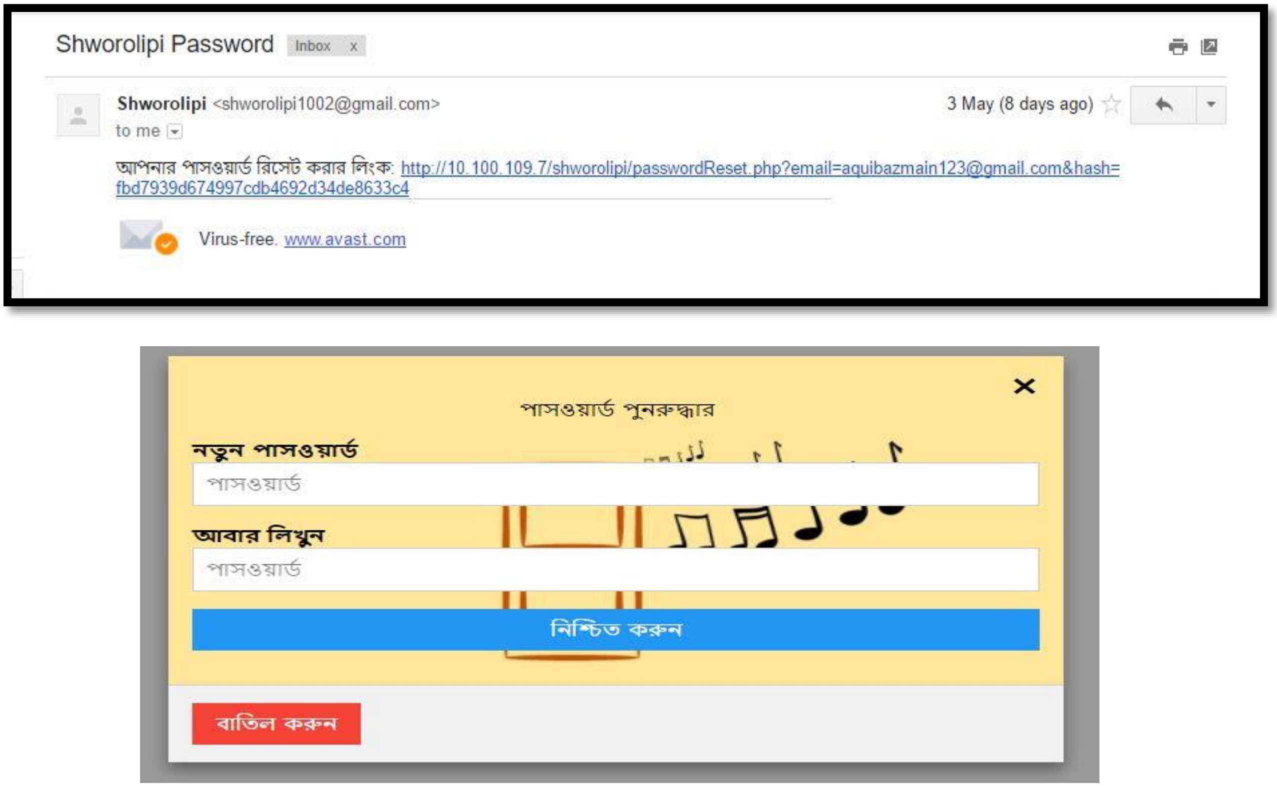


Figure 24: Forget Password option

After that, he/she will receive an e-mail containing the password. Figure 25 shows the email containing a link to reset password. This will lead to the password change option of the member.



Shworolipi Password

Shworolipi <shworolipi1002@gmail.com>
to me

3 May (8 days ago)

আপনার পাসওয়ার্ড রিসেট করার লিংক: http://10.100.109.7/shworolipi/passwordReset.php?email=aquibazmain123@gmail.com&hash=fbd7939d674997cdb4692d34de8633c4

Virus-free. www.avast.com

পাসওয়ার্ড পুনরুদ্ধার

নতুন পাসওয়ার্ড: পাসওয়ার্ড

আবার লিখুন: পাসওয়ার্ড

Figure 25: Password retrieval e-mail and password change

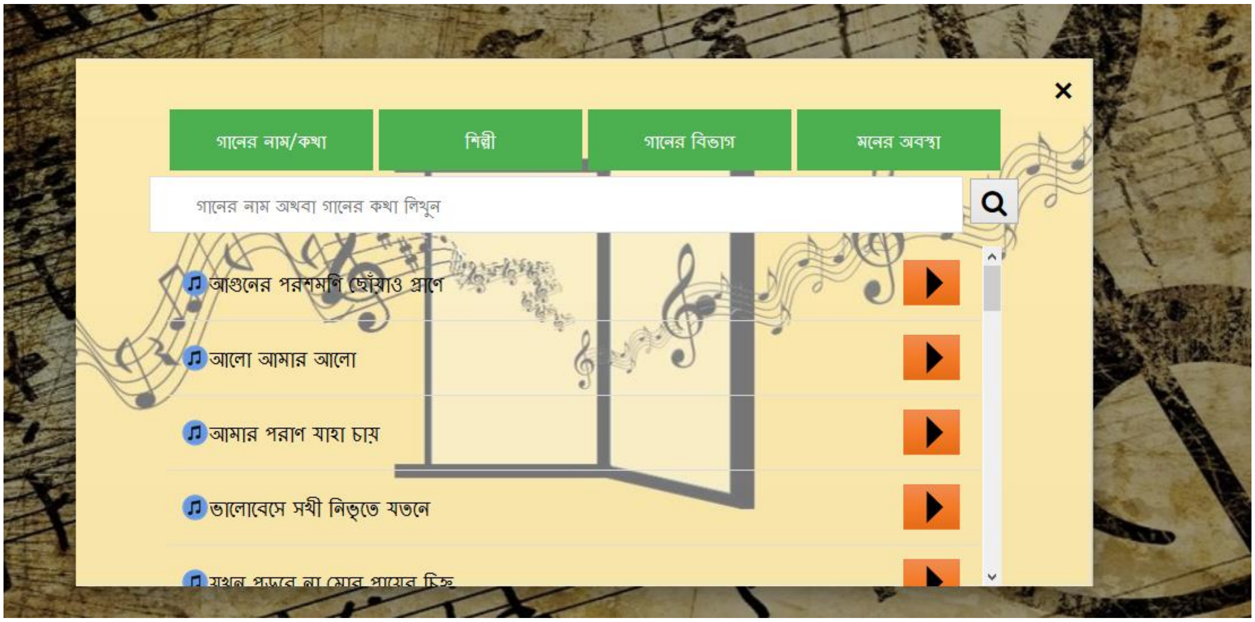
Search songs

All the users, as well as the admins can use the search module. There are four categories by which users can search for songs. Those are-

- **Song title/lyrics:** Users need to write the title or any portion of the lyric in Bengali to search the songs.
- **Artist name:** Users can search for an artist or select from the options to play his/her songs.
- **The genre of the song:** There is a drop-down menu, which contains all the genre of the songs from the database.
- **The mood of the song:** There is a drop-down menu, which contains several moods that describe of the songs from the database.

At the right of the list of the search result, there is a play button, which will lead the song to the music player.

In figure 26, the search module is shown-



আগুনের পরশমণি ছোঁয়াও প্রাণে

আলো আমার আলো

আমার পরাণ যাহা চায়

ভালোবেসে সখী নিভৃতে যতনে

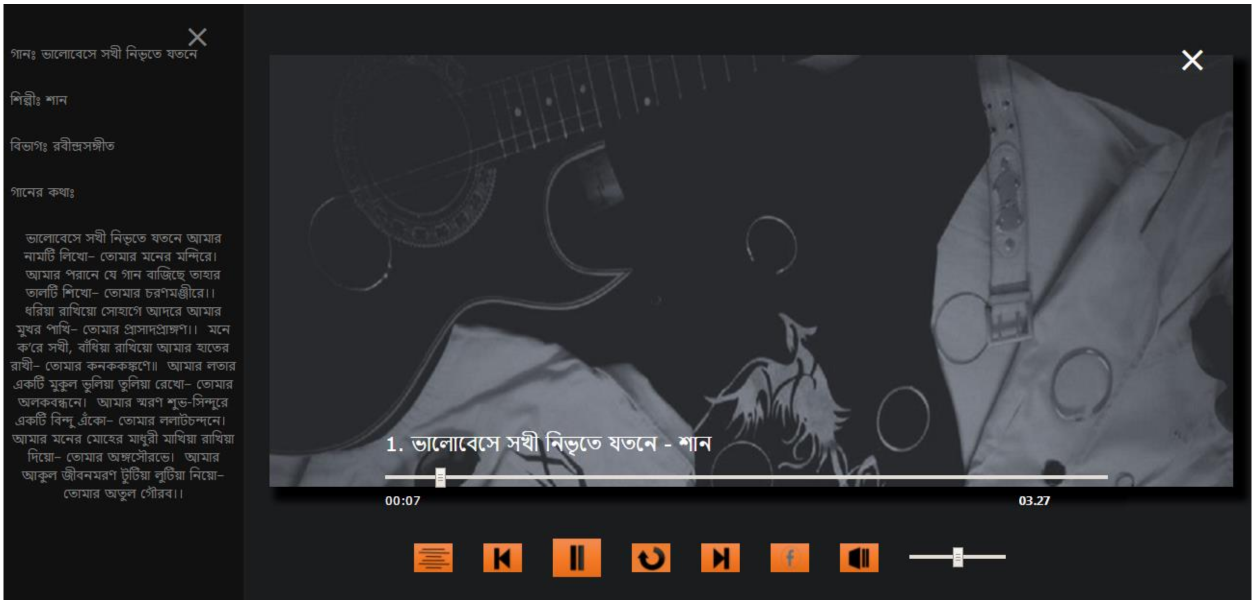
যখন পড়বে না মোর পায়ের চিহ্ন

Figure 26: Searching song

4.1.2.MUSIC PLAYER

There are several controllers in the music player shown in figure 27. They are-

- **Information button**: It shows song information and lyric.
- **Previous button**: It helps to select previously played songs.
- **Play/pause:** It helps to play or pause the song.
- **Replay:** It helps to replay the song
- **Next button**: It helps to select next song.
- **Sound/mute:** This button helps to change the music or mute the song.



গানঃ ভালোবেসে সখী নিভৃতে যতনে

শিল্পীঃ শান

বিভাগঃ রবীন্দ্রসঙ্গীত

গানের কথাঃ

ভালোবেসে সখী নিভৃতে যতনে আমার নামটি লিখো– তোমার মনের মন্দিরে। আমার পরানে যে গান বাজিছে তাহার তালটি শিখো– তোমার চরণমঞ্জীরে।। ধরিয়া রাখিয়ো সোহাগে আদরে আমার মুখর পাখি– তোমার প্রাসাদপ্রাঙ্গণে।। মনে ক'রে সখী, বাঁধিয়া রাখিয়ো আমার হাতের রাখী– তোমার কনককঙ্কণে॥ আমার লতার একটি মুকুল ভুলিয়া তুলিয়া রেখো– তোমার অলকবন্ধনে। আমার স্মরণ শুভ-সিন্দুরে একটি বিন্দু এঁকো– তোমার ললাটচন্দনে। আমার মনের মোহের মাধুরী মাখিয়া রাখিয়া দিয়ো– তোমার অঙ্গসৌরভে। আমার আকুল জীবনমরণ টুটিয়া লুটিয়া নিয়ো– তোমার অতুল গৌরব।।

Figure 27: Music player

4.1.3.MEMBER ACCOUNT

When member will enter to his/her personal account, they will find another homepage of personal account. In the member's personal account, there are several options-

- **Shworolipi:** This button will lead the member to the homepage. This will show the trendy song of this website. Member can play songs from those.

  In figure 28, we can see the homepage, where the trendy song of shworolipi is suggested.

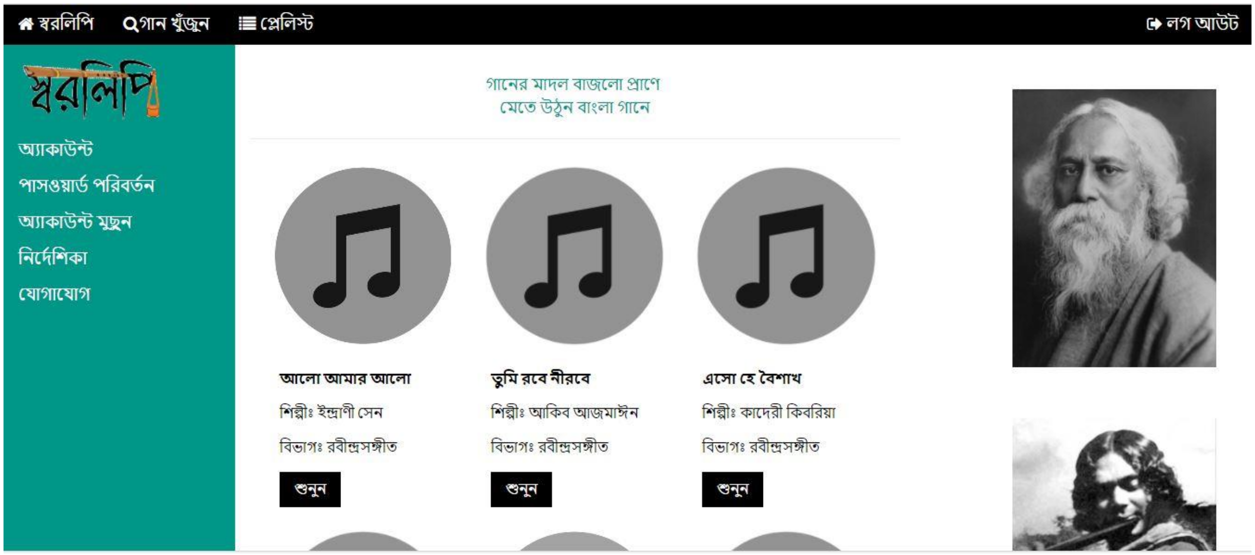


Figure 28: Homepage of Member

- **Search:** This button helps member to search for songs. This is similar search module showed in figure 26.
- **Playlist:** This button will lead the member to playlist options. In figure 29, the playlist module is shown. Member will see the list of playlists at the left bar.

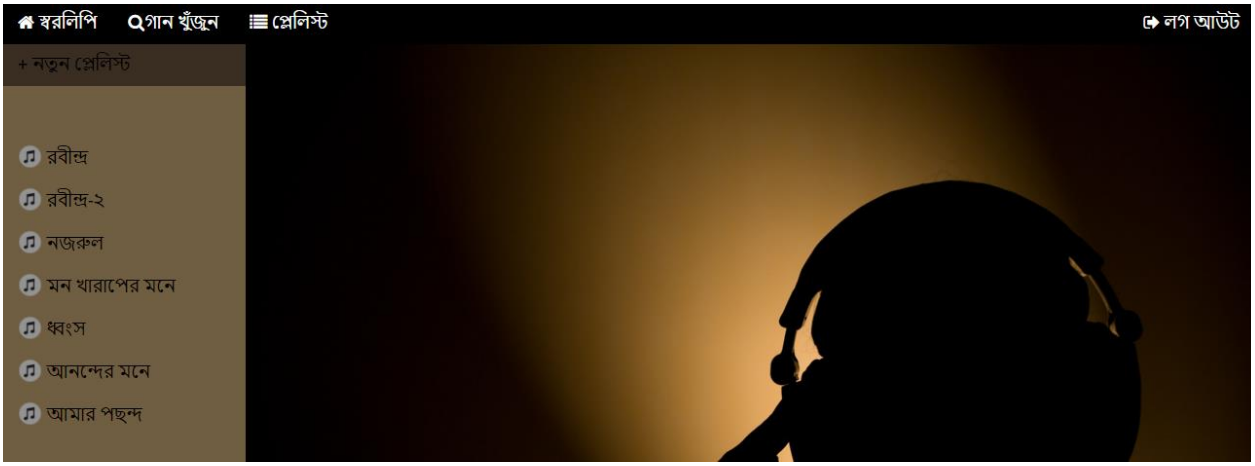
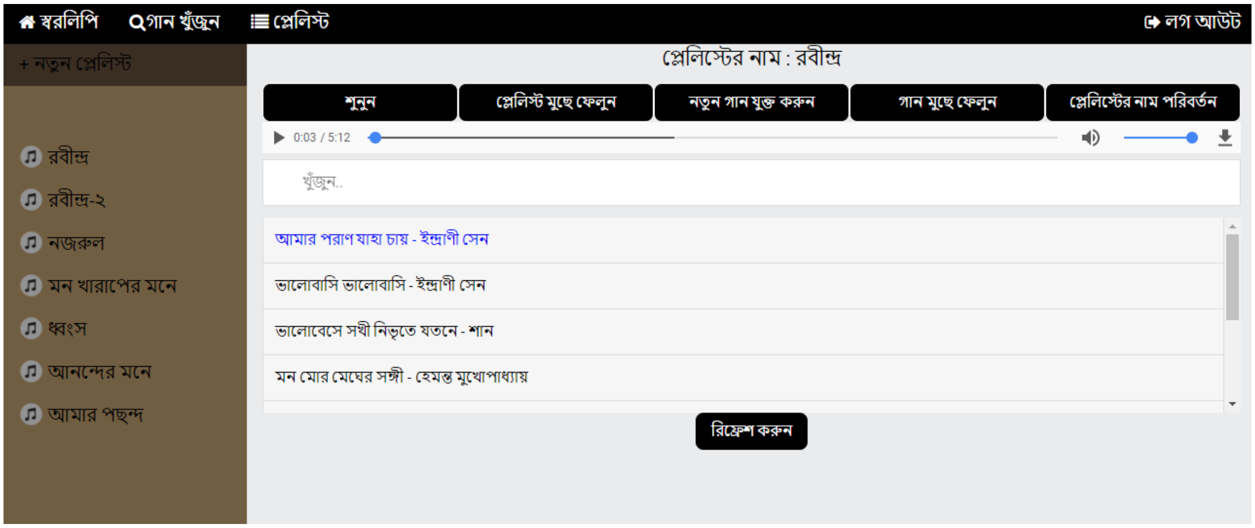


Figure 29: Playlist of a member

When a member selects a playlist, some buttons become enable for that playlists. Those are shown in figure 30. Those buttons are-

- **Make a new playlist:** This button helps a member to create a new playlist. There will be suggestions for songs to add to the playlist. Also they can search songs.
- **Play playlist:** With this button a member can play the full playlist.
- **Delete playlist:** A member can delete the playlist with this button.
- **Add songs to Playlist:** A member can add songs with this button. When the button will be clicked, it will show a song list from where the member can add songs. There is also a search option to find the songs.
- **Remove a song from playlist:** Member can delete a song from the playlist with this button.
- **Rename playlist:** This button helps to rename the playlist.



প্লেলিস্টের নাম : রবীন্দ্র

আমার পরাণ যাহা চায় - ইন্দ্রাণী সেন

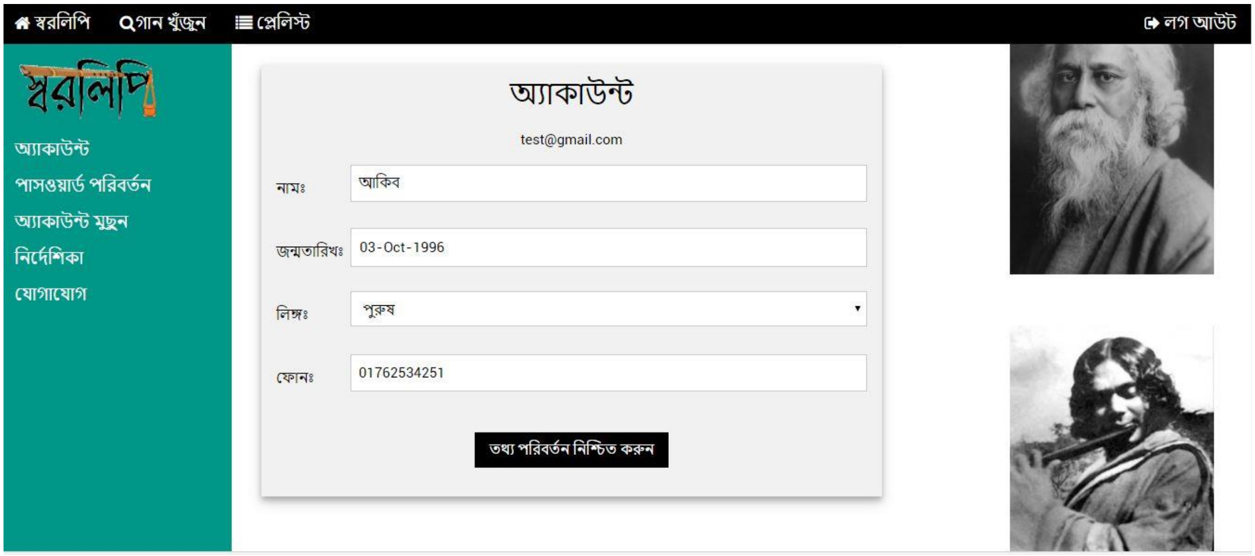
ভালোবাসি ভালোবাসি - ইন্দ্রাণী সেন

ভালোবেসে সখী নিভৃতে যতনে - শান

মন মোর মেঘের সঙ্গী - হেমন্ত মুখোপাধ্যায়

Figure 30: Playlist options

- **Account:** In figure 31, information of the account of a member is shown. Here member can update their information. Except for password, other information is optional.



অ্যাকাউন্ট

test@gmail.com

নামঃ আকিব

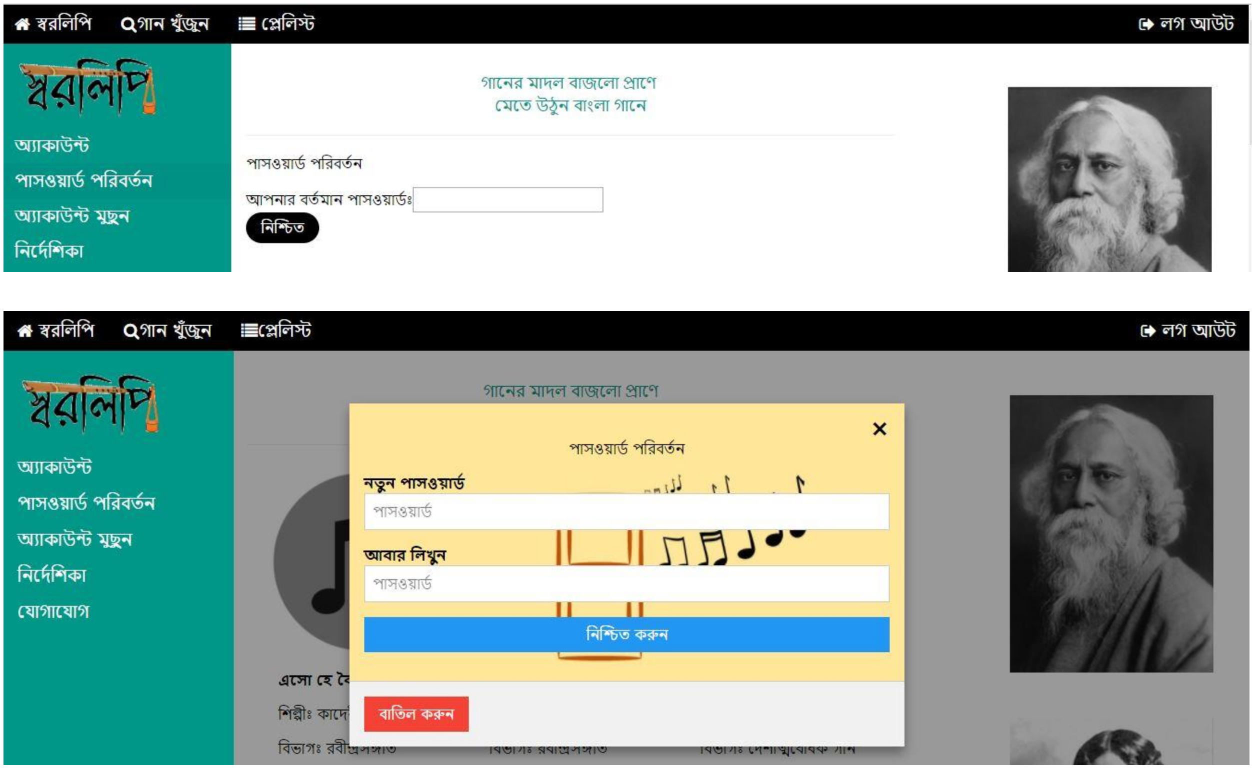
জন্মতারিখঃ 03-Oct-1996

লিঙ্গঃ পুরুষ

ফোনঃ 01762534251

Figure 31: Account information of a member

- **Changing password:** In this option, members can change password, but before that they have to confirm their old password.



গানের মাদল বাজলো প্রাণে
মেতে উঠুন বাংলা গানে

পাসওয়ার্ড পরিবর্তন

আপনার বর্তমান পাসওয়ার্ডঃ

পাসওয়ার্ড পরিবর্তন

নতুন পাসওয়ার্ড

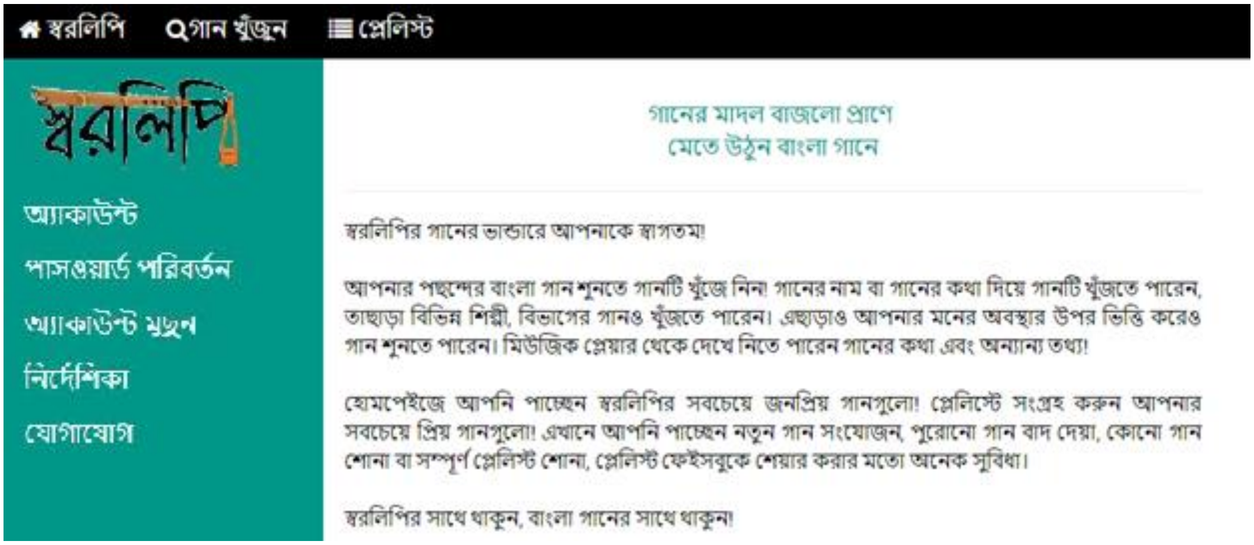
পাসওয়ার্ড

আবার লিখুন

পাসওয়ার্ড

Figure 32: Changing password

- **Delete account:** In the delete account option, members can delete the account. Figure 32 shows that option.
- **Guideline:** Members can also have a look the guideline option for their convenience. In figure 33, guideline option is shown.



গানের মাদল বাজলো প্রাণে
মেতে উঠুন বাংলা গানে

স্বরলিপির গানের ভান্ডারে আপনাকে স্বাগতম!

আপনার পছন্দের বাংলা গান শুনতে গানটি খুঁজে নিন! গানের নাম বা গানের কথা দিয়ে গানটি খুঁজতে পারেন, তাছাড়া বিভিন্ন শিল্পী, বিভাগের গানও খুঁজতে পারেন। এছাড়াও আপনার মনের অবস্থার উপর ভিত্তি করেও গান শুনতে পারেন। মিউজিক প্লেয়ার থেকে দেখে নিতে পারেন গানের কথা এবং অন্যান্য তথ্য!

হোমপেইজে আপনি পাচ্ছেন স্বরলিপির সবচেয়ে জনপ্রিয় গানগুলো! প্লেলিস্টে সংগ্রহ করুন আপনার সবচেয়ে প্রিয় গানগুলো! এখানে আপনি পাচ্ছেন নতুন গান সংযোজন, পুরোনো গান বাদ দেয়া, কোনো গান শোনা বা সম্পূর্ণ প্লেলিস্ট শোনা, প্লেলিস্ট ফেইসবুকে শেয়ার করার মতো অনেক সুবিধা।

স্বরলিপির সাথে থাকুন, বাংলা গানের সাথে থাকুন!

Figure 33: Guideline for member

- **Contact:** This button helps a member to contact with the admins.

Members can also contact the admin. In figure 34, contact option is shown-

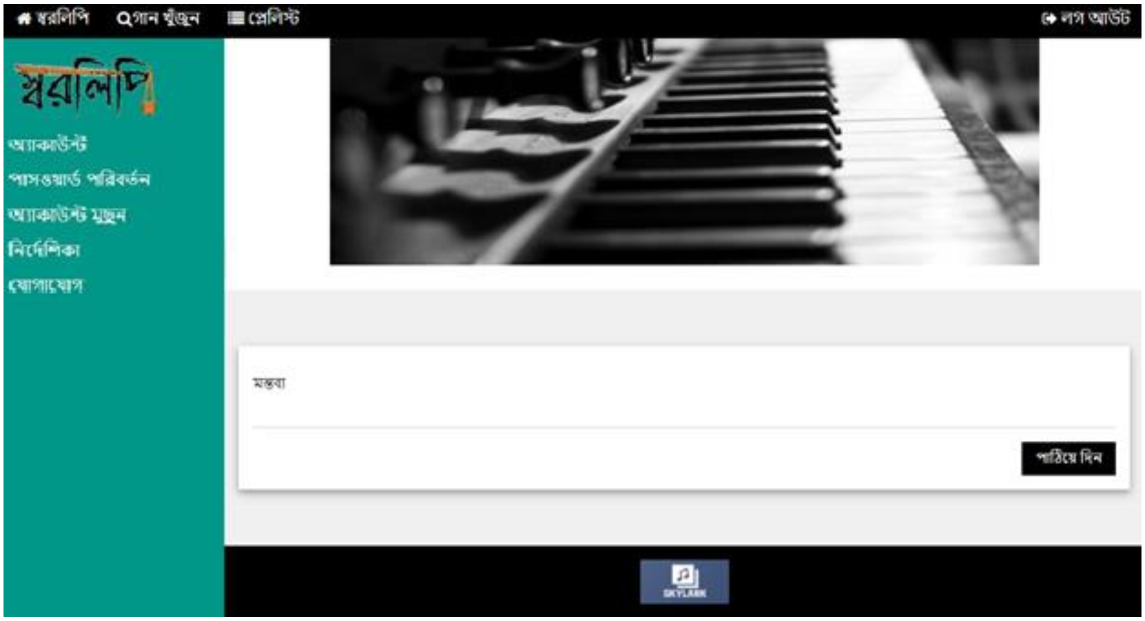


Figure 34: Contact us page

- **Logout:** With this option, member can sign out from their account.

4.2 Admin-Side

Admin side manual has two major part- authentication and admin account.

4.1.1.AUTHENTICATION

Admins will be provided with an account from the beginning. So during authentication, they just need to enter the email address and password to authenticate to enter to the account. In figure 35, the authentication module for admin is shown.

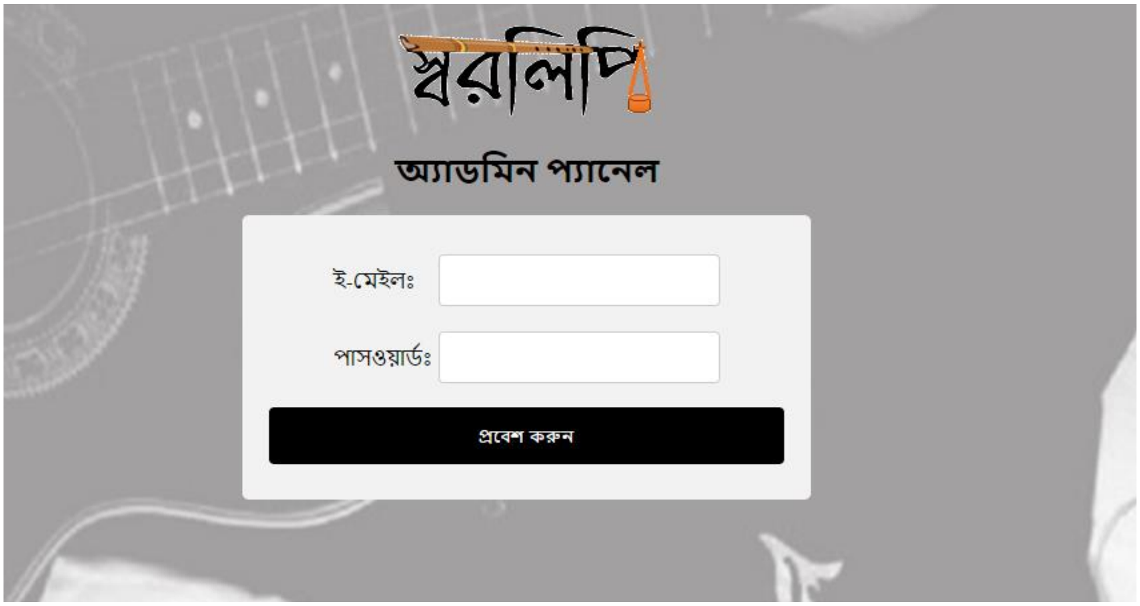


Figure 35: Authentication for admin

4.1.2.ADMIN ACCOUNT

There are several options in the admin panel shown in the figure 36. Those are-

- **Shworolipi:** This button leads the admins to the homepage of the admin panel.

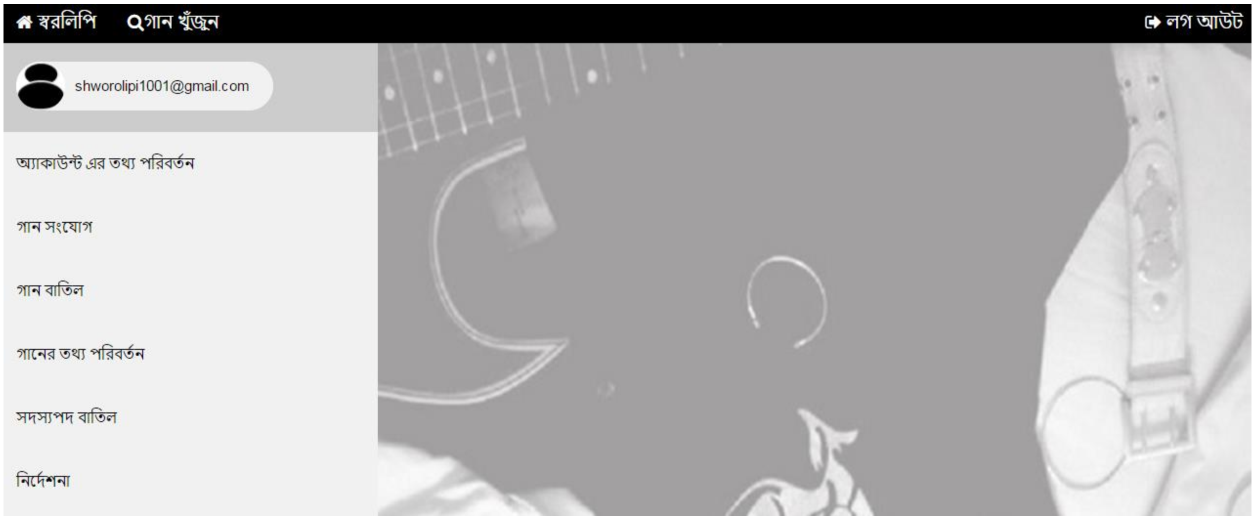


Figure 36: Homepage for admin

- **Search songs:** Admins can also search songs like other members. This search module is shown in the figure 37-

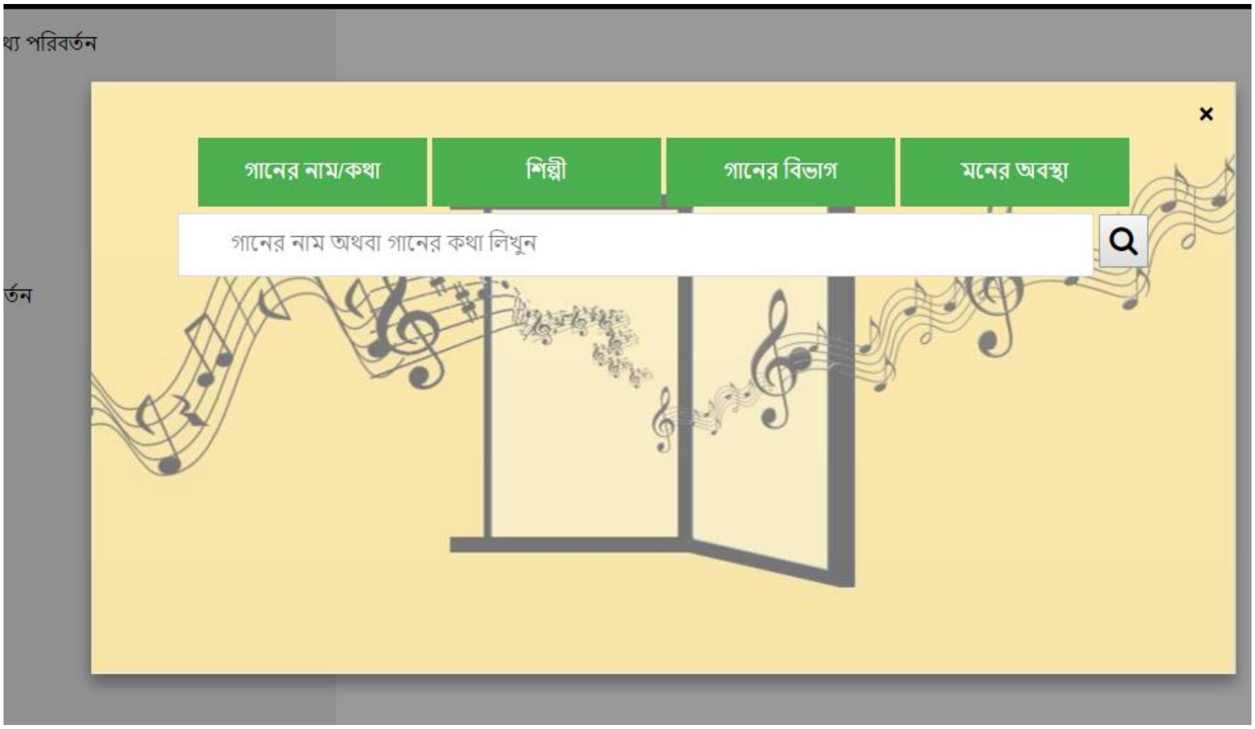
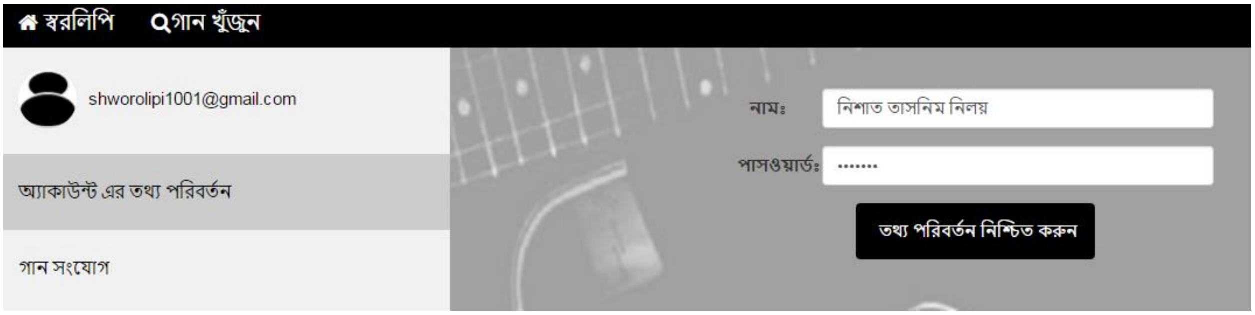


Figure 37: Searching songs for admin

- **Edit information of the account:** With this option shown in figure 38 admin can change the name or password of that account if necessary.

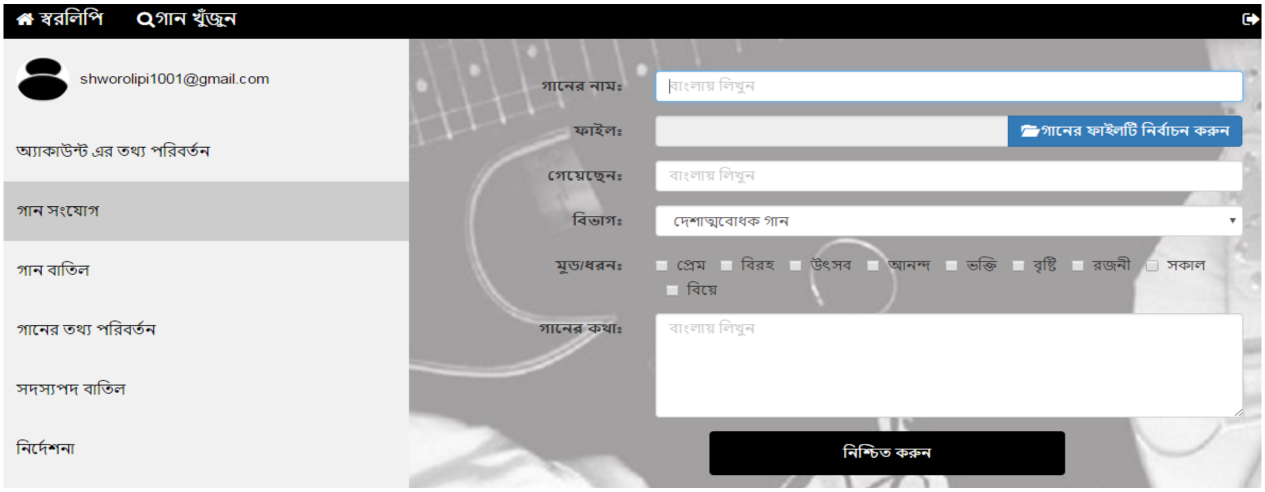


নামঃ নিশাত তাসনিম নিলয়

পাসওয়ার্ডঃ •••••••

Figure 38: Editing information of admin

- **Add song:** This option helps admin to add a new song to the database. In figure 39, the page to add any new song is shown. Here admin needs to add Bengali song title, corresponding mp3 file, artist name, genre, mood and lyric.



বিভাগঃ দেশাত্মবোধক গান

মুড/ধরনঃ □ প্রেম □ বিরহ □ উৎসব □ আনন্দ □ ভক্তি □ বৃষ্টি □ রজনী □ সকাল □ বিয়ে

Figure 39: Uploading a song

- **Remove song:** To remove any songs, the admin needs to select this option shown in figure 40. There he/she first have to search the song to remove it.

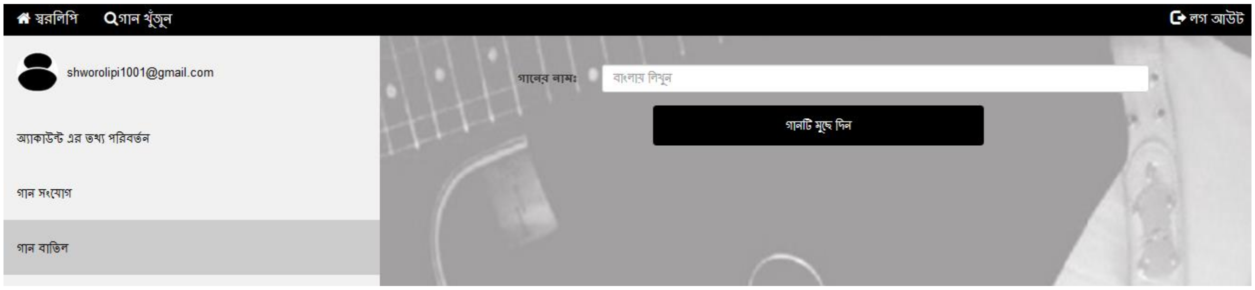
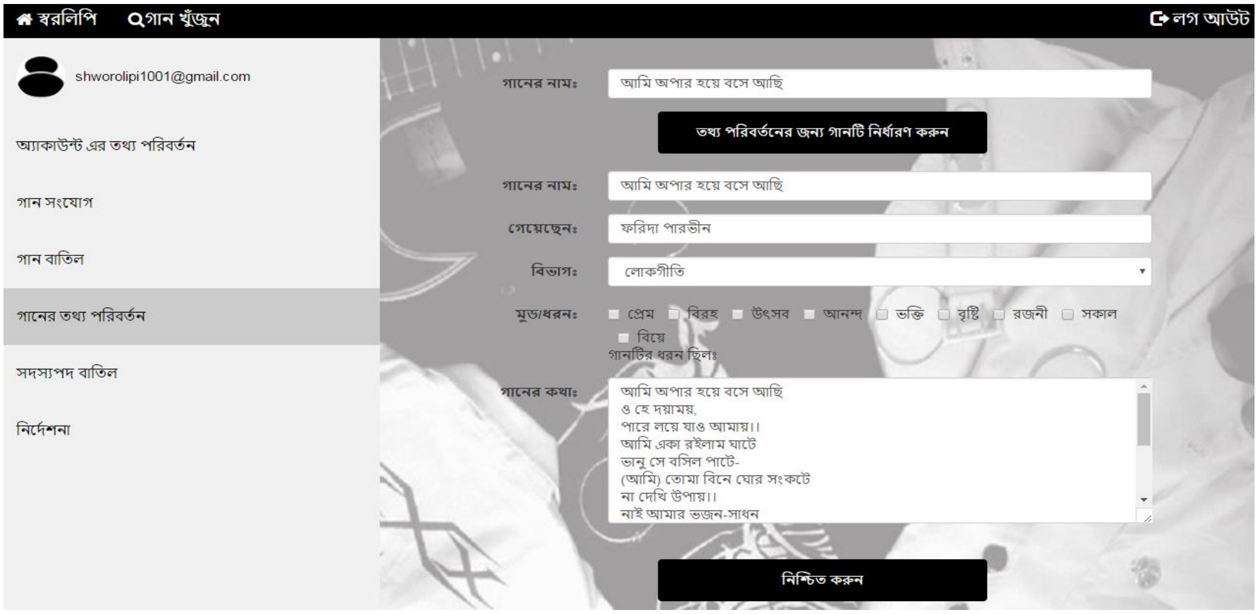


Figure 40: Deleting a song

- **Update song information:** With this option admin can update the information of a song which is already existing in the database. In figure 41, updating song information is shown. To update any song information, the admin needs to find the song first. Then, he/she can update the information according to the necessity.



গানের নামঃ আমি অপার হয়ে বসে আছি

গানের নামঃ আমি অপার হয়ে বসে আছি

গেয়েছেনঃ ফরিদা পারভীন

বিভাগঃ লোকগীতি

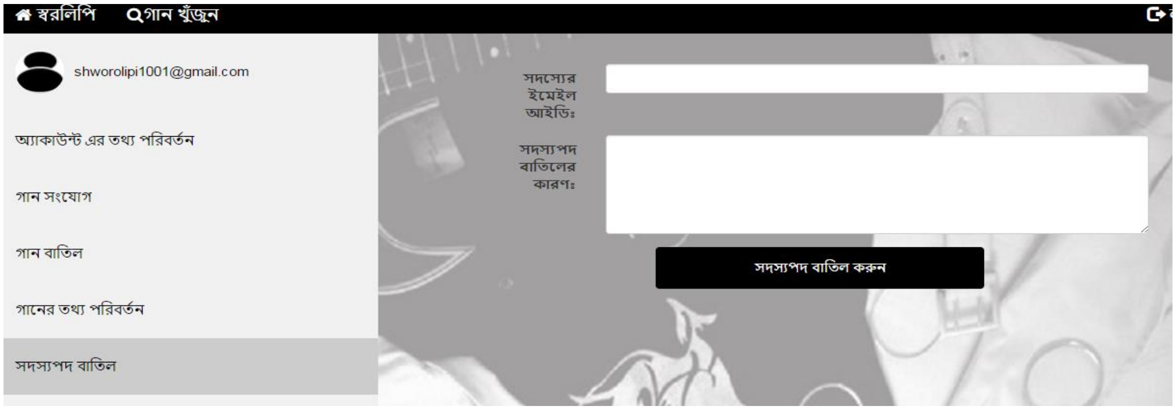
মুড/ধরনঃ ■ প্রেম ■ বিরহ ■ উৎসব ■ আনন্দ □ ভক্তি □ বৃষ্টি □ রজনী □ সকাল ■ বিয়ে

গানটির ধরন ছিলঃ

গানের কথাঃ
আমি অপার হয়ে বসে আছি
ও হে দয়াময়,
পারে লয়ে যাও আমায়।।
আমি একা রইলাম ঘাটে
ভানু সে বসিল পাটে-
(আমি) তোমা বিনে ঘোর সংকটে
না দেখি উপায়।।
নাই আমার ভজন-সাধন

Figure 41: Updating song information

- **remove member:** This option helps an admin to remove a member. In figure 43, removing account of the member shown. Admin can remove a member by entering the email address of a member and reason behind it.

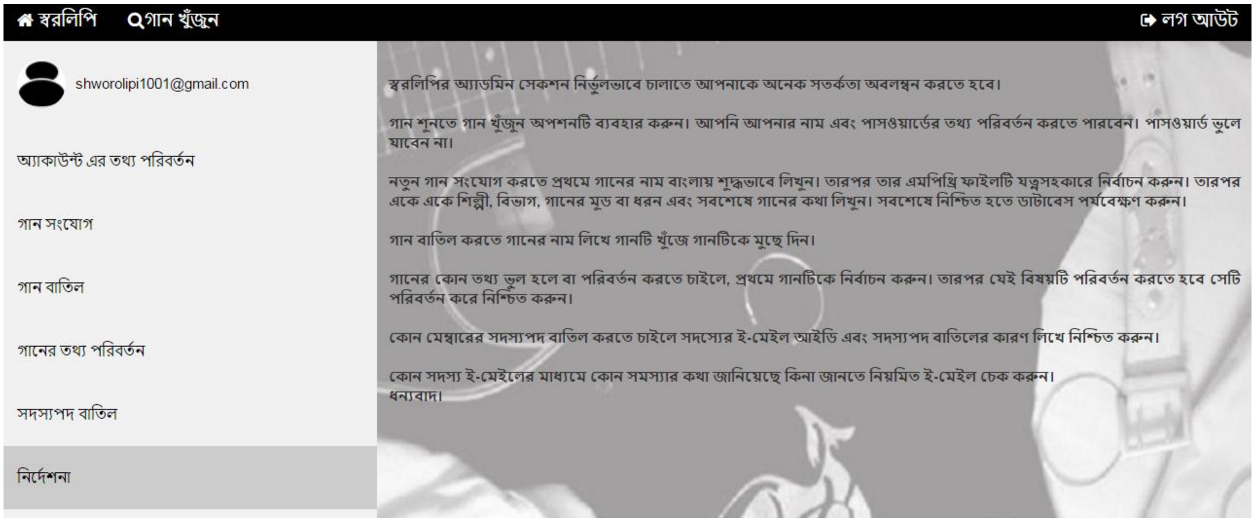


সদস্যের ইমেইল আইডিঃ

সদস্যপদ বাতিলের কারণঃ

Figure 42: Removing a member

- **Guideline:** There is an option to check the guideline. In figure 44,guideline for admins is shown.



স্বরলিপির অ্যাডমিন সেকশন নির্ভুলভাবে চালাতে আপনাকে অনেক সতর্কতা অবলম্বন করতে হবে।

গান শুনতে গান খুঁজুন অপশনটি ব্যবহার করুন। আপনি আপনার নাম এবং পাসওয়ার্ডের তথ্য পরিবর্তন করতে পারবেন। পাসওয়ার্ড ভুলে যাবেন না।

নতুন গান সংযোগ করতে প্রথমে গানের নাম বাংলায় শুদ্ধভাবে লিখুন। তারপর তার এমপিথ্রি ফাইলটি যত্নসহকারে নির্বাচন করুন। তারপর একে একে শিল্পী, বিভাগ, গানের মুড বা ধরন এবং সবশেষে গানের কথা লিখুন। সবশেষে নিশ্চিত হতে ডাটাবেস পর্যবেক্ষণ করুন।

গান বাতিল করতে গানের নাম লিখে গানটি খুঁজে গানটিকে মুছে দিন।

গানের কোন তথ্য ভুল হলে বা পরিবর্তন করতে চাইলে, প্রথমে গানটিকে নির্বাচন করুন। তারপর যেই বিষয়টি পরিবর্তন করতে হবে সেটি পরিবর্তন করে নিশ্চিত করুন।

কোন মেম্বারের সদস্যপদ বাতিল করতে চাইলে সদস্যের ই-মেইল আইডি এবং সদস্যপদ বাতিলের কারণ লিখে নিশ্চিত করুন।

কোন সদস্য ই-মেইলের মাধ্যমে কোন সমস্যার কথা জানিয়েছে কিনা জানতে নিয়মিত ই-মেইল চেক করুন।
ধন্যবাদ।

Figure 43: Guideline for an admin

- **Log out:** This button helps to sign out when admin needs to leave this website.

So, these are the user manual for both the client and admin.

CHAPTER 5: CONCLUSION AND IMPLEMENTATION LIMITATION

A software project means a lot of experience. This chapter summarizes the overall experience gained by the project team during development of a music streaming web application. This is a web based real-time web application. Here we needed to handle both the server and user side. This was a great experience for us.

5.1 Achievements

This project helped us to achieve a lot of experiences-

- We have learned a lot about how to develop a software, how to gather and analyze the requirements, the software designing process and finally the implementation phase. It was really a great challenge for us to develop the software.
- It helped us to work as a team
- With this project, we learned to implement web technologies

5.2 Obstacles

During the project development phase, we have faced some obstacles-

- Since we had no experience in web development sector, It was a great challenge to learn and implement web technology simultaneously
- Since we did not follow any framework, we had to handle every code segments manually.

5.3 Future Plan

We have some future plan to expand this project-

- Search module will have more variation.
- We will connect the members so that they can share music
- Member will have the authority to upload their songs
- Member can change the mood of songs within the playlist

We have worked really hard to complete this project. We have got a lot of help from our teachers and seniors. Hopefully, our users will be satisfied with our software.

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