

Music Player

Lab Report

Submitted by-

“Brainiacs”

Md. Sayem Khan –[339]

Shahriar Nazim –[340]

Rahnuma Tabassum Orpita –[341]

Md. Nasim Alby –[338]

Submitted to-

Jannat Rosul Nisha

Lecturer dept. Of CSE

Northern University Bangladesh



Department of Computer Science and Engineering

NUB - Northern University Bangladesh (NUB)

Fall 2023

Letter of Transmittal

29th November , 2023

The Lecturer

Department of Computer Science and Engineering

Northern University Bangladesh (NUB)

Ashiyon City Rd

Dhaka 1230 , Bangladesh

Subject : Letter of Transmittal.

Dear Mam ,

We are very pleased to present to you our lab report titled ‘Music Player’ as required by NUB for this course titled “ **Software Development 1 (CSE 1290)**”. It was indeed a great opportunity for us to work on this project to actualize our theoretical knowledge into practice. Now we are looking forward to your kind appraisal of our report.

Finally, we would like to thank you for giving us the opportunity to pursue our studies with your guidance.

Yours sincerely,

Md. Sayem Khan - 339

Shahriar Nazim – 340

Rahnuma Tabassum Orpita – 341

Md. Nasim Alby – 338

Student's Declaration

We hereby declare that this lab report titled 'Music Player' is our original work. It has never been presented previously or concurrently for any other purpose, either by us or by any other student. We also declare that there is no plagiarism or data falsification and materials used in this report from various sources have been duly cited.

Abstract

In recent years, the emergence of smartphones has changed the definition of mobile phones. “Phone is no longer just a communication tool, but also an essential part of people's communication and daily life. Various applications added unlimited fun for people's lives. Now the Android system in the electronics market is becoming more and more popular, especially in the smartphone market. So this project aims to make an android application offline audio Music Player using Android Studio, Figma, and Java. The application will allow users to control a button through a side-scrolling environment, avoiding obstacles and accumulating points. The project will emphasize engaging musicplay, user-friendly controls, and a responsive design adaptable to various mobile screen sizes.

Acknowledgment

“We would like to express our special thanks to our course teacher Jannat Rosul Nisha who gave us the golden opportunity to do this wonderful project on Android Applications, which also helped us in doing a lot of research and we came to know about so many new things about android. We are really thankful to her”.

Table of Contents

Letter of Transmittal.....	1
Student's Declaration.....	2
Abstract.....	3
Acknowledgment.....	4
Chapter 1:project overview.....	6
1.1 Introduction.....	7
1.2 Project Overview.....	7
1.3 Background of study.....	7
1.4 Objectives.....	8
1.5 Broad Objective.....	8
1.6 Specific objectives.....	8
1.7 Data Sources.....	8
1.8 Limitations Of The Project.....	9
1.9 Process Model.....	9
1.10 System Benefit.....	10
Chapter 2: System Planning.....	11
2.1 Proposed System.....	12
2.2 Project Scheduling Chart.....	13
Chapter 3:Designing.....	14
Chapter 4:Testing.....	18
4.1 Basic Functionality.....	19
4.2 UI Responsiveness and Usability.....	19
4.3 Error Handling and Performance.....	19
4.4 Additional Features.....	19
Chapter 5: Conclusion.....	20
5.1 Strengths.....	21
5.2 Areas for Improvement.....	21
5.3 Overall Impact.....	21
Reference.....	22

Chapter 1:project overview

1.1 Introduction

An audio music player project involves creating software that enables users to play,manage,and enjoy music files on various devices.Typically,such projects incorporate features like play,pause,stop,volume control and often integrate with libraries or databases to organize and retrieve music tracks efficiently.The project's scope can range from a simple standalone player to a more sophisticated application with user-friendly interfaces across different platforms like desktop,web,or mobile.

1.2 Project Overview

The Java Audio Music Player project aims to create a simple yet functional music player application Using Java.It utilizes various Java libraries to manage audio playback,user interface,and file handling. The player enables users to load,play,pause,stop and navigate through audio tracks in various formats(e.g.,MP3,WAV).It provides a user-friendly interface allowing users to manage playlists,adjust volume,and display track information.

Key Features:

- Audio playback:Implementing functionalities to play,pause,stop,skip and rewind audio tracks.
- User Interface:Designing an intuitive graphical interface for users to interact with the player.
- File Handling:Supporting multiple audio file formats and managing file access.
- Volume Control:Providing options to adjust the volume level dynamically.

1.3 Background of study

The background study for an audio music player project involves delving into Java programming,specifically Java sound API for audio handling,GUI frameworks for interface design,file I/O managing audio files,concurrent processing for smooth playback,and considering user experience principles for an intuitive interface.Understanding digital audio fundamentals ,file formats,threading,testing and potential enhancements like online streaming integration further enrich the study.

1.4 Objectives

The objective of the project is to design an audio MP3 player that can be suitable for different level of users. The goals of the application are to: provide a platform to play audio(MP3) files, support playlists and provide playlist management. The music player is a software project supporting all known media files and has the ability to play them with ease. The project features are as follows: user may attach Folder to play add various media files within it. User may see track lists and play desired ones accordingly.

1.5 Broad Objective

The broad objectives of an audio music player project in java typically involves creating a software application that can play audio files (such as MP3, WAV, etc.), providing functionalities like play, pause, stop, volume control, playlist management, and possibly other features like equalizer settings or visualizations. This project aims to develop a user-friendly Interface to manage and play music files effectively using java programming language and relevant libraries.

1.6 Specific objectives

These objectives aim to create a robust and user-friendly music player application using java that encompasses various functionalities to provide a seamless audio playback experience for the end-users.

1.7 Data Sources

Data sources for an audio music player in java can include:

- Local Storage: Accessing audio files stored on the user's device or a specified directory.
- Database Integration: Storing metadata and playlists in a local or remote database for efficient management and retrieval.
- Media Metadata: Retrieving information like artist name, album, track title, genre and album art embedded within audio files.
- User Input: Accepting user-generated playlists, song preferences, and customizations to personalize the music listening experience.

These data sources provide the necessary content and information required by the java-based audio music player for playback, organization, and user interaction.

1.8 Limitations Of The Project

Limitations of an audio music player project developed in java:

- Platform Dependence:Java's reliance on the JRE might lead to platform-specific issues.
- Performance:Java may have slightly reduced performance compared to lower-level languages.
- Audio Format Support:Limitations might exist in supporting certain audio formats or codes.
- Resource Usage:Java applications can consume more memory compared to native counterparts.

1.9 Process Model

The waterfall model is a sequential software development process divided into distinct phases.In waterfall process model there are some steps and they are:Requirements Gathering, System Design, Implementation, Testing, Deployment and Maintenance.As we are developed the project following the steps so we followed waterfall process model for developing our project.

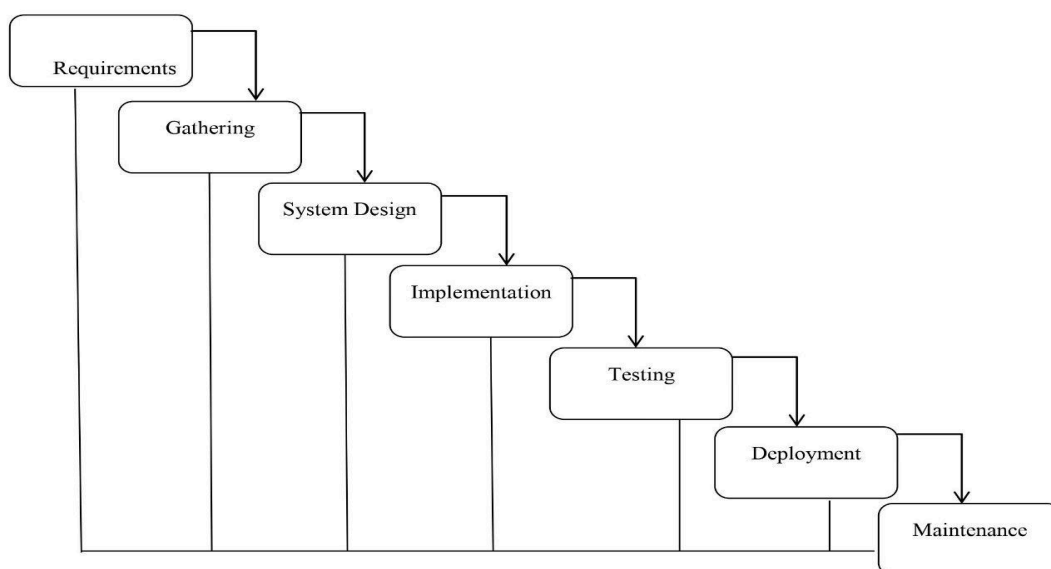


Figure 2.1 Software Process Model (Waterfall Process Model)

1.10 System Benefit

The system benefit of audio music player project are:

- Portability:Java's platform independence allows the music player to run on various systems.
- Extensive Libraries:Access to rich libraries facilitates feature-rich development.
- Ease of Maintenance:java's structure supports easier updates and maintenance of the application.
- Built-in Security:Java's inherent security features enhance the application's safety.
- Scalability:Java's scalability enables future expansions or enhancements as needed.

Chapter 2: System Planning

2.1 Proposed System

The first UI based on the image and text, it appears that the UI is designed to be simple and straightforward, with a focus on large, clear buttons and text. This type of UI is not commonly used in music apps.

The proposed system of 2nd UI in the image is a music player that allows users to browse and play a variety of songs, including all type audio after getting permission.

The following are some of the key features of the proposed system:

Browsing: Users would be able to browse songs by song name. They would also be able to view a list of all songs with lyrics if available.

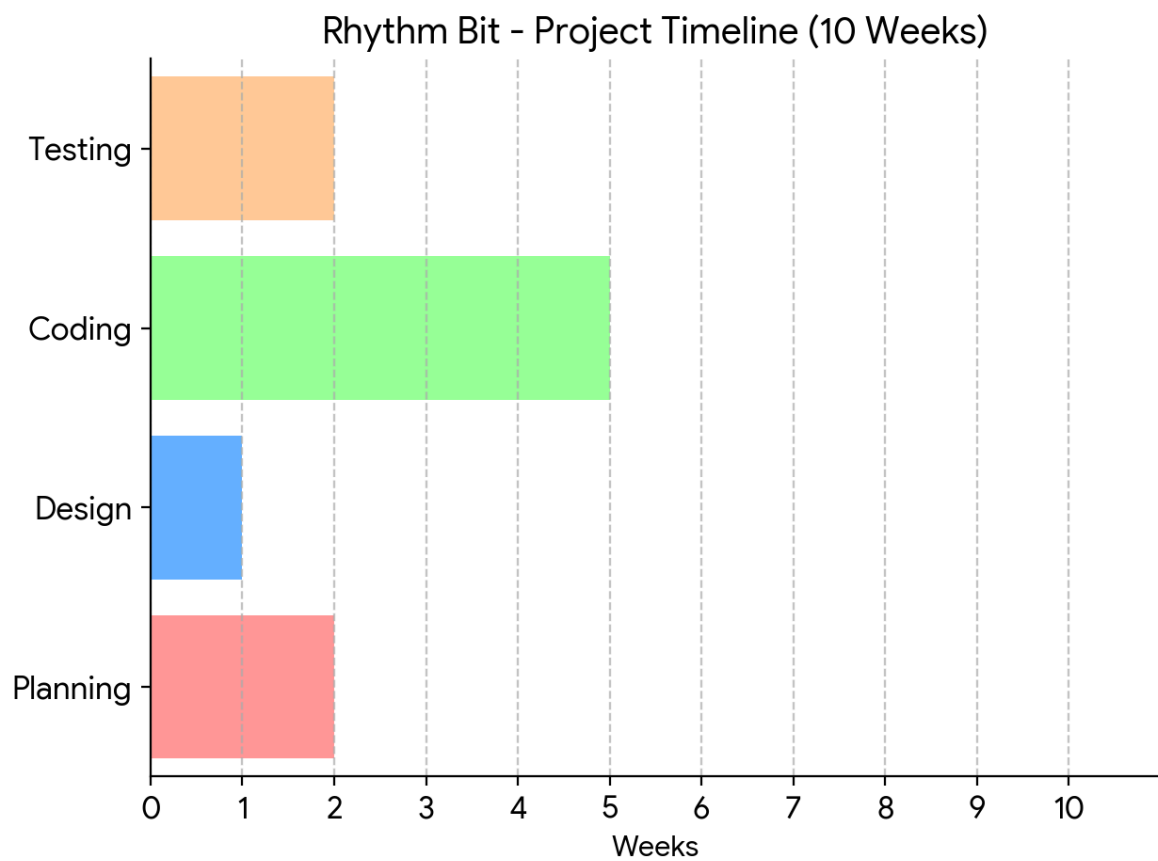
Playing: Users would be able to play individual songs. They would also be able to control the playback volume.

Lyrics: Users would be able to view the lyrics to the currently playing song.

The proposed function of the final page is to allow users to listen to music.

The page features a music player with a variety of controls, including play/pause, skip forward/back, and volume. Users can browse through the library of music and videos to find the content they want to listen to. They can also control the seekbar as they need.

2.2 Project Scheduling Chart



Chapter 3:Designing

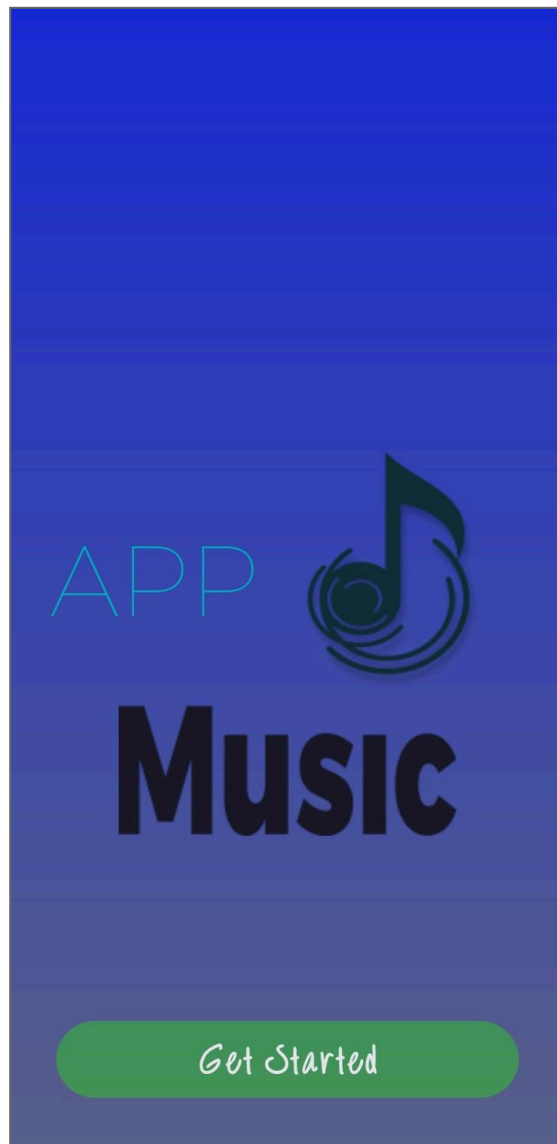


Figure 3.1 Starting Page








SONGS	
	PHIR_KABHI_Full_Video_Song___M.Ś._DHONI_-THE_...
	Arijit_Singh_Mashup_2023_Full_Version___ŚICKV...
	Atif_Aslam_Pehli_Dafa_Song_Video___Ileana_D'Cru...
	ŚAWAN_Chaleya_Hindi___Śhah_Rukh_Khan___Nayan...
	Phir_Aur_Kya_Chahiye_Zara_Hatke_Zara_Bachke_...
	Śhayad_Reprise_-_Arijit_Singh___Love_Aad_kal_...
	Tum_Kya_Mile_-_Video___Rocky_Aur_Rani_Kii_Prem_k...

Figure 3.2 Songlist

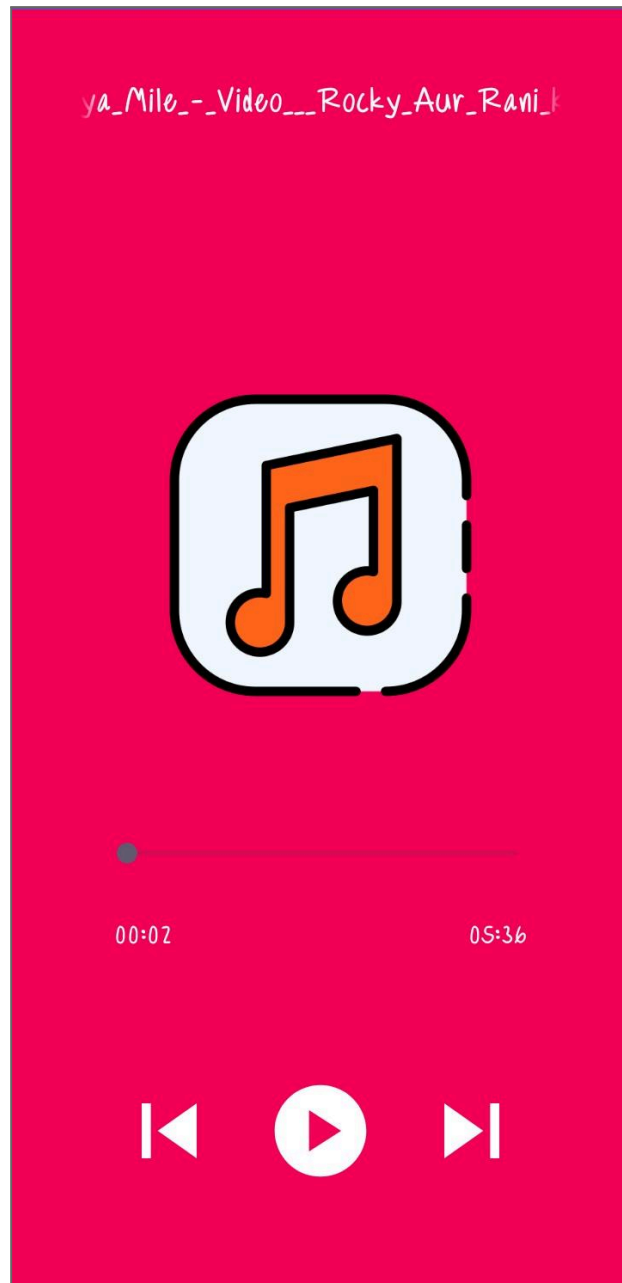


Figure 3.3 Play Song

Chapter 4: Testing

4.1 Basic Functionality

Playback: Test play, pause, stop, rewind, fast-forward, and seek bar functionality. Ensure smooth transitions and accurate playback positions.

Song Navigation: Test browsing through the music library.

Offline Playback: Confirm downloaded songs play seamlessly without an internet connection.

Volume Control: Test volume adjustments, mute functionality, and responsiveness to external controls like headphones.

4.2 UI Responsiveness and Usability

Layout and Design: Test the UI layout on different screen sizes and orientations for optimal viewing and interaction. Ensure proper element placement, spacing, and visual hierarchy.

Touch Interaction: Verify responsiveness to touch gestures like taps, swipes, and drags for playback control, song selection, and volume adjustments.

Accessibility: Test the UI for accessibility compliance, including proper font sizes, color contrast, and compatibility with screen readers.

4.3 Error Handling and Performance

Network Connectivity: Test graceful handling of internet connection loss during online playback or download. Ensure offline music remains accessible.

Resource Management: Monitor memory usage and battery consumption during playback, downloads, and background operations.

4.4 Additional Features

Lyrics and Artwork Display: If supported, test lyrics synchronization and proper display of album artwork for different songs.

Chapter 5: Conclusion

5.1 Strengths

The app boasts an intuitive design, making navigation and music playback easy for users of all levels. Offering an extensive collection of songs across various genres, satisfying a wide range of musical tastes. Users can personalize their experience through customizable playlists, equalizer settings, and other features. Smooth integration with other devices and platforms, ensuring accessibility and convenience for users across different devices.

5.2 Areas for Improvement

Enhanced Recommendation System: Implementing a more sophisticated algorithm for personalized music recommendations based on user preferences and listening habits.

Improved Offline Mode: Enhancing the offline mode functionality to allow smoother access to downloaded music without compromising quality or accessibility.

Social Integration: Incorporating more social features to enable users to share playlists, follow friends, and discover music through social connections.

5.3 Overall Impact

This music player app has made significant strides in providing an enjoyable and convenient music listening experience for users. Its user-friendly interface, diverse music library, and customization options have garnered positive feedback. However, continuing to innovate by addressing the identified areas for improvement could further enhance user satisfaction and solidify its position in the competitive music app market.

Reference

Moens, B., Muller, C., Van Noorden, L., Franěk, M., Celie, B., Boone, J., Bourgois, J. and Leman, M., 2014. Encouraging spontaneous synchronisation with D-Jogger, an adaptive music player that aligns movement and music. *PloS one*, 9(12), p.e114234.

