RhythmicTunes: Your Melodic Companion
Ideation Phase
Brainstorm & Idea Prioritization

Date	31 January 2025
Team ID	148832
Project Name	Rhythmic tunes: Your Melodic Companion
Maximum Marks	4 Marks

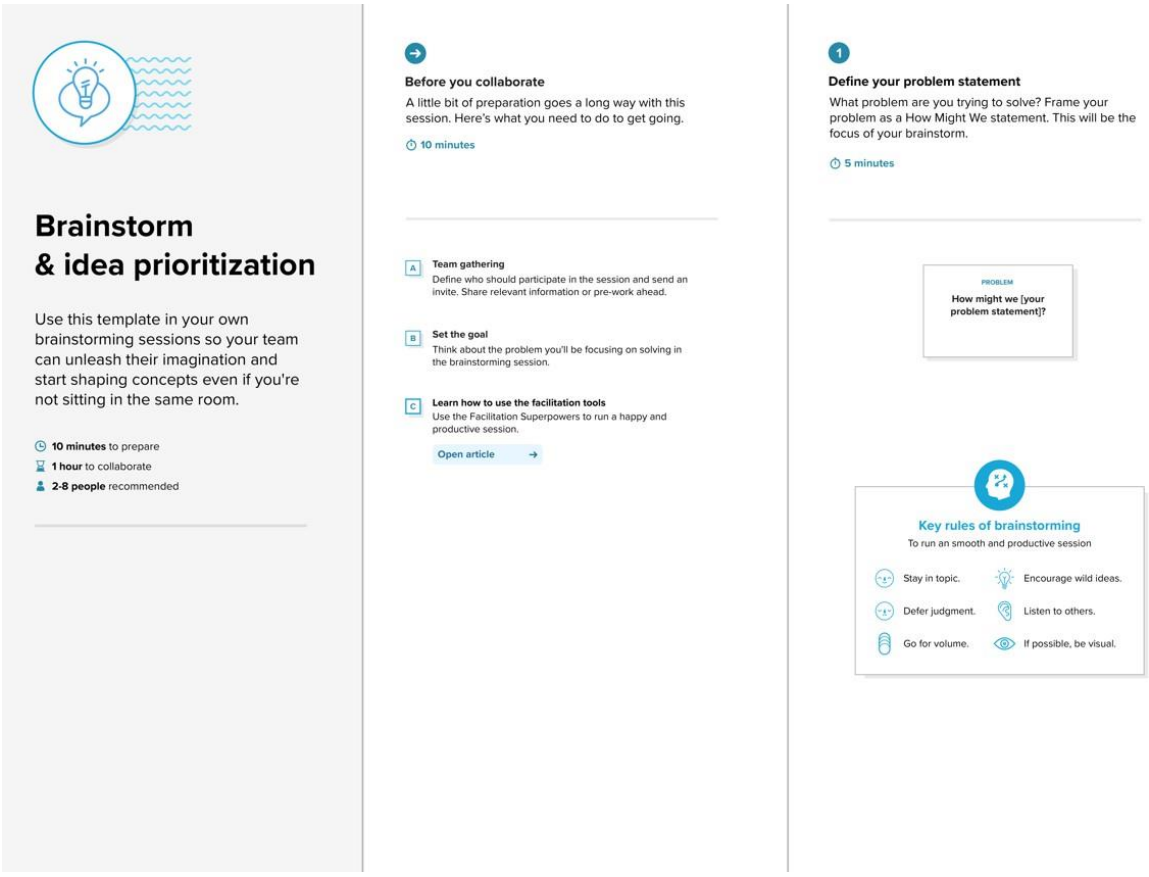
Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

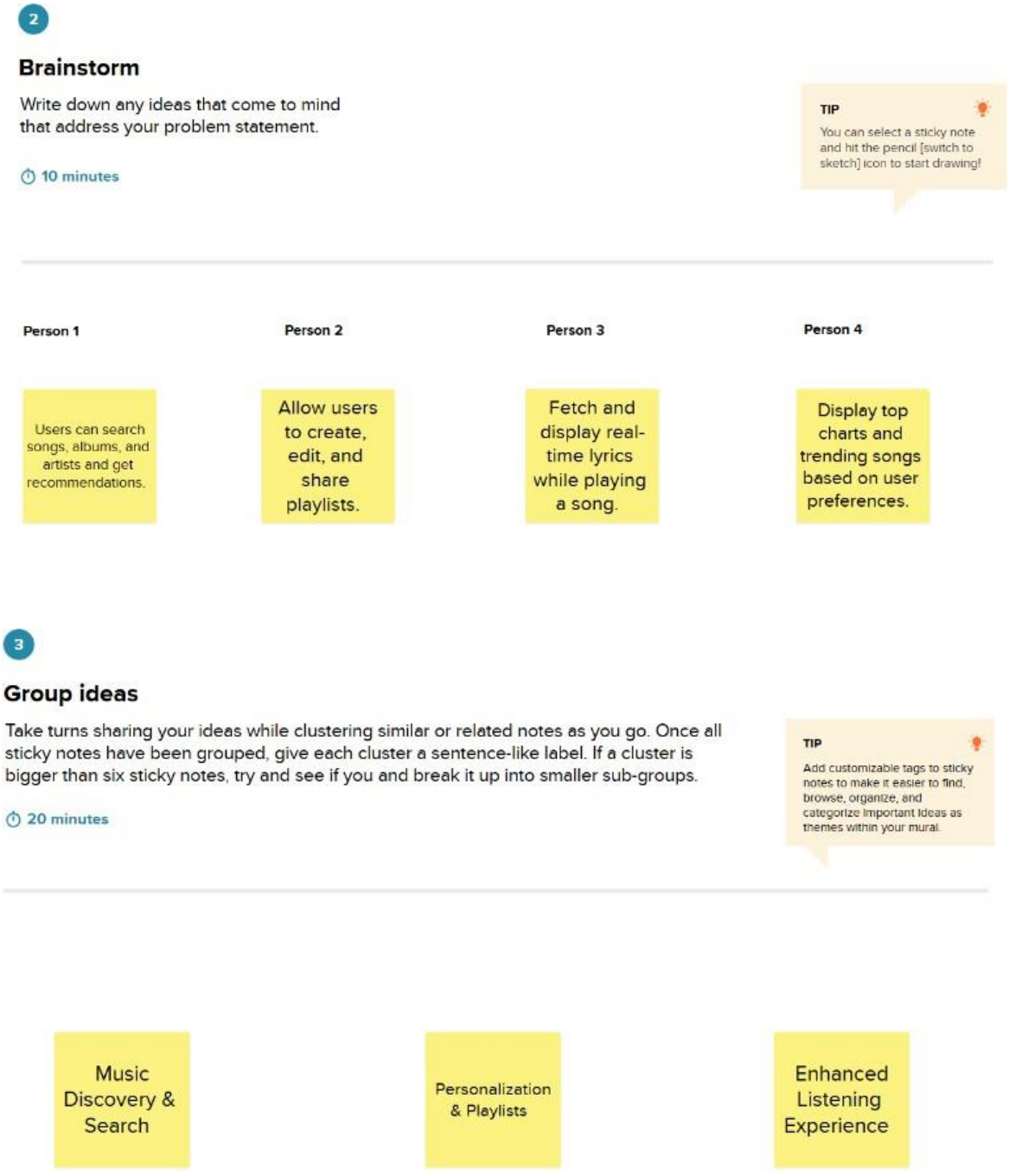
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Reference: https://www.mural.co/templates/brainstorm-and-idea-prioritization

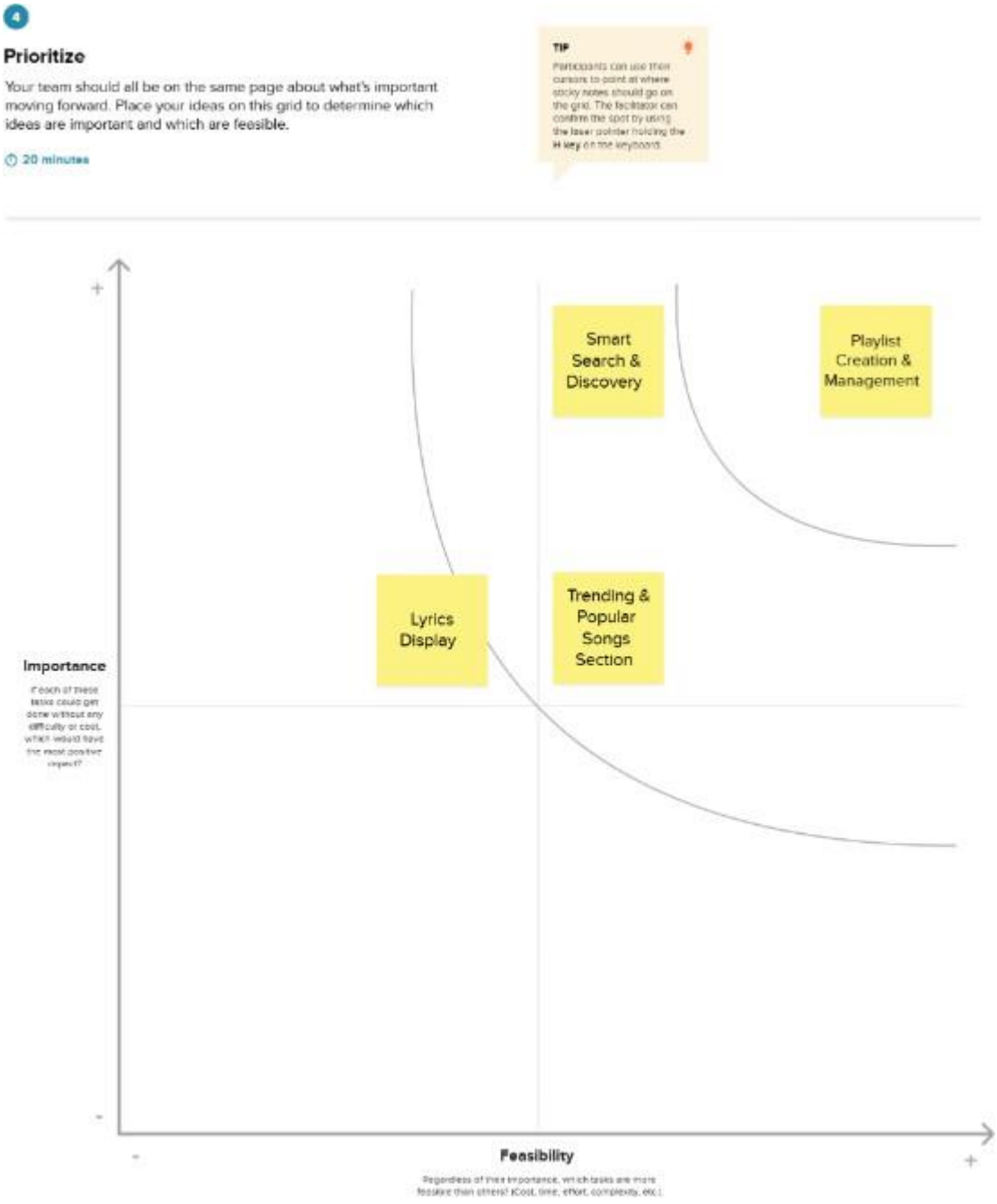
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



Step-3: Idea Prioritization



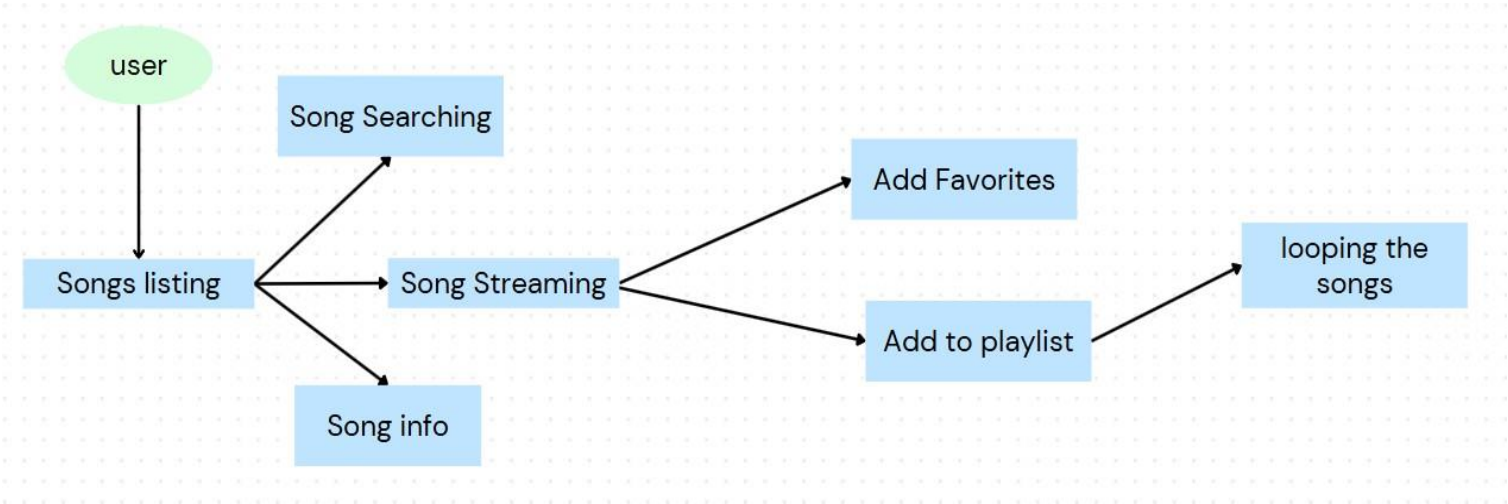
Project Design Phase-II
Data Flow Diagram & User Stories

Date	31 January 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example: DFD Level 0 (Industry Standard)



User Stories

User Story Table – Music Streaming App

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Music Discovery		USN-1	As a user, I can search for songs, albums, or artists.	I can see a list of relevant search results.	High	Sprint-1
		USN-2	As a user, I can view trending and recommended songs.	I can see recommended music on my dashboard.	Medium	Sprint-2
Playback		USN-3	As a user, I can play, pause, and skip songs.	I can control playback with basic buttons.	High	Sprint-1
		USN-4	As a user, I can view album artwork and song details while playing a song.	I can see album art, song title, and artist name.	Medium	Sprint-2
Playlists & Favorites		USN-5	As a user, I can create my own playlists.	I can save a collection of songs under a custom playlist name.	High	Sprint-2
		USN-6	As a user, I can add or remove songs from my playlists.	I can successfully manage songs within a playlist.	High	Sprint-2
		USN-7	As a user, I can like/favorite songs.	I can save my favorite songs and access them later.	Medium	Sprint-2
Audio Streaming		USN-8	As a user, I can stream high-quality audio.	I can listen to songs without buffering.	High	Sprint-1

RhythmicTunes: Your Melodic Companion
Ideation Phase
Empathize & Discover

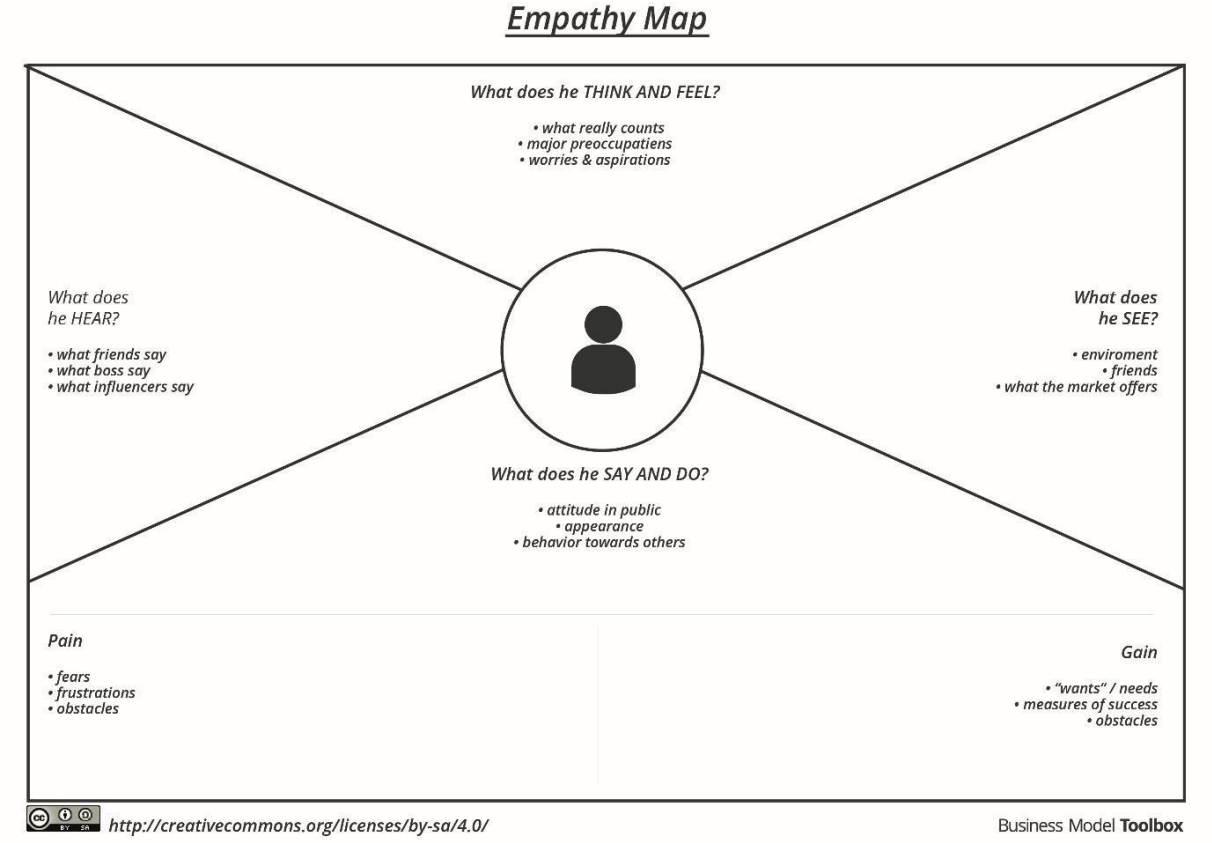
Date	31 January 2025
Team ID	148832
Project Name	Rhythmic Tunes:Melodic Companion
Maximum Marks	4 Marks

Empathy Map Canvas:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to helps teams better understand their users.
Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Example:



Reference: https://www.mural.co/templates/empathy-map-canvas

Says
What have we heard them say?
What can we imagine them saying?

I want an easy way to discover new music.

Thinks
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Which platform gives me the best music recommendations?

Shivani Kapoor
Music Listener

Searches for new songs and creates playlists.

Excited when discovering a new favorite song.

Does
What behavior have we observed?
What can we imagine them doing?

Feels
What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

See an example

Project Design Phase
Problem – Solution Fit Template

Date	6 March 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	2 Marks

Problem – Solution Fit Overview:

The **Problem-Solution Fit** ensures that the identified problem aligns with the needs of music listeners and that the proposed solution effectively addresses it. This validation is crucial before further development.

Purpose:

- Address the fragmented music streaming experience, where users struggle to find a comprehensive platform that caters to diverse musical tastes and offers personalized recommendations.
- Provide an intuitive and engaging platform for users to discover new music, artists, and playlists without relying on multiple sources.
- Offer seamless playback, ofline listening, and social sharing features to enhance user engagement and satisfaction.
- Provide a platform that empowers independent artist to gain exposure.
- Improve accessibility and engagement through an **interactive UI, responsive design, and well-structured data flow**.

Problem Statement:

Many music enthusiasts face challenges in finding a single platform that offers:

- A vast and diverse music library.
- Accurate and personalized music recommendations.
- Reliable ofline listening capabilities.
- A strong social community around music.
- Fair exposure for independent artists.

Solution:

"Rhythmic Tunes", a music streaming web and mobile application, will provide:

- An extensive music library through partnerships with major and independent record labels.
- personalized recommendations based on user listening history and preferences.
- Ofline listening mode for downloaded playlists and albums.
- Dedicated artist pages, to help users find more information about the artist.
- A freemium business model, that allows for free and paid users.

Project Design Phase
Proposed Solution Template

Date	15 February 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	2 Marks

Proposed Solution for Music Streaming App

S. No.	Parameter	Description
1	**Problem Statement** (Problem to be solved)	Users often struggle to find a seamless, personalized music streaming experience that offers high-quality playback, real-time recommendations, and an intuitive user interface. This project aims to provide a responsive and engaging music streaming platform that integrates with a third-party API.
2	**Idea / Solution Description**	The Music Streaming App is a React-based frontend solution that allows users to search, stream, and manage their favourite music. It leverages a third-party API to fetch music data and ensures an intuitive and interactive UI/UX for a seamless experience. Users can create and manage playlists, search for songs/artists, and enjoy personalized recommendations.
3	**Novelty / Uniqueness**	- **Personalized Playlists & Recommendations** using AI-powered API suggestions - **Intuitive UI/UX** with responsive design across devices - **Cross-Platform Support** for both mobile and web users - **Seamless Integration** with third-party music APIs for vast content availability
4	**Social Impact / Customer Satisfaction**	- Provides an **ad-free music streaming experience** with customizable playlists - **Brings emerging artists** to a wider audience through recommendations - **Increases user engagement** through interactive features like favourite tracks, genre-based suggestions, and social sharing
5	**Business Model (Revenue Model)**	- **Freemium Model**: Free tier with ads, premium subscription for an ad-free experience - **In-App Purchases**: Exclusive access to curated playlists, ofline downloads - **Affiliate Partnerships**: Integration with brands and music merchandise stores
6	**Scalability of the Solution**	- Can be **expanded globally** by integrating multiple third-party music APIs - Supports **multi-user profiles** for enhanced personalization - Can be extended to **mobile applications** for iOS & Android using React Native - Potential integration with **AI-driven recommendation engines** for improved user experience

Project Design Phase
Solution Architecture

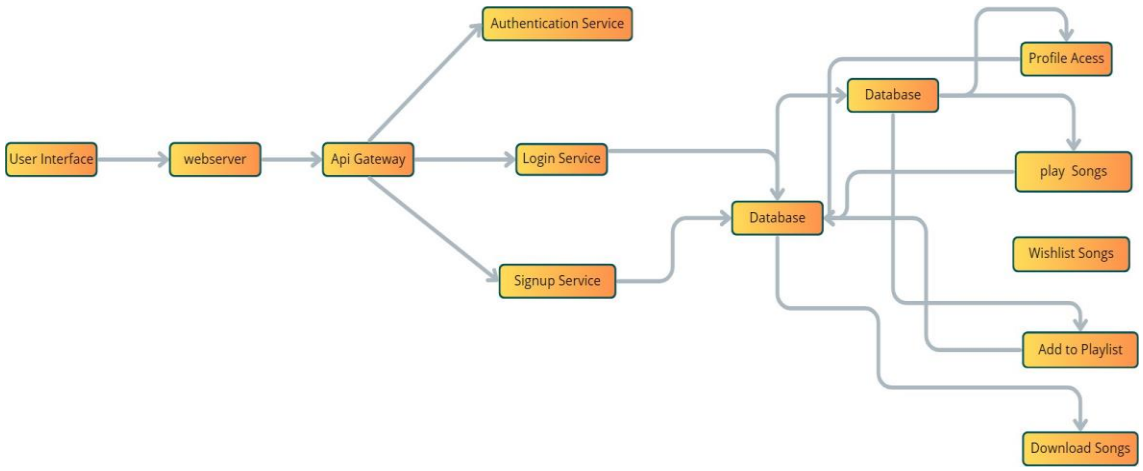
Date	15 February 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	4 Marks

Solution Architecture:

The solution architecture for **HarmonyStream**, the Rhythmic Tunes Application, ensures a **scalable, high-performance, and immersive platform** for discovering, streaming, and organizing music across genres, artists, and personalized playlists. The architecture prioritizes seamless audio delivery, real-time recommendations, and cross-device synchronization to enhance user engagement.

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Example - Solution Architecture Diagram:



Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	31 January 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

Functional Requirements – Music Streaming App

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	**Music Search & Discovery**	Search for Songs, Albums, and Artists
		View Trending and Recommended Music
FR-2	**Playback & Streaming**	Play, Pause, and Skip Songs
		Display Album Art and Song Details
FR-3	**Playlist & Favorites**	Create and Manage Playlists
		Add or Remove Songs from Playlists
		Like / Favorite Songs
FR-4	**Audio Streaming**	Stream High-Quality Audio

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The app should have an intuitive and user-friendly interface, ensuring smooth navigation and accessibility for users of all demographics.
NFR-2	**Security**	User authentication and data must be secured using encryption (e.g., HTTPS, OAuth for third-party logins). The app should prevent unauthorized access and follow best security practices.
NFR-3	**Reliability**	The app should ensure a consistent and uninterrupted music streaming experience, minimizing crashes and downtime.
NFR-4	**Performance**	Songs should load and stream with minimal buffering. The app should respond to user interactions (search, playback, playlist management) within 2 seconds.

NFR-5	**Availability**	The system should maintain an uptime of at least 99.9%, ensuring accessibility across different time zones.
NFR-6	**Scalability**	The app should handle increasing numbers of users and concurrent streams efficiently without performance degradation. The architecture should support future feature expansion.

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 January 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Rhythmic Tunes

Reference: https://open.spotify.com/

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
	User Interface	Web-based interface for music streaming	HTML, CSS, JavaScript / React Js etc.
	Application Logic-1	Music streaming and metadata management	React js, Node js
	Application Logic-2	Playlist and user preference management	React js, Node js

S.No	Component	Description	Technology
	User Interface	Web-based interface for music streaming	HTML, CSS, JavaScript / React Js etc.
	Database	Stores Songs, playlists, and metadata	JSON Web Server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
	Open-Source Frameworks	Frontend frameworks	React.js, Node.js, BootStrap, Tailwind CSS
	Scalable Architecture	3-tier architecture with RESTful APIs	Microservices

References:

React.js Documentation

Node js Best Practice

JSON Web Server Referance

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 January 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	4 Marks

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RhythmicTunes: Your Melodic Companion
Ideation Phase
Define the Problem Statements

Date	5 March 2025
Team ID	148832
Project Name	Rhythmic Tunes: Your Melodic Companion
Maximum Marks	2 Marks

Customer Problem Statement Template:

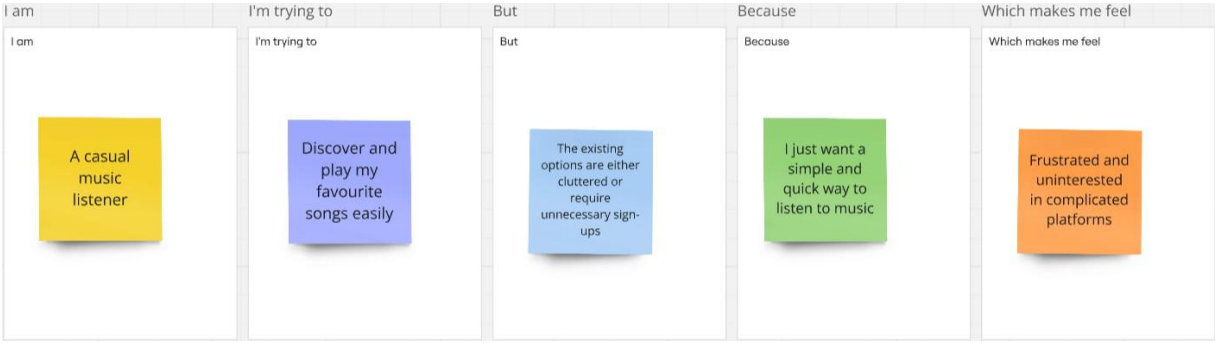
Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

I am	Describe customer with 3-4 key characteristics - *who are they?*	Describe the customer and their attributes here
I'm trying to	*List their outcome or "job" the care about - what are they trying to achieve?*	List the thing they are trying to achieve here
but	Describe what problems or barriers stand in the way – *what bothers them most?*	Describe the problems or barriers that get in the way here
because	Enter the "root cause" of why the problem or barrier exists – *what needs to be solved?*	Describe the reason the problems or barriers exist
which makes me feel	Describe the emotions from the customer's point of view – *how does it impact them emotionally?*	Describe the emotions the result from experiencing the problems or barriers

Reference: https://miro.com/templates/customer-problem-statement/

Example:



Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A casual music listener	Discover and play my favourite songs easily	The existing options are either cluttered or require unnecessary sign-ups	I just want a simple and quick way to listen to music	Frustrated and uninterested in complicated platforms
PS-2	A user exploring new music	Find new songs based on my preferences	Most platforms push mainstream tracks rather than personalized recommendations	I prefer fresh, unique music rather than what's always trending	Disconnected from my personal taste and less excited about using the platform
PS-3	A multitasker	Listen to music while working or studying	The platform has interruptions like ads or buffering issues	I need a seamless experience without distractions	Annoyed and frustrated with constant disruptions
PS-4	A mobile user	Stream music on my phone with a smooth interface	The UI is not optimized for mobile or lacks essential features	I want a responsive and intuitive design that makes navigation easy	Frustrated and likely to switch to another app

User Acceptance Testing (UAT) Template

Date	08 March 2025
Team ID	148832
Project Name	Rhythmic Tunes
Maximum Marks	

Project Overview:-

Project Name: Rhythmic Tunes
Project Description: A React-based music streaming application that allows users to search, play, and manage music using a third-party API. Features include,search, playback, playlists, and profile management.
Project Version: v1.0
Testing Period: March 1, 2025 - March 8, 2025

Testing Scope:-

Features and Functionalities to be Tested

✅ **Music Search & Discovery**

✅ **Audio Playback (Play, Pause, Skip)**

✅ **Playlist Management (Create, Edit, Delete Playlists)**

✅ **Profile Management (Edit Profile, Change Password)**

✅ **Streaming Quality & Performance Testing**

✅ **Responsive UI Testing (Mobile, Tablet, Desktop)**

User Stories or Requirements to be Tested

📌 **User Registration & Authentication**

📌 **Searching & Viewing Music Recommendations**

📌 **Playing & Controlling Music Playback**

📌 **Creating and Managing Playlists**

📌 **Updating Profile Information**

Testing Environment

URL/Location: [Enter Web URL]
Credentials (if required):

- **Test User:** testuser@example.com / Test@1234
- **Admin User:** admin@example.com / Admin@1234

Test Cases

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
TC-001	Music Search Functionality	1. Enter a song name in the search bar 2. Click Search	Matching songs should be displayed	[Actual Result]	[Pass/Fail]
TC-002	Music Playback (Play/Pause)	1. Click on a song 2. Click Play/Pause button	Song should start/stop playing	[Actual Result]	[Pass/Fail]
TC-003	Playlist Creation	1. Navigate to Playlists 2. Click "Create New Playlist" 3. Enter Name & Save	Playlist should be created successfully	[Actual Result]	[Pass/Fail]
TC-004	UI Responsiveness (Mobile)	1. Open app on mobile device 2. Navigate through pages	UI should be responsive and properly displayed	[Actual Result]	[Pass/Fail]

Bug Tracking

Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional Feedback
BG-001	Music playback is lagging on slow networks	1. Play a song on 3G network 2. Observe buffering issues	Medium	In Progress	Optimization required for low-speed connections
BG-002	UI overlaps on small screen devices	1. Open app on iPhone SE 2. Observe overlapping UI	Low	Open	Adjust CSS for small screens

---

Sign-off

Tester Name: [Enter Name]
Date: [Enter Date of Completion]
Signature: [Enter Signature]

Notes

- **Ensure testing covers both positive & negative cases**
- **Bug tracking should include severity levels & reproduction steps**
- **Final sign-off required before deployment**