



VibeQueue

Prototype iteration #1

Your Vibes, Managed - The Modern Jukebox
for Local Spaces



Table of content s

05-06

Our Team

14

“Vibe”

07

Background

15-19

Solution

08-11

**Problem
Current**

20

Gaps

12

Process flow

21

Competition

13

**Elevator
Pitch**

22-23

MFCD



Table of content

24 “Metadata”

33 Feature Table

25-26 Will do/Won’t do **34-37** Mockups

27-29 Risks

38 WBS

30 User Roles

39 User Interface

31-32 User Stories

40 External
Interface

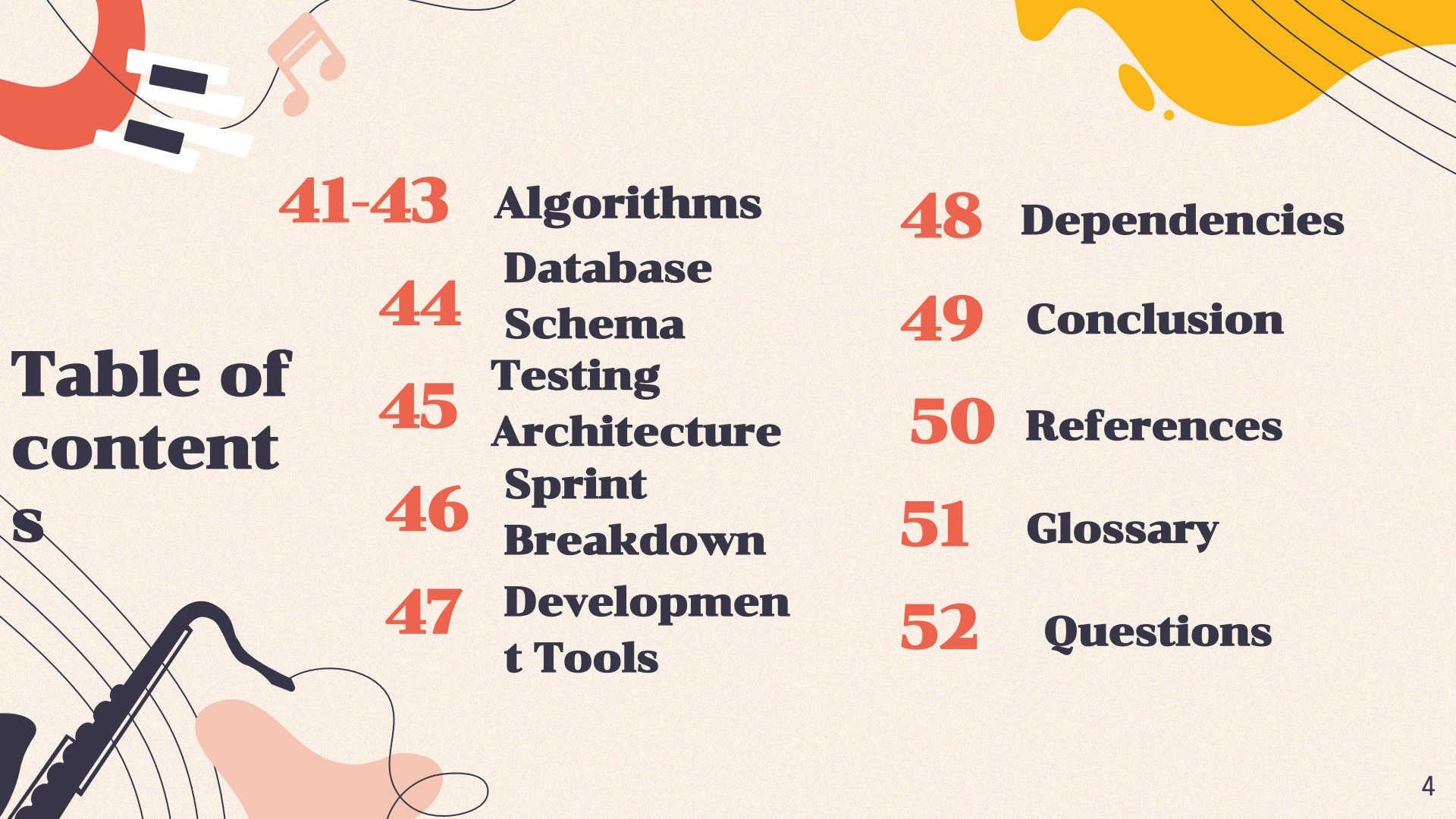


Table of content

41-43 Algorithms

44 Database
Schema

45 Testing
Architecture

46 Sprint
Breakdown

47 Developmen
t Tools

48 Dependencies

49 Conclusion

50 References

51 Glossary

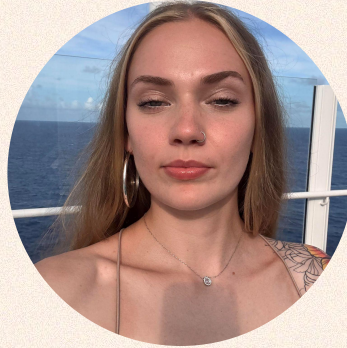
52 Questions

Meet Our Team!



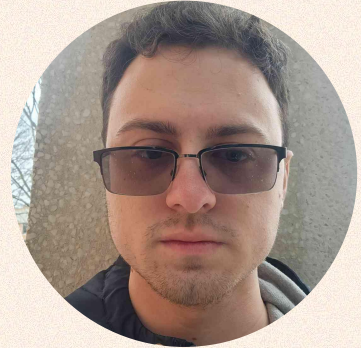
Lucas Hayes

Database Specialist



Alanna Ivey

Documentation Specialist



Spencer Hall

Software Programmer

Meet Our Team!



Andrew Behre

Project Lead



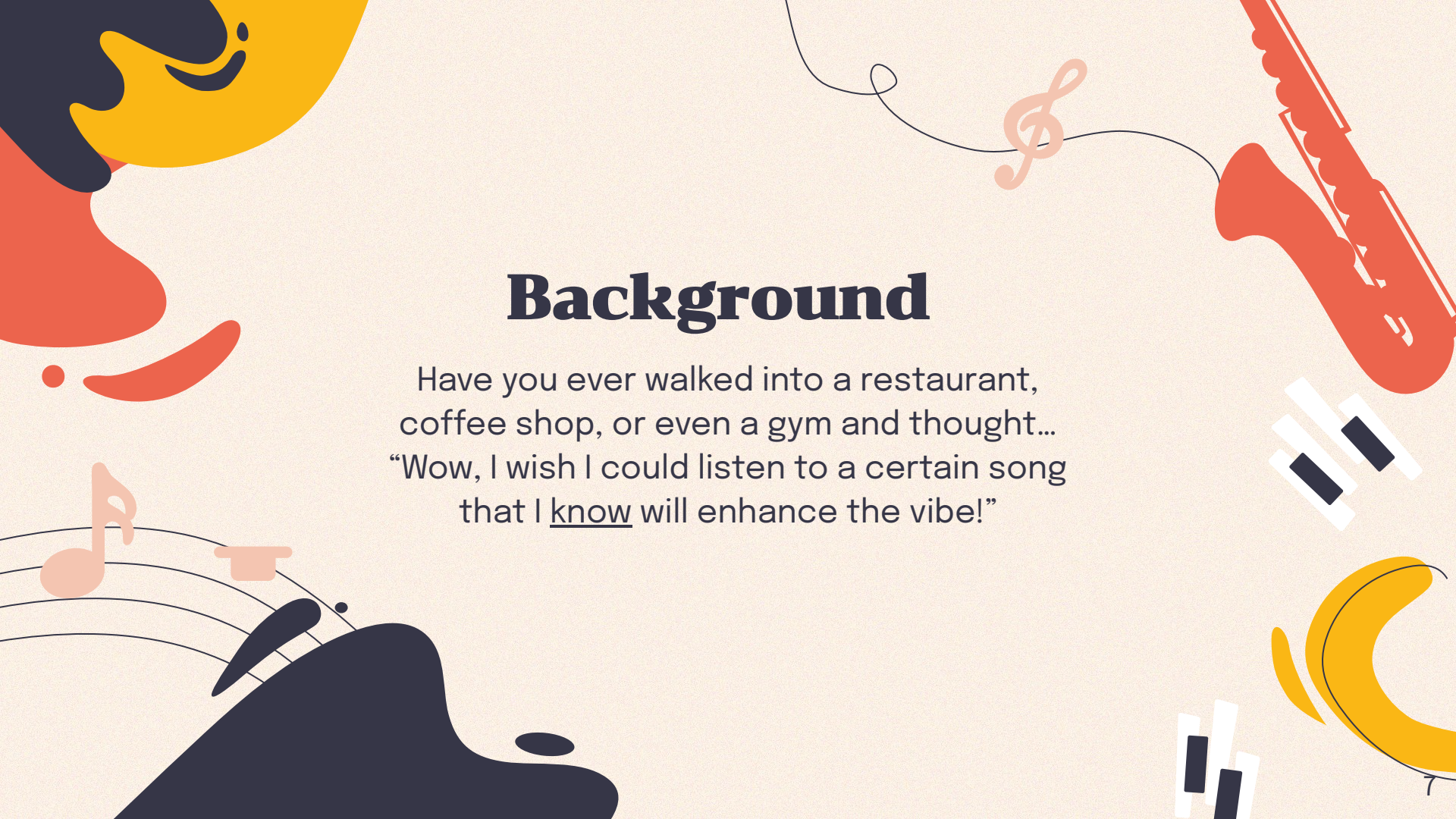
Bea Eggleston

Webmaster



Dominick Rodriguez

Backend Specialist



Background

Have you ever walked into a restaurant, coffee shop, or even a gym and thought... “Wow, I wish I could listen to a certain song that I know will enhance the vibe!”

Have you ever walked into a restaurant, coffee shop, or even a gym and thought... “Wow, I wish I could listen to a certain song that I know will enhance the vibe!”

The slide features several decorative elements: a treble clef in the top left, a saxophone in the top right, a yellow abstract shape on the left, and a red abstract shape at the bottom right. There are also some black and white geometric shapes at the bottom left.

Resulting Problems

In the modern hospitality industry, atmosphere is important, but small cafes and restaurants struggle to manage their background music. It can also be a struggle having complaints coming in from multiple customers.

As a result, staff often handle requests manually, which is inefficient during busy times. At the same time, businesses miss out on customer engagement and potential revenue because there isn't an affordable, controlled, and legal way for customers to interact with the music.

Problem Statement

- Background music in a store influences the **atmosphere** and **customer satisfaction**
 - A study by MCR data shows that 41% of customers will spend more time and money in a business if they like the music (2021).
- Current options are either **expensive** and **hardware-specific** or **lack customization**.
 - Staff often handle requests manually, which is inefficient during busy times.
- Businesses miss out on **customer engagement** and **potential revenue**
 - there isn't an affordable, controlled, and legal way for customers to interact with the music.

Problem Characteristics



Bad Music

Leads to customers not returning



Redundancy

Returning customers do not want to hear the same music over and over



Expensive

High-cost systems like Rockbot scare off businesses



Hardware

Competitors require proprietary hardware

Who is Affected?



Users

Want influence over the atmosphere, as well as, seamless - low friction interaction.



Businesses

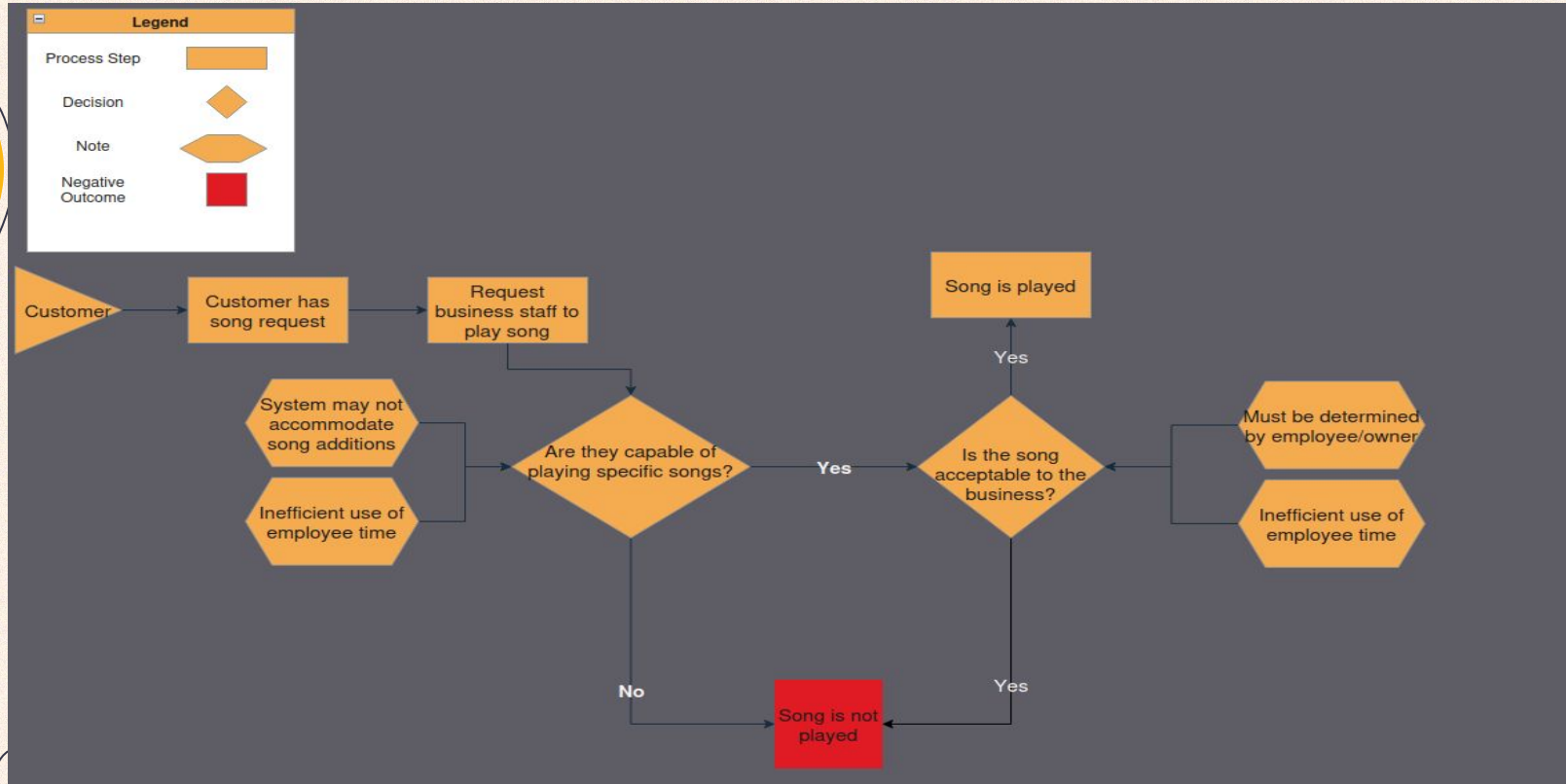
Want increased engagement, without staff interruption.



Stakeholders

The artist, record labels, and music platforms (iTunes, Spotify, etc.)

Current Process Flow



Elevator Pitch

Imagine walking into your favorite local coffee shop, scanning a QR code on your table, and instantly being able to influence the vibe of the room.

VibeQueue is a software-based solution that replaces expensive hardware with a seamless digital ecosystem. By connecting the Soundcharts API with SoundMachine, we provide a fully licensed, legal, and interactive music experience for small businesses.



The background is a light beige color with various abstract musical-themed illustrations. On the left, there's a large yellow shape and a red trumpet. In the top right, there's a red shape resembling a musical note or a stylized 'G'. Below it, there's a yellow shape resembling a musical note or a stylized 'C'. In the bottom right, there's a dark blue shape resembling a musical note or a stylized 'B'. There are also several musical staves with notes and a piano keyboard illustration on the right side.

What is a “vibe”?

“The mood of a place, situation, person, etc. and the way that they make you feel.” (Cambridge Dictionary)

Solution

- **A Web-Based Ecosystem:** VibeQueue automates music selection by providing a digital interface for customers to browse and request songs from their phones via QR codes
- **Eliminates Manual Work & Hardware:** Removes the need for staff intervention and replaces expensive, proprietary hardware with a software-only solution
- **Seamless API Integration:** Using SoundCharts' API to search for songs and gather their metadata to queue and request them through Soundmachine's API
- **Low-Cost & Interactive:** Offers an affordable "Vibe Management" tool tailored specifically for small-scale local spaces; differentiating from competitors with large physical consoles or higher costs

Solution Characteristics



Curated Vibe

Customers and feel the
vibe that matches the
atmosphere



Song Requests

Customers can request
their own songs that
they want to hear



High Profit Sharing

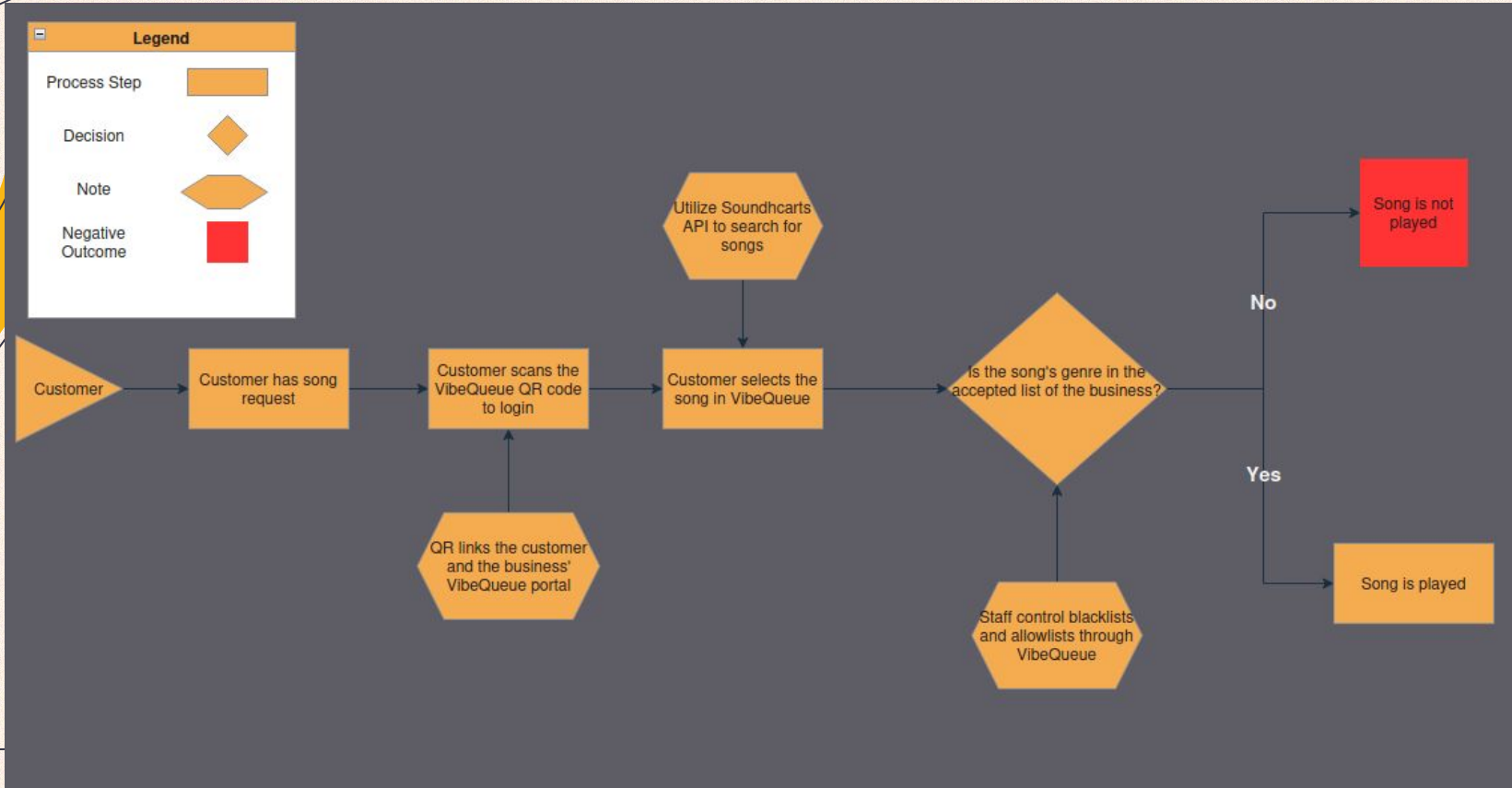
VibeQueue has an
industry leading 67%
profit sharing



Hardware Agnostic

VibeQueue works with
the hardware you
already have

Solution Flow



Solution Mapping

Our **problems** v.s our proposed **solutions.**

Barrier to Enter:
Commercial systems
have a higher price
than is feasible for
many small businesses

High Profit Sharing: VibeQueue is designed for small business groups operating on a more limited budget.

**Limited User
Experience:** Rockbot
has limited mobile
access or is slower
than customers want
to use

Web-App: A Modern web-app allows for ease of customer use and high speed.

Atmospheric Clash:
Owners may be
concerned that
customers will play a
song that doesn't fit

The Control Center: Owners have a dashboard that allows them to restrict or manipulate the qualities of the songs chosen.



**1,000
people**

The size of the survey, US consumers,
age demographics 21+

80%

Would stay longer if they heard good
music playing.

60%

Would buy more food and drinks if they
heard music they like.

Our “Gaps”



No “Staff” Gap

Automated Interaction:
Direct-to-consumer web interface allows for song requests without interrupting staff, resolving the "social friction" gap.



The “Cost” Gap

Hardware-Agnostic Deployment: A software-only solution that runs on existing business devices (tablets/phones), removing the need for the expensive proprietary hardware required by TouchTunes or Rockbot.



The “Control” Gap

Dynamic Vibe Moderation:
Integrated filters and a "Business Control Center" allow owners to set genre limits and block explicit content automatically, ensuring the audio matches the establishment's brand.

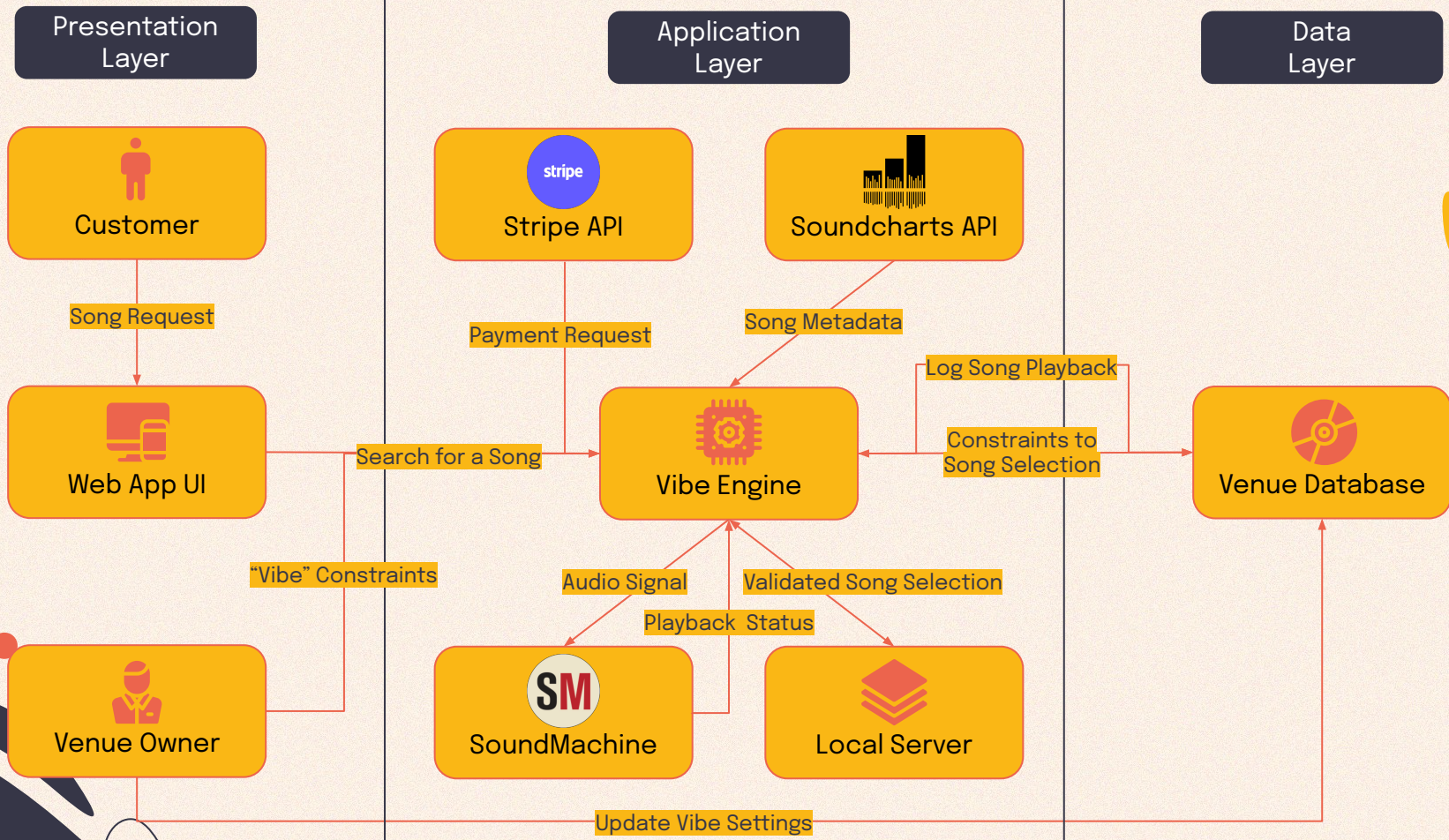


Competition Matrix

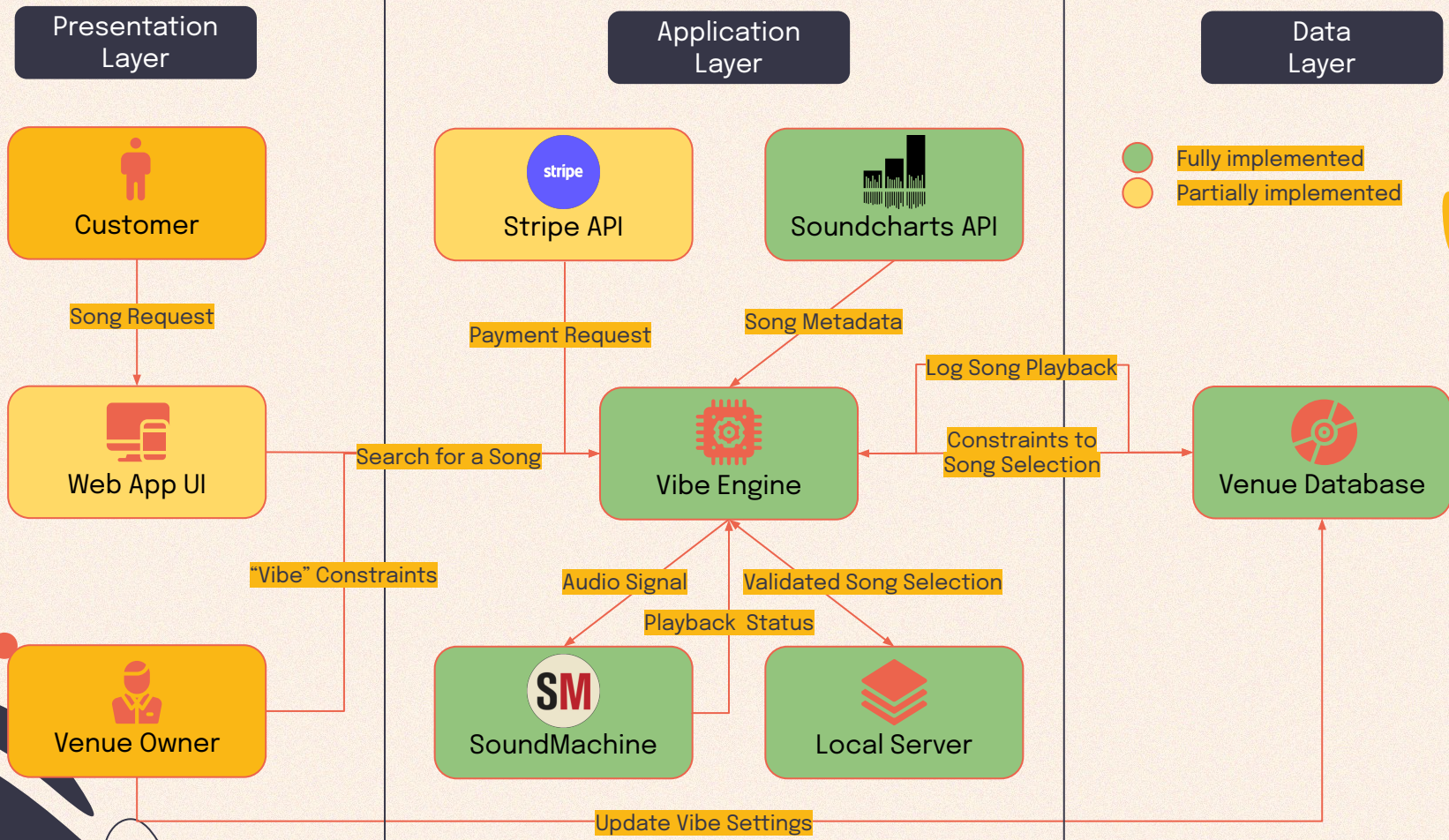
	Revenue Share (for the business owner)	Hardware Agnostic	Customer Song Selection	App or Machine Required
VibeQueue	67%	✓	✓	
TouchTunes	33-39%*		✓	✓
Rockbot	0%†		✓	✓

*Touchtunes share source: https://www.reddit.com/r/BarOwners/comments/1dkmvft/percent_taken_out_for_touctunes/

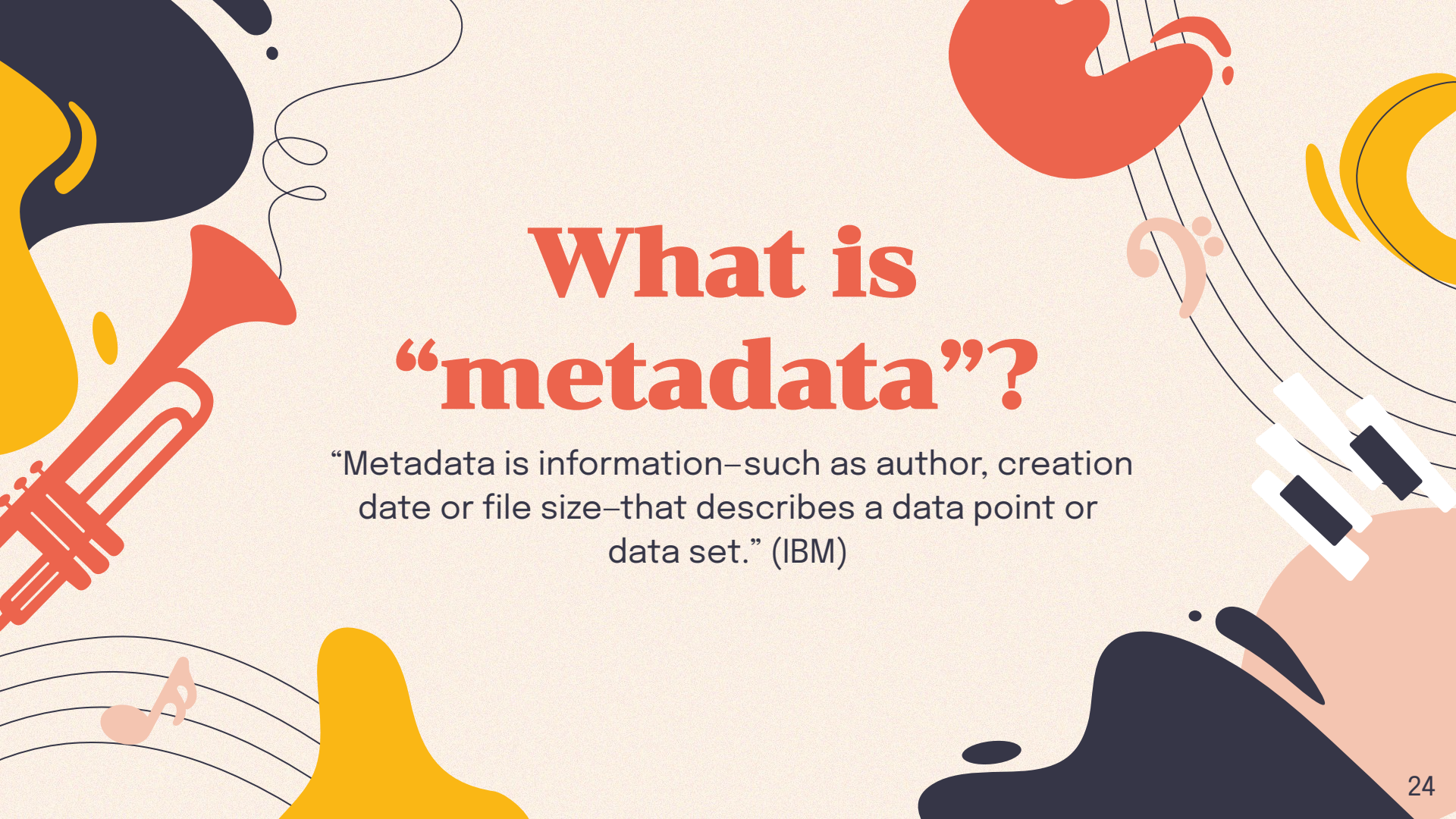
†Rockbot Terms Of Service lists no revenue share with the customer (business): <https://rockbot.com/subscriber-terms/>



Major Functional Components Diagram



Prototype Major Functional Components Diagram

The background is a light beige color with various abstract musical-themed illustrations. On the left, there's a large yellow shape and a red trumpet. In the top right, there's a red shape resembling a musical note or a stylized 'G'. Below it, there are curved lines and a small orange shape. On the right side, there are white and black rectangular shapes resembling piano keys. At the bottom left, there's a yellow shape and a small orange musical note on a staff. At the bottom right, there's a dark blue shape and a light orange shape.

What is “metadata”?

“Metadata is information—such as author, creation date or file size—that describes a data point or data set.” (IBM)

What It Will Do

1

Easy Access & Song Selection

- QR Code Access
- Song Browsing & Requests
- Influence the Atmosphere

2

Provide Owner & Staff Control

- The "Business Control Center"
 - A dedicated dashboard for owners
- Dynamic Vibe Moderation
- Queue Management
- User Management

3

Generate a Revenue Stream

- Pay-to-Request
- Automated Payment Processing
- Profit Sharing

4

Ensure Legal Compliance

- Hardware Agnostic
 - Runs on devices the business already owns (staff phones, existing tablets)
- Licensed Streaming
 - Ensures all music played falls under legal commercial licenses (ASCAP, BMI, SESAC).

What It Will NOT Do

1

Play music without licensing

VibeQueue will not play any music that the business owner does not have the proper licensing to play

2

Generate new music

VibeQueue will not generate custom songs for customers at this time

Customer Risk

Legend:

- Fully Demonstrated in Prototype
- Simulated / Partial Demonstration
- Discussed Conceptually

Risks

CR-1: Low engagement

CR-2: Customers selecting inappropriate songs

CR-3: Payment failures

CR-4: Users concerns about privacy

Mitigation

CM-1: Simple QR code access, incentives

CM-2: Explicit content filtering/ staff override

CM-3: Use trusted payment system (Stripe)

CM-4: Minimal data collection (no account required)

Likelihood

Very Low

Low

Medium

High

Severe

Severe

High

Medium

Low

Very Low

			CR-2	
		CR-1		
		CR-3	CR-4	
	CM-2			
CM-4	CM-3	CM-1		

Legend

Low Risk

Medium Risk

High Risk

Technical Risk

Legend:

- Fully Demonstrated in Prototype
- Simulated / Partial Demonstration
- Discussed Conceptually

Risks

TR-1: System performance

TR-2: User's card declines

TR-3: Security breach or data leak

TR-4: Algorithm failure

Mitigation

TM-1: Load testing + stress testing

TM-2: Clear failure messaging

TM-3: Regular security testing

TM-4: Rule based filtering

Likelihood

Very Low

Low

Medium

High

Severe

Severe

High

Medium

Low

Very Low

			TR-3	TR-1	
				TR-2	
	TM-3	TR-4			
	TM-4	TM-1 TM-2			

Legend

Low Risk

Medium Risk

High Risk

Legal & Security Risk

Legend:

- Fully Demonstrated in Prototype
- Simulated / Partial Demonstration
- Discussed Conceptually

Likelihood

Very Low

Low

Medium

High

Severe

Severe

High

Medium

Low

Very Low

			LR-1	LR-4
	LM-1	LR-2 LR-3		
	LM-2			
	LM-3			
	LR-4			

Legend

Low Risk

Medium Risk

High Risk

Risks

LR-1: Music licensing violations

LR-2: Data privacy regulations

LR-3: Payment compliance

LR-4: Another app was launched under the same name in March of 2026.

Mitigation

LM-1: No direct playback from unlicensed sources

LM-2: Collect minimal user data/clear privacy policy

LM-3: Do NOT store card data locally

LM-4: We will be rebranding and changing our name.

User Roles

Business Owner

- Can configure genre/mood filters
- Can manage queue rules
- Can view revenue
- Cannot bypass licensing rules

Staff

- Can reorder/remove songs
- Can block inappropriate requests
- Can assist customers
- Cannot change business settings

Customer

- Can scan QR code
- Can request songs
- Can pay for priority
- Cannot modify queue after submission

User Stories (Customer)

As a customer, I want to request a song that will influence the atmosphere.

Acceptance:

- Customer can search and select a song
- Song is validated against business filters
- Request is added to the queue
- UI confirms submission

As a customer, I want to pay to prioritize my request so that it plays sooner.

Acceptance:

- Customer can choose priority option
- Payment is processed successfully
- Request is placed higher in queue
- UI shows updated position

As a customer, I want to browse songs so that I can easily find music I like.

Acceptance:

- Songs are displayed by genre/vibe
- Search functionality is available
- Results load quickly
- Only allowed songs are shown

As a customer, I want to access the system via QR code so that I can quickly interact without downloading anything.

Acceptance:

- QR code opens web interface
- No login required (or simple session)
- Interface loads correctly on mobile
- User can immediately browse songs

User Stories (Owner/Staff)

As a business owner, I want to filter songs by genre and mood so that the music matches my brand.

Acceptance:

- Owner can set genre/mood restrictions
- Explicit content can be blocked
- Filters apply to all requests
- Disallowed songs are rejected automatically

As a business owner, I want to monitor revenue from song requests so that I can track business value.

Acceptance:

- Revenue dashboard is available
- Payments are recorded per request
- Data updates in real time
- Owner can view totals and trends

As a staff member, I want to override or remove songs so that I can manage inappropriate or disruptive requests.

Acceptance:

- Staff can remove songs from queue
- Queue updates immediately
- Action is reflected in UI
- Removed songs do not play

As a staff member, I want to view and manage the queue so that I can maintain a smooth music experience.

Acceptance:

- Staff can view full queue
- Staff can reorder songs if needed
- Queue updates in real time
- Changes are reflected for all users

Feature Table

Category	Feature	Customer	Staff	Owner	RWP	Prototype (Planned)
Account	Account Creation	✓	✓	✓	Creation of user accounts	Fully Implemented
Account	Login	✓	✓	✓	Login screen and authorization	Fully Implemented
Account	Payment Processing	✓	✓	✓	Payment processing through Stripe API	Partially Implemented
Song Queue	Song Selection	✓	✓	✓	Song selection from list	Fully Implemented
Song Queue	Vibe Engine	✓	✓	✓	Song recommendations based on venue music preferences	Fully Implemented
Song Queue	Priority Boost	✓	✓	✓	One or more tiers that push the request higher in the queue	Partially Implemented
Song Queue	Block Songs (Queue Override)		✓	✓	Prevent songs that don't fit the vibe from playing	Fully Implemented
Venue	Blacklist Song/Genre			✓	Choose which genres or moods to block from being playable	Fully Implemented
Venue	View Revenue			✓	Live tracking of revenue from song requests	Partially Implemented

Customer Interface mockup

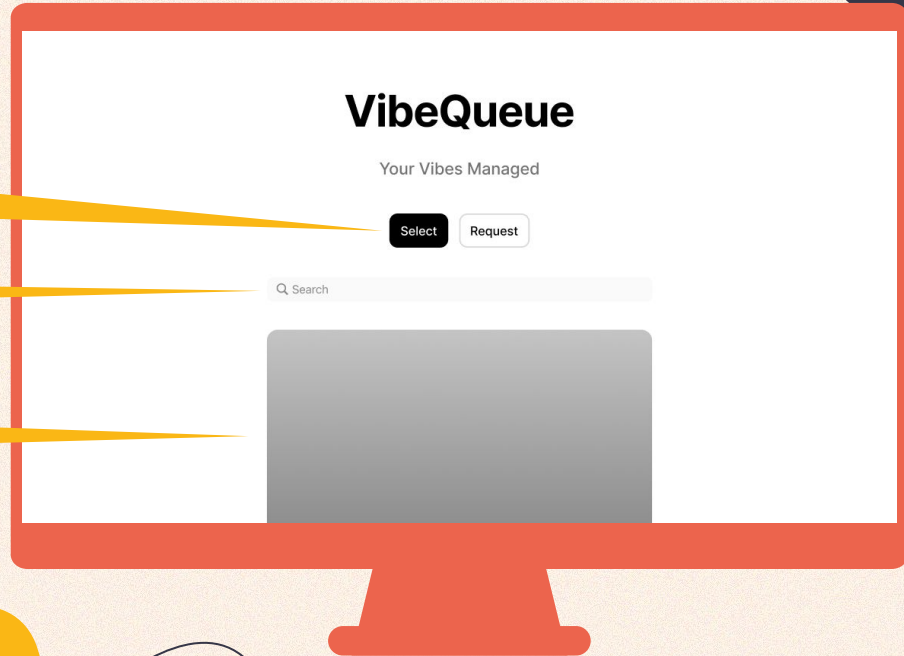
Desktop



Select and request songs

Search box

Live search results



Customer Interface mockup

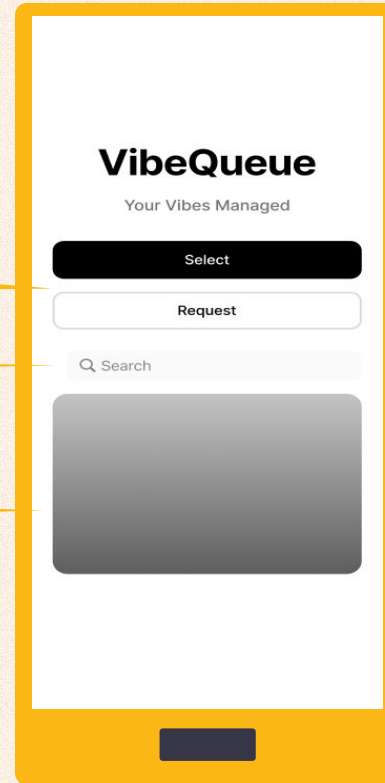
Mobile



Select and request songs

Search box

Live search results



Business Interface mockup

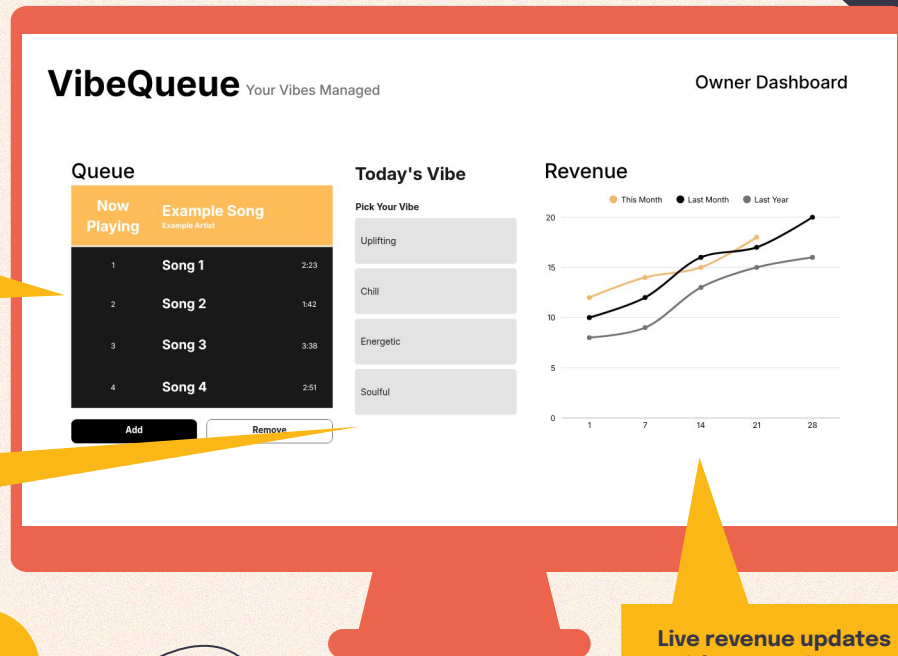
Desktop



Live queue with options to add or remove songs

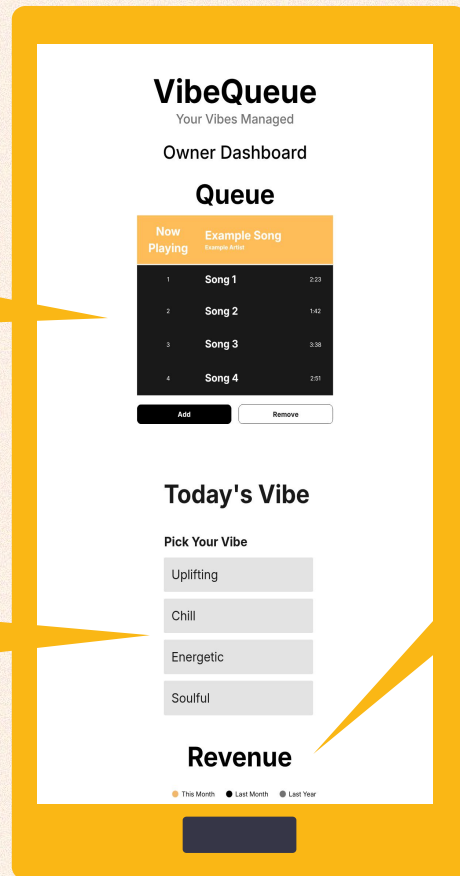
Option to select "vibe" of the songs

Live revenue updates with comparison to previous week and year



Business Interface mockup

Mobile

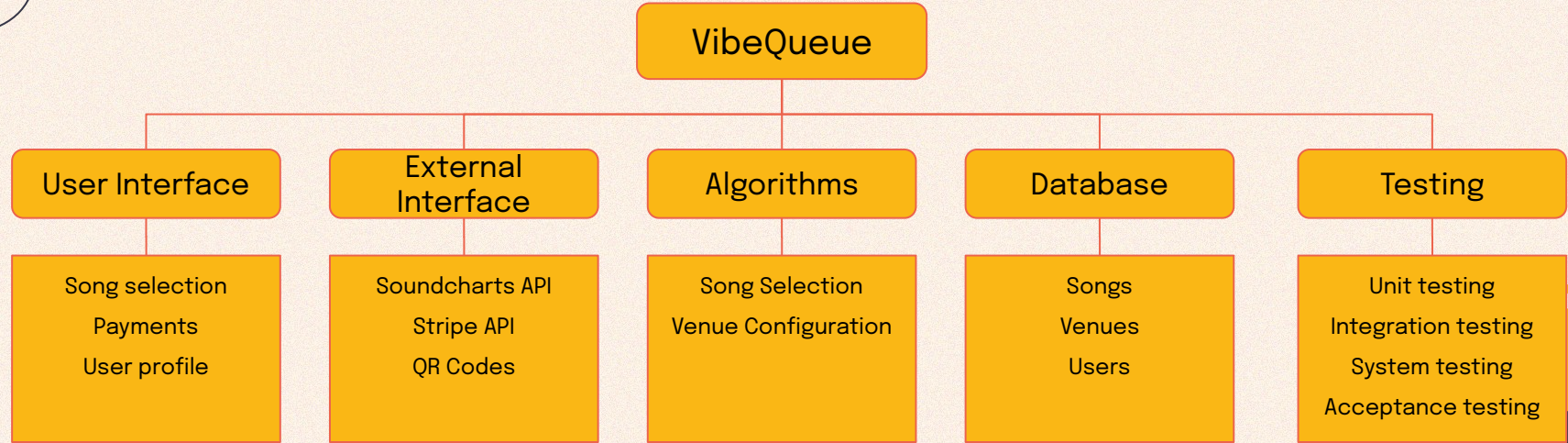


Live queue with options to add or remove songs

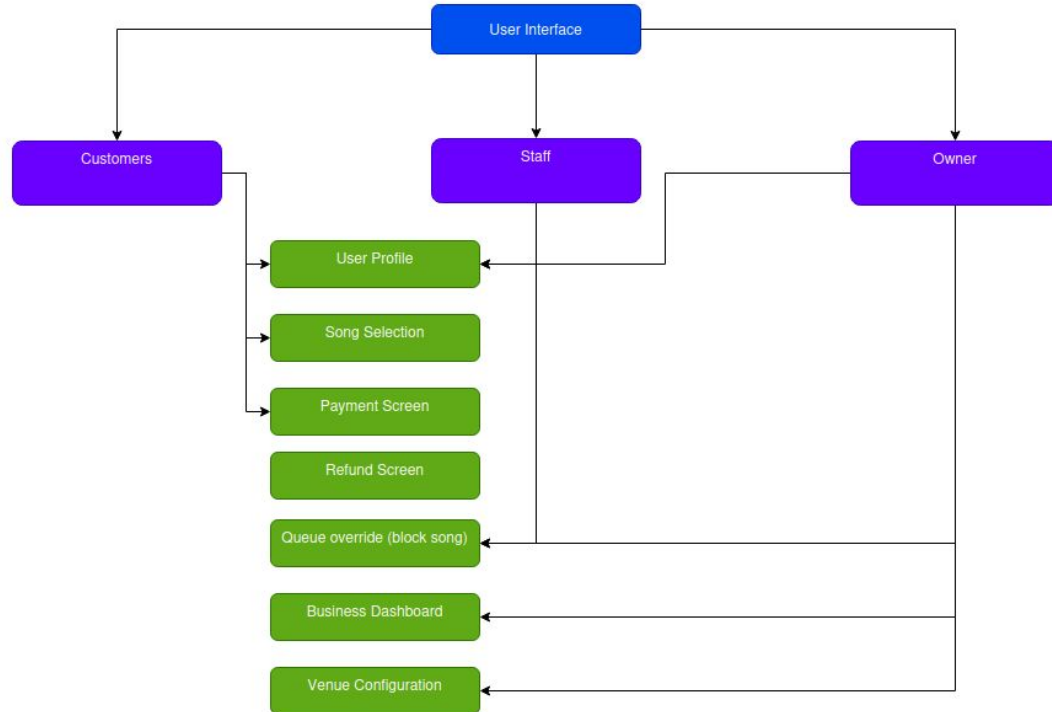
Option to select "vibe" of the songs

Live revenue updates with comparison to previous week and year

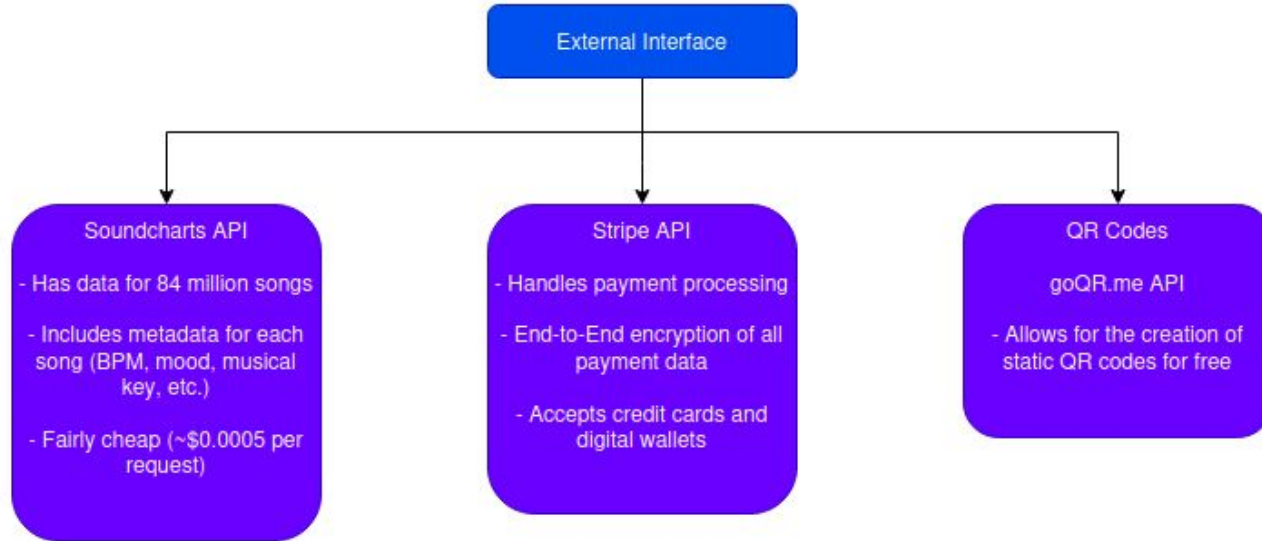
Work Breakdown Structure



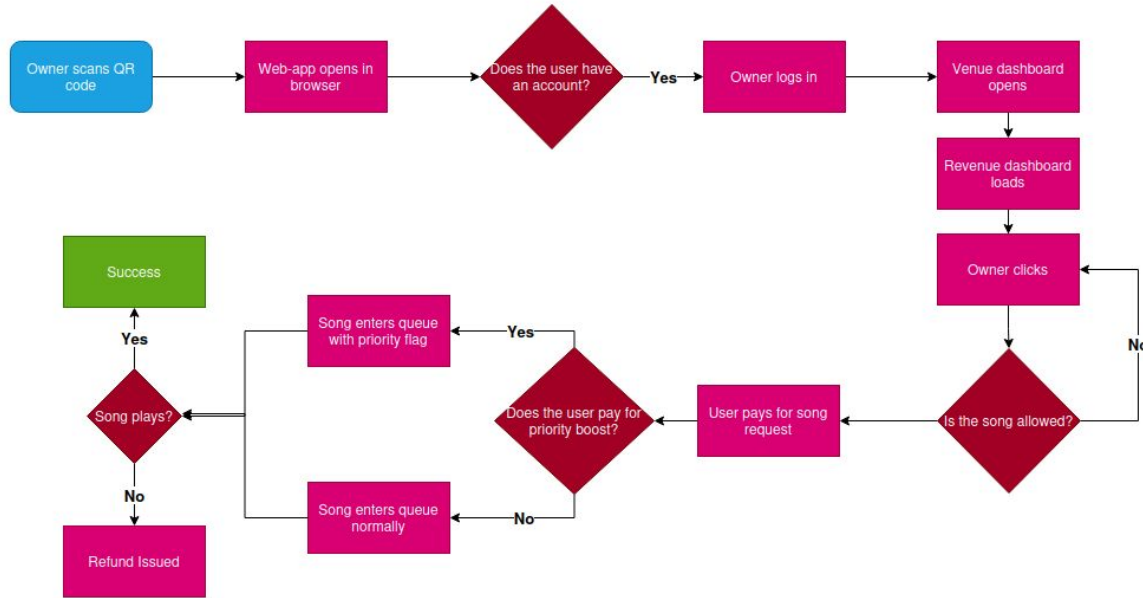
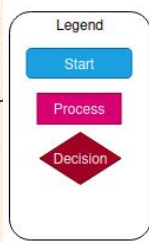
User Interface



External Interface



Song Selection Algorithm



This is the algorithm section that explains customer entry and song selection

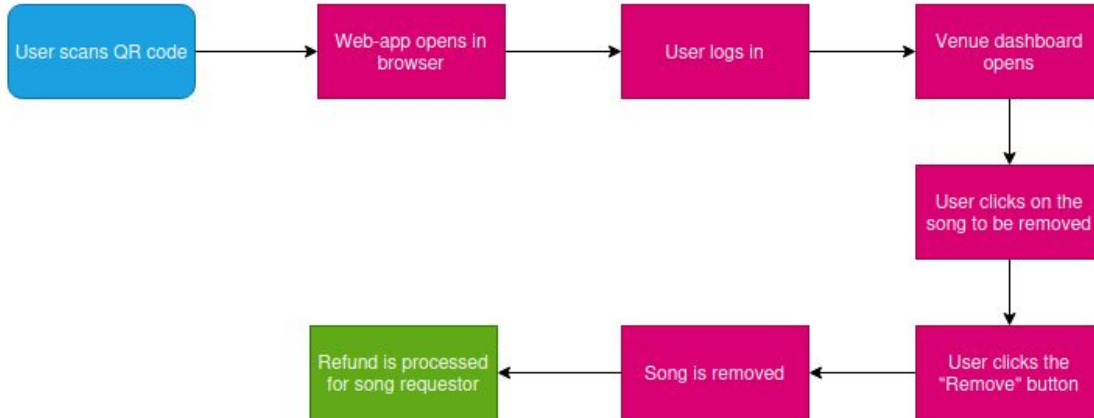
Queue Override Algorithm

This algorithm shows the steps a business owner or staff member takes to remove a song from the queue

Legend

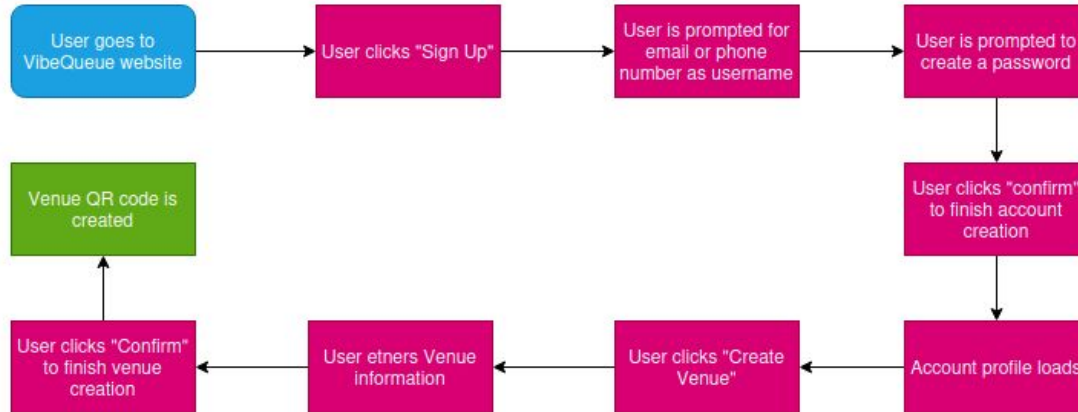
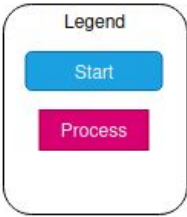
Start

Process

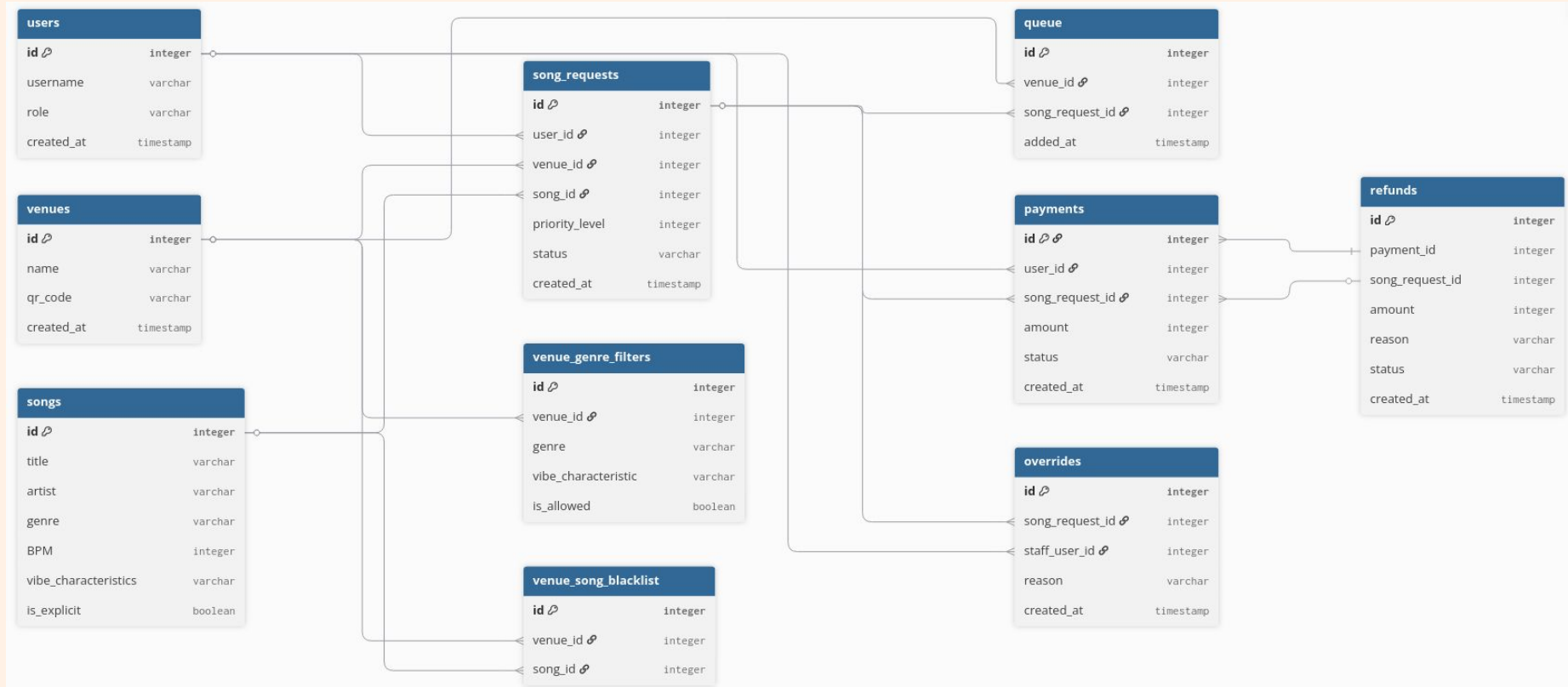


Venue Creation Algorithm

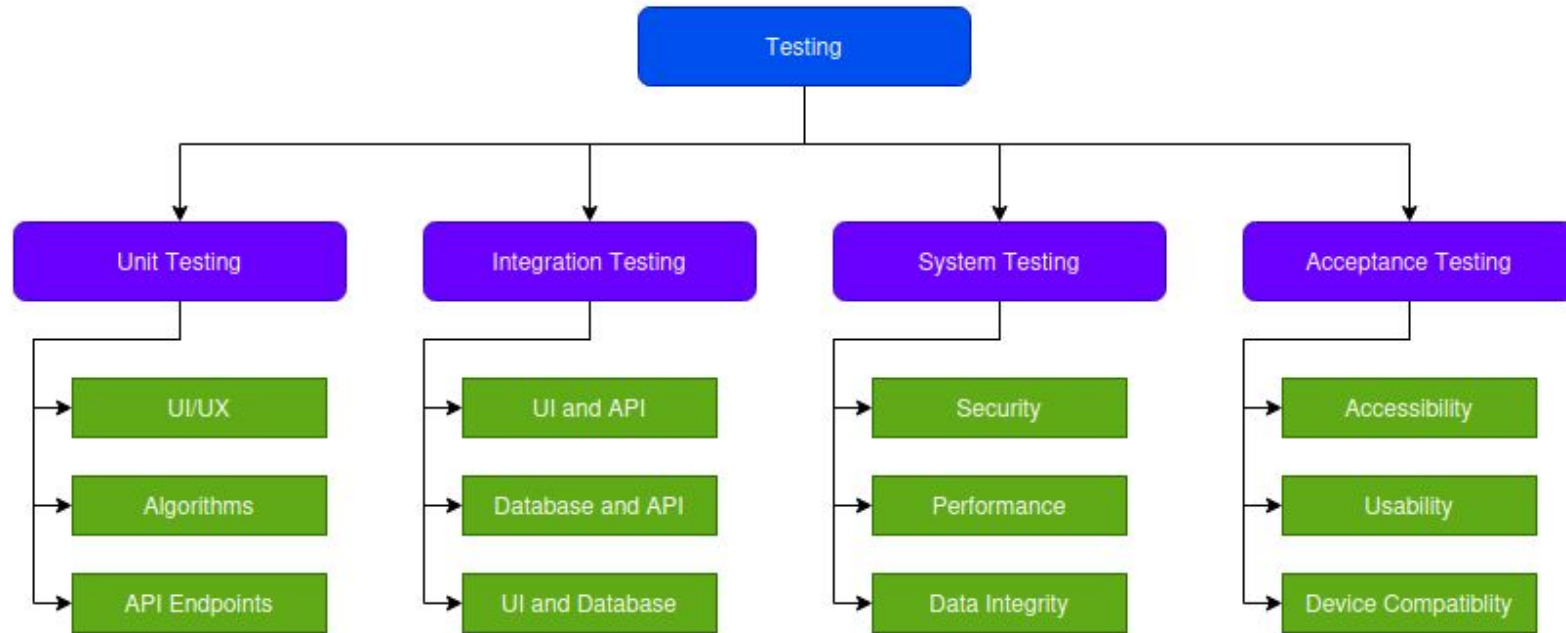
This algorithm shows how a business owner can go about creating an account and a QR code for their business



Database Schema



Testing architecture



Initial Sprint Breakdown

Seven 2-week sprints — from foundation to pilot launch

Sprint 1 (Week 1-2)

The Skeleton

Ensure the tech stack works, initialize the database, deploy an app that can write and read the database

Deliverable: a URL where the user can view a static list of songs

Sprint 2 (Week 3-4)

Core and Management

Create authorizations for distinct roles and create venue logic.

Deliverable: A venue owner can login and create the venue profile

Sprint 3 (Week 5-6)

Data Backbone

Build data tagging system for caches, genre/tempo tags, and the data pipeline. Ensure it handles API limits safely

Deliverable: A searchable database of songs with “vibe” data

Sprint 4 (Week 7-8)

Jukebox

Make the queue system with priority logic and real time updates for the queue

Deliverable: Staff member can see a song move from request to playing

Sprint 5 (Week 9-10)

Customer Web App

QR code creation, mobile responsive UI for browsing, searching, and requesting. Notifications to confirm

Deliverable: Customers can scan and successfully request a song

Sprint 6 (Week 11-12)

Control Center

Deploy algorithm to match the “vibe” in the location with filters and the constructed owner dashboard.

Deliverable: Owner can restrict selection choices and view statistical metrics

Sprint 7 (Week 13-14)

Payments & Pilot

Payment integration is constructed. Establish pay to prioritize, profit reporting logic, and a full testing suite.

Deliverable: A production-ready build that can be used for pilot deployment and testing

Development Tools

Category	The team's selection	Why this choice?
Programming Language	Python	Python was selected due to familiarity and strength and popularity of Django
Integrated Development Environment (IDE)	Visual Studio Code (VS Code)	VS Code is a highly customizable and universal code editor with IDE functionality
Continuous Integration / Continuous Deployment (CI/CD)	Github Actions	Github Actions is a built in automated testing and deployment tool with error detection capability
Version Control	Github version control	Github has native version control

Dependencies

Libraries

- Django REST Framework
- Stripe Python Library
- Django Channels
- Requests

Tools

- VS Code
- Github
- Github Actions
- Docker
- PostgreSQL

Technology

- SoundCharts API
- SoundMachine
- Stripe QR mobile payment
- Web Server
- Django(Python)



Conclusion

01

Music is a **critical** factor of customer satisfaction and loyalty.

02

The existing competition does **not** cater to smaller businesses or spaces.

03

VibeQueue is a **low-cost** easy system that can meet the needs of the customer.

04

VibeQueue is **cheap** and **easy** to use!

05

Customers are **39%** more likely to return to a business if they enjoy the music. (MCR Data, 2021)

06

41% of Consumers will spend more time/money in a business if they like the music (MCR Data, 2021)

07

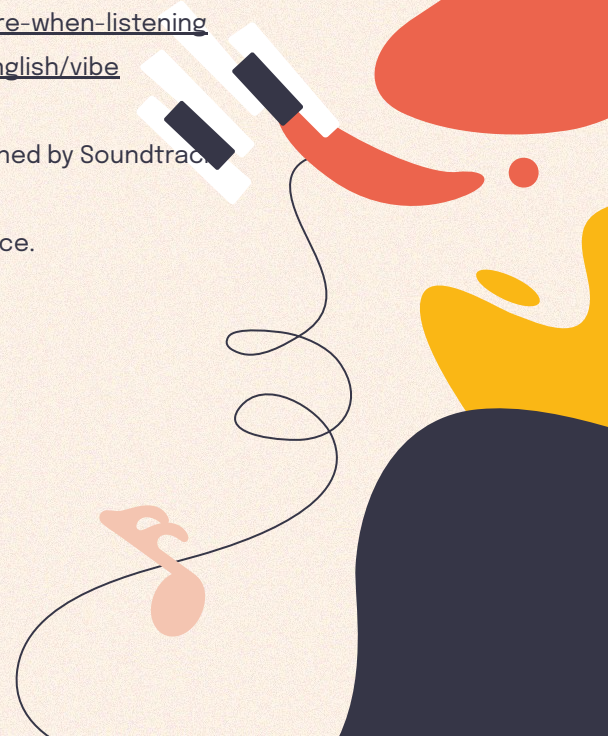
VibeQueue **optimizes** the current logistical overhead created by other competitors.

08

VibeQueue is hardware-agnostic, budget-friendly, and web-accessible

Bibliographical references

- Broadcast Music, Inc. (BMI). (2023, April 17). New BMI/NRG study confirms consumers eat, drink, and spend more when listening to music.
<https://www.bmi.com/news/entry/new-bmi-nrg-study-confirms-consumers-eat-drink-spend-more-when-listening>
- Cambridge Dictionary. (2021, December 9). Vibe. <https://dictionary.cambridge.org/us/dictionary/english/vibe>
- IBM. (2024, October 21). Metadata. <https://www.ibm.com/think/topics/metadata>
- MRC Data. (2021, October). The soundtrack of the modern customer experience (Study commissioned by Soundtrack Your Brand).
- ODU Computer Science Department. (n.d.). Old Dominion University Department of Computer Science.
<http://www.cs.odu.edu/>
- r/BarOwners. (n.d.). Percent taken out for TouchTunes [Reddit post]. Reddit.
https://www.reddit.com/r/BarOwners/comments/1dkmvft/percent_taken_out_for_touchtunes/
- Rockbot. (n.d.). Smarter music for your business. <https://rockbot.com/go>
- Slidesgo. (n.d.). 1930s: Jazz & blues history presentation [Presentation template].
<https://slidesgo.com/theme/1930s-jazz-blues-history-creative>
- SoundMachine. (n.d.). Commercial music licensing. <https://www.soundmachine.fm/>
- Spotify for Developers. (n.d.). Spotify web API. <https://developer.spotify.com/>
- TouchTunes. (n.d.). About us: Our story. <https://www.touchtunes.com/about/our-story>



Glossary

- **API (Application Programming Interface):** A set of protocols and tools that allow different software applications to communicate with each other.
- **ASCAP:** American Society of Composers, Authors and Publishers - one of the main performance rights organizations in the US.
- **BMI:** Broadcast Music, Inc. - another major US performance rights organization.
- **Business Control Center :**A dashboard interface that allows business owners to manage song requests, set filters, and control the atmosphere.
- **Commercial License:** A legal permit that allows businesses to play music publicly in a commercial setting.
- **Feasibility Study:** An analysis of how feasible a project is, considering technical, economic, and societal factors.
- **Hardware-Agnostic:** Software that can run on any hardware device without specific requirements.
- **Metadata:** Metadata is information—such as author, creation date or file size—that describes a data point or data set.
- **MFCD (Major Functional Components Diagram):** A diagram showing the main software components of a system and how they interact.
- **ODU:** Old Dominion University - the team members' university.



Glossary

- **Pay-to-Request:** A feature allowing customers to pay to have their song added to the queue.
- **QR Code:** Quick Response Code - a scannable barcode that provides quick access to a website or application.
- **Redundancy:** Unnecessarily repetitive
- **Revenue Stream:** A source of income for a business - in this case, the 5% cut from pay-to-request transactions.
- **SESAC:** Society of European Stage Authors and Composers - another performance rights organization.
- **SoundMachine:** A music streaming service that provides commercial background music for businesses.
- **Soundcharts API:** Application programming interface that allows developers to integrate Soundcharts' music catalog into their applications.
- **Vibe:** The mood of a place, situation, person, etc. and the way that they make you feel.
- **Vibe Management:** The process of controlling and curating the musical atmosphere of a business.
- **Web-App:** A software application that runs in a web browser rather than being installed locally.





Questions ?

Help us fine-tune your vibe!