**Project Proposal**

**Software Engineering CS-360**

Project Jukebox

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Submitted in partial fulfillment

Of the requirements of a

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# Overview

## Purpose, Scope and Objectives

The purpose of this project is to provide users with the option to play music of their choice at any desired public place for example restaurants, gyms etc. where music is a part of the ambience.

The target audience will mainly be of two categories, the users who will operate the app to play the desired music and the public places which will run the server to service user requests.

We plan to eventually dispatched our service public places worldwide. On the other hand the mobile application will be put on the android play store for everyone to access and use.

The main objective is to make a mobile application where users can securely connect to a server deployed by the management of a public place (e.g. restaurants). The mobile application will enable the user to pass his/her desired song to a queue where it will be played by the restaurant’s server. A challenging task would be to enable reliable and quick communication between the user, server and the music database.

A hosting service (such as firebase) will be needed for hosting the controller and for the database. Apart from that we will require the users to have a Wi-Fi enabled android device and the public places to have a Wi-Fi enabled computer to run the server on.

## Project description (most important part)

The first would be an android based application for users that would allow them to pay for and send requests to the server that will be implementing a request queue for songs to be played. The front and back end for this will be developed from scratch.

The second would be a server that would be implemented on the client side that will maintain the request queue and send out verification requests and streaming requests. The streaming requests will go to a dedicated music streaming platform and the verification requests will be sent to and responded to by a central controller.

The third will be a central controller that will maintain a database of all users and clients and accept payment requests from user accounts and verify payment requests from the client-side server.

The fourth will be a music streaming service/platform that will receive requests from the client-side server and stream the requested songs in the client-side queue. This platform will maintain a database of available songs for users to browse and select from, and client-side servers to stream from on their local music systems. Therefore it will maintain simultaneous connections with the users and the client side servers as well. We will also be developing this platform from scratch.

Given the general increase in the number of small scale businesses based on the food industry, (such as cafes and restaurants) and other businesses based on user experience, (such as gyms etc.). We believe the next big way to bring about innovation and attract new customers in this industry is to provide customizability in terms of the user experience that they provide. Our application is a step in this direction and aims to place the power in the hands of the customer in order to promote a sense of belonging and association for these customers with these businesses that they choose to associate themselves with.

We do not have a customer yet, but are looking for potential investors for our project.

## Team profile

|  |  |
| --- | --- |
| Name: Mohammad Obaid Ur Rehman |  |
| ID: 20100044 |
| Email: 20100044@lums.edu.pk |
| Qualifications and strengths:  Object oriented programming  Python, C++ programming  Management and organization  Documentation |

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| Name: Wahid Ejaz |  |
| ID: 20100112 |
| Email: 20100112@lums.edu.pk |
| Qualifications and strengths:  C++ Object Oriented Programming  Web development in ReactJs  Presentation |

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| Name: Shaheryar Faisal |  |
| ID: 21100310 |
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| Qualifications and strengths:  Socket Programming  Programming in Python  Design |

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| Name: Shahrukh Nawaz |  |
| ID: 21100256 |
| Email: 21100256@lums.edu.pk |
| Qualifications and strengths:  Coding (C++)  Communication |

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| Name: Hamza Hassan |  |
| ID: 20100121 |
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| Qualifications and strengths:  Writing  Presentation  Programming |

***1.3.1 Expertise in a specific tool***

We do not have expertise in any of the tools at the moment.

## Assumptions and Constraints

Another assumption is that the users would be willing to pay to play their music at a specific place.

We have assumed that the average customer would have access to good internet or mobile data services.

The restaurant at which we are deploying the service should have a machine to play music and run the server it should also have access to a sufficient Wi-Fi connection.

For now we have only made our model for android users and we will need to extend our model to mobile websites and IOS applications as well.

Patent would be brought for the prototypes which we would have initially used in our project.

## Project Deliverables

Deliverables include

* Software Project Proposal
* Requirement Specifications
* Design Specifications
* Development Plan
* Test plan
* Demo + source code
* Final document
* Final presentations

## Budget Summary

|  |  |  |
| --- | --- | --- |
| Item | Men hours | Budget |
| Project Proposal | 20 | 0 PKR |
| Proposal Presentation | 10 | 0 PKR |
| SRS Document | 20 | 0 PKR |
| Design Specifications and development plan | 50 | 0 PKR |
| Development plan | 40 | 0 PKR |
| Development | 300 | ~25,000 PKR |
| Test Plan | 40 | 0 PKR |
| Final report (testing results) | 30 | 0 PKR |
| Presentations | 30 | 0 PKR |

# Feasibility Study

Our project plan is highly scalable and is capable of creating a lot of impact since the requirements to operate this application are minimal and the user doesn’t need to have any technical knowledge.

However one constraint can be due to availability of servers without which users will not be able to play music, if we can ensure a high proliferation and decent distribution of servers only then can we ensure that our application will be used by people in their day to day life.

Although our team has had some experience working with web-development and client-server model we would need to brush up on those skills for this project.

More over our team would also need to learn android app development (and also java) so that we can implement the client side .

# Project Organization

We have not approached anyone yet with our project idea.

## Tools

GitHub (collaboration between team members)

Jira

Ruby on Rails

Slack (communication between team members)

JavaScript (jQuery, React, React-native, redux, NodeJS) (website application development)

Android Studio, Java (mobile application development)

HTML, CSS

Firebase, Heroku, AWS (web hosting services)

## References

<https://developer.android.com/>

<https://classroom.udacity.com/courses/ud834>

<https://classroom.udacity.com/courses/ud851>

<https://reactjs.org/>

<https://reactjs.org/tutorial/tutorial.html>

<https://facebook.github.io/react-native/>

https://redux.js.org/

<https://www.youtube.com/watch?v=0fKg7e37bQE>

https://www.youtube.com/watch?v=BCQHnlnPusY&list=PLRqwX-V7Uu6ZF9C0YMKuns9sLDzK6zoiV

<https://courses.cs.washington.edu/courses/cse403/12sp/Projects/proposals/brdmstr-proposal.pdf>

# Definitions

Server: a computer or computer program which manages access to a centralized resource or service in a network.

Client: (in a network) a desktop computer or workstation that is capable of obtaining information and applications from a server.

API: application program interface