

# Software Requirements Specification

for

## EarWorm

Version 1.2  
01 November 2022

**Team:** Keyboard Buddies  
Alvaro Lopez-Romero, Mitchell Mercer,  
Nathalie Claire Tivar, Rodolfo Rivera, Charles Quebral

**Supervisor:** Edmund Dantes  
Computer Science Department  
California State University, Northridge

## Revision History

Version	By	Change Description	Date
1.0	All team members	Original Document	10/21/2022
1.1	All team members	Revised with notes from Prof Dantes	11/1/2022
1.2	All team members	Revised Requirements	12/13/2022
1.3			

## Table of Contents

<b>1. INTRODUCTION</b>	<b>3</b>
1.1 Purpose	3
1.2 Scope	3
1.3 Product Value	3
1.4 Intended Audience	3
1.5 Intended Use	3
1.6 Definitions and Acronyms	3
<b>2. OVERALL DESCRIPTION</b>	<b>3</b>
2.1 Product Perspective	4
2.2 Product Functions	4
2.3 User Characteristics	4
2.4 Constraints	4
2.5 Assumptions and Dependencies	4
<b>3. SYSTEM ARCHITECTURE</b>	<b>4</b>
3.1. External Interface Requirements	4
3.2 Functional Requirements	4
3.3 Performance Requirements	4
3.4 Logical Database Requirement	5
3.5 Design Constraints	5
3.6 Software System Attributes	5
3.6.1 Security	5
3.6.2 Capacity	5
3.6.3 Compatibility	5
3.6.4 Reliability	5
3.6.5 Scalability	5
3.6.6 Usability	5
3.6.7 Other	5

# 1. INTRODUCTION

## 1.1 Purpose

This senior capstone seeks to connect individuals and artists with like minded individuals based on criteria such as music taste, sex, age, and location.

## 1.2 Scope

The EarWorm Software Requirements Specification defines requirements for the EarWorm web application produced at CSUN by the group Keyboard Buddies as their senior capstone project.

EarWorm will be available to any individual, over the age of eighteen, to find and collaborate with individuals of similar music taste and garner semi-professional and personal relationships.

## 1.3 Product Value

EarWorm matches individuals based on their music tastes and thus will match like minded individuals. Users can use these matches to form romantic bonds and/or catapult these connections into personal and business opportunities.

## 1.4 Intended Audience

The intended audience of this product is any individual 18-65 years of age. These individuals should be looking to cultivate interpersonal relationships with the purpose of dating or furthering musical pursuits.

## 1.5 Intended Use

The goal is that these individuals can then proceed to make romantic connections or business connections to produce further pieces of art and/or music.

## 1.6 Definitions and Acronyms

- User - Someone who uses the web application.
- ML - Machine learning
- UI - User Interface

# 2. OVERALL DESCRIPTION

## 2.1 Product Perspective

Earworm can only be run in a web browser for now.

## 2.2 Product Functions

Take users' music taste and age input and match with potential partners. Search for potential partners in a given area. This web application will be easy to navigate and be in a nice simple layout for a user friendly experience.

## 2.3 User Characteristics

Users of this application will need to have access and know how to use their web browsers.

## 2.4 Constraints

- Will be written with Javascript, Java, Python, CSS, and HTML
- User must be using an up to date modern web browser
- Connection to internet is required

## 2.5 Assumptions and Dependencies

Assumes that all users have an up to date version of their web browser and a strong internet connection.

# **3. SYSTEM ARCHITECTURE**

## 3.1 External Interface Requirements

### **SA 001**

Earworm shall use a web browser. The app also interfaces with Spotify Analytics as well as other sources like current top charts, apple music, etc. Tools like web scraping and relevant API's shall be implemented.

## 3.2 Functional Requirements

### **FR 001**

#### **Machine Learning Module:**

Calculate Music Taste:

The Machine Learning module shall use a model trained by supervised learning to assign a user with a "music taste"

Ex. User shall be assigned a backend value of "A1"

### **FR 002**

#### **User Compatibility:**

Logic shall be implemented to filter users displayed by user preference

Ex. Only users 18-22 within a 10 miles radius will be displayed in the end product.

### 3.3 Performance Requirements

#### **FR 003**

It shall take no longer than 10 minutes to input user preferences and link spotify accounts etc and create a new account.

After setup, displaying other individuals of interest shall take no longer than 60 seconds.

### 3.4 Logical Database Requirements

#### **FR 004**

##### **Maintain Unique Users:**

Database shall keep track of unique users:

A SQL database shall be maintained and regularly updated that tracks unique users, and all relevant data pertaining to said users

### 3.5 Design Constraints

Definitively assigning music choice is impossible. All assignments shall be completely arbitrary and will have to be reassigned often, especially during early implementation stages.

## Software

### 3.6 Software System Attributes

#### **3.6.1 Security**

##### **SSA 001**

Users shall have unique credentials prerequisite to application use.

#### **3.6.2 Capacity**

This app requires no local storage capacity, but will require significant database storage.

#### **3.6.3 Compatibility**

This application will run on current web browsers.

#### **3.6.4 Reliability**

##### **SSA 002**

The app shall not crash or hang except as the result of operating system error.

#### **3.6.5 Scalability**

**3.6.6 Usability**

**SSA 003**

With zero technical experience users shall be able to set up an account and browse the online application with ease.

**3.6.7 Other**

Not applicable on this version of the document.

**Section 4: Qualification Provisions**

Table IV. Requirements Verification

SRS Req. ID	Paragraph Title	Verification Method
SA 001	Earworm shall use a web browser.	Inspection
FR 001	The Machine Learning assigns a user with a “music taste”	Test
FR 002	Filter users displayed by user preference	Demonstration
FR 003	No longer than 10 minutes to create a new account	Demonstration
FR 004	Database shall keep track of unique users	Inspection
SSA 001	Users shall have unique credentials	Inspection
SSA 002	The app will also be available 95%.	Inspection
SSA 003	Ease of use	Demonstration