# **Software Requirement Specification**

Project Showcase

Richard Carroll, Zachary Cash, Melissa Gonzalez

Version 1.1

Change History: 1.0

## 1. Introduction

#### 1.1. Purpose

For users wanting to share what their code produces and who need a space to upload their files, Program Showcase is a public site that allows users to upload their code to then share only its output. Unlike Trinket, which allows users to upload code for teaching purposes, our product showcases what the program outputs without sharing details of the source code.

## **1.2.** Document Conventions

This document is organized in sections and subsections that are indicated by numbers and bold text.

#### 1.3. Intended Audience and Reading Suggestions

It also informs those who will create and use this specific tool about the usage of the site and the necessary features needed to achieve the project's goal successfully.

#### 1.4. Project Scope

The initial scope for a release of this tool will be a website where a user can upload various coded files to their account. From there, the user or someone interested in the user's program can execute the code from the website with a push of a button.

## 2. Overall Description

## 2.1. Product Perspective

This site will be the first tool that allows users to upload code files that can be executed without sharing the specific details of the code.

## **2.2. Product Features**

- 2.2.1. Hosted on a web server provided by Western's CS department.
- 2.2.2. Creates user accounts to store individual files.
- 2.2.3. Ability to upload code files to a specified user account.
- 2.2.4. Displays output from those files.
- 2.2.5. Stores user account information in the database.

## 2.3. User Classes and Characteristics

A programmer is the type of user that has a login, upload, logout, and search abilities while a general user is one without an account but is able to search for specific usernames or program names to then execute. In order to create an account, a unique username and email are needed.

## 2.4. **Operating Environment**

This project showcase will be hosted on a web server provided to us by WWU CS Support so that it is accessible to users. The information provided by users when creating an account or uploading a python file will be stored in a Mongo Database. The server will handle queries into the database.

## 2.5. Design and Implementation Constraints

We will be using Nodejs and therefore are constrained to using frameworks and languages that are compatible with it such as express and embedded Javascript. The initial tool will not be supported for mobile usage.

## 2.6. User Documentation

As part of the website interface, we will provide a "help" page for questions regarding the use of this tool along with a user manual that we will create.

# 2.7. Assumptions and Dependencies

Because this tool will be a website, we depend on a web server in order for users to upload their files. We are also dependent on users uploading code files that can be executed.

# 3. Features

# 3.1. Account login and password

This tool will manage user accounts that allow the uploading of python files. All accounts will have the same privileges, however, in order to search for a user or project, there is no account needed. If a user forgets their password, they can select the link "forgot password?" in the login form to retrieve their password.

# 3.2. The ability to add Python program files

A signed-in user shall have the option to add their program files. This will make it possible for a user who wants to share their program's output to later search for it to execute it.

## **3.3** Upload python programs only.

Programs in Python shall be the only files that a user can upload. The task of adding additional programming languages will be reserved for a second version.

## 3.4 **Programs are run in an emulator**

The Python programs that are uploaded onto an account can be searched by a general user. There will be a designated search bar that will take either specific usernames or program titles. If the username or program title exists, it will take a user to the programmer's public profile page. Once they select the program they want to execute, a page with an emulator will load. The program they selected will be executed within the emulator. If the username or program title does not exist an error will be displayed and they will stay on the search page.

## 4. External Interface Requirements

#### 4.1. User Interfaces

The website's interface will need to accept input from users. It will handle creating a new account, uploading files to the specified account, and/or searching for program names or usernames. There will be a specified section that allows users to search for a specific username if they know it. It will also accept parameters to files that require arguments in order to be executed.

## 4.2. Software Interfaces

This tool is hosted as a website on a server provided by Western's CS department.

## 4.3. Communications Interfaces

This program communicates with its users via its website and the website communicates with the web server, which runs the primary functions of this tool. The website acts as a communication bridge between the user and the server functions.

## 5. Other Nonfunctional Requirements

#### 5.1. Performance Requirements

Upload and execution of files should be performed in less than 5 minutes. If an error were to occur it will display in a message what triggered it, otherwise it will continue running.

## 5.2. Hardware Interfaces

The program showcase will be running off of the server's hardware. The hardware that we have received is 4 single-core CPU, 100GB of space, and 2GB RAM.

#### 5.3. Safety Requirements

Users will be able to upload their Python files. Someone searching for their username will only be able to see a program's output. No one will be able to see or modify the source code.

## 5.4. Security Requirements

Due to users being able to upload any kind of code files, there will be a security check for any malicious code injection. This will need to be handled on the server-side of the website when a user requests to upload.

#### 5.5. Software Quality Attributes

The website will be available 99% of the working hours. It will be accessible and functional on most web browsers and work in all operating systems, except mobile.

Appendix A: Glossary Appendix B: Analysis Models Appendix C: Issue List