**Indiana University Southeast**

**2021-22 CSCI Capstone Project**

**Workshop Management Web Application**

**Sponsor: Dr. Suranga Hettiarachchi**

**Software Requirement Specification**

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**Introduction**

**Purpose:**

The workshop management web application will allow a user to manage the workshops being held at IUS to educate elementary and middle school teachers about new technologies and practices in programming and robotics. This project management tool will allow the instructor to manage both personnel and equipment within these workshops by providing an user interface through a web browser on the front end and a database to store all information in the backend.

**Definitions:**

Angular: A client-side JavaScript framework that makes it easy to implement well-designed and structured webpages and applications using a Model-View-Controller framework.

MySQL: An open source relational database management system. It is based on the structure query language (SQL), which is used for adding, removing, and modifying information in the database.

Node.js: A development framework that is based on Google’s V8 JavaScript engine. The code is written in JavaScript and then V8 compiles it into machine code to be executed.

**System overview:**

The web application will consist of a front end developed using Angular and a back end developed using Node.js and MySQL for the database. The user will be able to add workshops to the database and/or change existing workshops. Within each workshop, the user can then add a person to a workshop and assign equipment to each person.

**Overall Description**

**Product Perspective:**

**System Interfaces:** The system must interface with the user through their web browser and with the MySQL database to access and store data.

**User Interfaces:** The user will interact with the software using their web browser. There will be a graphical user interface that will allow for easy navigation and understanding of how to use the software.

**Hardware Interfaces:** The frontend software will be executed on the user’s computer. The backend software will be on a server and will not require a large amount of space.

**Software Interfaces:** The frontend software will be executed on the user’s computer through their web browser and will communicate with the backend services on the webserver. MySQL will be used to store the data.

**Communication Interfaces:** The frontend and backend will communicate using Hypertext Transfer Protocol (HTTP).

**Memory Constraints:** There will be plenty of memory available to handle the size of the files for this project management system. There will not be any memory constraints.

**Operations:** The software will allow the user to add/edit or remove a workshop, add/edit or remove participants, and add/edit or remove equipment.

**User Characteristics:**

The primary users of this software will be Dr. Hettiarachchi and Dr. Asim. This software is being customized so that they can manage the personnel and equipment for each of the workshops that they will be leading. Beyond the workshops, the teachers could potentially use this software to manage their technology classes when they are teaching their students.

**Overall Description**

**External interface requirements:**

The software will not be connecting to any external sources. The database and resources will all be local.

**Functional requirements:**

The user must add a workshop before they can add participants. The user must add a participant before they can assign equipment.

**Performance requirements:**

The database must be accessible by the web browser. The system must accurately store and retrieve data.

**Logical database requirement:**

A relational database is needed to store the data for the project management web application.

**Software System attributes:**

**Reliability:** The data must be added, removed, and updated accurately.

**Availability:** The web application will be accessible from any web browser.

**Security:** The system should only be accessible by the user who is in charge of the workshops.

**Maintainability:** The software should not need updated once developed.

**Portability:** The web application will be accessible from any web browser.