Requirements

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Abstract

STEM Academy requires a database system to collect survey data for assessment, in order to determine their impacts on the respective participants. However, the current database system developed by the last capstone team is not fully functional. This document lists the requirements for fixing the existing issues and adding new functionality in terms of user stories. It goes through what needs to be done specifically at individual task levels, and presents a gantt chart for the estimated time required for each task.

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1 Introduction

1.1 Purpose

This requirement document is intended to define what we are going to do for this project and what specific requirements need to be met to complete this project for STEM Academy. We will make use of a gantt chart to provide an estimation of how long we might take to complete each requirement.

1.2 Scope

There are three main components under consideration for this project- Survey Management, Database System, and Report Generator. Survey Management works with creating survey questions, and collecting, analyzing and exporting data using a csv file. The overall goal of a Survey Manager would be to ease the distribution of surveys, collect data, and update surveys. Database System stores and manages data collected by the Survey Manager. The database helps STEM Academy store data systematically and quickly retrieve any data from previous camps. Report Generator analyzes data and then generates a standard report including some graphics that looks finished enough to share directly with outside entities. This is a significant component because STEM Academy would use the reports to determine their impacts on the respective participants, make any necessary camp changes, and apply for potential funding.Although they already have enough data to make a case to others that the Program is worthwhile, if they had a more efficient system, they would have more data in a timely fashion which would make their case to funders even stronger.

1.3 Definitions, acronyms, and abbreviations

Client: STEM Academy Data: Data: a set of values of qualitative or quantitative variables Database: a collection of information that is organized so that it can be easily accessed, managed and updated STEM: the academic disciplines of science, technology, engineering and mathematics Gantt chart: a type of bar chart that illustrates a project schedule Supervisors: D. Kevin McGrath and Kirsten Winters

1.5 Overview

The rest of this document provides a detailed description of what changes are required for fixing and adding new functionalities. It provides an overall description of our project and lists the product perspective and functionalities and the characteristics of related users. It also describes some of the constraints of working on this project, and gives a time estimation of completing the requirements with the help of a gantt chart.

2 Overall Description

STEM Academy currently has very good data on about one-third of their camps, however an efficient system that collects more data on time will help them make a stronger case to their funders. Although there is a functional database system, it has flaws that prevents STEM Academy from using it. The system administrator uploads a csv file with participant names for each camp.This file is linked to a pre and post camp survey. Once the camp starts, each participant chooses their name and takes the pre-survey, and the post survey is taken at the end of the camp. And then, the data collected needs to be displayed in a fully usable format, including graphics. Our clients would share this information with funders to show them what differences STEM Academy can make and apply for future funding.

2.1 Product perspective

Our deliverables will be based on the functionality of the three main components- Survey Management, Database System, and Report Generator. The Survey Manager could manage the developed survey system and upload the data into the database system. The database system would store and analyze the data, and the report generator would generate a standard report based on the analysis.

2.2 Product functions

Our final deliverables should help create functioning surveys which can be taken by the participants. The collected data will be uploaded into the database and analyzed. Finally, a standard report would be generated based on the data in a fully usable format, including graphics.

2.3 User characteristics

There are two main groups of users. The first group of users are K-12 students who are the main survey takers. Their education and experience level with technology will vary. We assume the majority of them would have enough technical expertise to take surveys online. Another group of users are the staff of STEM Academy who are the main database administrators. The system must be easy to manage by the STEM Academy staff who are non-technical in regards to computer technology.

2.4 Constraints

We need to minimize the funds as much as possible, since STEM Academy is a self-funded Program and do not have extra budget. There is an existing database system which is functional, but it still has some flaws. We need to make sure that in our efforts to meet the requirements, we do not affect the existing functionalities. Once the code for the existing database is accessed, an evaluation will be made regarding the best way to meet the product functions. The STEM Academy is open to meeting the product functions through means other than modifying the existing system if a better system is identified.

3 Specific Requirements (User Stories)

- As the database administrator, I want new participants to be able to take the surveys even if they are added after the program starts, without impacting the other survey takers in the program.

- As the database administrator, I want to be able to manually add survey data from paper survey.

- As the database administrator, I want to be able to overwrite or delete surveys that I do not want.

- As a camp participant, I want a functioning survey page, so that I can make changes when I accidentally select a wrong answer. So I do not have to enter all the details again and just make changes for the incorrect answer.

- As the database administrator, I want a functionality that generates standard reports including graphics, so they look finished enough to share with outside entities.

4 TIME ESTIMATION/GANTT CHART