Student Shift Visualization Tool Documentation: Functional Requirements Document

Author(s): Danielle Pitts, Jake Saintcross, Joshua Soumphont

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1 Introduction

Before and upon graduating, many colleges have success with the placement of students in internship, graduate school and job opportunities. However, many students are not aware of the success that the college has to offer in guiding a students' future, which is also why visits of students to the career center tends to be low. Student Shift is an online student outcome visualization tool that allows for past, present, and future students, teachers, parents, staff, and general public to gain knowledge of the school's post-graduation record, without the need to go all the way to the career center! Our platform allows for a school's student post-graduate data to be accessed through the Student Shift webpage giving the user some information regarding where past student's went for employment or graduate school. Student Shift is here to help bridge the information gap between schools and students.

1.1 Purpose

The purpose of this Functional Requirements Document is to provide sufficient information on how the Student Shift system will function and the behavior when in use. This document explains the high-level functional requirements and provides information about the roles and responsibilities needed to support such a system. The document also includes use cases, system inputs and outputs, process flows, diagrams, and mockups.

1.2 Scope

In order to relay how the Student Shift platform will function and the behavior when in use, this document will lay out any assumptions and constraints that the system has. It will also discuss the functionality, methods, and procedures that are being employed to satisfy the existing requirements defined.

1.3 Background

Student Shift is an organization that is invested in bridging the information gap between the school and students while also furthering their futures. We bring information from the schools to the students' fingertips. Our goal is to provide sufficient information that allows for the students to examine the possible career options and information based on major. The Student Shift developers are invested in making this product a success; therefore, producing this documentation to ensure that all requirements are being met and that the functionality, methods, and procedures that are being employed to satisfy said requirements. Team Student Shift wants every graduate to have a bright future; it all can start with Student Shift.

1.4 Project References

All the listed resources and references can be found on the Git Repository created for the development of this system.

Link: https://github.com/dep7/CS475-SPR20-SeniorProject

1. Weekly Status Meeting Report Document
2. Student Shift Search Page and Display Page Mockups
3. Student Shift Functional Requirements Document

1.5 Assumptions and Constraints

The schedules, estimates, and costs herein are based on the assumptions identified below. If any of these assumptions are incorrect, then Student Shift reserves the right to re-estimate both the schedule and the cost for this project.

1.5.1 Assumptions

1. All the resources that are needed to develop this platform will be free and readily available for the use of the developers.
2. Project will follow agile methodology throughout development and execution.
3. Project will follow team guidelines and requirements.
4. Project will be written in HTML, PHP and SQL.
5. All documentation will be uploaded to team Git Repository in order to maintain and keep track of documentation and development.

1.5.2 Constraints

1. Midterm product deployment due in March 3-5, 2020 with partial implementation.
2. Final product deployment due May 8, 2020 with full implementation and documentation.
3. The equipment being used for the development of Student Shift will all be free open source resources.

1.6 Document Overview

The Functional Requirements Document is sectioned off into 4 parts, in which each section provides important information in the overall functionality of the system. In the first section, Introduction, talked about what this document and the system is all about. It also discussed any assumptions and constraints that will affect development and operation of the system. In the following section, System Summary, it discusses a little more system background, then lays out the overall functionality, methods and procedures that the system shall be able to do. Section 3 is where the functional requirements are formulated as well as the connections and relationships between the system and its environment. In the last section, Use Cases, the information is concluded by turning the finalized functional requirements into use cases in order to identify, clarify, and organize system requirements.

2 System Summary

2.1 Background

Student Shift Visualization Platform is here to help bridge the information gap between students and life after graduation. This tool is a web-based data analytics and visualization platform that takes a populated database of post-graduate data, analyzes it based on user-specific query, and provides visuals of past students' academic trajectory and employment.

2.2 System Objectives and Functionality

The Student Shift platform want the process of getting information to be fun, interactive, easy, and pain free. Our platform and the process in accessing our system was designed to ensure that the users have that great experience. From the moment the user accesses the web page, the visualizations are on the screen pre-loaded with the default data that is in our database. On the

same page, the users are able to directly query our data and get visualization results customized to what they are looking for. To allow for other organizations and people to use our system, there is an alternate page that can be used to add and remove rows from the database. After processing each request, whether it is a change to the database or search, the functions will lead back to an updated Visualization display page and allow for the user to either do another search or go to the administrator page.

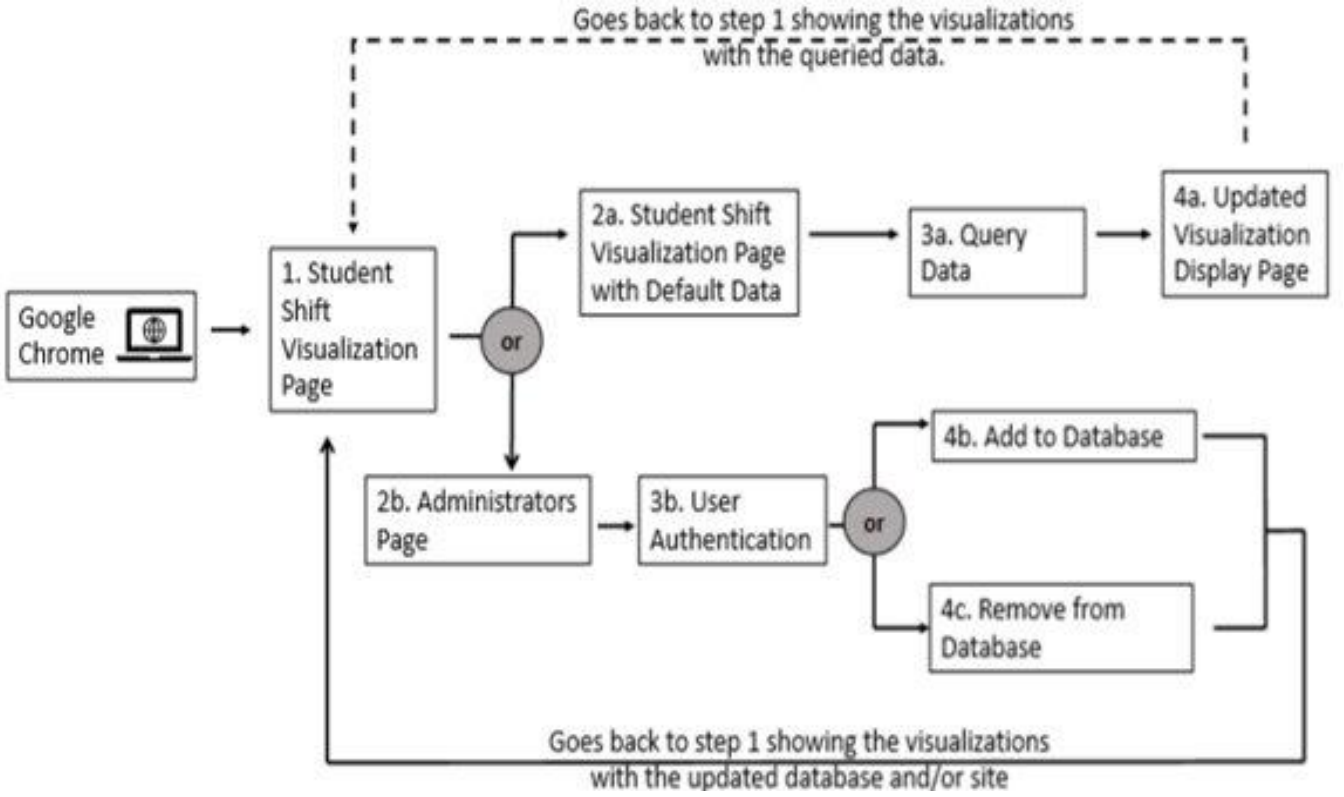

Figure 5-1: Functional Flow Block Diagram for Student Shift Visualization Platform

2.3 Equipment Being Used

To aid in the development of our Student Shift Visualization platform, we will be using the following software, hardware, and other various equipment listed below:

1. **WAMP Server –** Windows, Apache, MySQL, and PHP. It's a free software stack which installs WAMP installs Apache, MySQL, and PHP on your operating system. WAMP acts like a virtual server on your computer. This is the server that we will be doing all of our development work on.
2. **PHP 7.3 –** is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.
3. **MySql -** is an open-source relational database management system.
4. **Git Repository** - Version control is another big component when it comes to keeping track of the updates in the various documents used and needed in our final product

launch. To get ahead of this becoming an issue, our team has decided to use a public Git repository to allow us to make updates to the various documents needed for our final product launch.

5. **Google Chrome**.

2.4 Input and Output

Inputs

1. **Initial Data** - The data will be loaded into the database and accessed by the webpage to provide the information in visualizations. From the administrator's page, users will be able to update and change the database.
2. **Search Queries** - On the webpage, users can put constraints and customize the data that they want to see in the graphs.

Outputs

1. **Visualization of Data** - Based on the data and the parameters that the user queries, the graphical visualizations will be displayed on the screen for the users.

3 Functional Requirements

3.1 Context

Our Student Shift Visualization tool is an online web-based platform that allows for many people to access the service that we provide. Our development team works hard to develop, test, and analyze our site to ensure that the best quality products are delivered to our customers. The developers use the equipment, listed in Section 2.4, in the work that they do and release. To make our platform more universal and useful to any person or school that wants to use this platform, Student Shift allows for Colleges, Universities, as well as other users to simply replace or update our database and use their own and provide their students access to a fun, interactive, and engaging platform where they can access post graduate information easily. There also is a feature that allows for people using our site to do little

customizations to it as well. These features regarding the database and the site are found on the webpage under administrator; however, not all changes that are made will be saved by Student Shift.

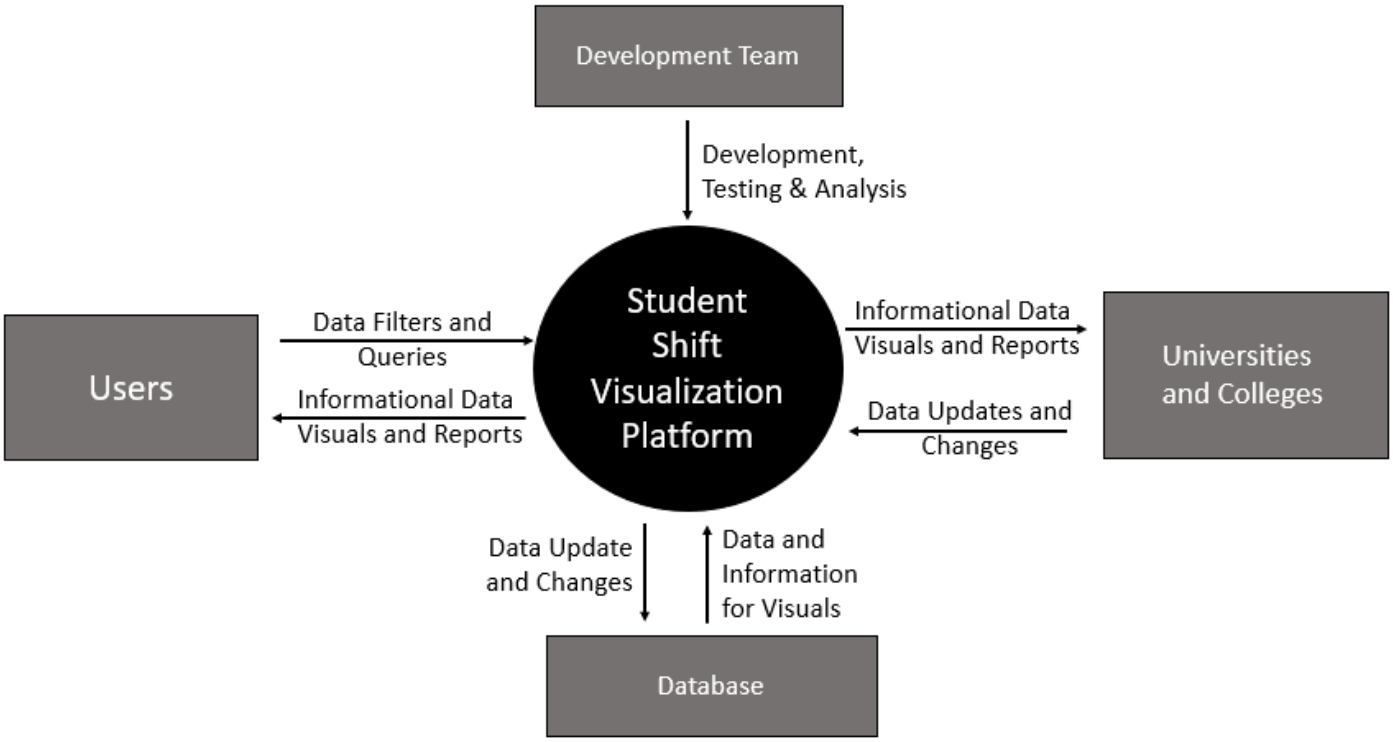

Figure 5-2: Context Diagram for Student Shift Visualization Platform

3.2 Functional Requirements

1. The Student Outcomes Visualization Platform shall provide information about former student career data
2. The Platform shall have a database
   2.1. The database should be built using MySQL
   2.2. The database shall have at least 50 fake alumni names
      2.2.1. Every Name shall have a Date of Birth
      2.2.2. Every Name shall have a Place of Employment or Graduate School
      2.2.3. Every Name shall have a salary
      2.2.4. Every Name shall have a Date of Graduation for undergrad only
      2.2.5. Every Name shall have a Date of Hire or Acceptance to show how soon they were able to find a job/get admitted to grad school after graduation
      2.2.6. Every Name shall have a major(s) and/or minor(s)
         2.2.6.1. Majors included can be any
         2.2.6.2. Minors included can be any
         2.2.6.3. Double Majors shall be included in the data
      2.2.7. Every Name should show whether the student participated in an internship

2.2.8. Every Name should show whether the student studied abroad
2.2.9. Every Place of Employment will have an attribute that shows if more than 1 student from the University has been hired by this company
2.2.10. Every Place of Employment/Grad School will have a unique ID
2.2.11. Each place of employment shall be an actual company or government agency, or non-profit agency

3. The Platform webpage shall have a display visualization section
   3.1. Upon arrival to page, there shall be visualizations displayed with default graphs
   3.2. The webpage should have a search bar function for users to change the visuals
4. The Platform webpage shall have a search function
   4.1. The search function shall allow users to query the stored data
      4.1.1. There should be multiple types of searches options
         1. Major
            a. A drop-down menu that lists majors
            b. When entered, visualizations and results will only include names that have the specified major
            c. If left empty, names with all majors will be included
               1. Visualizations that categorize Majors will be included in the results
         2. GPA
            a. A drop-down menu that lists possible GPAs
            b. When entered, visualizations will only include names between or with the specified numbers
            c. If left empty, names with any GPA are included
      4.1.2. The search function shall update the visuals on the page when search is requested
         4.1.2.1. Visualizations must be creative and relevant for each type of search
      4.1.3. The search function shall have drop-down filters to select different types of searches

4 Use Case

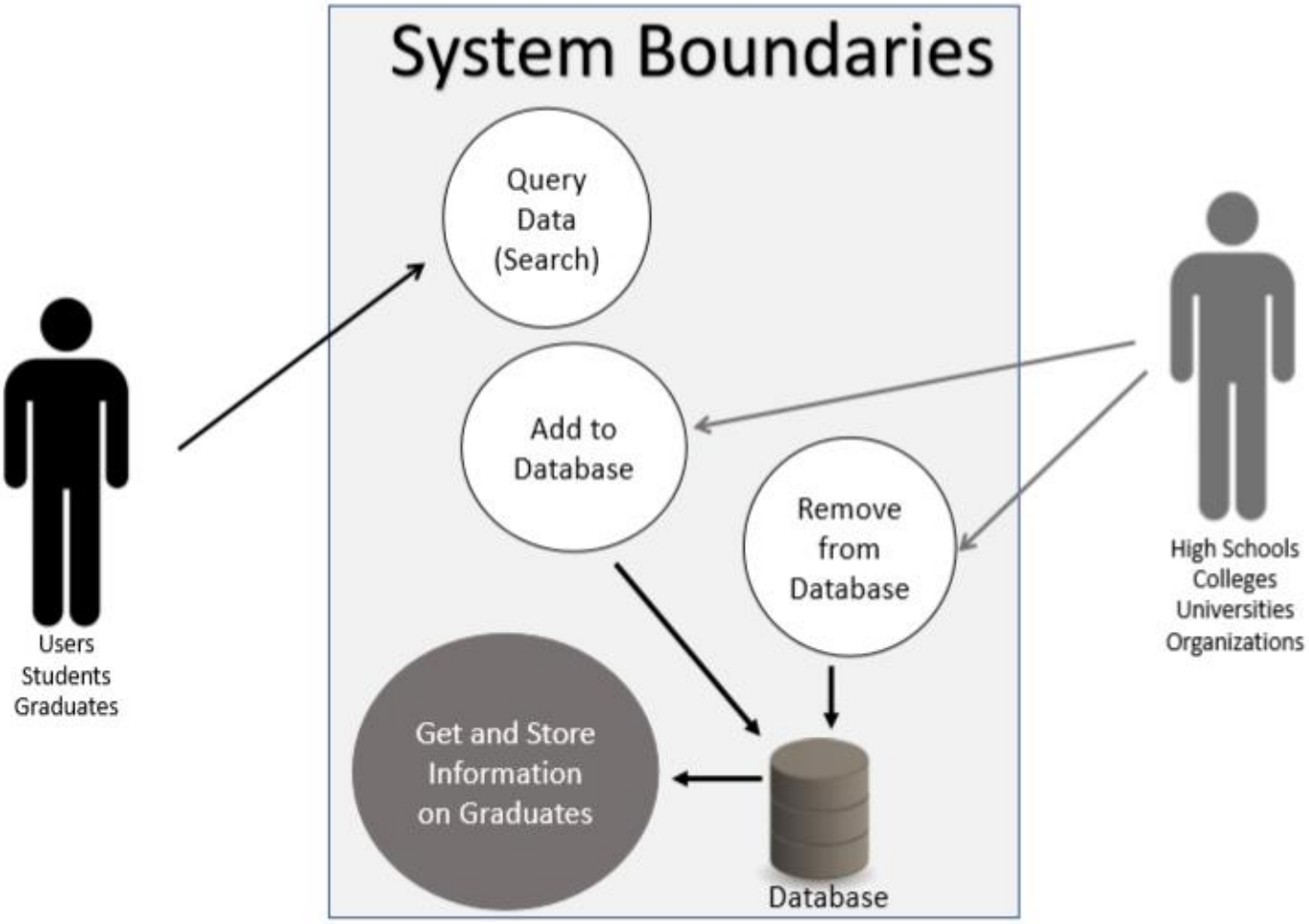

Figure 5-3: Use Case Diagram for Student Shift Visualization Platform

Use Case 1: Search - This use case will be accessed by the users of our site. To activate this use case, the users will go onto the page to the section where it prompts to select and input the data they want to query the database with.

Use Case 2	**Query Data (Search)**
Primary Actor(s)	Any User
Trigger	Select a major or GPA
Pre-conditions	Enter in information for search
Post-conditions	Change in Visualizations on the page
Priority	High

Use Case 2: Add to Database - This use case will be accessed by the users who have the administrative access of our site through a tab on our website labeled “administrator page”. To

activate this use case, the users will go onto the administrator page, sign in, and fill in information into the form to add to the database.

Use Case 2	**Update Database**
Primary Actor(s)	Users with Admin Rights (companies and organizations)
Trigger	Select button to submit request
Pre-conditions	Enter information
Post-conditions	Updated database
Priority	Medium

Use Case 3: Chang Database - This use case will be accessed by the users of our site through a tab on our website labeled “administrator page”. To activate this use case, the users will go onto the administrator page and select the place where the database can be changed.

Use Case 2	**Change Database**
Primary Actor(s)	Users with Admin Rights (companies and organizations)
Trigger	Select button to submit request
Pre-conditions	Enter information
Post-conditions	Updated database
Priority	Medium