Student Lap Tracker

Requirements Document

Patrick Oyarzun, Joe DeHart
Vaishali Patel, Duke Meche, Robert Knott

ABSTRACT

The following document describes the overall technical requirements of the system, including usability, hardware, and performance constraints.

TABLE OF CONTENTS

Use Cases ……..3-5
Export Data ……... 3
Import CSV …… 4
Track Laps ……. 5
Rationale for Use Case Model ……..... 6
Nonfunctional Requirements …… 6
Evidence the Requirements Have Been Placed Under Configuration Management
……...…….. 7
References ……. 8

LIST OF FIGURES

Figure 1. …….. 3
Figure 2. …….. 4
Figure 3. …….. 5

LIST OF TABLES

INTRODUCTION

- The document describes the overall technical requirements of the system, including usability, hardware, and performance constraints.
- The purpose of the document is it should set of what the system should do.
- The scope of the product is to keep track of about 100 or so individual students in a single database, as well as have the capability to update any changes made to it from any devices linked to it.
- The structure of the document is broken up into five stages:
    - Use Case descriptions - descriptions of the each use case
    - Use Case Rationale - why we are designing the project in our chosen format
    - Nonfunctional Requirements - system requirements necessary for the system to function
    - Evidence of Configuration Management Placement - screenshot proof that we are using Git versioning control
    - References

Export Data

Figure 1

The user is able to export the data collected by the application in the form of a csv file. The purpose of this is to allow the user to use spreadsheet software to further process the data.

Participating Actors:

Teacher, Maybe Dropbox

Entry Conditions:

At the end of the school year, and perhaps periodically before then, the user wishes to view or process the data using shreadsheet software. He/She clicks a button on the application's main page which initiates the export action.

Normal Flow of Events:

- The user selects the export option from the main page of the application
- A file chooser dialog prompts the user to name the file and choose a location on disk
- The application generates a csv file from the local database and saves it to the selected location.

Exit Conditions:

- The user cancels the process by closing the file chooser dialog, or pressing the cancel button on the file chooser.
- The user closes the application through the system close button.

Exceptions:

- The device has insufficient space to save the file
    - The user is alerted that the save was unsuccessful and asked to clear some space on disk and try the process again.
- The user does not have permission to access the directory/file chosen for saving
    - The user is alerted that the save was unsuccessful and asked to choose a different location.

Special Requirements:

- The application may perform a sync with Dropbox to act as a backup service. In that case, the device needs access to the internet and appropriate permission to access the Dropbox api from behind any firewalls that are installed on the premises.

Import CSV

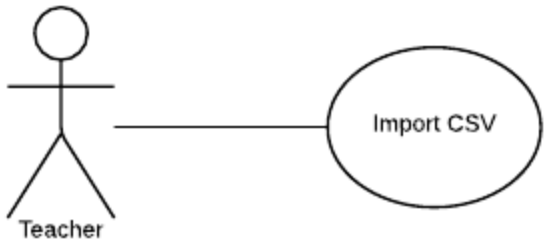

Figure 2

The user is able to import existing student data from the previous system (Microsoft Excel) in a csv format.

Participating Actors:

Teacher

Entry Conditions:

Upon first receiving the application, the user wishes to import existing data so that current students can be migrated to the new system without losing any data. He/She selects the import option from the application's main page and the import process is started.

Normal Flow of Events:

- The user selects the import option from the main page of the application
- A file chooser dialog prompts the user to choose a location on disk
- The application parses the csv file and loads the data into the application's local database.

Exit Conditions:

- The user cancels the process by closing the file chooser dialog, or pressing the cancel button on the file chooser.
- The user closes the application by clicking the system close button.

Exceptions:

- The csv file is malformed or corrupted.
    - The user is alerted that the import was unsuccessful and advised to try exporting the data from excel again.
- The user has insufficient permission to access the selected file
    - The user is alerted that the import was unsuccessful and advised to choose a different file or change the file's permissions.

Special Requirements:

- The application may perform a sync with Dropbox to act as a backup service. In that case, the device needs access to the internet and appropriate permission to access the Dropbox api from behind any firewalls that are installed on the premises.

Track Lap

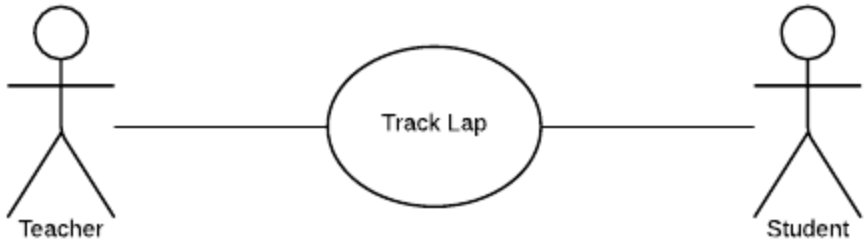

Figure 3

The user is able to track students' performance as they complete laps around one of two tracks.

Participating Actors:

Teacher, Student

Entry Conditions:

Each day, the teacher wishes to record student's laps as they are completed. He/She selects the track option from the main screen of the application.

Normal Flow of Events:

- The user selects the track option from the main page of the application
- The user is prompted to select which of the two tracks the students are running on today
- The application enters a waiting state in which it waits for one of several things to happen
    - The user scans a barcode
        - The application adds one lap to the student with a matching id
    - The user manually changes a record
        - In the event that a student forgets his/her id or the scanner is accidentally used twice on the same id, the application provides a method of selecting a student and entering a new value for the lap counter.

Exit Conditions:

- The user cancels the process by closing the application
- The user navigates back to the main application screen

Exceptions:

- A student forgets to bring an id to school
    - See Normal Flow above.
- The user accidentally enters duplicate data
    - See Normal Flow above
- The barcode scanner is unable to read a student's id
    - The user can opt to use the manual entry feature to input the correct data

Special Requirements:

The barcode scanner (PSC Quick Scan 6500) must be working and available for use.

RATIONALE FOR YOUR USE CASE MODEL

NON-FUNCTIONAL REQUIREMENTS

Product Requirements

- Security Requirements
    - The student data imported via CSV shall be kept private to prevent unauthorized access.
- Space Requirements
    - The device installing the product must have enough available space, which is not yet determined, to install the product application. The device must also have enough space to save a csv file locally.

Organizational Requirements

- Environmental Requirements
    - The product requires an internet connection to sync with Dropbox, which shall allow importing and exporting of csv files.
- Developmental Requirements
    - Developing the product may require a Windows 8 environment and a similar barcode scanner in order to test functionality.

EVIDENCE THE REQUIREMENTS HAVE BEEN PLACED UNDER CONFIGURATION MANAGEMENT