**Software Engineering CSC4350**

**Spring 2016**

**Automated Student Calendar**

**Project Team 3**

**Document #5**

3/13/2016

**Joseph Yun** – Team coordinator / Documentation

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**James Jackson** – Back-up programmer

**Alex Shyu** – Programmer (Data base)

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**Database –** SQLite

**Software Architecture –** Android (Java/XML)

Use Case Rationale

**UC\_001\_Image\_Capture\_OCR:**

This part of the application is required because there are no current available applications with such a feature out there to help students be more organized and still be lazy. This is the most critical use case to the program, as all the data processed in later use cases is captured in this step. The OCR will allow the student to automatically capture syllabi information and enter it into their calendar.

**UC\_002\_Calendar\_Management\_Automatic:**

The automatic calendar entry feature is necessary for the “automation” component of Lazy Student Calendar. This use case gives the user the option to automatically import captured data from syllabi and (in one step) import the information to their native android calendar.

**UC\_003\_Calender\_Management\_Data\_History**

This feature is a nice-to-have function for the user to have the option of manual calendar entry either at point of data capture or at a later time. If the user is unable or unwilling to import data into their calendar at time of capture, this use case allows storage of syllabi calendar data into their account for later retrieval and calendar import.

**UC\_004\_Book\_Price\_Search\_Automatic**

This is a critical system function carrying with the theme of automation, involving automatic (optional) textbook price search from captured data. As part of the core functionality, this feature uses data from the ISBN portion of listed textbooks in student syllabi and gives the option at time of capture to search for books online. The search is carried out via a native mobile browser launch into a Google Shopping ISBN search.

**UC\_005\_Book\_Price\_Search\_Manual\_History**

This feature is a nice-to-have system operation to give the user freedom to search book prices at a later date. This is an additional feature that makes use of stored data for the user in the event that the user chooses not to search for textbooks at the time of syllabus data capture.

**Fundamental Rationales**

**Android platform**

One of the biggest reason why we have decided to go with Android platform was due to the fact that Android application is using the required programming language: Java. Also the main intent of our application involves around taking pictures and the information that will be extracted within those taken pictures; therefore it was reasonable for us to work with Android platform, in which it supports all of our needs.

**Tesseract (open-source API, OCR)**

Open-source API that is widely used OCR technologies in many different platforms. In order to extract data from user-taken image, syllabi, this part of our application is one of the most essential tool that we will incorporate in our application.

**Native Applications (Calendar, Contact, E-mail, Browser)**

Native applications will mainly include Calendar, Contacts, Email, and Browsers. Due to our scope of time, we wanted to avoid putting time and effort in developing pre-existing functionality that is already built in android platform. These built-in application will allow our application to be efficient and mobile friendly.

**RTM (release to manufacturing)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Entry** | **Paragraph** | **Shall** | **Type** | **UseCaseName** |
| 1 | 1 | **LSC** shall automatically collect important dates, contact information, and textbook ISBN | SW | Use case #1 |
| 2 | 1 | **LSC** shall use phone camera and OCR\* API\* to scan images for relevant information. | SW, HW | Use case #1 |
| 3 | 1 | **LSC** shall allow user (mainly students) to create username/ password which will hold unique account information. | SW, SWC | (Login system) |
| 4 | 1 | **LSC** shall look up book prices based on ISBN found in the syllabus. | SW, SWC | Use case #4 |
| 5 | 2 | **LSC** shall allow user to input dates manually through native calendar application. | SW, SWC | Use case #3 |
| 6 | 2 | **LSC** shall allow user to look up book prices at a later time upon users’ choosing. | SW | Use case #5 |
| 7 | 2 | **LSC** shall contact professor/ TA upon image capture or at users’ choosing time | SW | (Not yet determined)  “Nice to have” |
| 8 | 2 | **LSC** shall use native mobile browser for textbook search. (prices) | SW | Use case #4 |
| 9 | 2 | **LSC** will assume that students’ phone meet minimum SDK\* requirement. | SWC | (System requirement)  No use case used |
| 10 | 2 | **LSC** shall store the data extracted from images in internal phone memory using a database (undecided). | SW | Use case #1 |
| 11 | 2 | **LSC** shall use “Google Play store” to update its version | SW | (System requirement)  No use case used |

**Terminology**

* **LSC –** Lazy Student Calendar
* **OCR –** Optical Charter Recognition
* **API –** Application Program Interface
* **SDK –** Software Development Kit
* **Google Play Store –** Place for android application downloads/ updates