# Software Requirements Specification

# For

# MOD CO. (Mobile Organized Database for Co-Op)

**Instructor:**
**Team Members:** Bruce McCulloch, Pranav Bhogal, Karthik Mohan, Angie X
**Cycle:** 70-04
**Date Submitted:** 1/25/19

# Grading Rubric - Requirements Specification

This rubric outlines the grading criteria for this document. Note that the criteria represent a plan for grading. Change is possible, especially given the dynamic nature of this course. Any change will be applied consistently for the entire class.

| **Achievement** | **Minimal** | **Exemplary** | **Pts** | **Score** |
|---|---|---|---|---|
| **Content (80)** | Section(s) missing, not useful, inconsistent, or wrong. | Provides all relevant information correctly and with appropriate detail | | |
| Introduction<br>Scope<br>Definitions | | | 10 | |
| User Profile | | | 20 | |
| Functional Requirements | | | 30 | |
| Performance & Design Requirements | | | 10 | |
| Data Requirements | | | 10 | |
| **Writing (20)** | | | | |
| Grammar and Spelling | Many serious mistakes in grammar or spelling | Grammar, punctuation, and spelling all correct | 10 | |
| Expression<br><br>Tone | Hard to follow or poor word choices<br><br>Tone not appropriate for technical writing | Clear and concise. A pleasure to read<br><br>Tone is consistently professional | 5 | |
| Organization<br><br>Layout | Information difficult to locate<br><br>Layout is inconsistent, visually distracting, or hinders use | All information is easy to find and important points stand out<br><br>Layout is attractive, consistent, and helps guide the reader | 5 | |
| **Late Submission** | | | -10<br>-25 | |
| **Total** | | | 100 | |

3

# 1 Introduction

## 1.1 Scope

MOD CO. is a mobile application in development for both iOS and Android based mobile smartphones. This app is designed for Drexel University students searching for available Co-Op programs, and provides a mobile alternative to the desktop site provided by the Steinbright Career Development Center.

The website hosted by SCDC fulfills its intended purpose of providing students with lists of available Co-Ops for their selected field, but lacks certain accessibility features that one would expect to find in this sort of system. Primarily, the site is not formatted in a way the clearly displays information students would want to know at a glance. The site is essentially a bare-format HTML list of hyperlinks, and in order to glean any necessary information on the Co-Op (job description, hours, pay, location, skills required, minimum GPA, year at Drexel, etc. in addition to student reviews)

## 1.2 Definitions, Acronyms, and Abbreviations

1.2.1 Ionic: Script based web development platform for cross-platform application use
1.2.2 Co-Op: Cooperative education, A Program through Drexel that allows students to participate in internships while completing their undergraduate degree/'s.
1.2.3 SCDC: Steinbright Career Development Center
1.2.4 Database: A structured set of data held in a computer, especially one that is accessible in various ways.
1.2.5 SQL: Structured Query language
1.2.6 Whitelist: a list of people or things considered to be acceptable or trustworthy
1.2.7 Swift: Language used for building apps for Apple products
1.2.8 MAC: Media Access Control, a unique identifier assigned to a network interface controller (NIC)
1.2.9 HTML: Hyper-text Markup Language, language used for building web-sites
1.2.10 UI: User-Interface, field of human-device interaction
1.2.11 Server: Device that provides functionality for other applications or devices
1.2.12 Workload: The amount of data that a server can handle at a certain time.
1.2.13 Local vs server storage: Using memory on a local device such as a mobile-phone or uploading data on a cloud storage.

## 1.3 User Profile

1.3.1 **Students** - The only users for this application other than our development team will be Drexel University Students. SCDC maintains the Co-Op data on their servers for use on their website, so no Co-Op listings will be made using our application. Additionally, any Drexel University Co-Op advisors already have access to all data uploaded by students through systems implemented by SCDC. Because these are the only category of users, this document will refer to them as such.

# 2 External Interfaces

## 2.1 User Interface

MOD CO. will present users with a login form to confirm that they are, in fact, Drexel University students. Once their account is confirmed, they will gain access to the main UI of the application, displaying the available Co-Ops. Additionally, there will be separate sections of this interface for the search filters already available through SCDC as well as Co-Ops the user has bookmarked for later viewing.

## 2.2 Data Interface

We will be drawing all of our Co-Op data from the SCDC database formatted in SQL. Additionally, once users input their Drexel University email, the inputted email and MAC address of the device will be sent to the app's server.

# 3 Specific Requirements

## 3.1 Functional Requirements

### 3.1.1 ID: FR1 - DOWNLOAD

3.1.1.1 RAT: Users need to be able to download the application

3.1.1.2 DESC: The app should be available for users to download from both the iOS and Google Play stores. We will develop using Swift to ensure both devices will display the same UI.

3.1.1.3 DEP: N/A

### 3.1.2 ID: FR2 - LOGIN

3.1.2.1 RAT: It is highly unlikely that Drexel University would give us access to the database of student emails and user IDs, but we have to ensure that only Drexel students are gaining access to the Co-Op database.

3.1.2.2 DESC: First time users of the app will be presented with a login page with the MOD CO. logo, the Drexel University logo, text prompting users to enter their Drexel University email with the text "Login using your Drexel University email address", a single input feild below, and a button labelled "Submit".

3.1.2.3 Once the user enters their Drexel University email and presses the "Submit" button, the field input and MAC address of the device is sent to our server, and an email is sent to the address provided by the user with a time-sensitive link.

3.1.2.4 The MAC address of the device will be added to our server's list of devices that can access our application. Because Ionic is largely based in HTML, this process will be functionally similar to whitelisting a device on a normal website.

3.1.2.5 DEP: FR1

**3.1.3 ID: FR3 - FILTER**

3.1.3.1 RAT: To allow the user to select the parameters of the search when the app displays available Co-Ops from the SCDC database.

3.1.3.2 DESC: When the user first opens the app, they will be presented with a UI that has the same filters for searching the Co-OP database as on the SCDC site along with additional filters not provided by the site (minimum GPA requirement, etc.) These will be dropdown menus, and the user can select multiple criteria to search for the Co-OP. Once the user has selected their filters there will be a SUBMIT button which the user can click.

3.1.3.3 After pressing the SUBMIT button, the app will search the database and filter out all Co-Op listings that do not apply to the user's search criteria. The app will then direct the user to a list of Co-Ops that apply to their search.

3.1.3.4 DEP: FR1, FR2

**3.1.4 ID: FR4 - LIST_ITEM**

3.1.4.1 RAT: The above section is only the process for searching the database, users need to be able to see the filtered list of available Co-Ops in order to make their decision.

3.1.4.2 DESC: After the user's search parameters have been set and the applicable Co-Ops are identified within the SCDC database, they will be displayed in a neat list format, with each Co-Op listing separated into its own block, similar to the current UI of Facebook's Newsfeed. Each block will neatly display the following information:

3.1.4.2.1 Co-Op Name

3.1.4.2.2 Co-Op Location

3.1.4.2.3 Employer

3.1.4.2.4 Job Title

3.1.4.2.5 Salary (if applicable)

3.1.4.2.6 Minimum GPA required

3.1.4.2.7 Travel Requirements

3.1.4.3 Like any social media application, users will be able to scroll through the list of available Co-Ops to see all results of their search.

3.1.4.4 DEP: FR3

**3.1.5 ID: FR5 - READ_MORE**

3.1.5.1 RAT: Although our application's UI allows users to see more information at a glance than the SCDC website, it will not display all information in each of the boxes described in (FR4). It is important that users be able to see all Co-Op information so that they can make an informed decision about their choice.

3.1.5.2 DESC: When the user taps on the heading of the Co-Op they want to read more about, the app will direct them to a page with all the information drawn from the SCDC database, clearly formatted and in readable text.

3.1.5.3 Information will be directly pulled from the SCDC database, and formatted into the UI we have designed for this section of the app.
3.1.5.4 DEP: FR4

**3.1.6 ID: FR6 - BOOKMARK**

3.1.6.1 RAT: Often, users would like to save a Co-Op listing to look at later, but the current SCDC website does not have a feature that allows for this, and the page cannot be accessed from a bookmark.
3.1.6.2 DESC: The bookmark button will be displayed in the UI as a little bookmark-shaped tab in the top right hand corner of each box as described in (FR4), or in the READ_MORE section of the app, it can be found on a bar on the bottom of the screen.
3.1.6.3 We know that users take their device storage very seriously, and so we would not want to save the full document of information on the Co-Op in the application's local files. Additionally, although we could theoretically store each user's bookmarks on our own server and reference it when the user requests by indexing it to the saved MAC address associated with the device, we do not possess the resources to host each user's bookmarks on our own server.
3.1.6.4 Instead, we have opted to locally store the cell reference ID associated with the Co-Op on SCDC's servers. This saves the user device storage space, and it saves our server processing power.
3.1.6.5 DEP: FR4, FR5

## 3.2 Performance Requirements

**3.2.1 ID: QR1 - LOGIN_TIME_INITIAL**

3.2.1.1 DESC: Time it takes for the application to send the email input and MAC address to our server. (Desired value - 1s, Current value - Unknown)
3.2.1.2 DEP: FR2, Our Server

**3.2.2 ID: QR2 - EMAIL_RESPONSE_TIME**

3.2.2.1 DESC: (Desired value - <10s, Current value - Unknown)
3.2.2.2 DEP: FR2, Our Server

**3.2.3 ID: QR3 - SEARCH_TIME**

3.2.3.1 DESC: (Desired value - 1s, Current value - Unknown)
3.2.3.2 DEP: FR3, SCDC's Server

**3.2.4 ID: QR4 - DISPLAY_RESULTS_TIME**

3.2.4.1 DESC: (Desired value - 1s, Current value - Unknown)
3.2.4.2 DEP: FR4, SCDC's Server

**3.2.5 ID: QR5 - READ_MORE_TIME**

3.2.5.1 DESC: (Desired value - 1s, Current value - Unknown)
3.2.5.2 DEP: FR5, SCDC's Server

**3.2.6 ID: QR6 - SEARCH_TRANSACTION_WORKLOAD**

3.2.6.1 DESC: (Desired value - as many transactions as they currently process)
3.2.6.2 DEP: SCDC's Server

**3.2.7 ID: QR7 - CO-OP_READ_MORE_TRANSACTION_WORKLOAD**

3.2.7.1 DESC: (Desired value - as many transactions as they currently process)
3.2.7.2 DEP: SCDC's server

## 3.3 Design Constraints

**3.3.1 Constraint:** SCDC owns and operates the databases

**3.3.2 Constraint:** The application must run on both iOS and Android operating systems

**3.3.3 Constraint:** Required storage space on the user's device

**3.3.4 Constraint:** Security issues associated with user account data

**3.3.5 Constraint:** Drexel University will never let us have access to the database of student IDs and passwords associated with each account in order for us to verify student status.

**3.3.6 Constraint:** We do not possess the server space required to host the level of data we would require to save anything but the bare minimum (e.g. whitelisted MAC addresses and the actual website)

## 3.4 Data Requirements

**VERIFICATION1**

| Name | Type | Size | Comment |
|---|---|---|---|
| Whitelist | .txt | scaleable | This tells the server which devices have access to the application, filled with the valid MAC addresses |
| MAC Address | string | 6 byte | Unique device ID, this will be stored in the whitelist |
| drexel.edu address | string | 16 byte | This will not be stored permanently, only to send the verification email |

**SERVER1**

| Name | Type | Size | Comment |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Ionic Code | HTML-based, script | Unknown | UI and functionality code for the app |
| SCDC Database | SQL database | Unknown | Co-Op database owned and operated by Drexel University |

**BOOKMARK1**

| **Name** | **Type** | **Size** | **Comment** |
|---|---|---|---|
| Bookmark data | String | Variable | This will store the reference ID for the Co-Op listing the user wants to bookmark |