Senior Project Proposal

Delware

Class Hub

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Version: 1.3

Legal Notice

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Revision History

Version	Date	Author	Company	Comments
1.0	5/26/17	Matthew Del Fante	Delware	Rough draft
1.1	6/9/17	Matthew Del Fante	Delware	See Appendix C
1.2	10/18/17	Matthew Del Fante	Delware	Updated functional requirements. See Appendix D, Change Request #1
1.3	11/06/17	Matthew Del Fante	Delware	Removed the use of the word "page" and replaced it with the word "activity"

Signatory Page

Document accepted by:

_____   _____

     Signature (Calvin Caldwell)   Date

Document submitted by:

_____   6/9/17

     Signature (Matthew Del Fante)   Date

Contents

Introduction

Purpose

The purpose of this document is to meet the requirements of the CST 334 course at the Oregon Institute of Technology. More specifically, this document will propose the idea and structure of a Software Engineering Technology senior project.

Scope

The scope of this document is to provide a detailed description of project management, the software system, product requirements and user profiles in relation to the proposed senior project.

Intended Audience

The intended audience of this document is Calvin Caldwell, the CST 334 course instructor, and all members of Delware.

Project Management

Change Management Procedure

CAT Team

Calvin Caldwell and Matthew Del Fante will make up the CAT team.

Medium

All members of the CAT Team must submit changes in the format presented by the Change Request Form (See Appendix A). Submissions by Matthew Del Fante must be a physical copy that is delivered to Calvin Caldwell himself or delivered to Calvin Caldwell's box. Submissions by Calvin Caldwell can be emailed to Matthew Del Fante or handed to Matthew Del Fante directly.

Protocol

The change request form will be analyzed and responded to over the course of one to three business days. Responses will be emailed to the email address provided on the Change Request Form.

Impact Analysis

Before a change moves forward, the impact that it will have on the system's development timeline must be inspected. If a change that is proposed would move the final production version of the system past the maximum allotted time, the change will be automatically denied.

Archive

All Change Request Forms will be archived in a binder that Matthew Del Fante will keep in his car.

Software Delivery, Installation and Acceptance Criteria

Class Hub will be delivered in the form of an APK (Android Application Package) file that can be downloaded from Class Hub's GitHub ReadMe. On the ReadMe, there will be instructions available that explain how to download the APK file and use that file to install the application on an Android device. Acceptance will depend on how closely the final product matches the functional requirements specified in this document.

Documentation and On-Line Help

The source code of the project will be documented by Matthew Del Fante and Class Hubs' GitHub ReadMe will provide steps on how to install the application onto an Android device.

Project Risks

The developer, Matthew Del Fante, is unfamiliar with both mobile development and the technologies that are required to create an Android application. In addition, Del Fante does not know of many third party libraries that could help him more easily develop the application.

Customer Responsibilities

The customer is responsible for having access to an android device and following the steps on the GitHub ReadMe page to install the application onto the Android device.

Status Reporting

Status reports will be submitted to Calvin Caldwell's box weekly by 5:00 pm on Fridays. The status reports will follow the format as seen in Appendix B and will include the following information:
- The work completed during the week
- Issues found while completing the week's tasks
- The work to be completed the next week

System General Description

Project Summary

I will be creating a class organization application named Class Hub that will be available for Android devices. The application will act as a central hub for students to organize assignments, audio recordings, video recordings and notes for each of their classes.

When the user opens the application, the user will see the Home Activity which has an assignments calendar, an add class button and buttons for each of the classes the user added to the application. The assignments calendar will display all the assignments that are due within the next three days. When the user taps on an assignment in the calendar, the user will be redirected to the View Assignments Activity that is specific to the class that is associated with that assignment. When the user taps on the add class button, the user can enter the class name and a new button will appear on the Home Activity with the class name the user just entered. If the user long presses on a class button, the user has three options: to rename the class, to delete the class or to archive the class. If the user chooses to rename the class, the new name will be used everywhere in the application where the old name was used. If the user chooses to delete the class, the class will be deleted from the application. If the user chooses to archive the class, the class will be removed from application, but all of the class' information will be written to a database. To get archived classes out of the database back into the application, the user will need to long press the add class button and select the retrieve archived classes option. Lastly, when the user taps on one of the class buttons, the user will be redirected to the Class Activity for that specific class.

On the Class Activity, the user will see the class name at the top of the screen, and five buttons for adding an assignment, viewing assignments, audio recordings, video recordings and notes. When the user taps on the add assignment button, the user will be able to enter an assignment name, a due date for the assignment, assignment priority level and notes about the assignment. There are three priority levels to choose from; level one, level two and level three (level three being the highest priority). The default priority level will be priority level 1. The assignment name, due date and priority level fields will be required fields to create an assignment; the notes field is not required to have anything typed into it. Once the user entered all the required information, the View Assignments Activity will be updated with a new entry and the assignments calendar on the Home Activity will have the new assignment in it. The priority level of the assignments will determine what the background color of the assignment will be in both the assignments calendar and the View Assignments Activity. Priority level one the background color will be blue, priority level two the background color will be yellow and priority level three the background color will be red.

On the Class Activity, when the user taps the button to view assignments, the user will be redirected to the View Assignments Activity. On this activity, the user will see a list of buttons of all the assignments for a particular class. When the user taps on an assignment button, the user will be able to edit an assignment's name, due date, priority level, notes, and have the options to mark an assignment as completed or to delete an assignment. If the user marks an assignment as completed, the background color of the assignment in the assignments calendar and the View

Assignments Activity will become green. If the user deletes an assignment, the assignment will be deleted from the application.

On the Class Activity, when the user taps the audio recordings button, the user will be redirected to the Audio Recording Activity. On the Audio Recording Activity, the user will see buttons to start an audio recording or listen to previous audio recordings. When the user taps on the button to start an audio recording, the user will be able to pause the recording or stop the recording. When the recording is stopped, the user will be prompted to either save the recording or the delete the recording. If the user chooses to delete the recording, the recording will be deleted from the app. If the user chooses to save the recording, the recording will be saved to the View Audio Recordings Activity. The default name of the recording will be the current date and military time (e.g. 05/25/17 20:35:22).

When the user taps on the previous audio recordings button, the user will be taken to the View Audio Recordings Activity. On this activity, each audio recording for the specific class will be listed. When the user taps on one of the audio recordings, the user will have the options to play the audio recording, rename the audio recording or delete the audio recording. If the user chooses to play the audio recording, a seeker and play/pause button will display so the user can seek through the audio and play/pause the audio. If the user chooses to rename the audio recording, a textbox will display so the user can type in a new name for the audio recording. Lastly, if the user taps on the option to delete the audio recording, the recording will be deleted from the application.

On the Class Activity, when the user taps the video recordings button, the user will be redirected to the Video Recording Activity. This activity will function almost exactly like the Audio Recording Activity. The only difference will be that the user will be recording video rather than audio. Another difference is that when the user navigates to the View Video Recordings Activity, when the user plays the video recording, the video along with the seeker and the play/pause button will display and the seeker will allow the user to seek through the video rather than audio.

On the Class Activity, when the user taps the notes button, the user will be redirected to the Notes Activity. This activity will function similarly to the Audio Recording activity as well. The differences are that when the user presses the button to start taking a note, a large text box will display where the user can type as many notes as he or she wants. In addition, the user will not have options to play/pause. Rather, the user will have options to save the note or discard the note. Lastly, another difference is on the View Notes Activity. When the user taps on a previous note, rather than having an option to "play", the user will have an option to view/edit the note. When that option is selected, a textbox will appear that displays the note and if the user edits the note, the user will have the options to either save the edits or discard the edits.

Perspective

History

Throughout college, Matthew Del Fante could not find an application on the Google Play Store that could organize all of his class' information in a fashion that he wanted to organize it. Because of this, Del Fante decided to create an application to fit his needs as a senior project.

Prior Releases

There are currently no prior releases of Class Hub.

Major Subsystems

The application will have three major subsystems: The user interface, the backend and the database. The user interface will be the layer that a user will interact with, the backend will handle all the logic behind the user's actions on the user interface and the database will store archived classes.

Relation of System to Existing System(s)

N/A

Hardware Platform Description

An Android device with at least four gigabytes of non-volatile storage and at least 1824 MB of RAM is required to use Class Hub.

Software Platform Description

Class Hub must be ran on the Android operating system, preferably version 6.0.1 or higher.

Third Party Libraries

Third party libraries that will be used include:
- ActiveAndroid
- Android Week View
- Java MP4 Parser

Product Requirements

Functional

1. The application will be able to be used on all Android devices
    1.1. The application will be able to be downloaded from the application's GitHub page
        1.1.1. The GitHub page will have instructions on how to install the application onto an Android device
2. The application will be launched by tapping on the application's icon on the Android device
    2.1. The application's Home Activity will be displayed once the application is loaded
3. The Home Activity will display:
    3.1. The name of the application at the top of the activity
    3.2. The Assignments Calendar
        3.2.1. The Assignments Calendar will:
            3.2.1.1. Display a calendar of the next three days
            3.2.1.2. Be scrollable so the user can scroll through all days of the year
            3.2.1.3. Display all class assignments as colored boxes on the calendar under the dates that the assignments are due
                3.2.1.3.1. The assignment boxes will have different background colors based on the priority level of the assignments
            3.2.1.4. Redirect the user to the View Assignments Activity for the assignment's class if an assignment is tapped on
    3.3. The Add Class button
        3.3.1. The Add Class button will:
            3.3.1.1. Be able to be tapped:
                3.3.1.1.1. A pop up menu will be displayed that will:
                    3.3.1.1.1.1. Display a textbox that prompts the user to enter the class name
                    3.3.1.1.1.2. Have done and cancel buttons
                        3.3.1.1.1.2.1. The done button can only be pressed when at least 1 character is typed into the textbox
                            3.3.1.1.1.2.1.1. Once done is tapped, a new class button with the name of the class will be displayed on the Home Activity
                                3.3.1.1.1.2.1.1.1. The class name must be unique, if it is not, a warning message will be displayed.
                        3.3.1.1.1.2.2. The cancel button will make the pop up menu disappear
            3.3.1.2. Be able to be long pressed:
                3.3.1.2.1. A pop up menu will appear that will have:
                    3.3.1.2.1.1. A button that says "Retrieve Archived Classes"
                        3.3.1.2.1.1.1. When tapped, all archived classes will be pulled from the database and buttons for each of the archived classes will be displayed on the Home Activity
                    3.3.1.2.1.2. A cancel button
    3.4. Buttons for each of the classes the user added to the application
        3.4.1. The buttons for each of the classes will:
            3.4.1.1. Be able to be tapped

3.4.1.1.1. The user will be redirected to the Class Activity for the class the user tapped

3.4.1.2. Be able to be long pressed

3.4.1.2.1. A pop up menu will be displayed with a textbox to rename the class, a button to delete the class, a button to archive the class and a done button

3.4.1.2.1.1. When the user types a new name into the textbox and presses the done button, the button on the Home activity will now display the updated name

3.4.1.2.1.2. When the user taps the delete class button, a confirmation will display ensuring the user wants to delete the class and when confirmed, the class and all its information will be deleted from the app. The popup menu will disappear after pressing this button

3.4.1.2.1.3. When the user taps the archive class button, all of the class' information will be written to the database and the class will not appear in the app anymore. The popup menu will disappear after pressing this button

3.4.1.2.1.4. The done button can only be pressed when at least one character is typed into the textbox, and will make the popup menu disappear

4. The Class Activity will display the name of the class at the top of the activity and five buttons for adding an assignment, viewing assignments, audio recordings, video recordings and notes.

4.1. When pressing the add assignment button, a pop up box will appear with:

4.1.1. A textbox to enter an assignment name

4.1.2. A button to add a due date

4.1.2.1. When pressed, a monthly calendar widget will pop up where the user can tap on the date that the assignment is due

4.1.2.1.1. When the user selects the date, a clock widget will pop up where the user can select what time the assignment is due.

4.1.3. A button to add a priority level

4.1.3.1. When pressed, a drop down menu will display showing three buttons representing priority levels one, two and three

4.1.3.2. Priority level one (lowest priority) is the default selected priority

4.1.3.3. Priority levels change the background color of assignments in the Assignments Calendar and on the View Assignments Activity

4.1.3.3.1. Priority level one = blue

4.1.3.3.2. Priority level two = yellow

4.1.3.3.3. Priority level three = red

4.1.4. A large text field to add any notes about the assignment

4.1.5. Done and cancel buttons

4.1.5.1. In order to press the done button, the assignment name, due date and priority level fields must be completed

4.1.5.1.1. If the assignment name is not unique, a message will display saying that each assignment name must be unique for each class.

4.2. When the view assignments button is pressed, the user will be redirected to the View

Assignments Activity

    4.3. When the audio recordings button is pressed, the user will be redirected to the Audio Recordings Activity

    4.4. When the video recordings button is pressed, the user will be redirected to the Video Recordings Activity

    4.5. When the notes button is pressed, the user will be redirected to the Notes Activity

5. The View Assignments Activity will have a list of buttons of all the assignments for a particular class

    5.1. Tapping an assignment button will:

        5.1.1. Allow the user to edit the assignment information via the same pop up box in requirement 4.1, but with additional buttons to mark an assignment as completed and a button to delete an assignment

            5.1.1.1. If the user marks an assignment as completed, the background color of the assignment will become green in the View Assignments Activity and the Assignments Calendar

            5.1.1.2. If the user taps the button to delete an assignment, the user will be prompted if he or she is sure he or she wants to delete the assignment, and if the user is, the assignment will be deleted from the application

6. The Audio Recording Activity will have two buttons, a button to start an audio recording and a button to view audio recordings

    6.1. When the user taps the button to start an audio recording, the device will start recording audio

        6.1.1. A button to pause/continue recording and a button to finish recording will appear

            6.1.1.1. When the user presses the button to pause the recording, the button will turn into the continue button and the device will temporarily stop recording audio

            6.1.1.2. When the user presses the button to continue the recording, the button will turn into the pause button and the device will start recording audio again.

            6.1.1.3. When the user presses the button to stop a recording, the device will stop recording audio and two buttons will appear to delete the recording or save the recording

                6.1.1.3.1. Pressing the delete button will delete the audio recording from the application if the user confirms that he or she wants the recording to be deleted

                6.1.1.3.2. Pressing the save button will save the button to the View Audio Recordings Activity

                    6.1.1.3.2.1. The default name of the recording will be the current date and military time (e.g. 05/25/17 20:35:22)

    6.2. When the user taps the View Audio Recordings button, the user will be redirected to the View Audio Recordings Activity

7. The View Audio Recordings Activity will have every saved audio recording for the specific class listed. On the View Audio Recordings Activity the user can:

    7.1. Tap an audio recording which will display a pop up menu with:

        7.1.1. A button to play the audio recording

            7.1.1.1. When pressed, a seeker, play/pause button and stop button will display

                7.1.1.1.1. The corresponding buttons allow the user to seek through the audio file, play or pause the audio and stop listening to the audio

7.1.2. A button to rename the audio recording
    7.1.2.1. When pressed, a textbox as well as done and cancel buttons will display so the user can rename the recording
        7.1.2.1.1. The done button can only be pressed if at least one character is typed into the textbox
        7.1.2.1.2. Multiple audio recordings with the same name is prohibited
7.1.3. A button to delete the audio recording
    7.1.3.1. When pressed, a confirmation will display asking if the user is sure if he or she wants to delete the audio recording and if the user is sure, the audio recording will be deleted from the application
8. The Video Recording Activity and the View Video Recordings Activity will function exactly like the Audio Recording Activity and the View Audio Recordings Activity. The difference will be that the user will be able to record videos and play videos instead of audio.
9. The Notes Activity will have two buttons. A button to start a note and a button to view all notes associated with the class
9.1. When the user taps the button to start a note, a large textbox will display along with a save button and a cancel button.
    9.1.1. The user will be able to type as many notes as he or she would like in the textbox
    9.1.2. When the save button is tapped, the note will be saved to the View Notes Activity
        9.1.2.1. The default name of the note will be the current date and military time (e.g. 05/25/17 20:35:22)
        9.1.2.2. Save can only be pressed when at least one character is typed into the textbox
    9.1.3. When the cancel button is tapped, the note will be discarded and the textbox will disappear.
9.2. When the user taps the button to view all notes, the user will be redirected to the View Notes Activity
10. The View Notes Activity will have each saved note listed for the specific class. The user can:
10.1. Tap the note which displays a pop up menu with:
    10.1.1. A button to view/edit the note
        10.1.1.1. When pressed, a large textbox will appear that displays the note
            10.1.1.1.1. The user can view the note
            10.1.1.1.2. The user can edit the note
                10.1.1.1.2.1. The user can save the edits to the note
                10.1.1.1.2.2. The user can discard the edits from the note
    10.1.2. A button to rename the note
        10.1.2.1. A textbox as well as done and cancel buttons will display so the user can rename the note
            10.1.2.1.1. The done button can only be pressed if at least one character is typed into the textbox
            10.1.2.1.2. Multiple notes with the same name is prohibited
    10.1.3. A button to delete the note
        10.1.3.1. A confirmation will display asking if the user is sure if her or she wants to delete the note
            10.1.3.1.1. If sure, the note will be deleted from the application

Performance

Upon starting the application from the user's device, the application will open in less than two seconds. Transitioning between activities in the application will take no longer than one second. Saving larger audio and video files to the application/device will take no longer than three seconds. Sending and retrieving class information to and from the database will take no longer than four seconds.

Reliability

As long as the user's Android device is functioning properly, the application will maintain 100% reliability.

Data Description

Data transfer speeds from the database to the application and vice versa will be approximately 115 kb/s. In addition, the Android Application Package (APK) file for Class Hub will not exceed 100 MB.

Security/Safety

The application will ask the user for permission to access the device's camera and microphone. If the user denies permission, the user will not be able to record audio or video with the application.

Constraints

The users of the application are expected to not violate any civil, federal or school/university laws when using Class Hub.

User Profiles

Class Hub is expected to attract high school and college students who need to organize all their classes' information into a single application on their android devices. However, anybody who wants to organize information about any class(es) may be attracted to the app.

Glossary

ActiveAndroid: An active record style object relational mapper for Android.

Android Application Package (APK): The file format used for installing software on devices with the Android operating system.

Appendix A – Change Request Form

Change Request Form

Name:
Email Address:
Date:

Requested Change(s):

Purpose for Change(s):

Addition Comments:

Appendix B – Status Report Form

Status Report Form

Name:
Email Address:
Date:

Work completed this week:

Issues this week:

Next week's tasks:

Appendix C – Proposal Revision 1.1

Changes I made with version 1.1:

- Removed the ability to share audio recordings, video recordings and notes from the application
- Updated the Data Description to include information about the database's data transfer rate
- Fixed grammar mistakes throughout the proposal

Appendix D – Change Requests

Change Request #1

Requested Change(s):
1. Rather than showing a calendar of the next seven days on the home activity, show a calendar of the next three days but allow the calendar be scrollable to view all days of all years (Requirement #3.2.1.1 and 3.2.1.2).

2. Remove ability of the weekly calendar expanding to a monthly calendar when tapping the calendar.

3. When adding an assignment to a class, the user will have to add the time the assignment is due along with the date the assignment is due (Requirement # 4.1.2.1.1).

Purpose for Change(s):
1. With a calendar that shows the next seven days, it could be difficult to see content in the calendar on mobile devices. Also, I found a third party library that implements the ability to scroll through all days of all years.

2. With a monthly calendar, it is extremely difficult to see content in the calendar on mobile devices since 31 days have to be displayed. Also, if change # 1 is approved, the user can scroll through all days of a month on the calendar.

3. It would be nice for the user to know what time the assignment is due along with the date it is due.

Addition Comments:
- I have a project that implements the scrolling weekly calendar third party library and it works really well and is perfect for my project.