**NSOApp**

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CS212

November 29, 2013

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**APPLICATION DESCRIPTION**

The first week of university for new students can be a very intimating and challenging experience. The purpose of this application is to make this new and frightening experience as smooth and as stress-free as possible for students attending the University of Prince Edward Island. This app aims to make organizing the New Student Orientation week for the participating students very relaxed and hopes to provide an interface to allow for a very pleasurable experience. It also aims to provide some general information about the campus and other useful applications for general day-to-day organization for both NSO students and students who are not participating in the New Student Orientation week.

The main goals of this application include:

* Provide a list of all the NSO events in an easy to read interface with times and locations provided
* Allow users to view and add contacts to their contact list as they make new acquaintances
* Allow users to add alarm events that will notify them of an upcoming event at a time of their choosing
* Provide easy access to campus info which includes:
  + Gym hours and contact information
  + Library hours and contact information
  + Wave contact information, hours of operation, and pub menu
* Easy access to a campus map for navigation of the school grounds

The features of this app include:

1. Table Views

Table views are used for displaying several different aspects of data. The NSO events, alarm events, and contacts are all displayed using table views.

2. Segmented Controller

Used for choosing between 3 different choices of campus information

3. Web View

Used for displaying information about the campus. The Web View is used to display the gym information which is the actual UPEI gym website which is located online. Inside the library and Wave information, the Web View is used to display both offline HTML code and pdf files. A Web View is also used to display the campus map, which is a pdf as well.

4. Tab View Controller

This is the main way that users will navigate the application, from feature to feature.

5. Splash Screen

A splash screen greets the users with a welcome message. When the application is finished loading, an image is displayed that is quite similar to the splash screen. A start button appears that prompts the user to enter the application. This provides the user with a feel as if the application is loading and then they are encouraged to begin.

6. Alarms

This feature allows users to program alarms to fire at a specific time and date. If the user is currently working inside the app when it fires, an alert box fires. If the user is working outside of the app, a banner notification fires. Also, when an alert fires, a message is sent to the built in notification center.

7. Date Picker

This feature is used to select the date for when a user wishes their custom alarms to fire that they create.

8. Contact List

The feature allows users to create and display contacts.

9. Text Field

This allows users to enter a description of an alarm that they wish to create.

Frameworks Used:

1. AddressBook.framework/AddressBookUI.framework

This framework allows users to store people’s contact information in a centralized database, which can be shared between applications. This framework was utilized in our create/view contacts part of our application.

2. CoreData.framework

This framework utilizes a built in SQLite feature which allows the application to store data using data persistence. This framework is employed in the NSO events aspect of our application to save the particulars about each NSO event and display them every time the application loads.

3. CoreGraphics.framework

This framework was utilized when customizing the cell’s size for the NSO events. The cells were required to be dynamic and change size according to the amount of text they were to display for each event. This framework helped in this process.

Limitations:

Some features that we would have liked to include are:

1. The ability to create alerts directly inside the NSO event table. This would allow users to easily create reminders for events that they are interested in.
2. The ability to edit contacts.
3. Add/Delete/Edit events.
4. Utilize the apple map kit framework to have the ability to track your position on campus and have it display on the UPEI map.

**OPERATING INSTRUCTIONS:**

The user is greeted with a splash screen that welcomes them to the NSO app as it loads. When the application is finished loading, the “orientation” part of the welcome screen appears to disappear and is replaced with a “start” button. The splash screen notifies the user that the app is loading and the simple transition from the splash screen to the welcome screen displays the start button and prompts the user to enter the app.

A Tab Bar Controller controls the flow of this application. There are 5 tabs within this application, allowing easy access to each sub-application for the user. The user simply selects a tab to move from feature to feature. The 5 tabbed features are as follows:

1. NSO Events

The NSO Events section is organized using a navigation controller and two UI Table Views. Both the days and the respective events for each day are organized into tables, where selecting a day will take you to the events for that day. Alternatively, if a user hits the back button on the events screen that is located in the upper left hand corner, they will be navigated back to the previous table.

2. Contacts

This item allows users to have easy access to their contacts. Users are also able to display their contacts stored in their contact list. They can also create new contacts that are then saved to the main apple contact list as they meet new friends during the NSO week activities. In a working version of this application on an actual device, users would be able to message, email, or call their contacts directly from within the app but since it is not available in the simulator, it is not possible for our demonstration purposes.

3. Event Alarm

This feature allows users the create alarm events for upcoming events in their life. Because of the tabbed feature of this application, users can seamlessly browse the list of NSO events from the first tab and then navigate to this feature and add an alarm for events they are interested in with ease. Users are prompted to add a description of the event they wish to create an alarm in a Text Field. Then they are required choose the time and date using a Date Picker to set when the alarm should be fired and an alert displayed. When the alarm is fired, a pop up message is displayed if the user is currently in the app. If the user is not in the app, a banner notification with the message is displayed. When an alarm fires, it is subsequently removed from the list of alarms. Users can also swipe to delete alarms that they no longer require.

4. Campus Info

This aspect provides useful information about the campus for the user. The user can choose between 3 screens displaying different information by selecting the desired material using a segmented controller. The gym view displays the campus gym information directly from their website, allowing users to browse online as they are connected to the Internet. The library and wave pages display information using hardcoded html provided within the application. All views display their relevant information using an UI Web View.

5. Campus Map

The final feature allows users see the campus map. It utilizes a UI Web View to display a pdf image of the campus map. It is locked in landscape view so the user is required to rotate the device when they navigate to this page. We choose this option because the map displays much nicer in landscape mode. Also, other applications display incorrectly if we allow users to rotate the screen orientation.

\*\*All displays can be zoomed if a user requires a closer look by using the pinch function.

**DESIGN**

During the initial planning phase of the application, we chose to utilize GitHub for version control and compiling all of our information and work together. There existed somewhat of a learning curve at first, but overall it was a great feature that allowed us to work from different locations and at different times. It ensured our work was always backed up and that we were working on the most up to date version of our application. We also tried to keep an up to date log so the group members always knew what others were working on, what was finished, and what still had to be completed. Also, we were always in constant communication when not working together directly, which was a necessity.

When designing this application, we chose to utilize the storyboard feature for implementing our designs and ideas into Xcode. The reason for this was because we had many different features and tabs that required navigation controllers and we felt that we could easily organize our application and ideas using the storyboard.

We decided that a tab bar controller would be the best way to navigate our application. We wanted users to be able to navigate through the different features of our application with a great deal of ease and fluidity and we felt that the tab bar controller was the best fit for this requirement.

The NSO Events are organized using Core Data. The data base has only two entities; day and event, resulting in a simple database. This was chosen because UI Table Views and Core Data work exceptionally well together. The database contents are hardcoded into the app and are regenerated at each launch of the app. The context is not saved because the database is not very big, it is more flexible to changes, and the app is more stable. This method also guarantees that the project will have consistent behavior regardless of what machine they are launched on and how many times the app has been launched on said machine.

Please refer to the attached image of the storyboard diagram for a full appreciation of how our program is laid out.

**IMPLEMENTATION ISSUES**

Rotation was disabled within the application. This is because it caused problems displaying the cells that were customized to be displayed in different sizes, depending on the amount of data held within them. Also, this allows the campus map to be locked in landscape view and forces the user to rotate the device to look at the map. This is the way that we intended the map to be displayed so this ended up working in the end.

When displaying the time of the alarms, the default time zone on the simulator is set for +0000 GMT. The alarm displays 4 hours ahead of the time locally here on Prince Edward Island, but it still fires at the desired time that it was set in relation to the system time of the computer the simulator is running on.

In a real world application, users would be able to call, message, and email directly from within the display contact feature of the application. However, this is not possible utilizing the simulator.

**REFERENCES**

As stated earlier in the presentation, GitHub was utilized for collaboration between group members.

The Apple IOS Developer library was referenced when learning about the Address Book framework.

Information from the UPEI NSO page from 2012 was utilized for data and some images were employed from this site, including the image used for the application icon.

Tab bar icons were obtained from a Pictos PNG bundle.

The campus information was all obtained from the UPEI website. The wave menu was obtained and used with permission from their staff.

**CONCLUSION**

Overall, we feel that this was a very rewarding and enjoyable experience. Many of the concepts that we covered in class were utilized in our application, but we were also pushed to learn on our own and employ new techniques and features that were not covered. We learned that there is a vast array of different possibilities when programming in IOS. We enjoyed the teamwork aspect of the project and we learned new ways of collaborating. It has become even clearer that constant communication is a very important aspect when programming together. Also, version control and proper documentation are essential and a constant necessity.

Thank you for a great course and we both hope to have you as an instructor again in the future.