**Mobile Computing – iOS Spring’23**

**Sec04 Exam01**

**70 Points**

**Please follow the following instructions to complete this assignment.**

1. Open Xcode from the launchpad of your Mac.
2. Click on create a new Xcode project. Select the iOS platform and click on the App template.
3. Click on next, which will prompt you to choose options for the project.
4. Provide product name as **LastnameListApp**, “**edu.northwest**” for organization identifier, “**Storyboard**” as interface and **Swift** as language.
5. Click on next and select an appropriate location to save your app and click on create. A project directory will be loaded.
6. From the project navigator click on “Main.storyboard” file, a blank mobile screen will be loaded, where the required components for the app are added.

**The View**

Table 1: UI elements configuration

|  |  |  |
| --- | --- | --- |
| **UI element** | **Purpose** | **Outlet/action name** |
| 1 UIImageView element | To display an image | n/a |
| 1 UILabel element | To display the title *Grocery List™️* | n/a |
| 1 UITextView element | To display grocery list | listTV |
| 3 UITextField elements | To input item | itemTF |
| To input item quantity | itemQuantityTF |
| To input item number | itemNumTF |
| 3 UIButton elements | ➕ To add items to the list | addToList: |
| addBTN |
| 🆑 – To empty the complete list | clear: |
| clearBTN |
| 🗑️ – To delete a particular item in the list | deleteFromList: |
| deleteBTN |

*Note: Names that are ending with a colon (****:****) are actions.*

1. Open library (cmd+shift+l). Search for “label”, add (drag and drop) it to the storyboard.
2. Similarly, add an ImageView to the storyboard from the library and set the corner radius to 10.0 and set its mask to bounds property to true, and content mode to Scale To Fill. Its height should be 0.3 percent of its containing view.
3. Load the image asset provided into the ImageView.
4. Add three TextField elements to the storyboard, and change their placeholder names to Item name, Quantity, and Item number, respectively.
5. Add three buttons to the story board and the change the button titles to ➕, 🆑 & 🗑️, respectively.
6. Stack the Item name, Quantity text fields, and ➕ button horizontally. Moreover, the width of Item name text view should be 2.5 times that of the Quantity text field. However, Quantity text field, and ➕ button do have equal width. Set the stack alignment property to fill, distribution to fill and use standard spacing. Entire stack view’s height should be 0.1 percent of its containing view.
7. Stack the Item number, 🆑 button, and 🗑️ button horizontally. Moreover, the width of Item number text view should be 2.5 times that of the 🗑️ button. However, 🗑️ button, and 🆑 button do have equal width. Set the stack alignment property to fill, distribution to fill and use standard spacing. Entire stack view’s height should be 0.1 percent of its containing view.
8. Add a TextView to the storyboard. Set its alignment to Justified. Its height should be 0.1 percent of its containing view.
9. Replace the TextView’s default text with “Please enter the item name and quantity, and click on the plus sign to add the item to the grocery list.”

**The Controller**

1. Create a Cocoa Touch Class “ListVC” that is a sub class of UIViewController and assign it as class to Main.storyboard file.
2. Create outlet/action items as specified in *Table 1*.
3. Action addToList will add an item and its quantity to the to the grocery list i.e., listTV.
4. Action clear will remove all the items from the listTV and display the default text.
5. Action deleteFromList will remove the specific element from list using the itemNumTF and updates the grocery list. The serial number of the item should be entered in the itemNumTF.
6. Initially, all the buttons and text fields except the item name text filed should be disabled.
7. If any text is entered into the item name text field and return key is tapped, the quantity text field is enabled. Furthermore, if user enters input value into the item quantity text field and taps on the return key, the ➕ button is enabled. The ➕ button should be enabled only when numeric value is entered.
8. After successfully adding an item to the grocery list, the item quantity text field and the ➕ button should go into disabled mode.
9. Only if the grocery list is not empty, item number text field, and 🗑️, and 🆑 buttons should be enabled. Otherwise, disable them.