Assignment 1

(due 11:59 pm on 2/14)
CMSC 491 – Mobile Programming (iOS)
Spring 2017

In this assignment you will be building a GPA calculator app. Requirements:

1- Functionalities:
   a. <u>Adding a Course:</u> A new course will be added to the list by clicking this button. To enter a grade from a course, user will need to enter
      i. Total score (point) from Assignments
      ii. Midterm score and
      iii. Final score together with max possible points from each task.

   User will also need to enter weight of each task out of 100% and the credit amount for this course (Always show some default text with meaningful numbers in each text field). The calculation engine will calculate the total weighted score of this course and decide the letter grade using the following matching:

   A: 90-100, B: 80-89.9, C: 70-79.9 D: 60:69.9 and F: <60

   The chalkboard text should be updated with the added course and its corresponding credit and letter grade image. Max 4 courses can be entered. If a fifth course is tried to be entered, an error message (as an alert) should be displayed.

   Another error message should also appear if not all fields are entered accurately (ex: if the sum of weights does not make 100%, if point taken is not between 0 and max possible point etc.). If a course with the same title is tried to be added, a different error should appear too.

   b. <u>Deleting a Course:</u> The course with id entered will be deleted. The chalkboard and GPA should be updated accordingly. It should show an error alert if id is not present in current list. The Delete button should be disabled at the beginning and when no course is in the list (after removing all current listed courses in the chalkboard).

2- You need to create classes like "Assessment" and "Course" with appropriate properties and functions.

3- At the beginning (when no course added), GPA should show nothing (just "GPA: ") as white color. With the first course added, it should be calculated and should appear. Color of GPA text should change as follows:
   a. Green if GPA is between 3.0 and 4.0
   b. Orange if GPA is between 2.0 and 2.99
   c. Red if GPA is less than 2.0

4- The app should work only in Portrait mode.

5- The appearance of the app should look the same/good for all iPhone types. Use auto layout constraints to achieve it. <u>Do not use Stackview</u> in this assignment.

6- You can use the image resources (letter grades, app icon, chalkboard, gpa-calculator-title) provided. Finding and using your own but similar images is highly recommended.

UI related customization

1- Change labels for "Add Course" and "Delete Course" to images and find/use appropriate images without breaking the good looking appearance (You can check http://www.freepik.com/ for sample images).
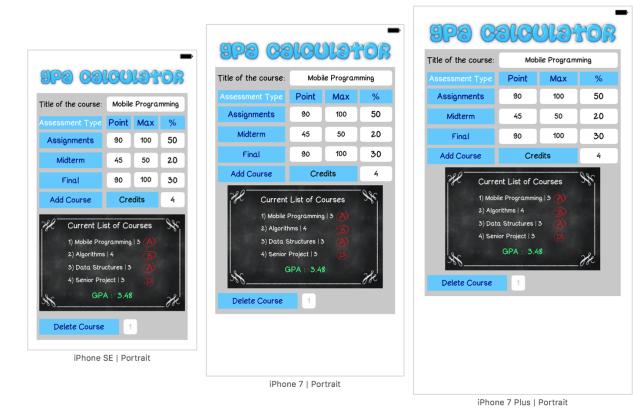
2- Add a custom font with appropriate changes in "info.plist" and use it (You can check http://www.dafont.com/ for some fonts).
3- Create your own title logo image from online sources and use it (You can check http://cooltext.com/)
4- Create/Find your own app icon and use it.
5- Also, in general you are free to re-organize the locations of UI items as long as the functionality stays the same and the appearance is the same with different device sizes.

Submissions should be made in Blackboard before 11:59 pm on 2/14 .

General Grading Criteria:
1- Appearance: (30%)
2- Functionality:
  a. Adding (40%)
  b. Deleting (15%)
  c. Errors (15%)

Screen shots in iPhone SE (4-inch), iPhone 7 (4.7-inch) and iPhone 7 plus (5.5-inch)

iPhone SE | Portrait

iPhone 7 | Portrait

iPhone 7 Plus | Portrait

More screenshots from run time.
1) Initial Screen
2) After "Mobile programming" and "Algorithms" courses are added. GPA is also updated.
3) After 4 courses are added and a fifth one is tried, it gives error.
4) "Data Structures" and "Algorithms" are deleted.

Screenshot 1

Carrier 🔋   12:23 PM

gpa calculator

Title of the course:		Mobile Programming	
Assessment Type	Point	Max	%
Assignments	90	100	50
Midterm	45	50	20
Final	90	100	30
Add Course	Credits		4

Current List of Courses

GPA:

Delete Course   1

Screenshot 2

Carrier 🔋   12:17 PM

gpa calculator

Title of the course:		Algorithms	
Assessment Type	Point	Max	%
Assignments	90	100	20
Midterm	40	50	40
Final	90	100	40
Add Course	Credits		4

Current List of Courses

1) Mobile Programming | 3 (A)
2) Algorithms | 4 (B)

GPA : 3.42

Delete Course   2

Screenshot 3

Carrier 🔋   12:20 PM

gpa calculator

Title of the course:		Senior Project	
Assessment Type	Point	Max	%
Assignments	0	0	0
Midterm	0	0	0
Final	25	100	100

Error

Max course allowed is 4

Cancel

3) Data Structures | 3 (C)
4) Senior Project | 3 (D)

GPA : 2.3

Delete Course   2

Screenshot 4

Carrier 🔋   12:21 PM

gpa calculator

Title of the course:		Senior Project	
Assessment Type	Point	Max	%
Assignments	0	0	0
Midterm	0	0	0
Final	25	100	100
Add Course	Credits		3

Current List of Courses

1) Mobile Programming | 3 (A)
2) Senior Project | 3 (F)

GPA : 2.0

Delete Course   3