MAD Midterm

Instructions:

You have an entire class period to develop the following app in iOS using Xcode. You can use any reference material you find helpful. It is suggested that you start at the first task and work down the list. The tasks are listed in an order such that they can be implemented after the previous ones. The goal of this midterm is to test your technical proficiency so focus on getting each task working. Add additional complexity and aesthetics at the end, time permitting. I highly suggest creating multiple versions of your project (duplicate your project folder in the Finder) so you have a version saved after each task. Snapshots are not persistent when your project is run on a different computer so if you use them, only use them for your work during the midterm, not for use during grading. Post your completed project to github at the end of the midterm. (You can post more than 1 version if an earlier version worked but you want me to see the progress you made on a later non-working version).

Create an app based on the mock-up provided that computes a person's commute time.

1. Calculate commute time 40 pts
    a. Label and textfield to enter commute miles.
    b. Button that calculates round-trip daily commute time by car.
    c. Label to display total commute time.
    d. Assume average car speed is 20 mph
2. Calculate gallons of gas that will need to be purchased for a round-trip daily commute. 20 pts
    a. Label to show gas needed.
    b. Assume the car gets 24 mpg
3. Implement ONE of the following user interface controls: (10 points each) Additional controls for extra credit
    a. Switch to show monthly commute times and gallons of gas (assume 20 work days/month)
    b. Slider to track how much gas you have. Display this amount in a label.
    c. Segmented control to chose mode of transportation – car, bike, bus. Based on this control the total commute time and gas to purchase should change.
        1. bike average speed is 10 mph
        2. bus average speed is 12 mph + 5 min wait each way
4. Image view that changes based on chosen mode of transportation 10 pts
5. Add an alert or action sheet for ONE of these conditions to your app 20 pts
    a. alert the user if they don't have enough gas for their commute
    b. if their commute is over 50 miles
    c. suggest carpooling if they're driving

Extra credit:

Use auto-layout and constraints so the user interface is adaptive to different size classes (screen size and orientation). 15 pts

Add a second view controller to enter your name and email to receive information on alternate modes of transportation. Make sure the user can navigate back to the original view. Data does not need to be persistent. 15 pts

Implement a feature that uses a framework in your app such as an animation, gesture, audio, etc. or making the data from the second view controller persistent. 10 pts extra credit each