Assignment #1:
Assigned: January 16th
Due: January 22nd by midnight

Homework branch name: **Homework1**
5% of final grade

Objective:

To give everyone the opportunity to get their environments up and running, and test-run some of the basic SITL commands, and to start thinking about developing in a safety-critical domain.

Setup:

You will need to check out your private repository that has been setup for you in github. Do NOT work directly in the class directory otherwise you will have potential problems in pulling from the repo. Import any code you wish to use from that directory into your own directory. For all homework submissions create a new branch which must be committed prior to the deadline without any further changes.

Tasks:

This assignment includes several different 'getting started' activities. It is worth 5 points (i.e., 5% of your final grade).

Please complete the following:

1. Make sure your environment is setup.
   We hope to have all problems resolved during class; however, if you have a problem that we can't solve today, then set an appointment with the TA (Ankit Agrawal). You can also use a loaner computer to do your assignment if absolutely necessary.

2. Programming assignment: (6 points)

   a. Choose your favorite building or area of campus. Go to google maps and identify 3-4 GPS coordinates around that building.
   b. Reusing goto.py from 02_basiccommands (or start from scratch if you prefer), modify the code so that the UAV takes off to 20 meters, flies around the building or area (visiting the 3-4 GPS coordinates and then returns to launch and lands.
   c. Display the coordinates of the trip on the console and also print them to file. Show the remaining distance to the currently targeted waypoint. Print approximately every second. Show when each waypoint has been reached. Your file must be called "TripLog.log".

   d. A sample output for each waypoint is as follows (repeated for each of the 3-4 waypoints).

```
Heading towards 41.71500, -86.24230
Distance: [distance in meters]
Distance: [distance in meters]
Arrived at waypoint.
```

3. Reading & response: (3 points)

    a. Read the short paper on Therac 25 years afterwards. See link from readings [Week1:Therac]
    Write a 200-250 word response to the Therac reading adding the question of "How could the issues raised in the 'Therac paper' impact the development of a UAV application?"
    File name: Therac.pdf
    b. Write one paragraph addressing the question "Why did you choose to take this course of UAV development? What would make this course a 'success' for you?" (1 point)
    Add this to the end of Therac.pdf

4. Optional: peruse the 3DR DroneKit Python website:
    http://python.dronekit.io/about/index.html

Submit all parts of your assignment by committing it to github under the Homework1 branch that you will create in your own assigned repository.