EE 251: Homework 2

All programs must be emailed. Please follow the following steps

1. It is probably easier if you create a directory for each homework set, e.g., `hw2`
2. Name each problem as `prob_x_y.c`, where `x` is the problem number and `y` is the subproblem if any, e.g., `prob_1_a.c` If there are no subpart to the problem then just use the format `prob_x.c`
3. Zip all the files (or the directory for that homework if you made one) using the following command

   ```
   tar -czvf lastname_firstname_hw2.tar.gz prob_1.c prob_2_a.c
   ```

   or if you put all the files for a particular homework in its own directory

   ```
   tar -czvf lastname_firstname_hw2.tar.gz hw2
   ```

   Don't forget to change `lastname_firstname` with your last and first name
4. Email me you .tar.gz file with EXACTLY the following as the subject

   ```
   spring 2015 ee251 hw2
   ```

1. Write a C function to implement the charge and discharge equation of a simple RC network shown in Figure 1. Your function should accept as parameters,
   (a) a selection whether it is to perform charging or discharging computation;
   (b) the resistance R;
   (c) the capacitance C;
   (d) the input voltage V_{in}; and
   (e) the time $t0$ to evaluate the equation at.

   The function should then return the output voltage $V_c(t0)$

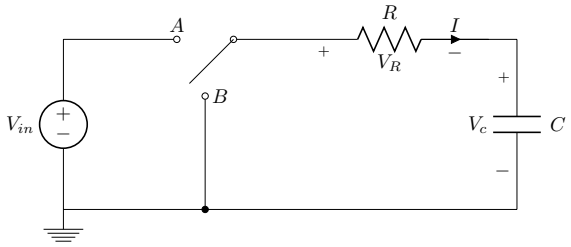

Figure 1:

2. Write a test program to test the function you have designed in part 1.
3. Write a C program to display the following

```
          *
         ***
        *****
       *******
      *********
     ***********
    *************
   ***************
  *****************
 *******************
```

   You must use loops and not manually create it.

4. Write a C program to randomly select 3 rows of the pyramid in part 3 and randomly place a 'O' instead of the '*', for example you may get

```
          *
         ***
        *****
       *******
      ****O****
     ***********
    *O***********
   ***************
  **********O******
 *******************
```