CS3220-X Spring 2015
Assignment #2 (10 points):

In this assignment, you will write an x-max tree using your Qurtus.
You can do your assignment with another class mate.

Part 1 (3 points): X-mas tree
Using Qurtus green, red LEDs, you will demonstrate your state machine works correctly.

State 1. Blink green lights for 3 times (1/n sec ON, 1/n sec OFF).
State 2. Blink red lights for 3 times (1/n sec ON, 1/n sec OFF).
State 3. Blink both green and red lights for 3 times (1/n sec ON, 1/n sec OFF.)
repeat state 1,2, and 3. n is initially 2.

Part 2 (7 points) : Controllable X-mas tree
Now, you want to change the speed of X-mas tree using KEY switches.

KEY [0] slows down blinking speed by 1/4 sec. (MAX value is 2 sec.)
KEY [1] increases blinking speed by 1/4 sec. (can't be less than 1/4 sec.)
KEY [2] Resets.

Additional outputs for debugging and testing

- Display the blinking speed in HEX3 (7-segement display) based on the following rule.

If blinking speed ½ sec: display 2
If blinking speed ¼ sec: display 1
If blinking speed ¾ sec: display 3
If blinking speed 1 sec: display 4
If blinking speed 1 & ¼ sec: display 5
If blinking speed 1 &1/2 sec: display 6
If blinking speed 1 &3/4 sec: display 7
If blinking speed 2 sec: display 8

You can use the rest of HEX values for your own debugging information.

For the DE1 pin assignment, please use the provided csv file.

What to submit:

1. Report (a brief description about how you implemented). Please include the partner names.
2. Submit your Qurtus archived file.

Note:
Depending on your design, some combination of KEY buttons might not work properly. As long as you can demonstrate that KEY buttons work , it is acceptable. In your report, you can describe when your KEY buttons work and known cases when KEY buttons do not work.