Lab 2: Switch Counter

[10 marks]

For this Lab, you have been given the code, fully functional, with lots of comments – that should make things easy! Unfortunately, it looks like some three-year-old must have gotten hold of it before I could get it to you. Oh, well, at least with the comments intact, you should be able to figure out what's been obscured, and make it work!

This program is supposed to show you the two main problems with using switches: Long Activation Time and Switch Bounce. When the program has been rebuilt to match the comments, do the following:

1. Press the MID switch to reset everything.
2. Tap the UP switch.
   - The top line of the display will show how many times your program went through the loop between when the switch closed and when it opened.
   - The bottom line of the display will show how many times the switch actually closed when you pressed it, which, given how good our switches are, will probably be 1 or 2.
3. Press the MID switch so you can try again. See how fast you can be at pressing and releasing the switch, and also try the test enough times to get a few bounces to show up.
4. Show your working system to your instructor.
5. Finish commenting your main.c file, then submit it to the Lab 2 Drop Box in Moodle. Three of the ten marks for this lab will be for file headers and comments.

```
*   Initializations
*************************************************************************/

  SwLED_Init();
  SevSeg_Init();

  for (;;)    //endless program loop
  {
/*************************************************************************
*   Main Program Code
*************************************************************************/
    HexCount=0;                                 //reset switch loop counter
    BounceCount=0;                              //reset bounce counter
    SevSeg_Top4(                                //display switch loop counter on top line of Sev Seg
    SevSeg_Bot4(                                //display bounce counter on bottom line of Sev Seg

    while(PT                                    //wait for MID switch release

    while(!                                     //loop until MID switch is pressed again
    {
      if(                                       //check to see if UP switch has been pressed
      {                                         //if so, ...
                                                //count UP switch event on bounce counter
        Bot4(HexTo                              //display BCD version of bounce counter

        while(                                  //as long as UP switch is pressed, ...
        {
                                                //count up the switch loop counter
          SevSeg_T                              //display BCD version of switch loop counter
        }
      }
    }
  }
}
/*************************************************************************
```