CMPE 311
Homework 5

The casino is a wondrous place where people gamble away their hard-earned savings; unfortunately, people below the age of 18 (and sometimes 21) are not allowed to partake in the merry times. The CEO of a company is asking you to develop their invention, "777 for 7s", an educational casino game for kids!

Hardware Needed:
- Left, Right, Up, Down and Pushbutton on joystick
- LED
- LCD Display Screen on Butterfly
- Buzzer

Game Description:
To lure the user into playing the game, they are greeted by a welcoming "HELLO" screen on the LCD until the push button is pressed.

Then, after the button push, a second screen with a slot machine on the LCD display should be shown. The should look similar to what is shown in the figure below.

All button/joystick presses are interrupt driven. The functionality, which will be described a little later in the project description, of the joystick and push button are shown in following table:

Button	Functionality
UP	Increase bet
DOWN	Reset
LEFT	Switch to Earnings View
RIGHT	Switch to Slot Machine View
PUSHBUTTON	Start and Stop slot rotation

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The player, who starts with 10 credits/earnings, will be playing a slot machine game where only A through F are represented. The slot machine has only three slots, so only words of three characters long can be made. The player will place a bet with a minimum of 1 and maximum of 9 (it is good to teach young gamblers not to spend their earnings all at once) to see if they can form a word. The player cannot bet more than their total earnings.

Once a betting amount is decided, the player will press the pushbutton to start spinning the first character, and a second pushbutton press should slow the spinning down until it stops. The next pushbutton press will activate the second slot, then slow the second slot until it stops, similar to the first, and the same process will follow for the last slot.

If a word is formed that matches one in the dictionary stored in the device's memory, then multiply the bet by a predetermined value depending on the word that was spelled and add it to their total earnings.

The table below describes the various tiers of words and their multiplier value:

Multiplier	Words
1	BAC, CAF, DEF, FAB, FAE, FAC
2	ADC, CAD, DAE, DEB, FEB
3	CAB, FAD, FDA
4	ACE, BAD
5	BED, DAB, FED

If a word with a multiplier of 4 or 5 is spelled, then flash the LED on and off for 2 seconds to signify some kind of jackpot.

EXAMPLE1:
    Current Earnings = 16
    Bet = 7 (spent)
    Word Spelled = ACE (multiplier is 4)
    New Earnings becomes 16 – 7 + (4 x 7) = 46

EXAMPLE2:
    Current Earnings = 9
    Bet = 8
    Word Spelled = AAC (not a word)
    New Earnings becomes 9 – 8 = 1

If no word is formed then subtract the bet from their earnings.

If the player has 0 earnings remaining, then sound the buzzer to signify that they have lost and have no more earnings to spend. A "LOSE" screen is displayed and reset is the only accepted input at this point.

A reset may occur at any point of the game and should bring the state of the device back to the initial "HELLO" screen.
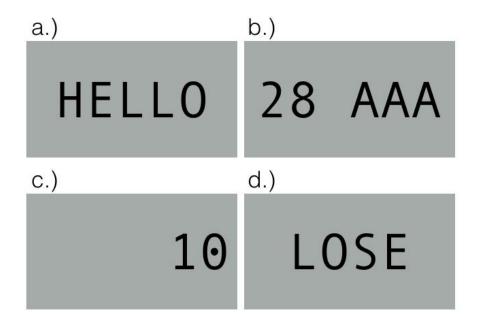
Special Requirements/Hints:
- All inputs are interrupt driven
- You can use timers or delay based loops for rotation of rolls
- Each of the three slots should rotate at different speeds. For example, 1st slot changes in 10ms, 2nd one should change at 15ms, 3rd one at 20ms. Rotation should go on until a pushbutton press.
- At any time, the user should be able to switch between screens using Left and Right press.
- All letters should be capitalized

Note: This HW is expected to review of the majority of what you did in the past projects and is meant to examine your practical learning in this class. No additional code is needed to finish this project. However, you can ask any question from TAs regarding the project and see their suggestions.

Example Screens:

a.)

HELLO

b.)

28 AAA

c.)

10⊙

d.)

LOSE

a.) Welcoming "HELLO" Screen
b.) A Slot Machine screen, prior to spinning, with a bet set to 28
c.) Initial earnings screen and value
d.) Lose screen