CECS 277 – Lab 2 – Functions

Three Card Monte

Create a program that allows the user to play the game Three Card Monte. The player places a bet and then guesses the location of the queen in a set of three cards.

Create the following functions for your program:

1. `get_users_bet(money)` – Pass in the user's total money. Display the amount of money to the user, then prompt the user to enter their bet. Check that the user's entry is valid and is a positive value less than or equal to the amount of money they have. Return the valid amount.
2. `get_users_choice()` – Display three cards face down with numbers 1, 2, and 3. Prompt the user to choose a card. Check that the user's choice is a number between 1-3 and return that value.
3. `display_queen_loc(queen_loc)` – Pass in the location of the queen. Display the three cards face up to show the location of the queen 'Q', the other two cards should display 'K'.

In your main function, have the user start the game with $100. Hide the queen in one of three places by randomizing its location with a value between 1 and 3. Prompt the user to enter an amount to bet (check that the user has enough money, otherwise tell them that it is invalid). Then prompt the user to enter their guess for where the queen is hidden. If it is a match, then the user receives double their bet. Display the location of the queen and tell the user if they were correct or not. Repeat the game until the user runs out of money or decides to quit.

Example Output (user input is in italics)**:**

```
-Three card Monte-
Find the queen to double your
bet!

You have $100.
How much you wanna bet? 50
+-----+ +-----+ +-----+
|     | |     | |     |
|  1  | |  2  | |  3  |
|     | |     | |     |
+-----+ +-----+ +-----+
Find the queen: 1
+-----+ +-----+ +-----+
|     | |     | |     |
|  K  | |  Q  | |  K  |
|     | |     | |     |
+-----+ +-----+ +-----+
Sorry... you lose.
Play again? (Y/N): y
```

```
You have $50.
How much you wanna bet?  f
Invalid input - should be an
integer.
How much you wanna bet? -1
Invalid input - should be
within range 1-50.
How much you wanna bet? 75
Invalid input - should be
within range 1-50.
How much you wanna bet? 30
+-----+ +-----+ +-----+
|     | |     | |     |
|  1  | |  2  | |  3  |
|     | |     | |     |
+-----+ +-----+ +-----+
Find the queen: 2
+-----+ +-----+ +-----+
|     | |     | |     |
|  Q  | |  K  | |  K  |
```

```
|     | |     | |     |
+-----+ +-----+ +-----+
Sorry... you lose.
Play again? (Y/N): y

You have $20.
How much you wanna bet? 10
+-----+ +-----+ +-----+
|     | |     | |     |
|  1  | |  2  | |  3  |
|     | |     | |     |
+-----+ +-----+ +-----+
Find the queen: 2
+-----+ +-----+ +-----+
|     | |     | |     |
|  K  | |  Q  | |  K  |
|     | |     | |     |
+-----+ +-----+ +-----+
You got lucky this time...
```

```
Play again? (Y/N): y

You have $30.
How much you wanna bet? 30
+-----+ +-----+ +-----+
|     | |     | |     |
|  1  | |  2  | |  3  |
|     | |     | |     |
+-----+ +-----+ +-----+
Find the queen: 3
+-----+ +-----+ +-----+
|     | |     | |     |
|  K  | |  Q  | |  K  |
|     | |     | |     |
+-----+ +-----+ +-----+
Sorry... you lose.
You're out of money.  Beat it
loser!
```

Notes:

1. Place your name, date, and a brief description in a comment block at the top of your program. Add brief comments in your program to describe sections of code (you should not have a comment describing every single line).
2. Your code should be defined within the functions.
3. Use the check_input module provided on Canvas to check the user's input for invalid values. Add the .py file to your project folder to use the functions. Examples using the module is provided in a reference document on Canvas.
4. Use the random module to generate your random numbers. Examples for generating random numbers is provided in a reference document on Canvas.
5. No need to create extra functions or add lists to your code.
6. Please read through the Coding Standards reference document on Canvas for guidelines on how to name your variables and to format your program.
7. Thoroughly test your program before submitting:
    a. Make sure the game re-randomizes the location of the queen every round.
    b. Make sure that the user cannot enter an invalid input for the bet (must be between 1 and the user's remaining money).
    c. Make sure that the user cannot enter an invalid input for the guess (1-3).
    d. Make sure that the queen is displayed at the correct location.
    e. Make sure that the game accurately reports whether the user chose the correct location of the queen.
    f. Make sure that the user gains the amount of the bet when they win and takes away the amount of the bet when they lose.
    g. Make sure the game ends when the user is out of money or when the user decides to quit.

Three Card Monte Rubric – Time estimate: 3 hours

Three Card Monte **10 points**	Correct. 2 points	A minor mistake. 1.5 points	A few mistakes. 1 point	Several mistakes. 0.5 points	No attempt. 0 points
Get Bet Function: 1. Passes in money value. 2. Displays amount of money. 3. Prompts for bet amount. 4. Checks that the bet amount is an integer between 1-money. 5. Returns bet value.					
Get Guess Function: 1. Displays face down cards. 2. Prompts for guess. 3. Checks that user's guess is an integer between 1-3. 4. Returns user's guess.					
Display Queen Function: 1. Passes in queen's location. 2. Displays face up cards with queen in correct location.					
Main Function: 1. Initializes user's money. 2. Randomizes queen's location. 3. Prompts for bet and guess. 4. Displays location of queen. 5. Checks if guess is correct and adds or subtracts the bet. 6. Prompts the user to play again and repeats if they do. 7. Game ends if the user quits or runs out of money.					
Code Formatting: 1. Code is in functions. 2. Correct spacing. 3. Meaningful variable names. 4. No global variables. 5. Correctly documented.					