

Assignment 5: Functions

[1] **Objectives:** This assignment aims to practice defining and invoking functions, passing parameters, and returning values. We will continue to use loops, if-statements, etc. You will also be using lists in the assignment. However, only simple operations such as accessing a list element and initializing a list are required here.

[2] **Description:** You are supposed to implement a simple slot machine. This slot machine will print out a current round number and token balance at the beginning of each round. The slot machine has three columns and three images of fruit (Cherry, Banana, and Grapes). When the three fruits line up, the combination will determine a win or loss for the player.

After that, your program will prompt the player to enter the number of tokens to bet for that round. The three fruit images are randomly selected from the three possibilities.

Roll results:

1. Three-in-a-row: three identical fruits (win twice the bet)
2. Three-of-a-kind: three distinct fruits (win the bet)
3. Bummer: all other combinations (lose the bet)



You should ask the player whether they want to quit the game. The game continues if there are tokens left. One cannot bet more than the token he has on hand.

There are several functions in the `ransom` module that you can use to generate an “image.”

- `random.choice(list)` will randomly pick an element from the list
- `random.randrange(x, y)` will randomly select a number in the range specified.

[3] Requirements

- You must use the MAIN program listed below—no changes are allowed.
- You must implement all the functions used in the main program.
 - The `slot_init` function initializes the four values. (Master the technique of returning multiple values to the main function.)
 - The function `get_bet` will prompt the player for the bet. You must check the token value to see if enough is left for the bet. If not enough, the bet should be reduced to the token value.
 - The `play` function returns a list of three images. This function also “displays” the three images ([Grapes], [Banana], or [Cherry]) randomly selected. Other functions may use the returned list as the input parameter. (Master the techniques of using a random number generator, using `sleep()`, and returning a list.
 - The function `settle_bet` calculates the number of tokens left. (Master the technique of taking a value, modifying it, and returning that value without using a global variable).
- To simulate the slot machine, you should use the `time` module to allow the program to sleep between printing the fruits (see demo).

- You are **not** allowed to use global variables. All the values you need in a function must be passed as parameters. All the values sent back to the main program should use a return statement.



Since this is the first one using functions, I have designed the main program. An important reason to give you the main program is to show you how to write a proper program using functions.

```
import time
import random

# Put other functions here
# slot_init()
# get_bet()
# play()
# settle_bet()
# Estimated lines of code is about 40 here

# Main
round, quit, token, img = slot_init()
while not quit:
    print(f"\n***** Round: {round} ***** Tokens Left: {token} *****")
    bet = get_bet(token)
    result = play(img)
    token = settle_bet(result, bet, token)
    if token==0:
        break
    else:
        quit = input("Quit the game (Y/N): ").upper()=='Y'
        round += 1
print(f"\n*** Game Over. Tokens left: {token}. ***")
```

[4] **Output:** A sample output is given below. You should test for all paths of the program.

[5] **Deadline:** 11:59 pm, Monday, March 20, 2023

Tokens deposited: 100

***** Round: 1 ***** Tokens Left: 100 *****

Number of tokens to bet: 20

Screen Display: [Banana] [Grapes] [Cherry]

All Different: +20 tokens. Tokens Left: 120

Quit the game (Y/N): n

***** Round: 2 ***** Tokens Left: 120 *****

Number of tokens to bet: 40

Screen Display: [Banana] [Cherry] [Grapes]

All Different: +40 tokens. Tokens Left: 160

Quit the game (Y/N): n

***** Round: 3 ***** Tokens Left: 160 *****

Number of tokens to bet: 100

Screen Display: [Grapes] [Banana] [Cherry]

All Different: +100 tokens. Tokens Left: 260

Quit the game (Y/N): n

***** Round: 4 ***** Tokens Left: 260 *****

Number of tokens to bet: 250

Screen Display: [Grapes] [Grapes] [Cherry]

Better luck next time: -250 tokens. Tokens Left: 10

Quit the game (Y/N): n

***** Round: 5 ***** Tokens Left: 10 *****

Number of tokens to bet: 25

You can only bet 10 tokens.

Screen Display: [Grapes] [Grapes] [Cherry]

Better luck next time: -10 tokens. Tokens Left: 0

*** Game Over. Tokens left: 0. ***