COMP20270
OOP in Python

Assignment 1

Slot Machine

Due Monday 11th November (Wk10)

Objective

To create a simple command line version of a slot machine. The slot machine consists of three columns that display one of three fruits: 🍎🍐🍊as shown in Figure 1.

When the slot machine begins, the player is asked to place a bet from their initial credit (defaults to 10). For each play of the slot machine there are three possible outcomes:

1. **Full house** – all 3 columns contain the same value. Player wins an amount equal to the bet and this is added to their credit.
2. **Half house** – 2 of the 3 columns contain the same value. Player wins half the amount bet (both bets in Figure 1).
3. **Empty house** - all 3 columns contain different values. Player loses bet.

The player can exit the game at any time by typing 'N'.

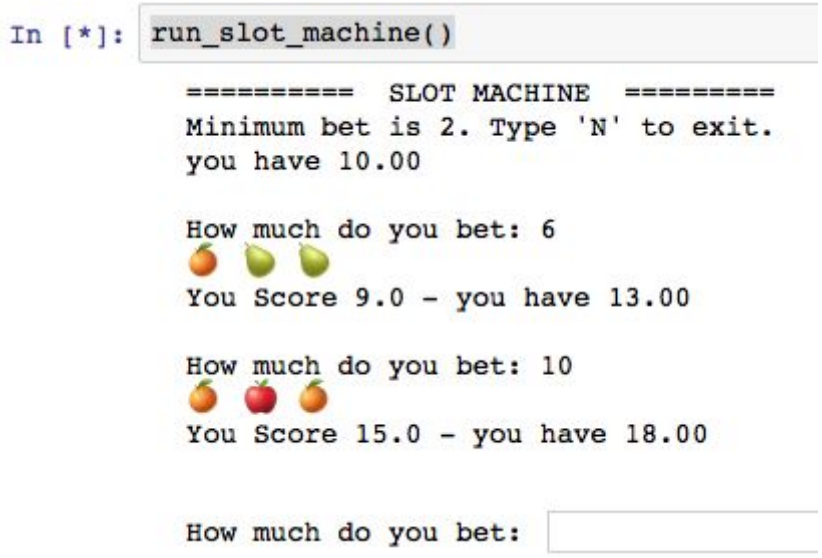

Figure 1. Slot Machine running in a Notebook.

Requirements

1. The system should be implemented as three objects, Purse, Slot and Column.
    a. Purse manages the players credit, it should have debit, credit and get_balance methods.
    b. Each Slot has three Columns representing the three fruits. It should/could have pull_handle, show_slot, take_bet and score_slot methods.

   c. The Column object should have a face representing the fruit. There should be a change_face method that would change the fruit on face at random when the pull_handle method on Slot is invoked.
2. The user should have the option to quit the game by typing 'N'.
3. The system should check that all other input is a valid bet, i.e. an integer number between 2 and the available credit.
4. Your code should be well documented.

The code can be run by a run_slot_machine() function.

Sample runs are shown in the Appendix.

Hints:

The emoji fruits are simply strings (str) and can be set up as follows. You will probably need to install the emoji package first (`pip install emoji --upgrade`).

```
import emoji
from random import choice
faces = [emoji.emojize(':red_apple:'),
         emoji.emojize(':pear:'),
         emoji.emojize(':tangerine:')
        ]
faces
Out[35]:
['🍎', '🍐', '🍊']


r = choice(faces)
r
Out[37]:
'🍎'


type(r)
Out[38]:
str
```

Submission: This is an individual (not group) project. Submission is through the Moodle page. Your submission should comprise your notebook only. Clear all outputs in the notebook before saving for submission. You can use markdown cells in the notebook to explain any design decisions you have made.

Appendix: Sample runs

```
==========  SLOT MACHINE  =========
Minimum bet is 2. Type 'N' to exit.
you have 10.00

How much do you bet: 6
🍊 🍐 🍐
You Score 9.0 - you have 13.00
```

```
How much do you bet: 10
🍊 🍎 🍊
You Score 15.0 - you have 18.00


==========  SLOT MACHINE  =========
Minimum bet is 2. Type 'N' to exit.
you have 10.00

How much do you bet: 6
🍎 🍎 🍐
You Score 9.0 - you have 13.00

How much do you bet: qwe
How much do you bet: 1
How much do you bet: 20
How much do you bet: 4
🍊 🍊 🍐
You Score 6.0 - you have 15.00

How much do you bet: 15
🍐 🍎 🍐
You Score 22.5 - you have 22.50
```

```
==========  SLOT MACHINE  =========
Minimum bet is 2. Type 'N' to exit.
you have 10.00

How much do you bet: 4
🍐 🍎 🍊
You Score 0 - you have 6.00

How much do you bet: 6
🍊 🍎 🍎
You Score 9.0 - you have 9.00

How much do you bet: 9
🍐 🍎 🍐
You Score 13.5 - you have 13.50

How much do you bet: 13
🍊 🍐 🍎
You Score 0 - Thank you for playing.
You are leaving with 0.50.

==========  SLOT MACHINE  =========
Minimum bet is 2. Type 'N' to exit.
you have 10.00

How much do you bet: 4
🍐 🍐 🍐
You Score 8 - you have 14.00

How much do you bet: 12
🍊 🍐 🍐
You Score 18.0 - you have 20.00

How much do you bet: 12
🍐 🍐 🍊
You Score 18.0 - you have 26.00

How much do you bet: 13
🍊 🍊 🍊
You Score 26 - you have 39.00

How much do you bet: 39
🍎 🍊 🍊
You Score 58.5 - you have 58.50

How much do you bet: 58
🍎 🍊 🍐
You Score 0 - Thank you for playing.
You are leaving with 0.50.
```