

Task Sheet 1 - Validation Improvements

Task 1 - Improving card selection input

The function `GetChoiceFromUser()` is responsible for asking the user to decide whether the next card is going to be higher than the current card. The user enters either y or n as their choice.

Currently the program will not except Y, Yes, yes, N, No or no as acceptable input:

Improve the function so that all of these additional values are considered as acceptable input.

Answer =

```
def GetChoiceFromUser():  
    Choice = input('Do you think the next card will be higher than  
the last card (enter y or n)? ')  
    Choice = Choice.lower()[0]  
    return Choice
```

Task 2 - Improving menu choice input

The function `GetMenuChoice()` is responsible for asking the user to enter their choice from the main program menu. Only the first character of this input is required as the available choices are:

q

1

2

3

4

Currently the program will reject the user entering Q or Quit for instance. Improve this function so all of these values are recognised as being equivalent to q.

Answer =

```
def GetMenuChoice():  
    Choice = input()  
    Choice = Choice.lower()[0]  
    print()  
    return Choice
```

Task 3(a) - Validating the name for a recent score

If the user attempts to leave the name blank they are then prompted repeatedly, until they enter something as their name.

Answer =

```
def GetPlayerName():  
    print()  
    valid = False  
    while not valid:  
        PlayerName = input('Please enter your name: ')  
        if len(PlayerName)>0:  
            valid = True  
        else:  
            print("You must enter something for your name!")  
    print()  
    return PlayerName
```

Questions

1. Which function is responsible for getting the name from the user?

```
def GetPlayerName():
```

1. How will you ensure that the user is asked for the name repeatedly?

If the user does not enter a value then they cannot get out of the while loop

1. What additional variable will you need and what will its datatype be?

```
valid = False
```

and its datatype is String

Pseudo-code

```
print ""
valid = False
while loop
    Input PlayerName
    If PlayerName > 0
        Then valid = True
    Else
        Output "You must enter something for your name!"
```

Task 3(b) - Deciding whether you want to add your name to the recent score table

Some users are not keen on adding their name to high score tables - they want to play the game but remain anonymous. Before being asked for their name they should be allowed to decide whether they want to add their name to the recent score table:

Which function is responsible for adding scores to the table?

```
def UpdateRecentScores(RecentScores, Score)
```

Improved Program

```
def UpdateRecentScores(RecentScores, Score):
    valid = False
    while not valid:
        Choice = input("Do you want to add your score to the high
```

```

score table? (y or n): ")
    Choice = Choice.lower()[0]
    if Choice == "y" or "n":
        valid = True
    else:
        print("Please enter y for Yes or n for No")

if Choice == "y":
    PlayerName = GetPlayerName()
    FoundSpace = False
    Count = 1
    while (not FoundSpace) and (Count <= NO_OF_RECENT_SCORES):
        if RecentScores[Count].Name == '':
            FoundSpace = True
        else:
            Count = Count + 1
    if not FoundSpace:
        for Count in range(1, NO_OF_RECENT_SCORES):
            RecentScores[Count].Name = RecentScores[Count + 1].Name
            RecentScores[Count].Score = RecentScores[Count + 1].Score
        Count = NO_OF_RECENT_SCORES
    RecentScores[Count].Name = PlayerName
    RecentScores[Count].Score = Score

```

Task 4 - Formatting the recent score table

Find the function responsible for generating the recent score table and improve it so that the scores are displayed in a clear tabular format.

Function= `def DisplayRecentScores(RecentScores):`

Improved Code

```

def DisplayRecentScores(RecentScores):
    print()
    print('Recent Scores: ')
    print()
    print("{0:<8} {1:<8}".format("Name", "Score"))
    for Count in range(1, NO_OF_RECENT_SCORES + 1):
        print("{0:<8} {1:<8}".format(RecentScores[Count].Name, RecentScores[Count].Score))
    print()

```

```
print('Press the Enter key to return to the main menu')
input()
print()
```

Task 5 - Adding a date to the recent scores

One improvement that we can make is to record the date a high score was achieved. This will involve making changes in four functions of the program and importing an additional module.

Questions

1. What additional module will you need to import into the program?

```
from datetime import*
```

2. Identify the four functions that will require changes.

```
def __init__(self):
    self.Date = None
```

```
def ResetRecentScores(RecentScores):
    RecentScores[Count].Date
```

```
def DisplayRecentScores(RecentScores):
    print()
    print('Recent Scores: ')
    print()
    print("{0:<12} {1:<10} {2:<10}".format("Date", "Name", "Score"))
    for Count in range(1, NO_OF_RECENT_SCORES + 1):
        date_of_score = RecentScores[Count].Date.strftime("%d/%m/%Y")
        print("{0:<12} {1:<10} {2:<10}".format(date_of_score,
RecentScores[Count].Name, RecentScores[Count].Score))
    print()
    print('Press the Enter key to return to the main menu')
    input()
    print()
```

```
def UpdateRecentScores(RecentScores, Score):
    RecentScores[Count].Date = date.today()
```

3. How do you convert a string in the format DD/MM/YY (e.g. 14/08/93) to a date type in Python?

```
date_of_score = RecentScores[Count].Date.strftime("%d/%m/%Y")
```

Additional Task - Functions and parameters

When binding arguments to parameters they are passed into the function either by value or by reference. In some programming languages you can specify which method to use but in Python this is done automatically for you. Some values are passed by value and others by reference - it depends on the value's data type.

Data Type	Passing Mechanism
Integer	by value
Float	by value
String	by value
Boolean	by value
List	by reference
Record	by reference

Questions

1. Describe the difference between passing by value and passing by reference in your own words.

When a parameter is passed by reference the variable uses the same memory as the parameter. This means that any changes made to the variable that has been passed will make changes to the variable.

When a parameter is being passed by value it is making a copy of the value. This means that any changes to the parameter will not change the original value of the variable.

2. For each function in the program identify the mechanism used to pass each parameter. Note: this task will take a while but it will improve your understanding of the program and be useful for the exam.

Function	Mechanism
GetRank	value

Function	Mechanism
GetSuit	value
DisplayMenu	value
GetMenuChoice	value
LoadDeck	reference
ShuffleDeck	reference
DisplayCard	reference
GetCard	reference
IsNextCardHigher	value
GetPlayerName	value
GetChoiceFromUser	value
DisplayEndOfGameMessage	value
DisplayCorrectGuessMessage	reference
RecentScores	reference
DisplayRecentScores	reference
UpdateRecentScores	reference
PlayGame	reference