Week 3 Assignment

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Week 3 :

Treasure Island Game.

Follow the flowchart and write a program according to the logic described in the flowchart. Code a treasure hunt game; the program will ask users to enter their choice and, based on the choices determine whether the users wins the game or Game Over.

1. Program starts by welcoming the player to the game.
2. And alotting them their task.
   Starting of the program with defining a function named treasure_hunt
   Code :-

```python
def treasure_hunt():
    print("Welcome to Treasure Island. Your mission is to find the treasure.")
```

3. The player is asked to choose between "left" or "right" at a junction.
   - If the player chooses "right" or any other option besides "left," the game will end with "You fell into a hole. Game Over."

   Code:-

```python
path = input("Enter your path: left or right ").lower()  # Ask for user input and convert to lowercase

    if path == "right":
        print("Fall into a hole. Game Over.")
```

If the player chooses "left," they go to the next part where they can decide whether to "swim" or "wait" at a lake.
   - If the player chooses "swim" or other options besides "wait," the game will end with "you were attacked by trout. Game Over."

   Code:-

```
 elif path == "left":
      choice = input("You are at a lake. Do you want to 'swim' or
'wait'? ").lower()
```

- If the player chooses "blue" it leads to "You were eaten by beasts. Game Over."
- On choosing "Yellow" it leads to "You found the treasure! You Win!"
- Other choices can lead to "Game Over."

Code:-

```
elif choice == "wait":
        door = input("There are three doors: Blue, Red, Yellow. Which
door do you choose? ").lower()

        if door == "blue":
            print("Eaten by beasts. Game Over.")

        elif door == "red":
            print("Burned by fire. Game Over.")

        elif door == "yellow":
            print("Congratulations! You found the treasure. You Win!")

        else:
            print("Invalid choice. Game Over.")

    else:
        print("Invalid choice. Game Over.")

  else:
      print("Invalid choice. Game Over.")
```

Whole Programme :-

```
def treasure_hunt():
   print("Welcome to Treasure Island. Your mission is to find the
treasure.")

   path = input("Enter your path: left or right ").lower()  # Ask for
user input and convert to lowercase

   if path == "right":
       print("Fall into a hole. Game Over.")
```

```python
    elif path == "left":
        choice = input("You are at a lake. Do you want to 'swim' or
'wait'? ").lower()

        if choice == "swim":
            print("Attacked by trout. Game Over.")

        elif choice == "wait":
            door = input("There are three doors: Blue, Red, Yellow. Which
door do you choose? ").lower()

            if door == "blue":
                print("Eaten by beasts. Game Over.")

            elif door == "red":
                print("Burned by fire. Game Over.")

            elif door == "yellow":
                print("Congratulations! You found the treasure. You Win!")

            else:
                print("Invalid choice. Game Over.")

        else:
            print("Invalid choice. Game Over.")

    else:
        print("Invalid choice. Game Over.")
```

Output:
C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
"C:\Users\61411\PycharmProjects\pythonProject\Treasure Island.py"
Welcome to Treasure Island. Your mission is to find the treasure.
Enter your path: left or right left
You are at a lake. Do you want to 'swim' or 'wait'? wait
There are three doors: Blue, Red, Yellow. Which door do you choose?
yellow
Congratulations! You found the treasure. You Win!

Process finished with exit code 0

Coin flipping using conditional statement

Result :

```python
import random
coin = random.randrange(0,2)
```

```
print("The coin flipping result is:")
if coin == 0:

    print("Head")
else:
    print("Tail")
```

Output for the programme :
```
C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\coin_flip.py
The coin flipping result is:
Head

Process finished with exit code 0
```

Explanation :

1. **Importing the random module:**

   `import random`: This line imports Python's `random` module, which provides functions for generating random numbers.

2. **Generating a random number:**

   `coin = random.randrange(0, 2)`: This line helps in generating a random integer (`coin`) that can be either 0 or 1. `random.randrange(0, 2)` generates a random integer in the range `[0, 2)`, which means it can be either 0 or 1.

3. **Printing the result:**

   `print("The coin flipping result is:")`: This helps in printing a message indicating the output of the coin flip.

4. **Using an if-else statement:**
   - `if coin == 0:`: Checks if the random number which is generated (`coin`) is equal to 0.
   - If true (`coin` equals 0), it will execute:

     `print("Head")`: Prints "Head" to indicate the result of the coin flip when `coin` is 0.

   - If false (`coin` does not equal 0, meaning it must be 1), it will execute the `else` block:

`print("Tail")`: Prints "Tail" to indicate the result of the coin flip when `coin` is 1.

The exact output will depend on the random value which is generated by `random.randrange(0, 2)` at runtime. Every time you run the code, there's an equal chance (50%) of getting either "Head" or "Tail" printed as the result as you can see above the result keeps switching.

IELTS Eligibilty for admission

Write a program to take input the IELTS score of applicant and then if the score is greater than or equal to 6.5 print "You are Eligible for Admission", for any other case print "You are Not Eligible for Admission".

Programme :

```python
score = float(input("Enter your IELTS score: "))

if score >= 6.5:

print("You are Eligible for Admission")

else:

print("You are Not Eligible for Admission")
```

Output if eligible will be :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\ielts_score.py

Enter your IELTS score: 7.5

You are Eligible for Admission

Process finished with exit code 0

Output if not eligible will be :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\ielts_score.py

Enter your IELTS score: 5.5

You are Not Eligible for Admission

Process finished with exit code 0

A Leap Year or Not ? 🤔

A year is a leap year if it is divisible by 4, but not divisible by 100, or if it is divisible by 400. The condition (year % 4 == 0 and year % 100 != 0) or year % 400 == 0 checks for these conditions. Now take input year and print whether it is a leap year or not.

Programme :

```python
year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or year % 400 == 0:

    print(year, "is a leap year")

else:

    print(year, "is not a leap year")
```

Output :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\leap_year.py

Enter a year: 2020

2020 is a leap year

Process finished with exit code 0

Conditional Statement

Programme :

```python
x = 10
```

```
y = 5

z = 15

if x > y and y < z:

print("Both conditions are true")

elif x < y and y < z:

print("Neither condition is true")

else:

print("One condition is true")
```

Output :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\conditional.stat.py

Both conditions are true

Process finished with exit code 0

Sum of the series using for loop

Question 1 : Write a program using for loop to add 1 to n series sum=1+2+3.......+n

Answer :

```
n = int(input("Enter a number: "))

sum = 0


for i in range(1, n+1):

    sum += i


print("The sum of numbers 1 to", n, "is:", sum)
```

Output :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
"C:\Users\61411\PycharmProjects\pythonProject\.venv\for_loop 1.py"

Enter a number: 5

The sum of numbers 1 to 5 is: 15

Process finished with exit code 0

Question 2 : Write a program using for loop to add the square of 1 to n
seriessum=12 +22 +32 . . . . . . +n2

Answer :

```python
n = int(input("Enter a number: "))

sum_of_squares = 0


for i in range(1, n+1):

    sum_of_squares += i**2


print("The sum of squares from 1^2 to", n, "^2 is:", sum_of_squares)
```

Output :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
"C:\Users\61411\PycharmProjects\pythonProject\.venv\for_loop 2.py"

Enter a number: 15

The sum of squares from 1^2 to 15 ^2 is: 1240

Process finished with exit code 0

Question 3 : Write a program using for loop to add the even numbers from 1 to n series sum=2+4+6+.......n The user should enter an even integer, If the input "n" is odd, warn the user the input is odd. Hint: when input%2==0 the number is even.

Answer :

```python
n = int(input("Enter a number: "))

if n % 2 != 0:

    print("Warning: The input is odd. Please enter an even integer.")

else:

    sum_of_evens = 0



    for i in range(2, n+1, 2):

        sum_of_evens += i


    print("The sum of even numbers from 2 to", n, "is:", sum_of_evens)
```

Output for even :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\for_loop3.py

Enter a number: 8

The sum of even numbers from 2 to 8 is: 20

Process finished with exit code 0

Output for odd :

C:\Users\61411\PycharmProjects\pythonProject\.venv\Scripts\python.exe
C:\Users\61411\PycharmProjects\pythonProject\.venv\for_loop3.py

Enter a number: 7

Warning: The input is odd. Please enter an even integer.

Process finished with exit code 0