LAB03-02_Loops (ASSIGN03)

October 24, 2021

Practice with Loops in Python

Write a for loop that prints out all the element between -5 and 5 using the range function.

[1]:
```
for num in range(-5, 5):
    print(num)
```

```
-5
-4
-3
-2
-1
0
1
2
3
4
```

Print the elements of the following list: Genres=[‘rock’, ‘R&B’, ‘Soundtrack’, ‘R&B’, ‘soul’, ‘pop’] Make sure you follow Python conventions.

[2]:
```
Genres=[ 'rock', 'R&B', 'Soundtrack', 'R&B', 'soul', 'pop']
for element in Genres:
    print(element)
```

```
rock
R&B
Soundtrack
R&B
soul
pop
```

Write a for loop that prints out the following list:

squares=[‘red’, ‘yellow’, ‘green’, ‘purple’, ‘blue’]

[3]:
```
squares=['red', 'yellow', 'green', 'purple', 'blue']
for element in squares :
    print(element)
```

```
red
yellow
green
purple
blue
```

Write a while loop to display the values of the Rating of an album playlist stored in the list PlayListRatings. If

the

score is less than 6, exit the loop. The list PlayListRatings is given by: PlayListRatings = [10, 9.5, 10, 8, 7.5, 5, 10, 10]

[4]:
```
PlayListRatings = [10, 9.5, 10, 8, 7.5, 5, 10, 10]
counter =0
while PlayListRatings[counter] > 6:
    print(PlayListRatings[counter])
    counter += 1
```

```
10
9.5
10
8
7.5
```

Write a while loop to copy the strings 'orange' of the list squares to the list new_squares. Stop and exit the loop if the value on the list is not 'orange':

[5]:
```
# Write your code below and press Shift+Enter to execute

squares = ['orange', 'orange', 'purple', 'blue ', 'orange']
new_squares = []
counter = 0
while squares[counter] == 'orange' :
    new_squares.append('orange')
    counter += 1
print(new_squares)
```

```
['orange', 'orange']
```

More exercises

1 Exercise 1

Write a program that computes the factorial of any given number. For example, the factorial of 5 (written as 5! is 1x2x3x4x5 and equals 120. Note that the factorial is not defined for negative numbers. Also, the factorial of Zero is 1. That is, 0! = 1. Tips: 1. your program should verify that the input is integer using isnumeric(), 2. return an error message if the input is negative

[6]:
```
number = int(input('ENter your number :'))
factorial = 1
if (number < 0 ):
    print('factorial does not exist for negative numbers !!')
elif number == 0 :
    print('the factorial of 0 is 1')
else:
    for i in range(1, number+1):
          factorial = factorial*i
    print('the factorial of ', number, 'is :', factorial)
```

```
ENter your number : 5
```

```
the factorial of  5 is : 120
```

2 Exercise 2

Write a program that generates (prints) all the prime numbers in a range. Note that a prime number is a positive whole number, greater than 1, that has no other divisors except the number 1 and the number itself. For example, 2, 3, 5, and 7 are prime numbers. However, the numbers 4 and 6 are not prime numbers, because they can both be divided by 2. Number 6 can also be diveded by number 3. Your program should generate all prime numbers comprised between 1 up to the value input by the user. Tip: you'll need two loops, one nested inside the other one.

[7]:
```
number = int(input("Enter your number : "))
for num in range(3, number + 1):
   if num > 1:
       for i in range(2,num):
           if (num % i) == 0:
               break
       else:
           print(num)
```

```
Enter your number :  45
```

```
3
5
7
11
13
17
19
```

```
23
29
31
37
41
43
```

[ ]: