2feb_assignment

February 8, 2023

1. Create a python program to compute the electricity bill for a household. The per-unit charges in rupees are as follows: For the first 100 units, the user will be charged Rs. 4.5 per unit, for the next 100 units, the user will be charged Rs. 6 per unit, and for the next 100 units, the user will be charged Rs. 10 per unit, After 300 units and above the user will be charged Rs. 20 per unit.

```python
[8]: unit_consume = (int(input("Enter your Electricity bill total unit")))
     if unit_consume <= 100 :
         bill = unit_consume*4.5
     elif unit_consume <=200:
         bill = (100*4.5)+((unit_consume-100)*6)
     elif unit_consume <= 300:
         bill = (100 * 4.5) + (100 * 6) + ((unit_consume - 200) * 10)
     else:
         bill = (100 * 4.5) + (100 * 6) + (100 * 10) + ((unit_consume - 300) * 20)

     print("Your total electricity bill is: Rs.", bill)
```

Enter your Electricity bill total unit 310

Your total electricity bill is: Rs. 2250.0

2. Write a program to filter count vowels in the below-given string. string = "I want to become a data scientist"

```python
[9]: string= "i want to become a data scientist"
     vowel= "aeiouAEIOU"
     count=0
     for char in string:
         if char in vowel:
             count = count + 1
     print ("Number of vowels in this string: ", count)
```

Number of vowels in this string: 12

3. Create a list of numbers from 1 to 100. Use for loop to calculate the cube of each number and if the cube of that number is divisible by 4 or 5 then append that number in a list and print that list.

```
[14]: Number= []
      result = []
      for i in range(1,101):
          cube = i**3
          if cube % 4 == 0 or cube % 5 == 0:
              result.append(i)
          Number.append(cube)
      print("List of numbers whose cubes are divisible by 4 or 5:", result)
      print("List of numbers whose cubes are divisible by 4 or 5:", Number)
```

```
List of numbers whose cubes are divisible by 4 or 5: [2, 4, 5, 6, 8, 10, 12, 14,
15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 32, 34, 35, 36, 38, 40, 42, 44, 45, 46,
48, 50, 52, 54, 55, 56, 58, 60, 62, 64, 65, 66, 68, 70, 72, 74, 75, 76, 78, 80,
82, 84, 85, 86, 88, 90, 92, 94, 95, 96, 98, 100]
List of numbers whose cubes are divisible by 4 or 5: [1, 8, 27, 64, 125, 216,
343, 512, 729, 1000, 1331, 1728, 2197, 2744, 3375, 4096, 4913, 5832, 6859, 8000,
9261, 10648, 12167, 13824, 15625, 17576, 19683, 21952, 24389, 27000, 29791,
32768, 35937, 39304, 42875, 46656, 50653, 54872, 59319, 64000, 68921, 74088,
79507, 85184, 91125, 97336, 103823, 110592, 117649, 125000, 132651, 140608,
148877, 157464, 166375, 175616, 185193, 195112, 205379, 216000, 226981, 238328,
250047, 262144, 274625, 287496, 300763, 314432, 328509, 343000, 357911, 373248,
389017, 405224, 421875, 438976, 456533, 474552, 493039, 512000, 531441, 551368,
571787, 592704, 614125, 636056, 658503, 681472, 704969, 729000, 753571, 778688,
804357, 830584, 857375, 884736, 912673, 941192, 970299, 1000000]
```

4. Write a python program to print the sum and product of the first 10 natural numbers using for loop.

```
[8]: sum = 0
     product = 1
     for i in range(1,11):
         sum = sum + i
         product = product* i
     print("Sum of the first 10 natural numbers:", sum)
     print("Product of the first 10 natural numbers:", product)
```

```
Sum of the first 10 natural numbers: 55
Product of the first 10 natural numbers: 3628800
```

5. Write a python program to print the sum and product of the first 10 natural numbers using while loop.

```
[1]: sum = 0
     product= 1
     i=1
     while i<=10:
         sum = sum + i
         product = product * i
```

```
    i = i + 1
print ("sum of first 10 natural number : ", sum)
print ("product of the first 10 natural number : ", product)
```

```
sum of first 10 natural number :   55
product of the first 10 natural number :   3628800
```

6. Explain with an example each when to use a for loop

Answer: A 'for' loop in Python is used when you have a sequence of elements and you want to execute a block of code for each element in the sequence.

```
[2]: fruits = ["apple", "banana", "cherry"]
     for i in fruits:
         print(i)
```

```
apple
banana
cherry
```

7. Explain with an example each when to use a while loop

Answer: A while loop in Python is used when you want to keep executing a block of code as long as a certain condition is true.

```
[6]: counter = 0
     while counter < 5:
         print(counter)
         counter = counter + 1
```

```
0
1
2
3
4
```

8. Create a list of numbers from 1 to 100. Use while loop to calculate the cube of each number and if the cube of that number is divisible by 4 or 5 then append that number in a list and print that list.

```
[7]: Number = []
     i = 1
     while i <=100:
         cube= i**3
         if cube % 4 == 0 or cube % 5 == 0:
             Number.append(i)
         i = i+1
     print("List of the Number: ", Number)
```

```
List of the Number:  [2, 4, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 24, 25, 26,
28, 30, 32, 34, 35, 36, 38, 40, 42, 44, 45, 46, 48, 50, 52, 54, 55, 56, 58, 60,
62, 64, 65, 66, 68, 70, 72, 74, 75, 76, 78, 80, 82, 84, 85, 86, 88, 90, 92, 94,
95, 96, 98, 100]
```

[ ]: