Lab Assignment - 5

24-10-2024

1. Write a Python function to create and print a list where the values are square of numbers between 1 and 20 (both included).
   [1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400]

```
[2] lst = []

    for i in range(1,21):
      i = i*i
      lst.append(i)

    print(lst)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400]
```

2. Write a program with function to reverse the elements of a list.

```
lst = [1,2,3,4,5]

print(lst[::-1])
```

```
[5, 4, 3, 2, 1]
```

3. Write a program that counts the number of vowels in a given string.

```
def count_vowels(string):
    vowels = "aeiouAEIOU"
    count = 0

    for char in string:
        if char in vowels:
            count += 1
    return count


user_input = input("Enter a string: ")
vowel_count = count_vowels(user_input)
print(f"The number of vowels in the given string is: {vowel_count}")
```

```
Enter a string: Hello world
The number of vowels in the given string is: 3
```

4. Write a python program to calculate LCM with a user defined function lcm().

```
[5] def lcm(a, b):
        def gcd(x, y):
            while y:
                x, y = y, x % y
            return x

        return abs(a * b) // gcd(a, b)


    num1 = int(input("Enter the first number: "))
    num2 = int(input("Enter the second number: "))
    result = lcm(num1, num2)
    print(f"The LCM of {num1} and {num2} is: {result}")
```

```
Enter the first number: 3
Enter the second number: 4
The LCM of 3 and 4 is: 12
```

5. Write a python program to with a function that takes a dictionary as a parameter. The function prints the original dictionary, calculates the sum of its values, finds the key with the maximum value, and creates a new dictionary with squared values.

```python
def dicti(dictionary):
    print("Original Dictionary:")
    print(dictionary)

    value_sum = sum(dictionary.values())
    print("Sum of values:", value_sum)

    max_key = max(dictionary, key=dictionary.get)
    print("Key with maximum value:", max_key)

    squared_dict = {key: value**2 for key, value in dictionary.items()}
    print("Dictionary with squared values:")
    print(squared_dict)

my_dict = {"a": 5, "b": 10, "c": 15}
dicti(my_dict)
```

```
Original Dictionary:
{'a': 5, 'b': 10, 'c': 15}
Sum of values: 30
Key with maximum value: c
Dictionary with squared values:
{'a': 25, 'b': 100, 'c': 225}
```