Netaji Subhash Engineering College

Department of Computer Science & Engineering
B. Tech CSE 2nd Year 3rd Semester
2023-2024

Name of the Course: IT Workshop (Python)

Course Code: PCC-CS393

Name of the Student: ARITTRA BAG

Class Roll No.: 103

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Date of Experiment: 15/09/2023

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Assignment No.: A7_01

Problem Statement:
Write a program to find GCD and LCM of two numbers by defining a function to compute GCD and LCM.

Python Code:

```
def gcd(n1,n2):
    while n2:
        n1,n2=n2,n1%n2
    return n1

def lcm(n1,n2):
    return (n1*n2)//gcd(n1,n2)

n1=int(input("Enter the 1st No.: "))
n2=int(input("Enter the 2nd No.: "))
r_gcd=gcd(n1,n2)
r_lcm=lcm(n1,n2)
print(f"GCD of {n1} and {n2} is: {r_gcd}")
print(f"LCM of {n1} and {n2} is: {r_lcm}")
```

Sample Output(s):

Enter the 1st No.: 4
Enter the 2nd No.: 8
GCD of 4 and 8 is: 4
LCM of 4 and 8 is: 8

Assignment No.: A7_02

Problem Statement:

Write a program to define a function that accepts a string and calculates the number of uppercase letters and lowercase letters.

Python Code:

```
def count(s):
    uc=0
    lc=0
    for char in s:
        if char.isupper():
            uc+=1
        elif char.islower():
            lc+=1
    return uc,lc
s=input("Enter a String: ").replace(" ","")
uc,lc=count(s)
print(f"Count of Uppercase Letters: {uc}")
print(f"Count of Lowercase Letters: {lc}")
```

Sample Output(s):

Enter a String: This is a String
Count of Uppercase Letters: 2
Count of Lowercase Letters: 11

Assignment No.: A7_03

Problem Statement:

Write a program to find all the unique elements of a list by defining a function.

Python Code:

```
def unique(l):
    ul=[]
    rl=[]
    for i in l:
        if i not in ul and i not in rl:
            ul.append(i)
        elif i in ul:
            ul.remove(i)
            rl.append(i)
    return ul
l=input("Enter the Elements(seperated by comma): ").lower().split(",")
print(f"Unique Elements: {unique(l)}")
```

Sample Output(s):

Enter the Elements(seperated by comma): aritt,1,2,3,1,2

Unique Elements: ['aritt', '3']

Assignment No.: A7_04

Problem Statement:

Write a program to find all the numbers divisible by 5 and 7 between the given range using the lambda function.

Python Code:

```
start=int(input("Enter the Start of the Range: "))
end=int(input("Enter the End of the Range: "))
print(f"Numbers Divisible between {start} and {end}:",list(filter(lambda x:x%5==0 and x%7==0,range(start,end+1))))
```

Sample Output(s):

Enter the Start of the Range: 1

Enter the End of the Range: 40

Numbers Divisible between 1 and 40: [35]

Assignment No.: A7_05

Problem Statement:

Write a program to print the even numbers from a given list using the lambda function

Python Code:

```
num=[int(x) for x in input("Enter the Numbers(seperated by comma): ").split(",")]
print("Even Numbers:",list(filter(lambda x:x%2==0,num)))
```

Sample Output(s):

Enter the Numbers(seperated by comma): 1,2,3,4,5
Even Numbers: [2, 4]

Assignment No.: A7_06

Problem Statement:

Write a program to find the maximum value from a list using the lambda function.

Python Code:

```
from functools import reduce
num=[int(x) for x in input("Enter the Numbers(seperated by comma): ").split(",")]
print("Maximum Number is: ",reduce(lambda x,y:x if x>y else y,num))
```

Sample Output(s):

```
Enter the Numbers(seperated by comma): -50,20,33,90,-120
Maximum Number is:  90
```

Assignment No.: A7_07

Problem Statement:

Write a program to find the list of prime numbers within a given range.

Python Code:

```
start,end=int(input("Enter the Start of the Range: ")),int(input("Enter the End of the Range: "))
print(f"Prime Numbers between {start} and {end}:",list(filter(lambda x:all(x%i!=0 for i in range(2,int(x**0.5)+1)) and x>1,range(start,end+1))))
```

Sample Output(s):

```
Enter the Start of the Range: 1
Enter the End of the Range: 10
Prime Numbers between 1 and 10: [2, 3, 5, 7]
```