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Sem: 4
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Branch: Computer
Subject: CSL405 SBL Course:Python Programming

Experiment No.: 1

Assignment: Part-A

1. **Write a Python Program to Find the Area of a Rectangle.**

   ➢ **Program:**

```
l = float(input('Enter the length of a Rectangle: '))
b = float(input('Enter the breadth of a Rectangle: '))
Area = l * b
print("Area of a Rectangle is: %.2f" %Area)
```

   ➢ **Output:**

```
Enter the length of a Rectangle: 12.35
Enter the breadth of a Rectangle: 23.465
Area of a Rectangle is: 289.79
```

2. **Write a Python Program to Check Whether a String is Palindrome or Not.**

   ➢ **Program:**

```
def isPalindrome(s):
    return s == s[::-1]

# Driver code
s = str(input("Enter the String: "))
s = s.lower()
ans = isPalindrome(s)
```

```
if ans:
    print("Yes,The given String is Palindrome!!")
else:
    print("No,The given String is not Palindrome!!")
```

- **Output:**

```
Enter the String: Chetan
No,The given String is not Palindrome!!

Enter the String: Mom
Yes,The given String is Palindrome!!
```

3. **Write a Python Program to Find Even, Odd and Prime numbers from the given Array.**

- **Program:**

```
# even numbers
even=list([x*2 for x in range(0,15)])
print("Even Numbers:", even)
# odd numbers
odd=list([x*2+1 for x in range(0,15)])
print("Odd Numbers:", odd)
# prime numbers
prime=list()
for num in range(2,51):
    pri = True
    for i in range(2,num):
        if (num%i==0):
            pri = False
    if pri:
       prime.append(num)
print("Prime Numbers:",prime)
```

- **Output:**

```
Even Numbers: [0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28]
Odd Numbers: [1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29]
Prime Numbers: [2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47]
```

4. **Write a Python program to add 'ing' at the end of a given string (length should be at least 3). If the given string already ends with 'ing' then add 'ly' instead. If the string length of the given string is less than 3, leave it unchanged.**

➢ **Program:**

```
def add_string(str1):
    length = len(str1)
    if length > 2:
        if str1[-3:] == 'ing':
            str1 += 'ly'
        else:
            str1 += 'ing'
    return str1
n= int(input("Enter the number of operations:"))
for i in range(1,n+1):
    str1=str(input("Enter the string:"))
    print('Updated string: ',add_string(str1))
```

➢ **Output:**

```
Enter the number of operations:3
Enter the string:abc
Updated string:  abcing
Enter the string:shining
Updated string:  shiningly
Enter the string:chetan
Updated string:  chetaning
```

5. **Write a Python program which iterates the integers from 1 to 50. For multiples of four print "Boundary" instead of the number and for the multiples of six print "In the Air". For numbers which are multiples of both four and six print "Helicopter Shot".**

➢ **Program:**

```
for i in range(1,51):
    if i%4==0 and i%6==0:
        print("It's a Helicopter Shot")
    elif (i%4==0):
        print("Ball is out of the Boundary")
    elif (i%6==0):
        print("Ball is in the Air")
    else:
        print("The score is %d"%(i))
```

➢ Output:

```
The score is 1
The score is 2
The score is 3
Ball is out of the Boundary
The score is 5
Ball is in the Air
The score is 7
Ball is out of the Boundary
The score is 9
The score is 10
The score is 11
It's a Helicopter Shot
The score is 13
The score is 14
The score is 15
Ball is out of the Boundary
The score is 17
Ball is in the Air
The score is 19
Ball is out of the Boundary
The score is 21
The score is 22
The score is 23
It's a Helicopter Shot
The score is 25
The score is 26
The score is 27
Ball is out of the Boundary
The score is 29
Ball is in the Air
The score is 31
Ball is out of the Boundary
The score is 33
The score is 34
The score is 35
It's a Helicopter Shot
The score is 37
The score is 38
The score is 39
Ball is out of the Boundary
The score is 41
Ball is in the Air
The score is 43
Ball is out of the Boundary
The score is 45
The score is 46
The score is 47
It's a Helicopter Shot
The score is 49
The score is 50
```

Assignment: Part-B

Solution of 1St Question:

➢ Program:

```
list_1= list(i for i in range(1,51))
a= int(input("Enter the Lower index: "))
b= int(input("Enter the Higher index: "))
print(list_1[a:b])
```

➢ Output:

```
Enter the Lower index: 2
Enter the Higher index: 6
[3, 4, 5, 6]
```

Solution of 2nd Question:

➢ Program:

```
list_1= list(i for i in range(1,51))
a = int(input("Enter the number: "))
count=0
for i in list_1:
    if(i==a):
        continue
    if(i%a==0):
        count +=1
print("No. of Elements divisible by %d are %d"%(a,count))
```

➢ Output:

```
Enter the number: 24
No. of Elements divisible by 24 are 1
```

Solution of 3rd Question:

➢ Program:

```
from math import sqrt

pos = {
    "x": 0,
    "y": 0
}
print("\nEnter the Direction and Steps:\n")
while True:

    n = input()
    if not n:
        Break

    direction,steps=n.split()
    if direction == "UP":
        pos["y"] += int(steps)
    elif direction == "DOWN":
        pos["y"] -= int(steps)
    elif direction == "LEFT":
        pos["x"] -= int(steps)
    elif direction == "RIGHT":
        pos["x"] += int(steps)

print ("Distance between two points: %d units"%(int(round(sqrt(pos["x"]**2 +
pos["y"]**2)))))
```

➢ Output:

Enter the Direction and Steps:

UP 5

DOWN 3

LEFT 3

RIGHT 2

Distance between two points: 2 units