LAB # 01

INTRODUCTION TO PYTHON , OPERATOR ,STRING AND FUNCTION , LOOP AND CONDITIONAL STATEMENTS

OBJECTIVE Familiarization with Python language using operator and string and using function, loop and conditional statement.

Lab Tasks:

1. Write a script that take user input for a number then adds 3 to that number. Then multiplies the result by 2, subtract 4, then again adds 3, then print the result.

Code:

Demo.py

```
num=int(input("Enter a Number:"))
a = (((num-3)*2)-4)+3
print("Result = ", a)
num=int(input("Enter a Number:"))
```

Output:

```
C:\Users\muzam\PycharmProjects
Enter a Number:5
Result =  3

Process finished with exit cod
```

2. Write a script that takes input as Celsius and then convert Celsius to Fahrenheit. (hint: Fahrenheit = (Celsius * 1.8) + 32)

Code:

Demo.py

```
cel = float(input("Enter temperature in Celsius:
fer = (cel * 1.8) + 32
print(f"Temp in Ferenhiet = {fer}°F")
```

Output:

Run Demo

```
C:\Users\muzam\PycharmProjects\Test
Enter temperature in Celsius: 32
Temp in Ferenhiet = 89.6°F

Process finished with exit code 0
```

3. Write a script that takes input as radius then calculate area of circle. (hint: $A = \pi r^2$)

Code:

Demo.py

```
import math
r = float(input("Enter radius: "))
area = math.pi * (r ** 2)
print("Area of circle:", area)
```

Output:

Run Demo

```
C:\Users\muzam\PycharmProjects\Testl
Enter radius: 45
Area of circle: 6361.725123519331

Process finished with exit code 0
```

4. Write a Python script that asks users for their favourite color. Create the following output (assuming blue is the chosen color) (hint: use '+' and '*') blueblueblueblueblueblueblueblueblue blue blue blueblueblueblueblueblueblueblueblueblue

Code:

Demo.py

```
color = input("Enter favorite color (e.g. blue): ")
print(color * 10)
print(color + "    "*8 + color)
print(color * 10)
```

Output:

Run Demo

```
C:\Users\muzam\PycharmProjects\TestProjec
Enter favorite color (e.g. blue): blue
blueblueblueblueblueblueblueblueblueblue
blue                                    blue
blueblueblueblueblueblueblueblueblueblue
```

5. Store a person's name, and include some whitespace characters at the beginning and end of the name. Make sure you use each character combination, "\t" and "\n", at least once. Print the name once, so the whitespace around the name is displayed. Then print the name using each of the three stripping functions, lstrip( ), rstrip(), and strip().

Code:

Demo.py

```
name = "\t\nMuzammil Ahmed\n\t"
print("Original (with whitespace shown):")
print(repr(name))
print("Printed normally (whitespace visible in
print(name)
print("Using lstrip():")
print(repr(name.lstrip()))
print("Using rstrip():")
print(repr(name.rstrip()))
print("Using strip():")
print(repr(name.strip()))
```

Output:

```
C:\Users\muzam\PycharmProjects\TestProject\.ver
Original (with whitespace shown):
'\t\nMuzammil Ahmed\n\t'
Printed normally (whitespace visible in output)

Muzammil Ahmed

Using lstrip():
'Muzammil Ahmed\n\t'
Using rstrip():
'\t\nMuzammil Ahmed'
Using strip():
'Muzammil Ahmed'
```

6. Write a python script that take a user input and to create the multiplication table (from 1 to 10) of that number.

Code:

```python
num = int(input("Enter an integer: "))
for i in range(1, 11):
    print(f"{num} x {i} = {num * i}")
```

Output:

```
C:\Users\muzam\PycharmProjec
Enter an integer: 5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

7. Write a function called describe_city( ) that accepts the name of a city and its country. The function should print a simple sentence, such as Islamabad is in Pakistan. Give the parameter for the country a default value. Call your function for three different cities, at least one of which is not in the default country.

Code:

```python
def describe_city(city, country="Pakistan"):  3 usages
    print(f"{city} is in {country}.")

describe_city("Islamabad")
describe_city("Lahore")
describe_city( city: "Jeddah",  country: "Saudia Arabia")
```

Output:

```
C:\Users\muzam\PycharmProjects\Test
Islamabad is in Pakistan.
Lahore is in Pakistan.
Paris is in France.

Process finished with exit code 0
```

8. Write a function called absolute_num() that accepts one parameter, num. The function should return only positive value, and apply condition on it. This function returns the absolute value of the entered number.

Code:

```
Demo.py
1   def absolute_num(num):  2 usages
2       if num < 0:
3           return -num
4       else:
5           return num
6
7   print("Absolute of (-45) :",absolute_num(-45
8   print("Absolute of (31)",absolute_num(31))
```

Output:

```
Run   Demo
C:\Users\muzam\PycharmProjects\T
Absolute of (-45) : 45
Absolute of (31) 31

Process finished with exit code
```

9. Write Python Program to check whether an alphabet is a vowel or consonant? (use if, else conditional statement).

Code:

```
Demo.py
1   ch = input("Enter a single alphabet character: ").strip().lower()
2   if len(ch) != 1 or not ch.isalpha():
3       print("Please enter exactly one alphabet letter.")
4   else:
5       if ch in "aeiou":
6           print(f"'{ch}' is a vowel.")
7       else:
8           print(f"{ch} is a consonant.")
```

Output:

```
C:\Users\muzam\PycharmProjects\TestPr
Enter a single alphabet character: a
'a' is a vowel.

C:\Users\muzam\PycharmProjects\TestPr
Enter a single alphabet character: b
b is a consonant.
```

10. Write a Python program to check whether a number is prime or not? (use if, else conditional statement).

Code:

Demo.py

```python
n = int(input("Enter an integer >= 2: "))
if n <= 1:
    print("Numbers <= 1 are not prime by this program's definition.")
else:
    is_prime = True
    i = 2
    while i * i <= n:
        if n % i == 0:
            is_prime = False
            break
        i += 1
    if is_prime:
        print(f"{n} is prime.")
    else:
        print(f"{n} is not prime.")
```

Output:

```
C:\Users\muzam\PycharmProjects\
Enter an integer >= 2: 3
3 is prime.
```

11. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6. (Hint: Use 'continue' statement).

Code:

Demo.py

```python
for i in range(7):
    if i == 3 or i == 6:
        continue
    print(i)
```

Output:

```
C:\Users\muzam\PycharmProjects\
0
1
2
4
5
```

12. Write a Python program to construct the following pattern. (using nested loop) 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5

Code:

Demo.py

```python
for row in range(1, 6):
    for col in range(row):
        print(row, end=" ")
    print()
```

Output:

```
C:\Users\muzam\Pycharm
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

13. Stages of Life: Write an if-elif-else chain that determines a person's stage of life. Set a value for the variable age, and then:
• If the person is less than 2 years old, print a message that the person is a baby.
• If the person is at least 4 years old but less than 13, print a message that the person is a kid.
• If the person is at least 13 years old but less than 20, print a message that the person is a teenager.
• If the person is at least 20 years old but less than 65, print a message that the person is an adult.
• If the person is age 65 or older, print a message that the person is an elder.

Code:

Demo.py

```
age = int(input("Enter age: "))
if age < 2:
    print("The person is a baby.")
elif 2 <= age < 4:
    print("The person is a toddler.")
elif 4 <= age < 13:
    print("The person is a kid.")
elif 13 <= age < 20:
    print("The person is a teenager.")
elif 20 <= age < 65:
    print("The person is an adult.")
else:
    print("The person is an elder.")
```

Output: