

LAB#05

ITERATION WITH LOOPS

OBJECTIVE:

To get familiar with the different types of loops

Exercises:

A. Point out the errors, if any, in the following Python programs.

Code 01:

Errors: Incorrect loop syntax (not Python),
incorrect block syntax (use indentation),

```
for(;;)
{
    printf("SSUET")
}
```

incorrect print function (**print()** not **printf()**).

Code 02:

```
count = 4
while n < 8
    count = count + 3:
    print(count)
```

Errors: Undefined variable n,
missing colon after while,
extra colon after increment, missing indentation.

Code 03:

```
for v in range(4:8)
    print(v)
```

Errors: Incorrect range syntax (use comma)
missing colon after for, missing indentation for print.

Code 04: (This is the Class Task of for loop)

```
1 for i in range(10):
2 for i in range(1, 10):
3 for i in range(1, 10, 2):
4
5 n = "Shaheer"
6 for i in n
7     print(n[i])
```

Output 04:

```
123456789 123456789 13579 shaheer
```

C. Write Python programs for the following:

01: Write a program that prints the first 10 natural numbers and their sum using 'for loop'.

```
sum = 0
for i in range(1, 11):
    print(i, end=" ")
    sum += i
print("\nSum of first 10 natural numbers is:", sum)
```

Output 01:

```
>>> %Run 'Lab 05.py'
1 2 3 4 5 6 7 8 9 10
```

02: Write a program to print the multiplication table of the number entered by the user. The table should get displayed in the following form.

```
n = int(input("Enter a number: "))
for i in range(1, 11):
    print(f"{n} x {i} = {n * i}")
```

Output 02:

```
>>> %Run 'Lab 05.py'
Enter a number: 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
```

03: Write a program that take vowels character in a variable named "vowels" then print each vowels characters in newline using 'for loop'.

```
n = 0
vowels = "aeiou"
u = input("Enter a string: ")
for i in vowels:
    if i in u:
        print(f"{i}")
        n += 1
print(f"The total number of vowels are: {n}")
```

Output 03:

```
>>> %Run 'Lab 05.py'
Enter a string: Shaheer Jamal
a
e
The total number of vowels are: 2
```

B. What will be the output of the following program.

Code 01:

```
i = 1
while i < 10:
    if i % 2 == 0:
        print(i)
    i += 1
```

Output 01:

```
Python 3.11.4:
=====
2
4
6
8
>>>
```

Code 02:

```
1 i = 0
2 while i < 10:
3     print(i, end=" ")
4     i += 1
```

Output 02:

```
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0 1 2 3 4 5 6 7 8 9
```

Code 03:

```
for v in range(3, 9, 2):
    print(v, end=' ')
print()
```

Output 03:

```
Python 3.11.4:
=====
3 5 7
>>>
```