Python Programming

Lab Assignment – 7

For Loop

1. Print the table of 5 using for loop
2. Print even number series by taking input from the user:
3. Create a list and iterate through its items using a for loop:
4. Calculate the sum of numbers from 1 to 10

5. print the pattern

```
    *
   ***
  *****
 *******
*********
```

6. Print the first 10 natural numbers using for loop

7. Python program to check if the given string is a palindrome

8. Python program to check if a given number is an Armstrong number

9. Python program to get the Fibonacci series between 0 to 50

10. Python program to check the validity of password input by users

11. program to display the patterns.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

A

B C

D E F

G H I J K

L M N O P Q

1. Print the table of 5 using for loop

Sol :

```
a = 5
for i in range(1 , 11):
    print(a*i, end=(" "))
```

2. Print even number series by taking input from the user:

Sol :

```
start = int(input("Enter the start of the range  = "))
end = int(input("Enter the end of the range = "))
print("Even numbers in the range ")
for n in range (start,end + 1):
    if n%2==0:
        print(n, end =" ")
```

3. Create a list and iterate through its items using a for loop:

Sol :

```
names = ["Rushikesh", "Sagar", "Gaikwad", "Gopal", "Pradeep"]

print("The Name of Legends In the List ")
for legend in names:
    print(legend)
```

4. Calculate the sum of numbers from 1 to 10

Sol :

```
sum = 0
for num in range(1 , 11):
    sum += num

print("The sum of numbers from 1 to 10 is = ",sum)
```

5. print the pattern

```
    *
   ***
  *****
 *******
*********
```

Sol :

```
n = 5
for i in range(1, n+1):
    print(" " * (n - i), end="")
    print("*" * (2*i - 1))
```

6. Print the first 10 natural numbers using for loop

Sol :

```
for i in range (1,11):
Print(i)
```

7. Python program to check if the given string is a palindrome

Sol :

```
def is_palindrome(s):
    s = s.replace(" ", "").lower()

    if s == s[::-1]:
        return True
    else:
        return False
```

```
string = "Radar"


if is_palindrome(string):
    print(f"'{string}' is a palindrome.")
else:
    print(f"'{string}' is not a palindrome.")
```

8. Python program to check if a given number is an Armstrong number

Sol :

```
def is_armstrong(number):
    digits = str(number)
    num_digits = len(digits)
    sum_of_powers = sum(int(digit) ** num_digits for digit in digits)

    if sum_of_powers == number:
        return True
    else:
        return False
number = 153


if is_armstrong(number):
    print(f"{number} is an Armstrong number.")
else:
    print(f"{number} is not an Armstrong number.")
```

9. Python program to get the Fibonacci series between 0 to 50

Sol :

```
def fibonacci_series(limit):
    a, b = 0, 1

    while a <= limit:
        print(a, end=" ")
        a, b = b, a + b

limit = 50
fibonacci_series(limit)
```

10. Python program to check the validity of password input by users

Sol :

```
import re
def is_valid_password(password):
    if len(password) < 8:
        return False
    if not re.search(r"[A-Z]", password):
        return False

    if not re.search(r"[a-z]", password):
        return False

    if not re.search(r"\d", password):
        return False

    if not re.search(r"[@#$%^&+=]", password):
        return False
```

```
    return True

password = input("Enter your password: ")
if is_valid_password(password):
    print("Password is valid.")
else:
    print("Password is invalid. It must meet the following criteria:")
    print("- At least 8 characters long.")
    print("- Contain at least one uppercase letter.")
    print("- Contain at least one lowercase letter.")
    print("- Contain at least one digit.")
    print("- Contain at least one special character (e.g., @, #, $, etc.).")
```

11. program to display the patterns.

1

1 2

1 2 3

1 2 3 4

Sol :

```
n = 4
for i in range(1, n + 1):
    for j in range(1, i + 1):
        print(j, end=" ")
    print()
```

12. program to display the patterns.

A

B C

D E F

G H I J K

L M N O P Q

Sol :

```
char = 65
n = 5
for i in range(1, n + 1):
    for j in range(i):
        print(chr(char), end=" ")
        char += 1

    print()
```