Lab – 7

Print the first 10 natural numbers using for loop

Program:

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

  print(i)
```

Result:

```
1
2
3
4
5
6
7
8
9
10
```

Python program to check if the given string is a palindrome

Program:

```
def is_palindrome(string):

    string = string.replace(" ", "").lower()


    n = len(string)


    for i in range(n // 2):
        if string[i] != string[n - i - 1]:
            return False
    return True


user_input = input("Enter a string: ")


if is_palindrome(user_input):
    print(f'"{user_input}" is a palindrome.')
```

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

Result:

```
Enter a string: madam
"madam" is a palindrome.
```

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

Program:

```
num = int(input("Enter a number: "))

digits = str(num)
num_digits = len(digits)


sum_of_powers = 0
for digit in digits:
    sum_of_powers += int(digit) ** num_digits


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

Result:

```
Enter a number: 729
729 is not an Armstrong number.
```

Python program to get the Fibonacci series between 0 to 50

Program:

```
a, b = 0, 1

print("Fibonacci series between 0 and 50:")
for _ in range(10):
    if a > 50:
        break
    print(a, end=" ")
    a, b = b, a + b
```

Result:

Fibonacci series between 0 and 50:
0 1 1 2 3 5 8 13 21 34

Python program to check the validity of password input by users using for loop

Program:

```
import string


def check_password_validity(password):

    if len(password) < 8:
        return False

    has_upper = has_lower = has_digit = has_special = False
    special_characters = string.punctuation

    for char in password:
        if char.isupper():
            has_upper = True
        elif char.islower():
            has_lower = True
        elif char.isdigit():
            has_digit = True
        elif char in special_characters:
            has_special = True


    return has_upper and has_lower and has_digit and has_special


password = input("Enter a password: ")


if check_password_validity(password):
    print("Password is valid.")
else:
    print("Password is invalid. It must contain at least one uppercase letter, one lowercase letter, one digit, one special character, and be at least 8 characters long.")
```

Result:

```
Enter a password: Sanskruti$123
Password is valid.
```