Programming Assignment-4

1. Write a Python Program to Find the Factorial of a Number?

```
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n-1)


print("1. Write a Python Program to Find the Factorial of a Number?")
num = 5
print(f"The factorial of {num} is {factorial(num)}\n")
```

2. Write a Python Program to Display the multiplication Table?

```
def multiplication_table(n):
    for i in range(1, 11):
        print(f"{n} x {i} = {n*i}")


print("2. Write a Python Program to Display the multiplication Table?")
num = 7
multiplication_table(num)
print()
```

3. Write a Python Program to Print the Fibonacci sequence?

```
def fibonacci_sequence(n):
    fib_seq = [0, 1]
    for i in range(2, n):
        fib_seq.append(fib_seq[i-1] + fib_seq[i-2])
    return fib_seq
```

```
print("3. Write a Python Program to Print the Fibonacci sequence?")
n = 10
print(f"The first {n} numbers in the Fibonacci sequence are: {fibonacci_sequence(n)}\n")
```

4. Write a Python Program to Check Armstrong Number?

```
def is_armstrong(num):
    power = len(str(num))
    total_sum = sum(int(digit) ** power for digit in str(num))
    return num == total_sum

print("4. Write a Python Program to Check Armstrong Number?")
num = 153
if is_armstrong(num):
    print(f"{num} is an Armstrong number.\n")
else:
    print(f"{num} is not an Armstrong number.\n")
```

5. Write a Python Program to Find Armstrong Number in an Interval?

```
def armstrong_in_interval(start, end):
    armstrong_nums = [num for num in range(start, end + 1) if is_armstrong(num)]
    return armstrong_nums

print("5. Write a Python Program to Find Armstrong Number in an Interval?")
start, end = 100, 500
print(f"Armstrong numbers between {start} and {end} are: {armstrong_in_interval(start, end)}\n")
```

6. Write a Python Program to Find the Sum of Natural Numbers?

```
def sum_of_natural_numbers(n):
    return n * (n + 1) // 2


print("6. Write a Python Program to Find the Sum of Natural Numbers?")
n = 10
print(f"The sum of the first {n} natural numbers is {sum_of_natural_numbers(n)}")
```