PYTHON TASK

1. Reverse a String

```
# Reverse a string using slicing
text = "Python"
print(text[::-1])
```

2. Check for Palindrome

```
# Check if a string reads the same backward
s = "madam"
print(s == s[::-1])
```

3. Count Frequency of Elements

```
# Count occurrences of each item in a list
from collections import Counter
nums = [1, 2, 2, 3, 3, 3]
print(Counter(nums))
```

4. Find Factorial (Using Recursion)

```
# Calculate factorial recursively
def factorial(n):
    return 1 if n == 0 else n * factorial(n-1)
print(factorial(5))
```

5. Fibonacci Series

```
# Generate Fibonacci sequence up to n terms
n = 7
a, b = 0, 1
for _ in range(n):
```

```
    print(a, end=" ")
    a, b = b, a + b
```

6. Check Prime Number

```
# Check if a number is prime
num = 13
print(all(num % i != 0 for i in range(2, int(num**0.5) + 1)))
```

7. List Comprehension Example

```
# Square all even numbers in a list
nums = [1, 2, 3, 4, 5, 6]
squares = [x**2 for x in nums if x % 2 == 0]
print(squares)
```

8. File Reading and Writing

```
# Write and read a file
with open("sample.txt", "w") as f:
    f.write("Hello Python!")
with open("sample.txt", "r") as f:
    print(f.read())
```

9. Lambda & Map Function

```
# Double each element using lambda and map
nums = [1, 2, 3, 4]
print(list(map(lambda x: x * 2, nums)))
```

10. Dictionary Sorting by Value

```
# Sort dictionary by its values
```

```
data = {'a': 3, 'b': 1, 'c': 2}
sorted_data = dict(sorted(data.items(), key=lambda x: x[1]))
print(sorted_data)
```

11. Exception Handling

```
# Handle division by zero error
try:
    result = 10 / 0
except ZeroDivisionError:
    print("Cannot divide by zero!")
```

12. Class & Object Example

```
# Basic class with constructor and method
class Student:
    def __init__(self, name):
        self.name = name
    def greet(self):
        print(f"Hello, {self.name}!")

s1 = Student("Kanupriya")
s1.greet()
```