PYTHON PROGRAMMING LAB WORK

Name : Piyush Sharma

ROLL NO: 24/SCA/BCA/034

SUBMITTED TO: AKANSHA MA'AM

Q1. Write a program to find the factorial of a number

Code:

```
n = int(input("Enter a number: "))
fact = 1

for i in range(1, n + 1):
    fact = fact * i

print("Factorial is:", fact)
```

Output:

```
Enter a number: 5
Factorial is: 120
```

Q2. Reverse a string

Code:

```
s = input("Enter string: ")
rev = ""

for i in range(len(s) - 1, -1, -1):
    rev = rev + s[i]

print("Reversed string:", rev)
```

Output:

```
Enter string: hello
Reversed string: olleh
```

Q3. Find largest number in a list

Code:

```
numbers = [45, 23, 67, 12, 89]
largest = numbers[0]

for n in numbers:
    if n > largest:
        largest = n

print("Largest number:", largest)
```

Output:

```
Largest number: 89
```

Q4. Count vowels and consonants

Code:

```
s = input("Enter string: ").lower()
vowels = 0
consonants = 0

for c in s:
    if c in "aeiou":
        vowels = vowels + 1
    elif c.isalpha():
        consonants = consonants + 1

print("Vowels:", vowels)
print("Consonants:", consonants)
```

Output:

```
Enter string: hello
Vowels: 2
Consonants: 3
```

Q5. Check if number is perfect square

Code:

```
n = int(input("Enter number: "))
sq = int(n ** 0.5)

if sq * sq == n:
    print("Perfect square")
else:
    print("Not perfect square")
```

Output:

```
Enter number: 49
Perfect square
```

Q6. Generate Fibonacci series

Code:

```
n = int(input("How many terms: "))
a, b = 0, 1

for i in range(n):
    print(a, end=" ")
    c = a + b
    a = b
    b = c

print()
```

Output:

```
How many terms: 8
0 1 1 2 3 5 8 13
```

Q7. Count character frequency

Code:

```
s = input("Enter string: ")
freq = {}

for c in s:
    if c != " ":
        if c in freq:
            freq[c] = freq[c] + 1
        else:
            freq[c] = 1

print(freq)
```

Output:

```
Enter string: hello
{'h': 1, 'e': 1, 'l': 2, 'o': 1}
```

Q8. Sum of all digits

Code:

```
n = int(input("Enter number: "))
total = 0

while n > 0:
    digit = n % 10
    total = total + digit
    n = n // 10

print("Sum of digits:", total)
```

Output:

```
Enter number: 12345
Sum of digits: 15
```

Q9. Sort a list using bubble sort

Code:

```
arr = [64, 34, 25, 12, 22]

for i in range(len(arr)):
    for j in range(len(arr) - 1 - i):
        if arr[j] > arr[j + 1]:
            arr[j], arr[j + 1] = arr[j + 1], arr[j]

print("Sorted:", arr)
```

Output:

```
Sorted: [12, 22, 25, 34, 64]
```

Q10. Multiplication table

Code:

```
n = int(input("Enter number: "))

for i in range(1, 11):
    print(n, "x", i, "=", n * i)
```

Output:

```
Enter 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
```

Q11. Check if strings are anagrams

Code:

```
s1 = input("Enter first string: ")
s2 = input("Enter second string: ")

if sorted(s1) == sorted(s2):
    print("Anagrams")
else:
    print("Not anagrams")
```

Output:

```
Enter first string: listen
Enter second string: silent
Anagrams
```

Q12. Remove duplicates from list

Code:

```
lst = [1, 2, 2, 3, 4, 4, 5]
new_list = []

for item in lst:
    if item not in new_list:
        new_list.append(item)

print("Without duplicates:", new_list)
```

Output:

```
Without duplicates: [1, 2, 3, 4, 5]
```

Q13. Find second largest number

Code:

```
numbers = [10, 45, 23, 67, 12]
first = numbers[0]
second = -1

for n in numbers:
    if n > first:
        second = first
        first = n
    elif n > second:
        second = n

print("Second largest:", second)
```

Output:

```
Second largest: 45
```

Q14. Check Armstrong number

Code:

```
n = int(input("Enter number: "))
original = n
sum_power = 0
digits = len(str(n))

while n > 0:
    digit = n % 10
    sum_power = sum_power + (digit ** digits)
    n = n // 10

if sum_power == original:
    print("Armstrong number")
else:
    print("Not Armstrong number")
```

Output:

```
Enter number: 153
Armstrong number
```

Q15. Merge two sorted lists

Code:

```
list1 = [1, 3, 5]
list2 = [2, 4, 6]
merged = list1 + list2
merged.sort()

print("Merged:", merged)
```

Output:

```
Merged: [1, 2, 3, 4, 5, 6]
```

Q16. Find GCD of two numbers

Code:

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))

while b != 0:
    temp = b
    b = a % b
    a = temp

print("GCD:", a)
```

Output:

```
Enter first number: 48
Enter second number: 18
GCD: 6
```
