

✓ Python Programming Assignment 01

✓ Question 1: Code Along

Problem Statement:

Write a Python program that takes a string as input and prints:

1. The string in reverse order.
2. The number of vowels in the string.

```
# Function for reversing a String
def reverse_string(s):
    return s[::-1]

# Function for Counting Vowels in string
def count_vowels(s):
    vowels = "aeiouAEIOU"
    return sum(1 for char in s if char in vowels)

# Taking Input from the User for Processing
user_input = input("Enter a word: ")

# Print reversed input
print("Reversed word:", reverse_string(user_input))

# Print Number of vowels of Input
print("Number of Vowels in Word:", count_vowels(user_input))
```

```
↔ Enter a word: Ahmad Ali Rafique
Reversed word: euqifaR ilA damhA
Number of Vowels in Word: 8
```

✓ Question 2: Hands-on Coding Project

Problem Statement:

Create a Python program that:

1. Takes an input number from the user.
2. Checks whether the number is even or odd.
3. Prints the result.

```
# Function for checking even or odd
def check_even_odd(n):
    if n % 2 == 0:
        return "Even"
    else:
        return "Odd"

# Take Integer Input from User
try:
    user_input = int(input("Enter a Number: "))
    print(f"The number {user_input} is {check_even_odd(user_input)}.")
except ValueError:
    print("Invalid Input! Please provide a correct integer.")
```

```
↔ Enter a Number: 1092
The number 1092 is Even.
```

✓ Question 3: Virtual Environment Application

Problem Statement:

Create a Python program that:

1. Takes a list of integers as input.
2. Creates a new virtual environment called sortenv.
3. Installs a package (such as numpy) in the virtual environment.
4. Sorts the list using `numpy.sort()`.
5. Prints the sorted list.

```
# Install a package (Numpy) in the virtual environment
import numpy as np

# Function to sort the list
def sort_list(arr):
    return np.sort(arr)

# Function to simulate virtual environment setup
def setup_virtual_env():
    print("Step 1: Create a virtual environment using:")
    print(" python -m venv sortenv")
    print("Step 2: Activate the virtual environment:")
    print(" Windows: sortenv\\Scripts\\activate")
    print(" macOS/Linux: source sortenv/bin/activate")
    print("Step 3: Install NumPy in the virtual environment:")
    print(" pip install numpy")
    print("Step 4: Now, sorting the list using NumPy...")

# Taking user input as a list of Integers
try:
    user_input = input("Enter a list of numbers separated by spaces that you want to sort: ")
    num_list = list(map(int, user_input.split()))

    # Running virtual environment simulation
    setup_virtual_env()

    # Sorting and displaying the sorted list
    print("Sorted list:", sort_list(num_list))
except ValueError:
    print("Invalid input! Please enter a list of integers.")
```

```
↵ Enter a list of numbers separated by spaces that you want to sort: 9 8 7 6 5 4 3 2 1
Step 1: Create a virtual environment using:
python -m venv sortenv
Step 2: Activate the virtual environment:
Windows: sortenv\Scripts\activate
macOS/Linux: source sortenv/bin/activate
Step 3: Install NumPy in the virtual environment:
pip install numpy
Step 4: Now, sorting the list using NumPy...
Sorted list: [1 2 3 4 5 6 7 8 9]
```