Python Programming Assignment 01

Question 1: 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.

### SOLUTION: ###

#Function to reverse string.
def reverse_string(s):
  return s[::-1]

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

# Taking some input from user
user_input = input("Enter a string: ")


# Displaying results
print('Reversed string: ',reverse_string(user_input))
print('Number of vowels: ',count_vowels(user_input))

#_example run_
```

```
Enter a string: Hello World
Reversed string:  dlroW olleH
Number of vowels:  3
```

Question 2: Hands-on Coding Project

Problem Statement: *Create a Python program that:*

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

```
### Solution ###

#function to check the number is even or odd
def check_even_odd(number):
  # determine whether number is even or odd and the classify
  if number % 2 == 0:
    return "Even Number"
  else:
    return "Odd Number"

# Taking input from user
countdown = 0
while countdown<2:
  try:
    # int define input as a integer
    Number = int(input("Enter a number: "))
    print(f'The number {Number} is {check_even_odd(Number)}.')
  except ValueError:
    print('Invalid input! Please enter a valid integer.')

  countdown+=1
  print()

# _run_
```

```
Enter a number: 5
The number 5 is Odd Number.

Enter a number: 8
The number 8 is Even Number.
```

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.

```
# in google colab numpy library is already preinstalled, otherwise it can be install with.
# !pip install NumPy

# importing necessary library
import numpy as np

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

# Simulating 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 envorinment')
  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: ')
  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.')

# _run_
```

```
Enter a list of numbers separated by spaces: 4 2 7 1 3
Step 1: Create a virtual environment using:
   Python -m venv sortenv
Step 2: Activate the virtual envorinment
   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 7]
```