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Data Science
Capsule-1 assignment

Q1) Write a Python program that takes user input for their name and greets the user. Then, prompt the user to enter two values. After receiving the values, swap them and print both the original values and the swapped values.

```
def greet_and_swap():
    name = input("Enter your name: ")
    print(f"Hello, {name}!")

    value1 = input("Enter the first value: ")
    value2 = input("Enter the second value: ")

    print(f"Original values: value1 = {value1}, value2 = {value2}")

    # Swapping values
    value1, value2 = value2, value1

    print(f"Swapped values: value1 = {value1}, value2 = {value2}")


greet_and_swap()
```

Q2) Write a Python program that asks the user to input the radius of a circle. Calculate the area of the circle using the formula area = π * radius^2, where π (pi) is a constant approximately equal to 3.14. Print out the calculated area. Ensure that the user input for the radius is converted to a float data type before performing calculations.

```
def calculate_area_of_circle():
    radius = float(input("Enter the radius of the circle: "))
```

```
    pi = 3.14
    area = pi * (radius ** 2)
    print(f"The area of the circle with radius {radius} is {area}")

calculate_area_of_circle()
```

Q3) Write a Python program where the user is prompted to input their birth year. The program should then calculate and display the user's current age.

```
def calculate_age():
    birth_year = int(input("Enter your birth year: "))
    current_year = 2024
    age = current_year - birth_year
    print(f"You are {age} years old.")

calculate_age()
```

Q4) Imagine you're a bakery owner and you want to personalize messages for your customers.

Write a Python program where customers are prompted to input their name and favorite cake flavor. The program should then print a customized message saying: "Hello, [name]! We're delighted to serve you your favorite [favorite_cake] cake on your birthday. Happy Birthday."

```
def bakery_message():

    name = input("Enter your name: ")

    favorite_cake = input("Enter your favorite cake flavor: ")

        print(f"Hello, {name}! We're delighted to serve you your favorite {favorite_cake} cake on your birthday. Happy Birthday.")

bakery_message()
```

Q5) Write a Python program to calculate the simple interest with user input for principal amount, rate, and time.

```
def calculate_simple_interest():
    principal = float(input("Enter the principal amount: "))
    rate = float(input("Enter the rate of interest: "))
    time = float(input("Enter the time (in years): "))

    simple_interest = (principal * rate * time) / 100
    print(f"The simple interest is: {simple_interest}")

calculate_simple_interest()
```