**Task 1: Calculate Area with Conditions**

**Write a Python function calculate\_area that takes two parameters: length and width. It**

**should calculate and return the area of a rectangle. However, add a condition: if the length**

**is equal to the width, return "This is a square!" instead of the area. Then, write a program to**

**input values for length and width from the user and call the calculate\_area function to**

**display either the area or the message.**

**Task 1 Answer:**

def calculate\_area(length, width):

if length == width:

return "This is a square!"

else:

return length \* width

def main():

length = float(input("Enter the length: "))

width = float(input("Enter the width: "))

result = calculate\_area(length, width)

if isinstance(result, str):

print(result)

else:

print("The area of the rectangle is:", result)

if \_\_name\_\_ == "\_\_main\_\_":

main()

**Task 2: Generate Fibonacci Series**

**Problem Statement:**

**Write a Python program that generates the Fibonacci sequence up to a specified number of**

**terms, n. The Fibonacci sequence starts with 0 and 1, and each subsequent number in the**

**sequence is the sum of the two preceding numbers (e.g., 0, 1, 1, 2, 3, 5, 8, ...). Prompt the**

**user to enter the number of terms (n) they want in the sequence and then display the**

**Fibonacci sequence up to that number of terms.**

**Task 2 Answer:**

def fibonacci\_sequence(n):

fibonacci\_series = [0, 1]

if n <= 0:

return "Please enter a positive number of terms."

elif n == 1:

return fibonacci\_series[:1]

elif n == 2:

return fibonacci\_series

for \_ in range(2, n):

next\_term = fibonacci\_series[-1] + fibonacci\_series[-2]

fibonacci\_series.append(next\_term)

return fibonacci\_series

def main():

n = int(input("Enter the number of terms for the Fibonacci sequence: "))

result = fibonacci\_sequence(n)

print("Fibonacci sequence up to", n, "terms:")

print(result)

if \_\_name\_\_ == "\_\_main\_\_":

main()

**Task 3: MySQL Database Operations with Python ( Compulsory )**

**Problem Statement:**

**Your task is to write a Python program that accomplishes the following:**

**First create a database , table and add these column ‘student\_id’, ‘first\_name’, ‘last\_name’,**

**‘age’, ‘grade’.**

**Connects to your MySQL database with python.**

**Inserts a new student record into the "students" table with the following details:**

**First Name: "Alice"**

**Last Name: "Smith"**

**Age: 18**

**Grade: 95.5**

**Updates the grade of the student with the first name "Alice" to 97.0.**

**Deletes the student with the last name "Smith."**

**Fetches and displays all student records from the "students" table.**

**Answer to Task 3:**

import mysql.connector

conn = mysql.connector.connect(

host='your\_host',

user='your\_username',

password='your\_password',

database='your\_database'

)

cursor = conn.cursor()

# Creating the students table

cursor.execute("CREATE TABLE IF NOT EXISTS students (student\_id INT AUTO\_INCREMENT PRIMARY KEY, first\_name VARCHAR(255), last\_name VARCHAR(255), age INT, grade FLOAT)")

# Inserting a new student record

cursor.execute("INSERT INTO students (first\_name, last\_name, age, grade) VALUES ('Alice', 'Smith', 18, 95.5)")

# Updating the grade of the student with the first name "Alice"

cursor.execute("UPDATE students SET grade = 97.0 WHERE first\_name = 'Alice'")

# Deleting the student with the last name "Smith"

cursor.execute("DELETE FROM students WHERE last\_name = 'Smith'")

# Fetching and displaying all student records

cursor.execute("SELECT \* FROM students")

records = cursor.fetchall()

for record in records:

print(record)

# Committing the changes and closing the connection

conn.commit()

conn.close(