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Github Link:

https://github.com/Prabhuthvam/samata/tree/main



Programming Task

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.

Solution:

user input

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

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

Checking the condition

if length == width:

```
print("This is a square!")
else:
  area = length * width
  print("The area of the rectangle is:", area)
# Example Output
Enter the length: 5
Enter the width: 10
The area of the rectangle is: 50.0
Enter the length: 5
Enter the width: 5
This is a square!
111
```

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.

```
Solution:
# user input

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

```
a, b = 0, 1
fibonacci_sequence = [a, b]
for _ in range(2, n):
  a, b = b, a + b
  fibonacci_sequence.append(b)
print("Fibonacci sequence up to", n, "terms:")
print(fibonacci_sequence)
# Example Output
Enter the number of terms for the Fibonacci sequence: 5
Fibonacci sequence up to 5 terms:
[0, 1, 1, 2, 3]
Enter the number of terms for the Fibonacci sequence: 2
Fibonacci sequence up to 2 terms:
[0, 1]
```

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."

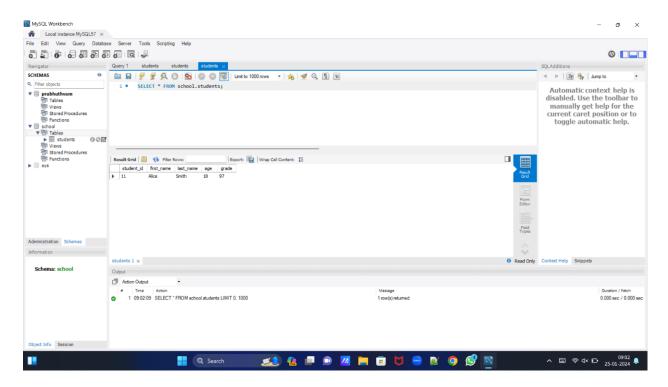
Fetches and displays all student records from the "students" table.

```
Solution:
import mysql.connector
mycon=mysql.connector.connect(host="localhost",user="root",passwd="root")
if mycon.is connected():
  print("sucessfully connected")
cursor = mycon.cursor()
#creating database
cursor.execute("CREATE DATABASE school")
# using "school" database
cursor.execute("USE school")
#Creating table and adding columns
cursor.execute("CREATE TABLE students (""student id INT, ""first name VARCHAR(255), "
        "last_name VARCHAR(255), ""age INT, ""grade FLOAT)")
```

```
# Task 2: Inserting a new student record
cursor.execute("INSERT INTO students (student_id, first_name, last_name, age, grade) VALUES
(%s, %s, %s, %s, %s)",
        (11,"Alice", "Smith", 18, 95.5))
mycon.commit()
# Task 3: Updating the grade of the student with the first name "Alice"
cursor.execute("UPDATE students SET grade = %s WHERE first name = %s", (97.0, "Alice"))
mycon.commit()
#Task 4: Deleting the student with the last name "Smith"
cursor.execute("DELETE FROM students WHERE last name = %s", ("Smith",))
mycon.commit()
# Task 5: Fetching and display all student records
cursor.execute("SELECT * FROM students")
students = cursor.fetchall()
print("Student Records:")
for student in students:
  print(student)
# Closing the cursor and database connection
cursor.close()
```

mycon.commit()

Students Table Data



Student Table Data After Deletion

