Ans 1.

```
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)

    print(result)

if __name__ == "__main__":
    main()
```

Ans 2.

```
def fibonacci_recursiv(n):
    if n <= 0:
        return []
    elif n == 1:
        return [0]
    elif n == 2:
        return [0, 1]
    else:
        fib_sequence = fibonacci_recursive(n - 1)
        fib_sequence.append(fib_sequence[-1] + fib_sequence[-2])
        return fib_sequence

def main():

    n = int(input("Enter the number"))

    fibonacci_sequence = fibonacci_recursive(n)
    print("Fibonacci sequence up to {} terms:".format(n))
    print(fibonacci_sequence)
if __name__ == "__main__":
    main()
```

Ans 3.

```
pip install mysql-connector-python

import mysql.connector

# Function to create a new student record in the "students" table

def create_student_record(cursor):
    # Inserting a new student record
    insert_query = "INSERT INTO students (first_name, last_name, age, grade) VALUES (%s,
%s, %s, %s)"
    data = ("Alice", "Smith", 18, 95.5)
    cursor.execute(insert_query, data)

# Function to update the grade of the student with the first name "Alice"

def update_student_grade(cursor):
    # Updating the grade of the student with the first name "Alice"
    update_query = "UPDATE students SET grade = %s WHERE first_name = %s"
    data = (97.0, "Alice")
    cursor.execute(update_query, data)

# Function to delete the student with the last name "Smith"

def delete_student(cursor):
    # Deleting the student with the last name "Smith"
    delete_query = "DELETE FROM students WHERE last_name = %s"
    data = ("Smith",)
    cursor.execute(delete_query, data)

# Function to fetch and display all student records from the "students" table

def display_all_students(cursor):

    # Fetching all student records

    select_query = "SELECT * FROM students"
    cursor.execute(select_query)

    # Displaying the fetched records

    students = cursor.fetchall()
    for student in students:
```

```
        print(student)

def main():
    # Connecting to the MySQL database
    connection = mysql.connector.connect(
        host="your_host",
        user="your_username",
        password="your_password",
        database="your_database"
    )

    # Creating a cursor
    cursor = connection.cursor()

    # Creating the "students" table if it doesn't exist
    create_table_query = """
    CREATE TABLE IF NOT EXISTS students (
        student_id INT AUTO_INCREMENT PRIMARY KEY,
        first_name VARCHAR(50),
        last_name VARCHAR(50),
        age INT,
        grade FLOAT
    )
    """
    cursor.execute(create_table_query)

    # Calling functions to perform database operations
    create_student_record(cursor)
    update_student_grade(cursor)
    delete_student(cursor)
    display_all_students(cursor)

    # Committing the changes and closing the connection
    connection.commit()
    connection.close()

if __name__ == "__main__":
    main()
```