Today's Assignment: Qt Drawing Application with Mouse Interaction

Course: Computer Graphics
Semester: B.C.S.E. Third Year

Objective

Design and implement a basic drawing application using **Qt Widgets in C++** that demonstrates event-driven GUI programming with mouse interaction.

Task Description :

You are required to create a Qt-based GUI application that fulfills the following features:

1. **Mouse Tracking:** Display real-time X and Y coordinates of the mouse pointer as it moves over the drawing area.

2. **Mouse Click Handling:** On left-click, display the click coordinates and record the location. Plot a colored point at the clicked location.

3. **Line Drawing:** On clicking two distinct points, allow the user to draw a straight blue line connecting those two points using a button labeled `Draw Line`.

4. **Canvas Clearing:** Provide a button labeled `Clear` to reset the drawing canvas to black.

5. **Custom Widget:** Use a subclass of QLabel named `my_label` that emits custom signals for mouse events.

Project Structure Requirements :

Your Qt Widgets Application should include the following files:

- `main.cpp`

- `mainwindow.h` and `mainwindow.cpp`

- `my_label.h` and `my_label.cpp`

- `mainwindow.ui`

UI Layout Requirements

- A 500 x 500 pixel black canvas implemented using `my_label`

- Labels to display:

  - Mouse movement coordinates
  - Mouse press coordinates

- Two buttons:

  - `Draw Line`
  - `Clear`

Submission Guidelines

- Submit your entire Qt project folder.

- Include an assignment report.

Submission Deadline: