

CP372 (Sections D & C) – Assignment 01

RFC: Bulletin Board Client–Server Protocol

RFC revision note

1. GUI Enhancement for Coordinate Navigation

Implemented:

```
@Override
protected void paintComponent(Graphics g) {
    super.paintComponent(g);

    int S = 5; // Scale (pixels per coordinate unit)
    int O = 60; // Offset (margin for the ruler text/ticks)

    // 1. Draw X-axis Ruler (increments of 10)
    for (int i = 0; i <= 150; i += 10) {
        int xPos = O + (i * S);
        g.drawLine(xPos, O - 5, xPos, O); // Draw the tick mark
        g.drawString("" + i, xPos - 5, O - 10); // Draw the coordinate number
    }

    // 2. Draw Y-axis Ruler (increments of 10)
    for (int j = 0; j <= 100; j += 10) {
        int yPos = O + (j * S);
        g.drawLine(O - 5, yPos, O, yPos); // Draw the tick mark
        g.drawString("" + j, O - 30, yPos + 5); // Draw the coordinate number
    }
}
```

Implementation of Visual Coordinate Rulers: We added a persistent ruler for both the X and Y axes on the client-side board interface to simplify the user experience. This feature was developed after testing revealed that we frequently struggled to remember or calculate exact coordinates for note placement. By providing a clear visual reference for the 150x100 grid, the ruler allows for more intuitive interaction and reduces input errors during the POST and PIN processes.

2. Expansion of COMPLETE_OVERLAP Error Logic (Sections 6, 7, 8.2, 9.1):

Original:

COMPLETE_OVERLAP (Placement Conflict):

- Triggered when a POST command is attempted at an origin (x,y) that is identical to the origin of a note already existing on the board.

Fixed:

COMPLETE_OVERLAP (Placement Conflict):

- Triggered when a **POST** command is attempted at an origin (x,y) that is identical to the origin of an existing note, or when a **PIN** command is attempted at an (x,y) coordinate that is identical to the coordinates of a pin already present on the board.

We updated the protocol specification to include a "Placement Conflict" check for pins. The **COMPLETE_OVERLAP** error, which originally only applied to notes sharing an identical origin, now also triggers if a client attempts to place a pin at the exact coordinates of a pin already present on the board. This revision ensures data integrity by preventing redundant pin entries at the same coordinate point, maintaining a cleaner and more efficient data model for concurrent users.