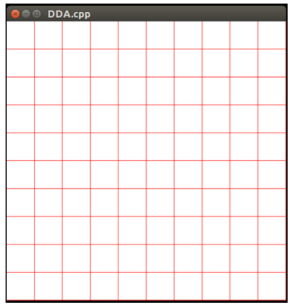
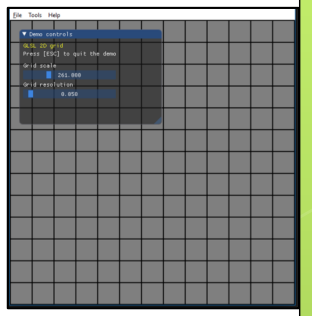
Rasterization

2019/04/12

Clickable 2D Grid





1. Draw a 2D Grid (35%)
   - To specify the number of cells:
     - [Option1] provide a popup menu to select from (20%)
       - (E.g. 9x9 or 25x25 or 85x85 cells ; at least 3 sizes)
     - [Option2] provide a input field to specify the number (30%)
   - Draw/Fill the center cell (5%)
2. Cell size should be adjustable
   - The size of each cell should be adjusted according to the current size of the window.
     - E.g., if the user enlarge the window, all cells should become larger.
3. Each cell should be clickable
   - Print out the coordinate (x, y) of the clicked cell (30%)
     - The center cell of the grid should be (0,0)
   - Draw/Fill the cell which are clicked by the user (35%)

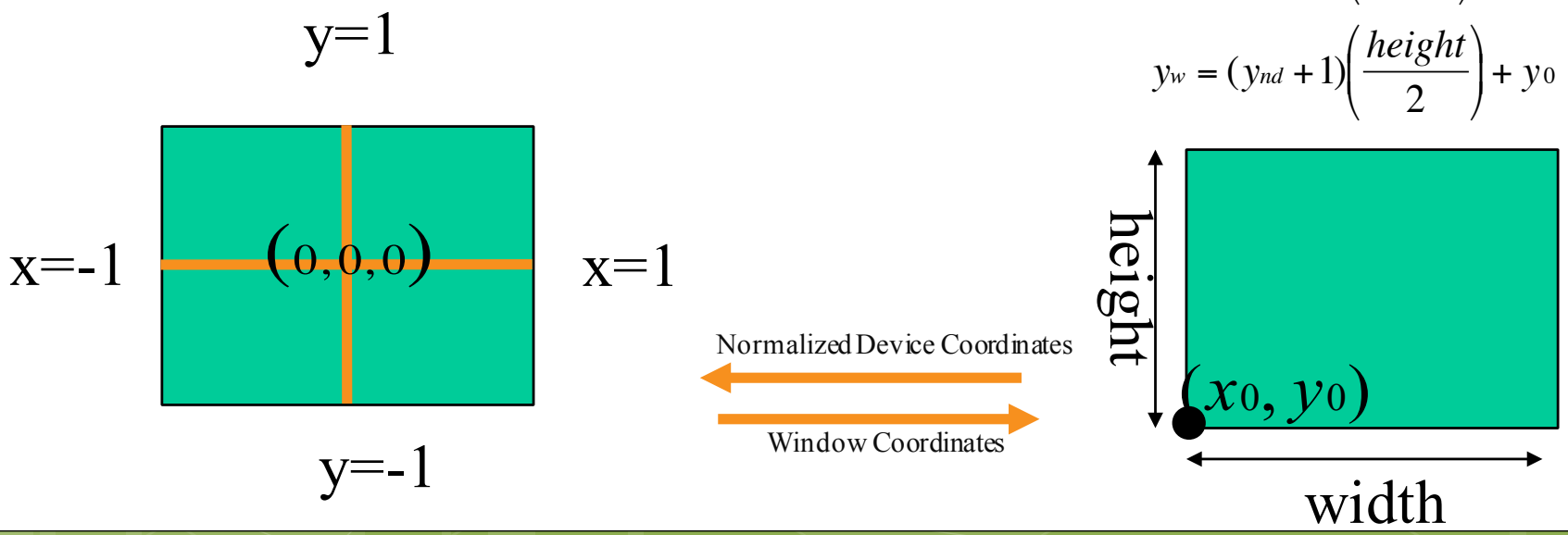
Do not use other library/tools

Mouse Click Location

- Click at (win_x, Win_y)
- Convert it to OpenGL's coordinate (x, y)

$$x_w = (x_{nd} + 1)\left(\frac{width}{2}\right) + x_0$$

$$y_w = (y_{nd} + 1)\left(\frac{height}{2}\right) + y_0$$



Midpoint algorithm (next week)

- Select a start point and an end point
- Draw and print out all the pixels represent the line
- Considering all regions
- ◦ (First 2 region for 30%, the rest regions total 20%)
  ◦ anti-aliasing algorithm (20%)
- A popup menu to switch between midpoint/anti-aliasing algorithm ◦
  - midpoint + antialiasing algorithm (bonus: 20%)
- Submit your source code and pdf document