

## Minesweeper Comments – Points

- the display of the current marker shouldn't obscure the display of an uncovered square
- ☺ – two decisions/ifs: decide on background color (current, uncovered, covered), then decide on showing mines count (uncovered or not)
  - one decision/if, three alternatives: current, uncovered, covered
- should have three arrays: covered/uncovered, mine/no mine, count of adjacent mines
  - functionally correct but inefficient to count adjacent mines every time a square is drawn
- naming
  - different language is used for position in a 2D array vs in the drawing window – row, column for the 2D array and x, y for coordinates
    - variable names should reflect that – and it is especially confusing to use x, y in reference to arrays
- should have (only) row, column for current position

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## Minesweeper Comments – Style

```
// set up the game
// -- set up the covered/uncovered array (all squares covered)
// -- set up the mine/no mine array (place mines)
// -- set up the number of adjacent mines array (compute for each square)
// -- set the player's current position to (0,0)

// play the game
// -- draw board
// -- repeat until the game is over
// -- .. get the user's key press
// -- .. handle the key press
// -- .. draw the board
// -- if the player won the game, display "You win!"
// -- otherwise display the board (all squares uncovered) and "You lose!"
```

single loop – no need to have a nested repeat-until-spacebar loop

only update variables – current position (for arrow keys) or covered/uncovered status, win/loss status (for space bar) no drawing!

handle one-time not repeated actions (e.g. game over actions) after the loop rather than in the loop

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## Minesweeper Comments – Style and Efficiency

- handling edges when counting adjacent mines
  - structure the cases around the neighbors rather than the square itself – “if the neighbor exists and has a mine, count it” rather “if the current position is on the edge”
- maintain a count of the number of squares uncovered rather than checking the board every time to determine if there are any covered non-mines left
- remove debugging output before handin