CSCA48 Tutorial 8 - BSTs and Flood fill

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Agenda

- BST
  - Insert
  - Delete
- Flood Fill

BST Insert Practice

- Build a Binary Search Tree by inserting the following numbers in order:

`56, 17, 24, 78, 67, 98, 5, 2, 15, 31, 71`

Compare with your neighbors!

BST Delete Practice

- Delete 56

Flood Fill

- Flood fill at point P, with value of "RED" and boundary "GREY"

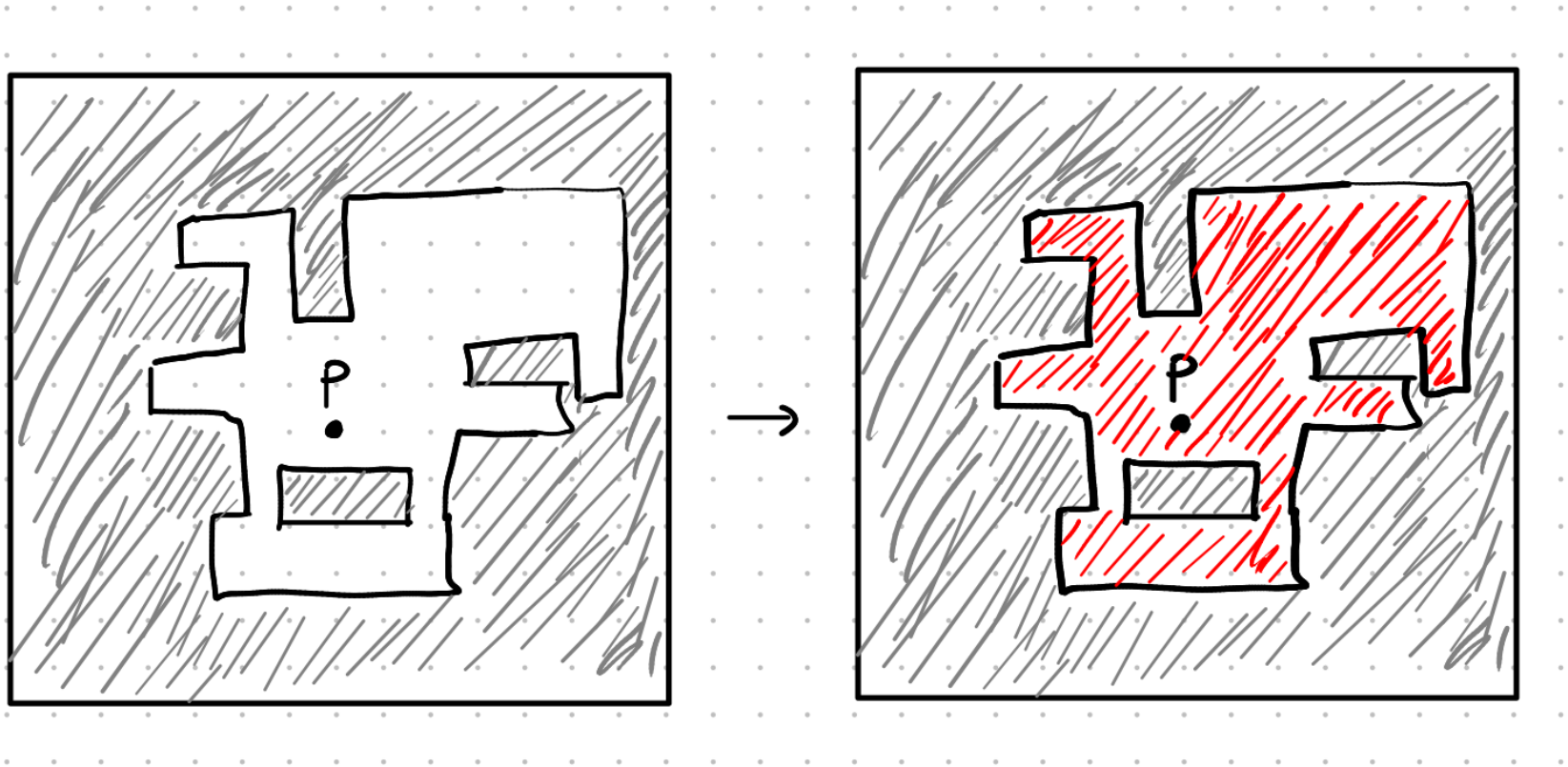

Figure 1: Flood Fill

Flood Fill

- Go to: https://uoft.me/PacoFloodFill and download the starter code
- Implement the recursive function (floodFill_R)
- Consider only the 4 neighbours up, down, left, and right - no diagonals.
- Do it out on paper first!

Recursion Tips

- think like induction
- start with your base case
- think where you can put your recursive call
- do it out on paper first

Flood Fill

```
void floodFill_R(char image[10][10],
int x, int y, char value, char bound) {
 // Base case: when at the bound or value, do nothing
  if (image[x][y] != bound && image[x][y] != value) {
      // assign the pixel to work with the base case
      image[x][y] = value;
      floodFill_R(__________________);
      floodFill_R(__________________);
      floodFill_R(__________________);
      floodFill_R(__________________);
  }
}
```