Recursion: Divide and Conquer and Flood Fill

**Divide and Conquer**

- Recursively break down a problem into sub-problems of the same type
- Sub-problems become simple enough to solve directly
- Sub-problem solution are combined to solve original problem
Sorting

- How to sort a list of numbers?
- Break list in half
  - Recursively break down a problem into sub-problems of the same type
- Easy to sort one number
  - Sub-problems become simple enough to solve directly
- Merge lists back together
  - Sub-problem solution are combined to solve original problem

MergeSort

- Reduce to a sub problem
  - half the list
- Simple to solve
  - 1 element
- Once sorted MERGE lists together
Flood Fill

![Flood Fill](image1.png)

![Flood Fill](image2.png)
Flood Fill
Flood Fill APTs

Problem Set 6 | Details
---|---
APT Set 6: You must do #. More APTs will be added. Due April 22
- FloodRelief | Required
- NumberFill
- RailRoute | Required
- SpreadingNews
- GridGame

Test file: Choose file | No file chosen Run

Announcements

- 20 Questions due tomorrow

- Wednesday @ 7:00pm
  - Boggle Walkthrough with Jimmy