

# CSE 12 – Basic Data Structures and Object-Oriented Design

## Lecture 8

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# Announcements

- Quiz 8 due Monday @ 8am
- Survey 3 due tonight @ 11:59pm
- PA3 due Wednesday @ 11:59pm
- Exam 1 next Friday

- Released @ 8am on Friday
- Closes @ 10am on Saturday
- More details to be released on Piazza soon

} 26 hour

→ 60 minutes  
No make ups

↳ Lectures 1 → 8  
PA3

# Topics

- Questions on Lecture 8?
- BFS/DFS

Questions on Lecture 8?

# Breadth-First Search (BFS)

	col 0	col 1	col 2	col 3
row 0				
row 1				
row 2				S
row 3	Exit			

## SearchForTheExit

Initialize a **Queue** to hold Squares as we search

Mark starting square as visited

**Enqueue** starting square on **Queue**

While **Queue** is not empty

**Dequeue** square sq from **Queue**

    Mark sq as visited

    If sq is the Exit, we're done!

    For each of square's unvisited neighbors (S, W, N, E):

        Set neighbor's previous to sq

**Enqueue** neighbor to **Queue**

# Depth-First Search (DFS)

	col 0	col 1	col 2	col 3
row 0				
row 1				
row 2				S
row 3	Exit			

## SearchForTheExit

Initialize a **Stack** to hold Squares as we search

Mark starting square as visited

**Push** starting square on **Stack**

While **Stack** is not empty

**Pop** square sq from **Stack**

    Mark sq as visited

    If sq is the Exit, we're done!

    For each of square's unvisited neighbors (S, W, N, E):

        Set neighbor's previous to sq

**Push** neighbor to **Stack**