

# ADT

abstract data type

List

Stack

Queue

LinkedList

ArrayList

LinkedStack

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Queue

Stack

enqueue

push

adds element

dequeue

pop

removes element

FIFO

FILO

LIFO

↑  
last pushed elem  
has not popped



# Queue

## Linked Queue

SLQ      SLQ      SLQ<sub>WT</sub>      DLQ

enqueue	$O(n)$	$O(1)$	$O(1)$	$O(1)$
dequeue	$O(1)$	$O(n)$	$O(1)$	$O(1)$

## Array Queue

AQ

AQ

CAQ

$O(n)$

amort

amort

$O(1)$

$O(1)$

$O(1)$

$O(n)$

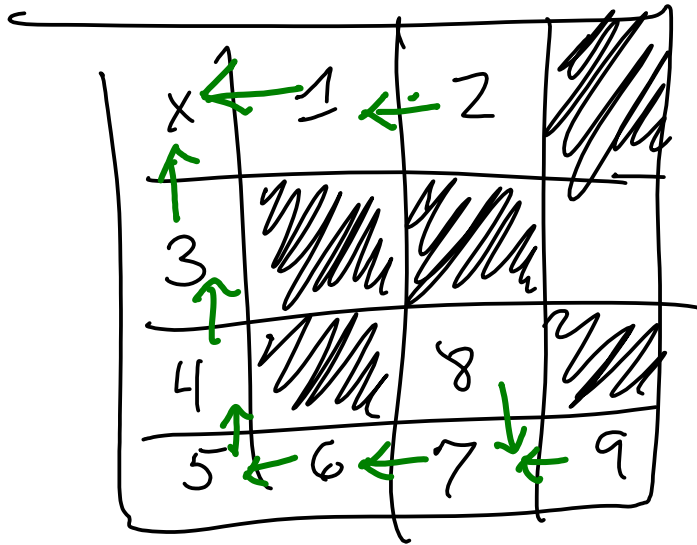
$O(1)$

enqueue  
dequeue

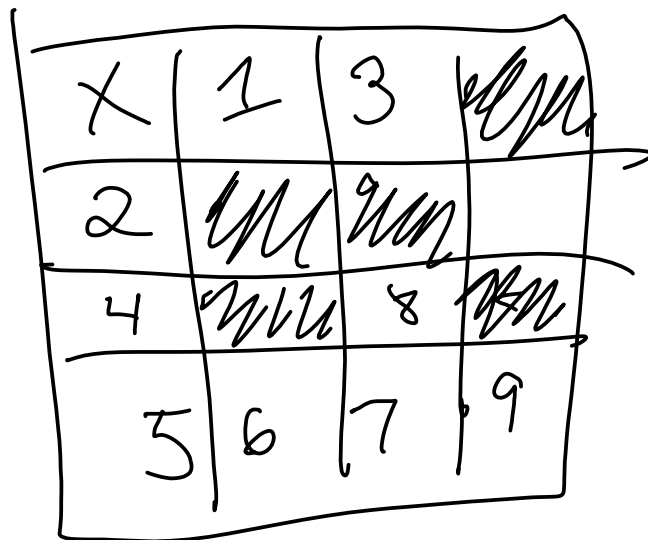
enqueue  
dequeue



Stack - DFS

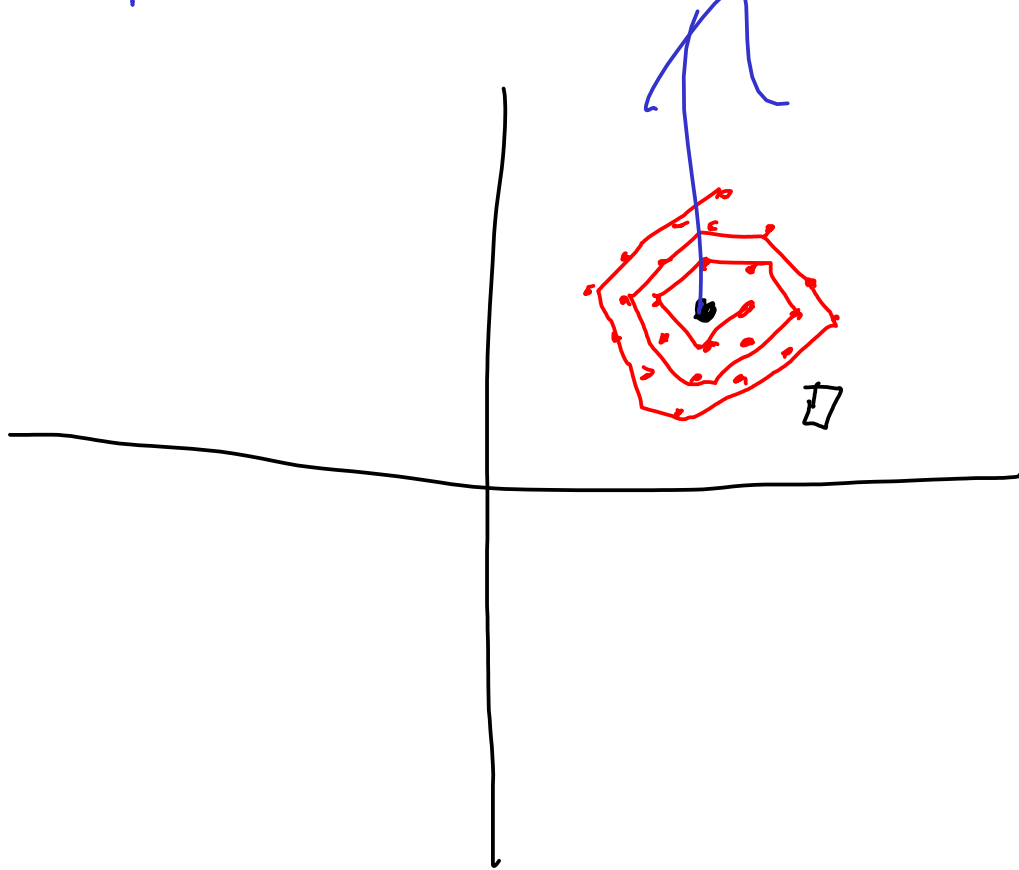


Queue - BFS



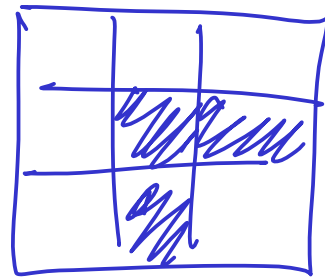
Breadth  
First  
Search





BFS

DFS



Both: explore everything  
if finite

BFS = finds answer in unbounded  
finds shortest path search space