

DAY 7

LINKED
LISTS
STATUS



STACKS
&
QUEUES



SEARCH
IN REAL LIFE



SEARCH A
LINKED
LIST





ROUND ROBIN

LINKED LISTS

Let's go all the way around the room today:

- Your Name
- Did you complete the Koans?
- How far did you get on the Linked List?

We'll be building on the Linked Lists later today after we've discussed searching.

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STACKS & QUEUES

BIG O

Asymptotic Notation - Big O Notation, etc.

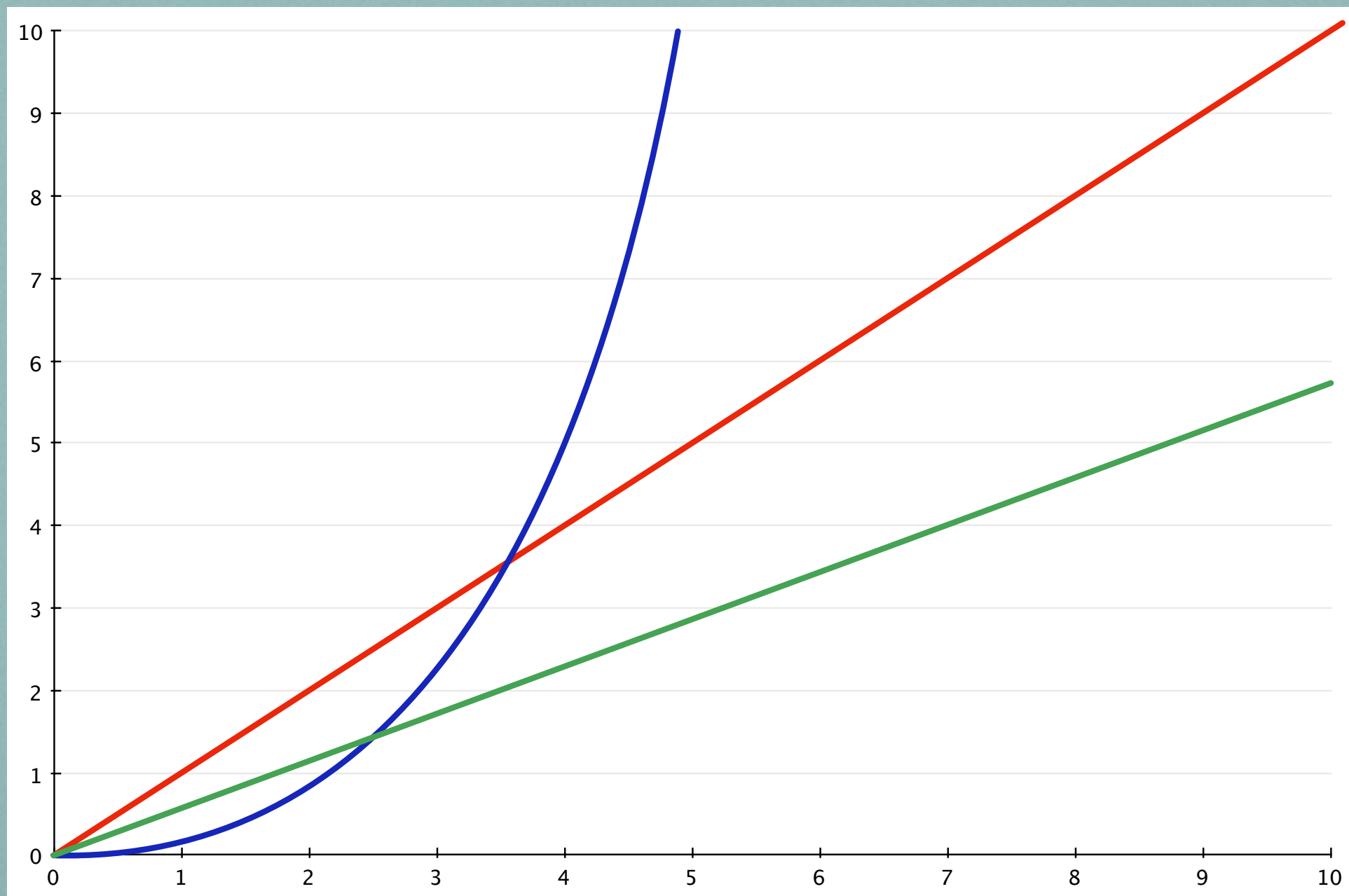
What it boils down to:

“How expensive is this algorithm?”

We will talk more about this in guest lectures.

STACKS & QUEUES

BIG O



STACKS & QUEUES

BIG O

Big Oh	Name	Interpretation
$O(1)$	Constant	The Best
$O(\log n)$	Logarithmic	Pretty good.
$O(n)$	Linear	Ok.
$O(n^2)$	Quadratic	Bad
$O(n!)$	Factorial	Terrible.

STACKS

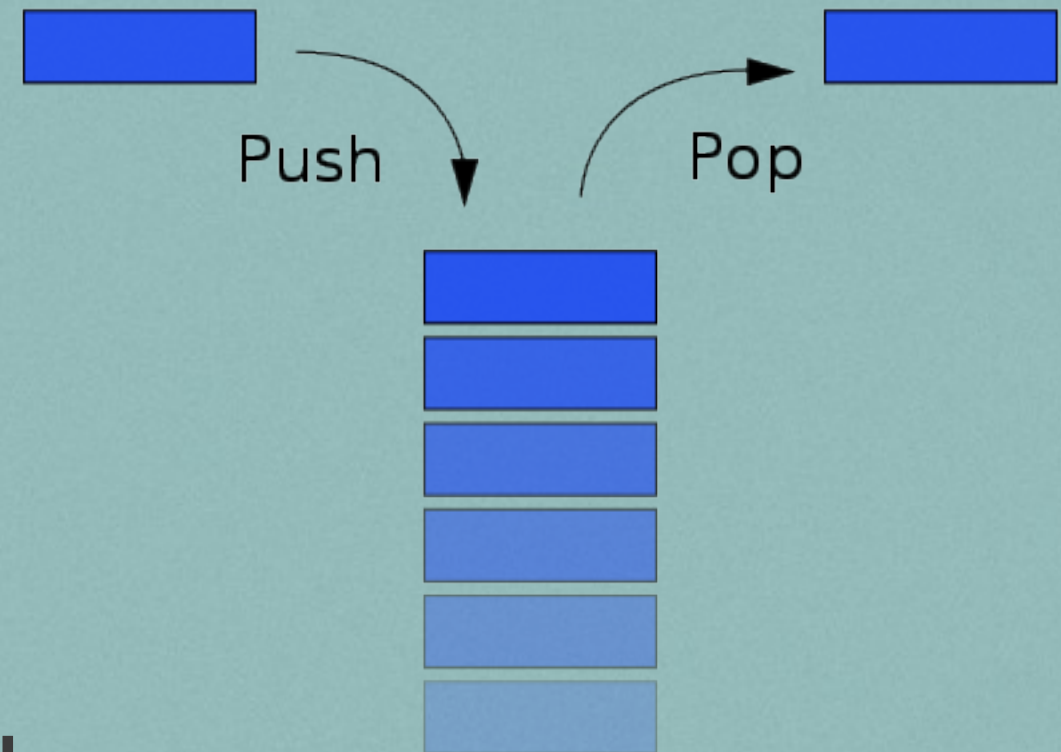
Last-In First-Out (LIFO)

Real World:

- Plate dispensers
- Pancakes

Uses:

- Tracking progress through a maze
- Providing “unlimited undo” in an application



Operation	Efficiency
Push	$O(1)$
Pop	$O(1)$

QUEUES

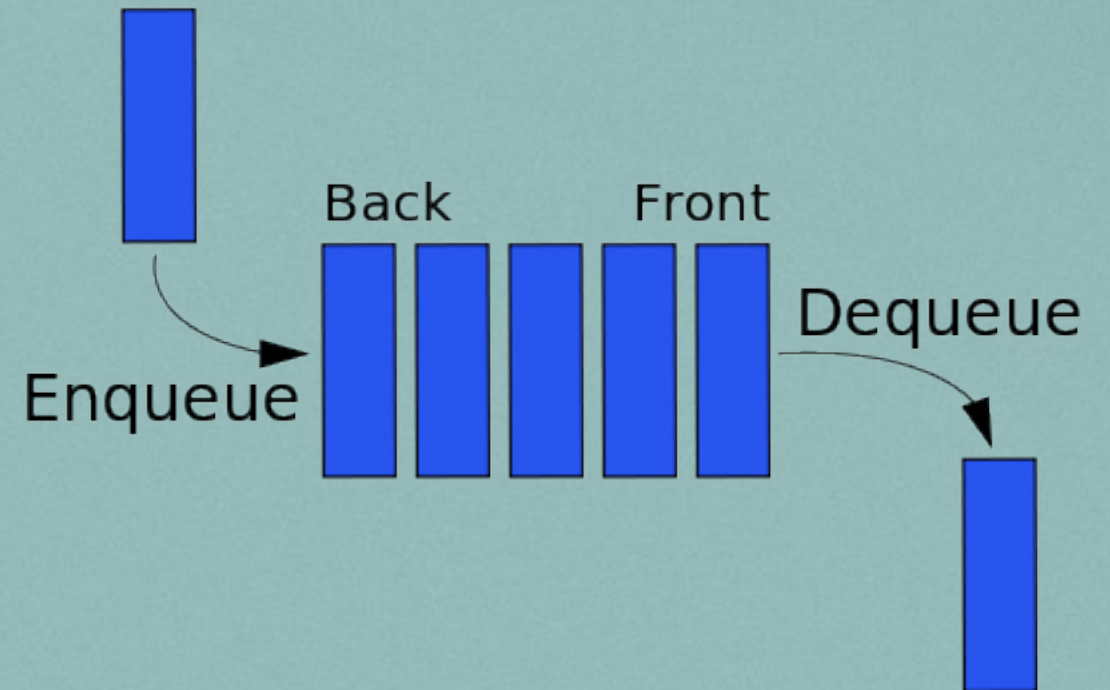
First-In Last-Out (FILO)

Real World:

- Waiting at the DMV
- Waiting in line, in general

Uses:

- Scheduling access to shared resources (e.g. printers)



Operation	Efficiency
Enqueue	$O(1)$
Dequeue	$O(1)$

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SEARCH ON LINKED LISTS

Now that we have a Linked List implementation, we're going to go one step further:

Implement searching on your LinkedList!

1. Start by writing at least 4 tests
2. Then implement searching

`linked_list.index(payload)` should return the index of the `LinkedListItem` with that payload

Hint #1: You should implement `==` for `LinkedListItem`

Hint #2: Efficiency isn't important for this exercise