

# Stacks & Queues

January 6th 2016

# What is a Stack?

- Abstract Data Type
- Proposed as early as 1946 by Turing
- Takeaway: LAST IN, FIRST OUT (LIFO)
- 2 main operations (push, pop). These should be familiar.
- Applications:
  - Memory management (undo)
  - Backtracking (maze navigation)
  - Pringles can
  - and more...

# What is a Queue?

- Another ADT
- First In, First Out (FIFO)
- Again, 2 main operations (enqueue, dequeue)
- Great for Linked Lists
  - Used in other Data Structures (Circular Buffer, Priority Queue)
  - Examples:
    - \* Movie theatre line

# Do we “NEED” S & Q’s?

- In web development... no. Dynamic Arrays help us out quite a bit already.
- As a concept, yes

[https://en.wikipedia.org/wiki/  
Stack\\_\(abstract\\_data\\_type\)#Software\\_stacks](https://en.wikipedia.org/wiki/Stack_(abstract_data_type)#Software_stacks)

&

[https://en.wikipedia.org/wiki/  
Queue\\_\(abstract\\_data\\_type\)](https://en.wikipedia.org/wiki/Queue_(abstract_data_type))

# gem install 'algorithm-night'

- Install the 'algorithm-night' gem

```
stack = Stack.new  
queue = Queue.new
```

Enjoy!!!

Any Questions?

Let's play with stuff!!!

And examples on the way!!!