

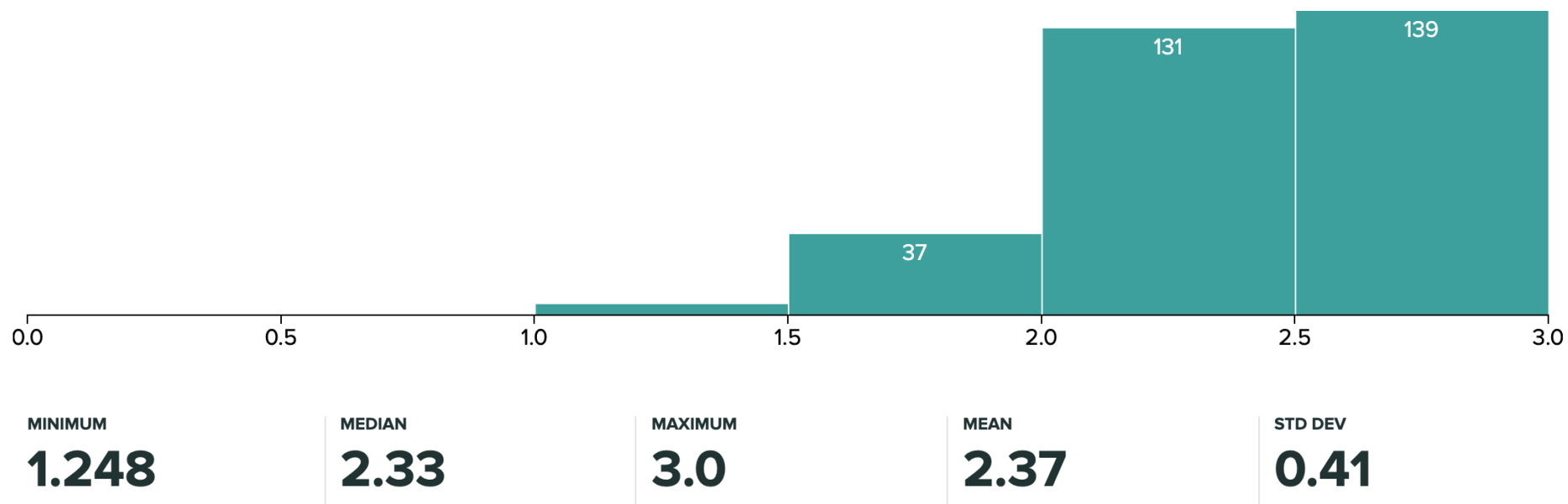
CS 61BL Lab 5

Slides available at rpurp.com

Your partner today will be your project partner *and* your lab partner for this week.

Announcements

- Congratulations on surviving week 1!
- Quiz 1 scores have been released!
- Project 1 is released! It's a partner project. Your project partner is also this week's lab partner.



Linked Lists

- Linked Lists are a data structure that represents a list of nodes
- Each node contains a reference to the next element
- Here is a minimal implementation of LinkedLists:
- **Demo link**

```
public class IntList {  
    public int item;  
    public IntList next;  
}
```

Linked List Demo

Creating Linked List Algorithms

- Oftentimes you can solve linked list problems iteratively or recursively
- Example: Linked List length

Iterative Linked List Size + Debugger Demo

Recursive Linked List Length

- First, an analogy: imagine I am in a very long line and want to know how many people are in line.
- Idea: Ask the person in front of you how many people there are in front of me.
- That person won't know either, so they'll ask the same how many people are in front of *them* to the next person.
- The person in front knows there is nobody in front of them, so can answer the previous person "There is one person in front of you"

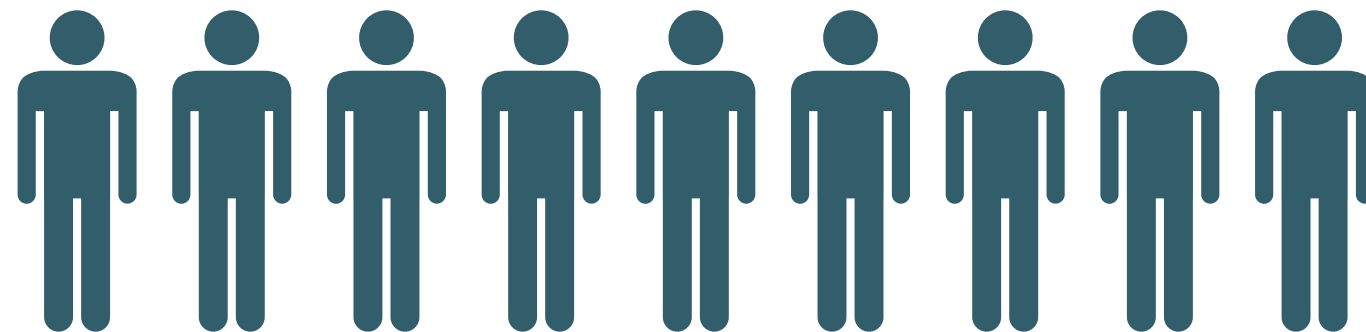
In Pictures

How many
people are in
front of me?



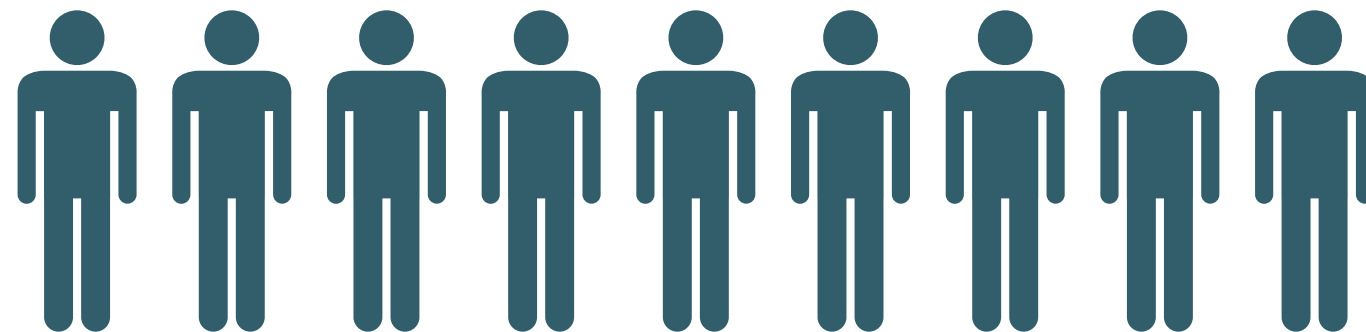
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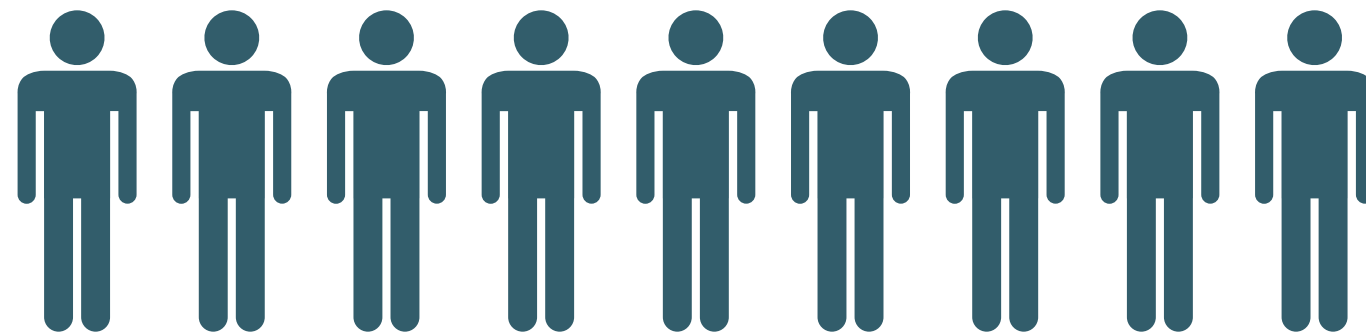


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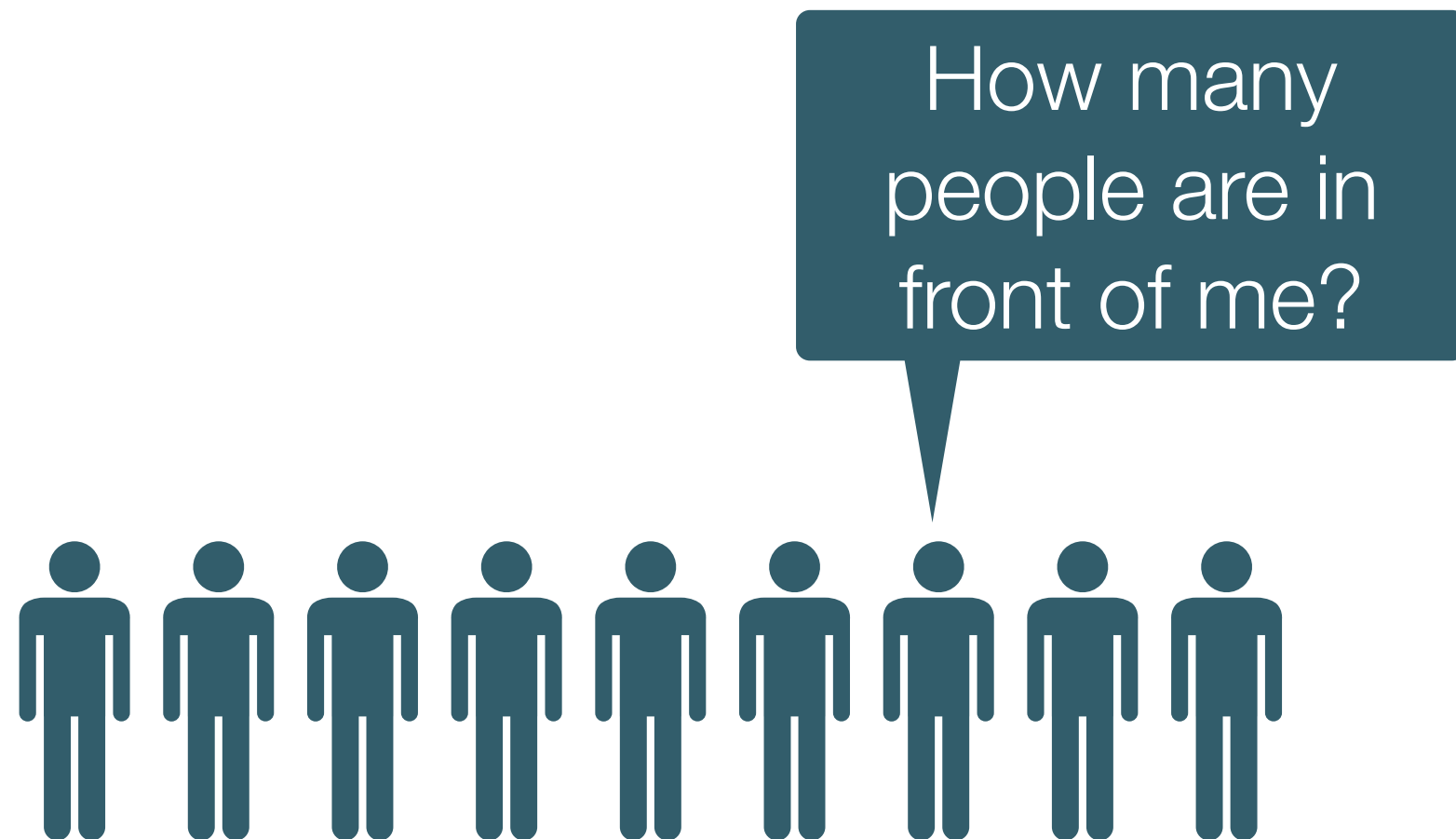


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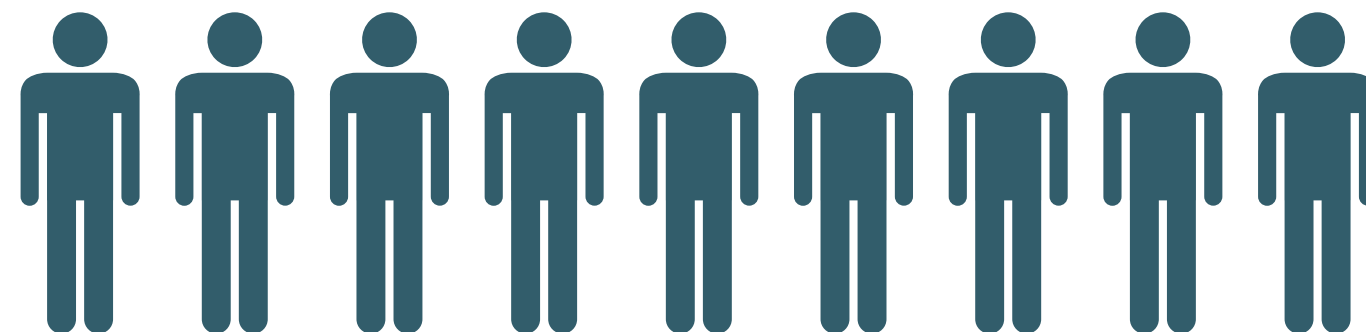
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In Pictures

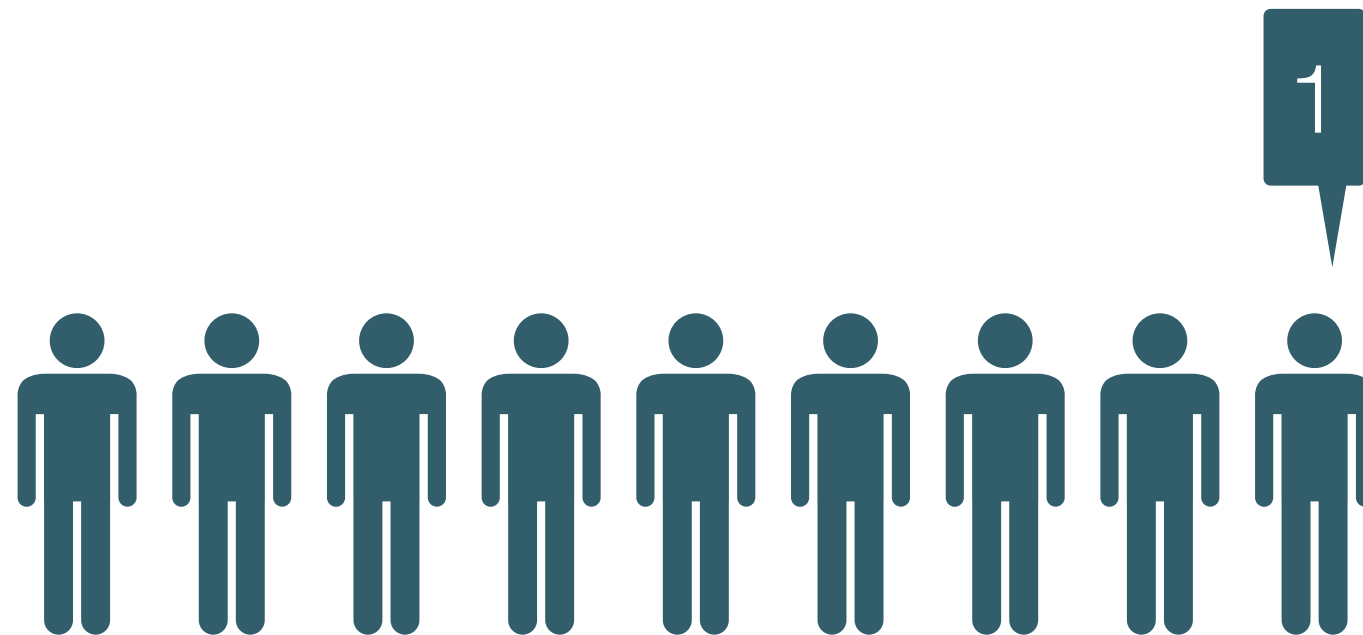


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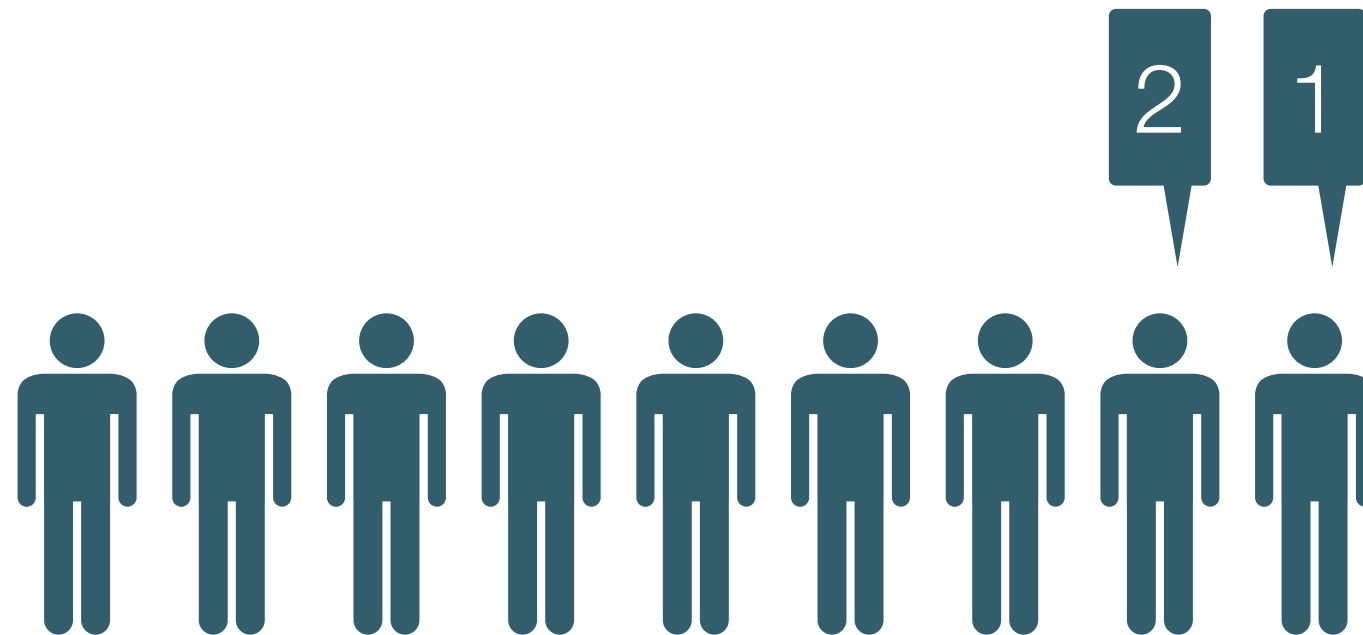


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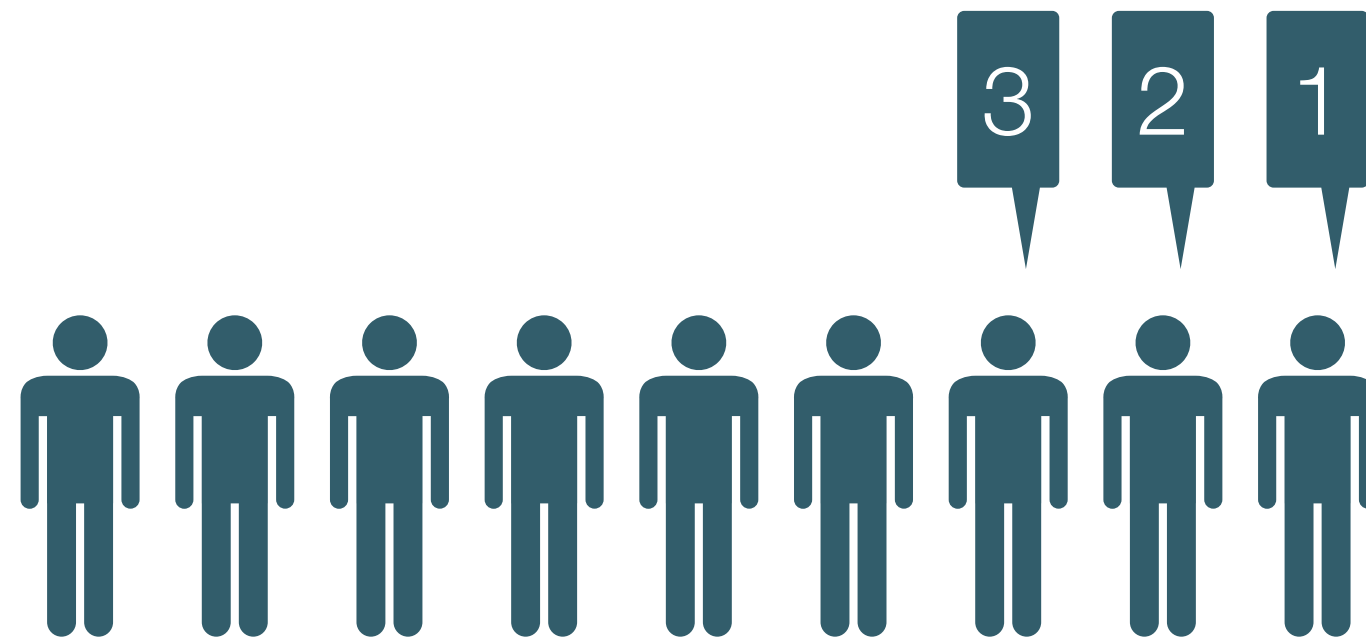
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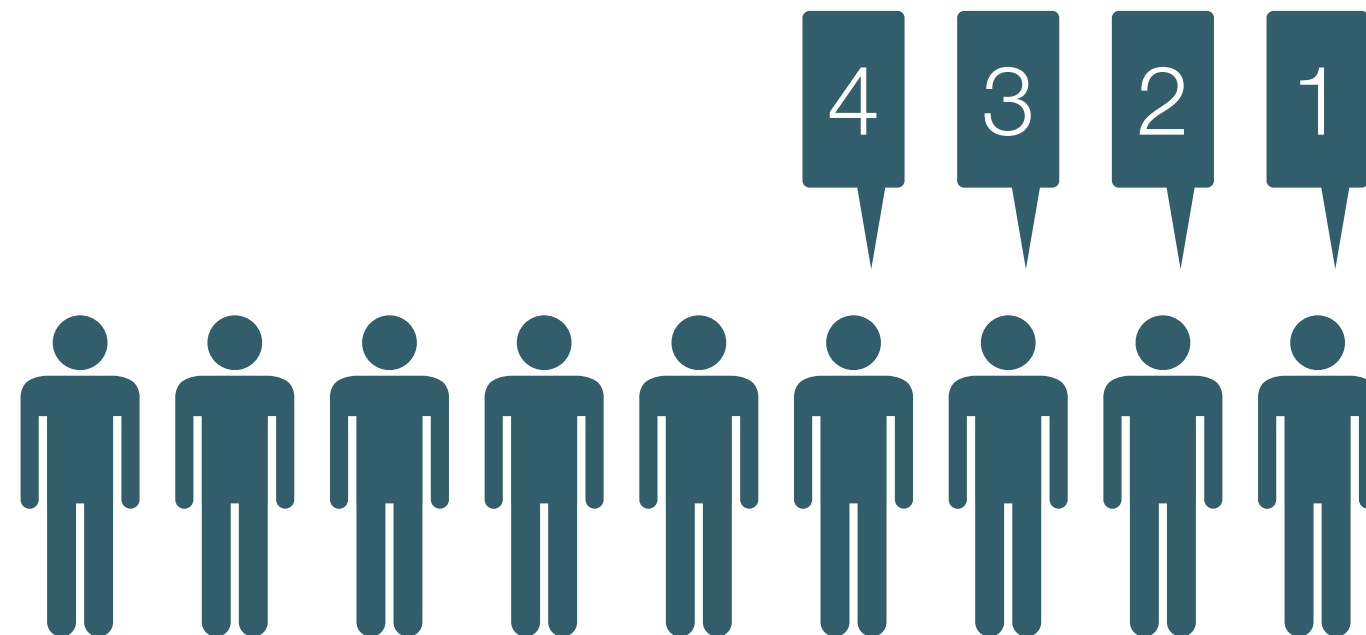
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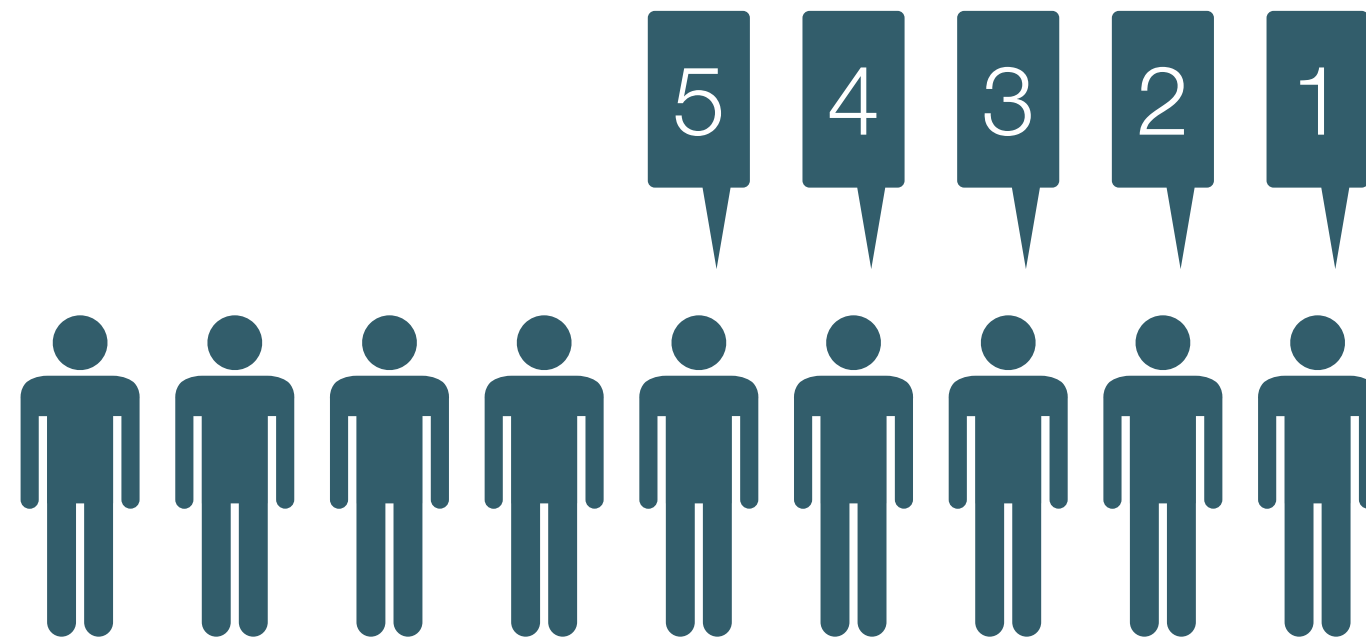
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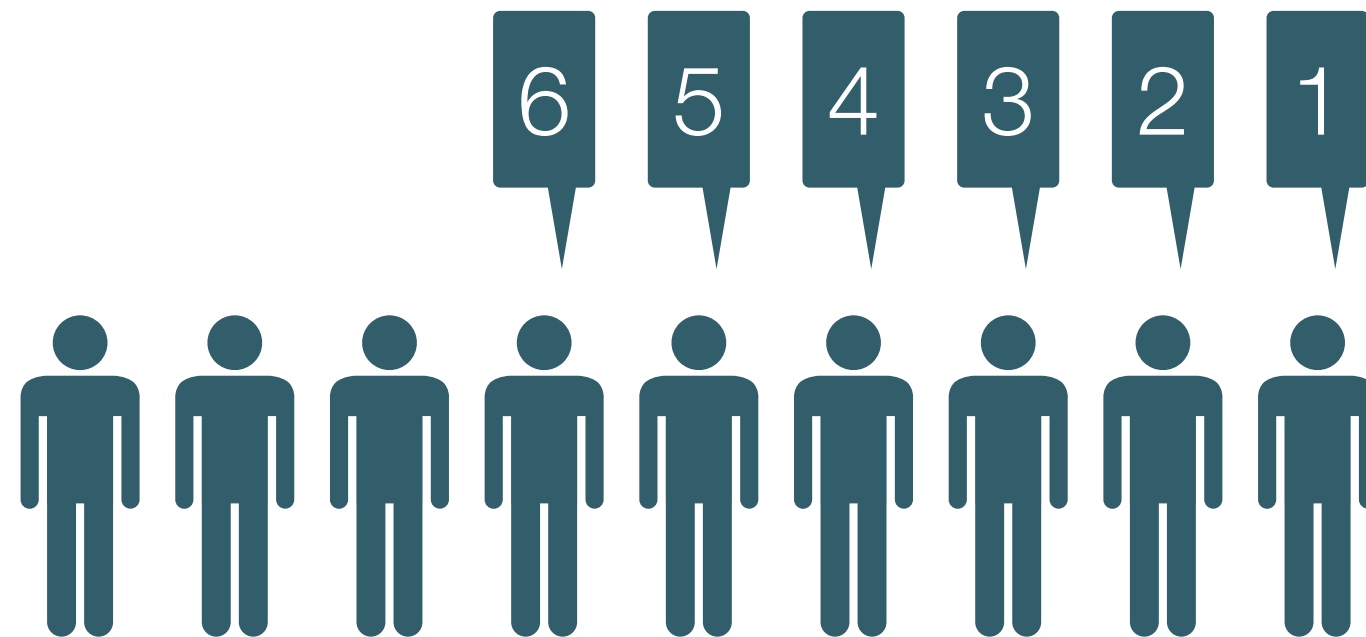
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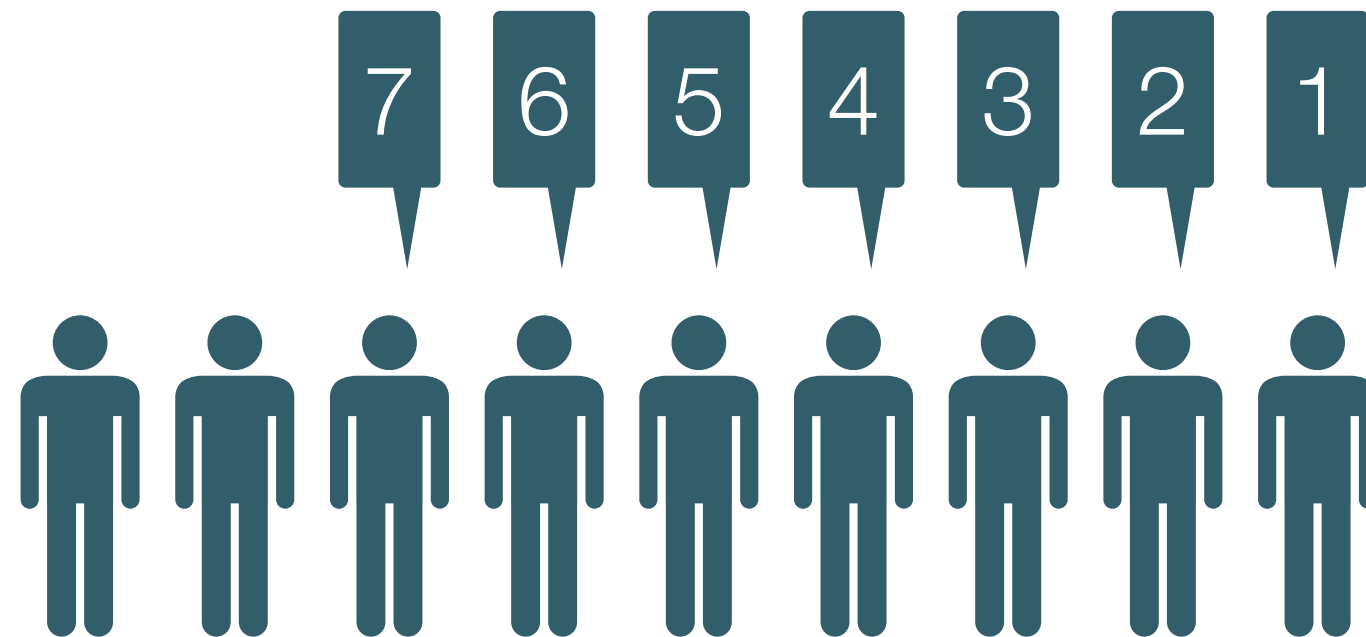
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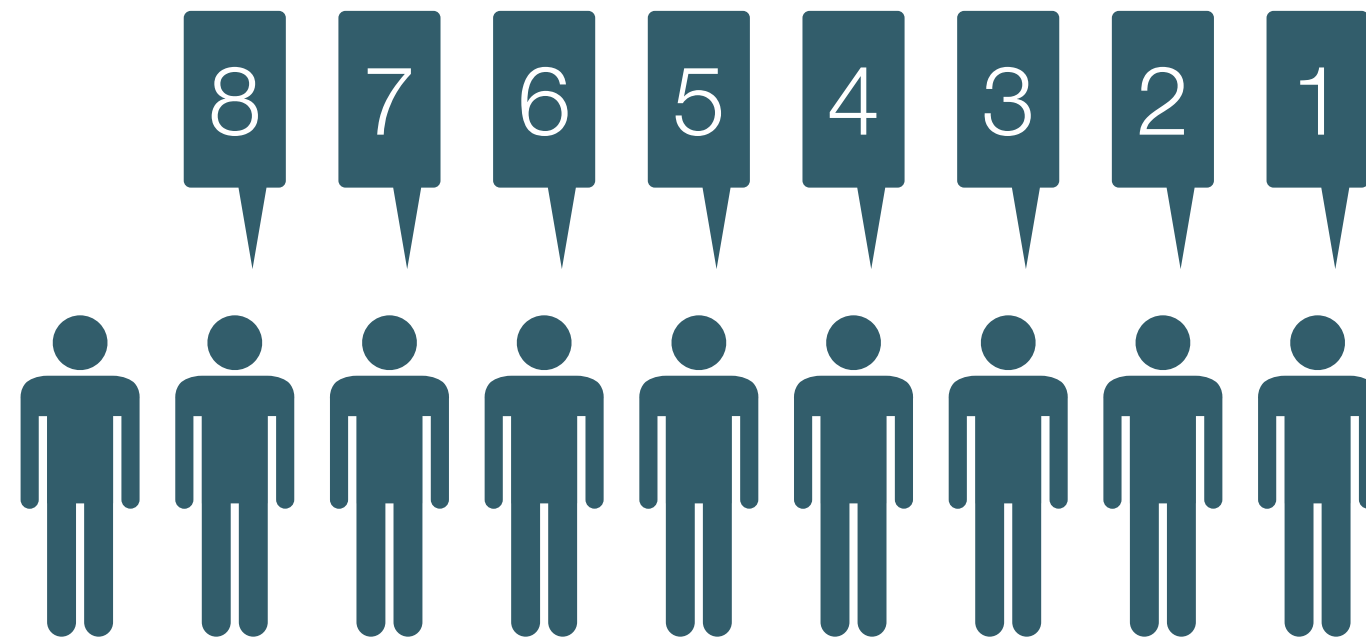
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Recursive Linked List Size + Testing Demo

Testing Demo