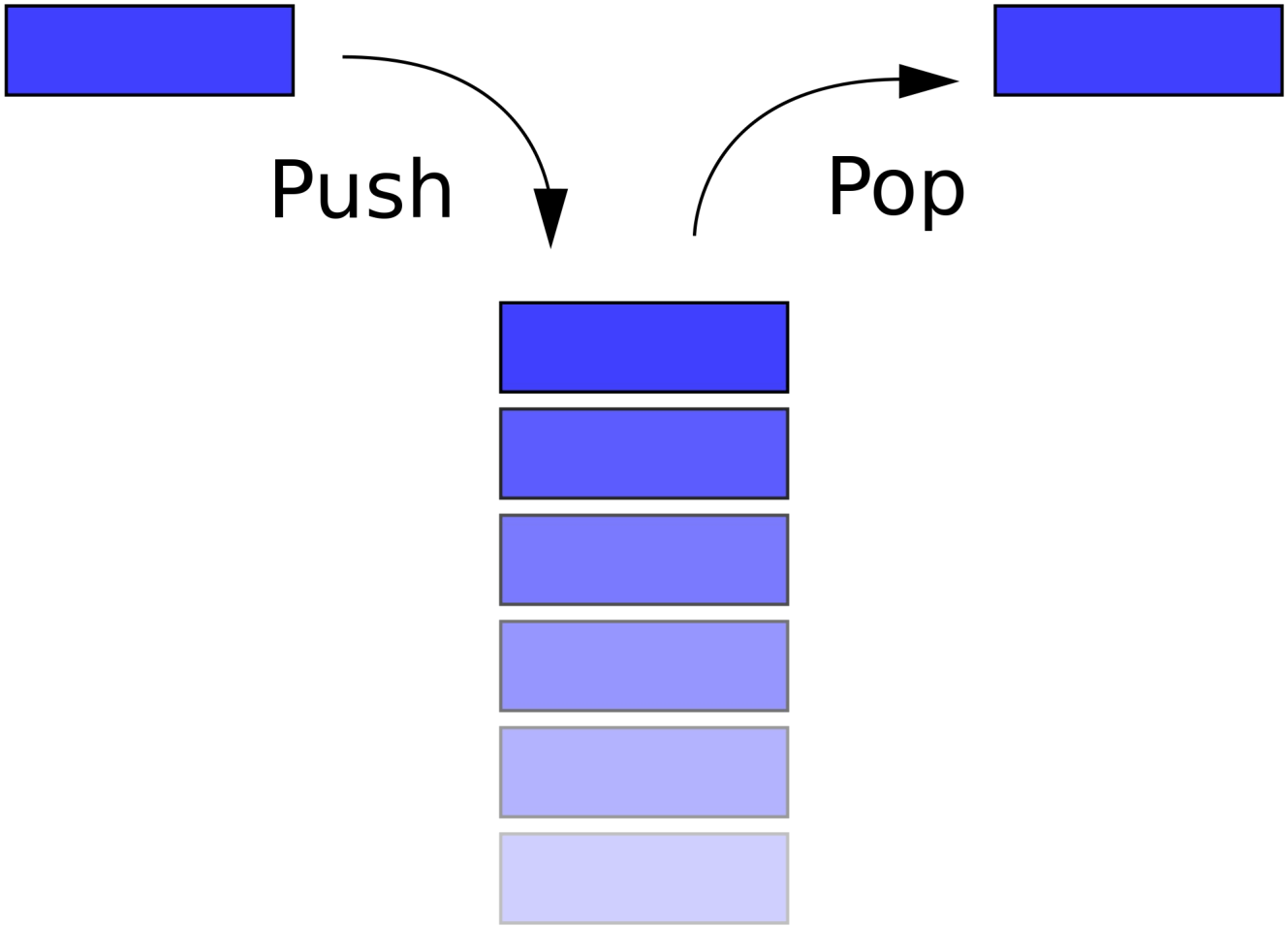
Stacks in Java

Leap@CMU 2017

What is a stack?

- Like an ArrayList
- Except data storage and retrieval is more nuanced
- LIFO: Last In First Out


Push
Pop

Applications of Stacks

Arithmetic

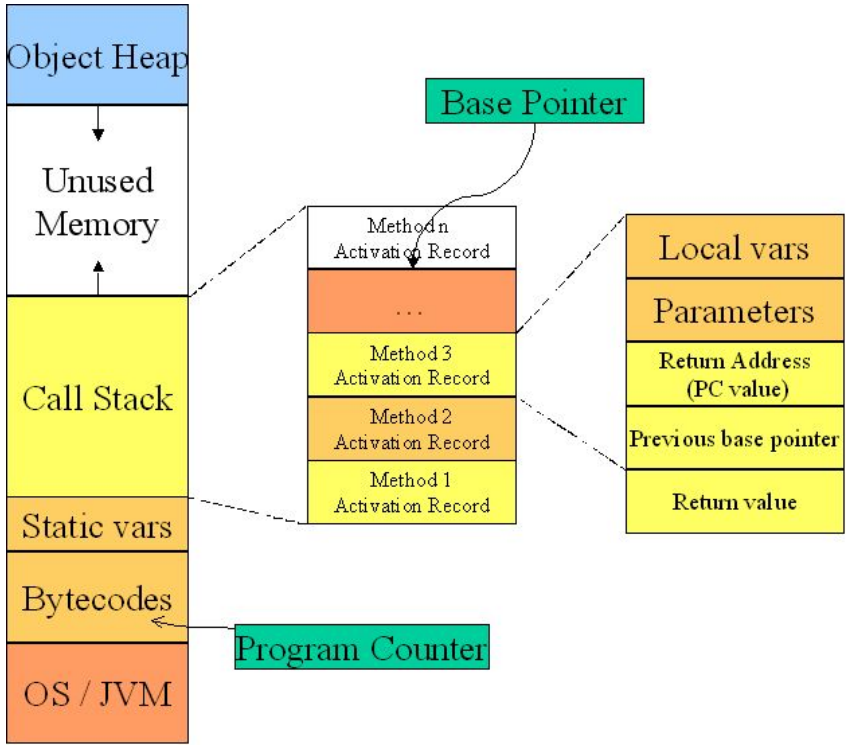
- Infix
- Postfix
- Prefix

Backtracking

- Maze-solving algorithms
- Recursive Algorithms

Memory Management

- =>



In Java

Use the Stack object provided to you in `java.util.Stack;`

```
Stack<Integer> lifo = new Stack<>();
lifo.push(Element e); //adds elements to the stack
lifo.pop(); //removes last elements from stack
```

Consult the API for more detailed method descriptions.

Infix	Postfix	Prefix	Notes
A * B + C / D	A B * C D / +	+ * A B / C D	multiply A and B, divide C by D, add the results
A * (B + C) / D	A B C + * D /	/ * A + B C D	add B and C, multiply by A, divide by D
A * (B + C / D)	A B C D / + *	* A + B / C D	divide C by D, add B, multiply by A

Project requirements

Make an algorithm to evaluate:

- Infix
- Postfix
- Prefix

Convert:

- Infix to postfix
- Infix to prefix

Check this website out for more info:
https://goo.gl/bQe5TU