Stacks and Queues

Stacks

Push an item onto the stack

Item 4

Item 3
Item 2
Item 1
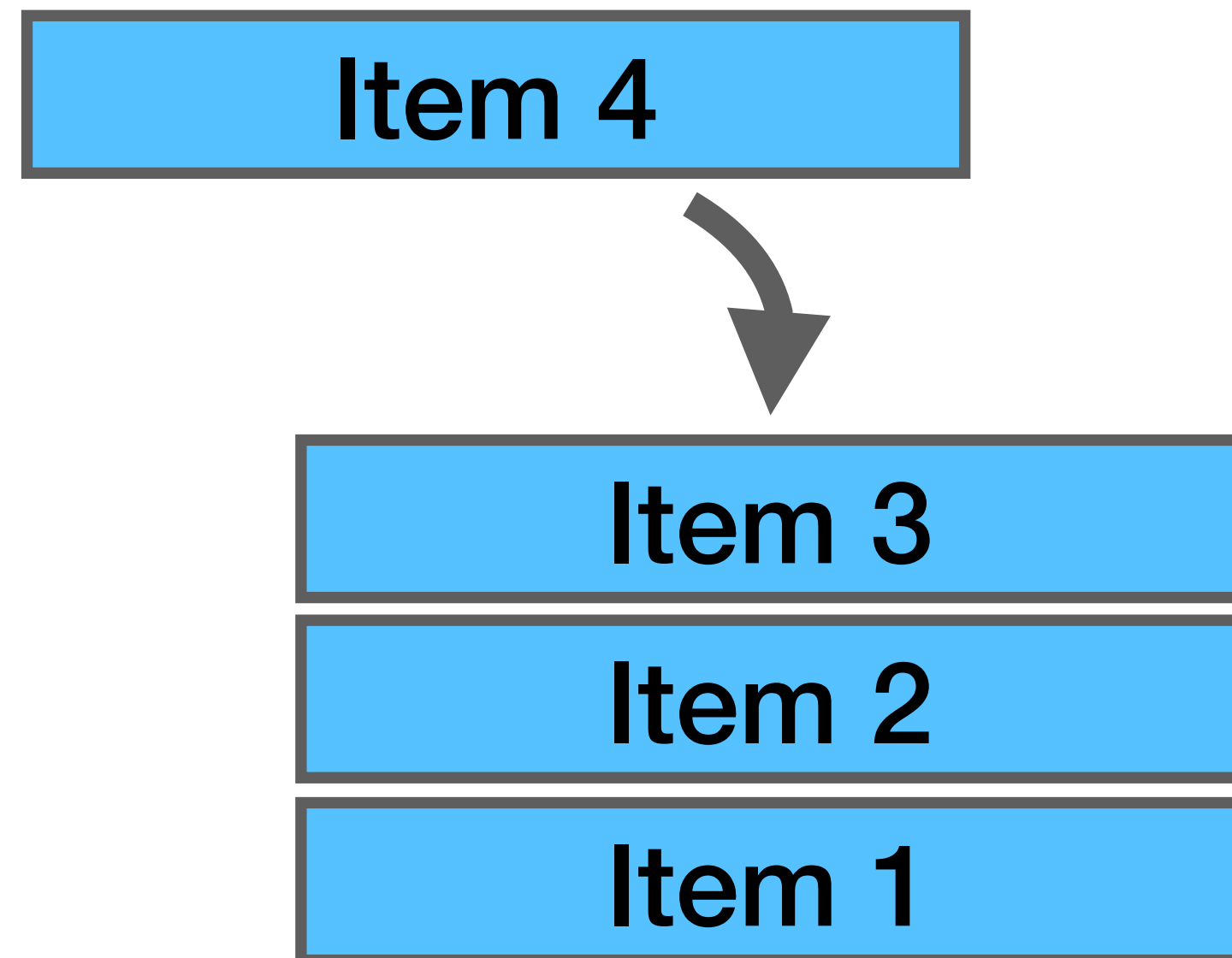
Pop an item off of the stack

Item 4

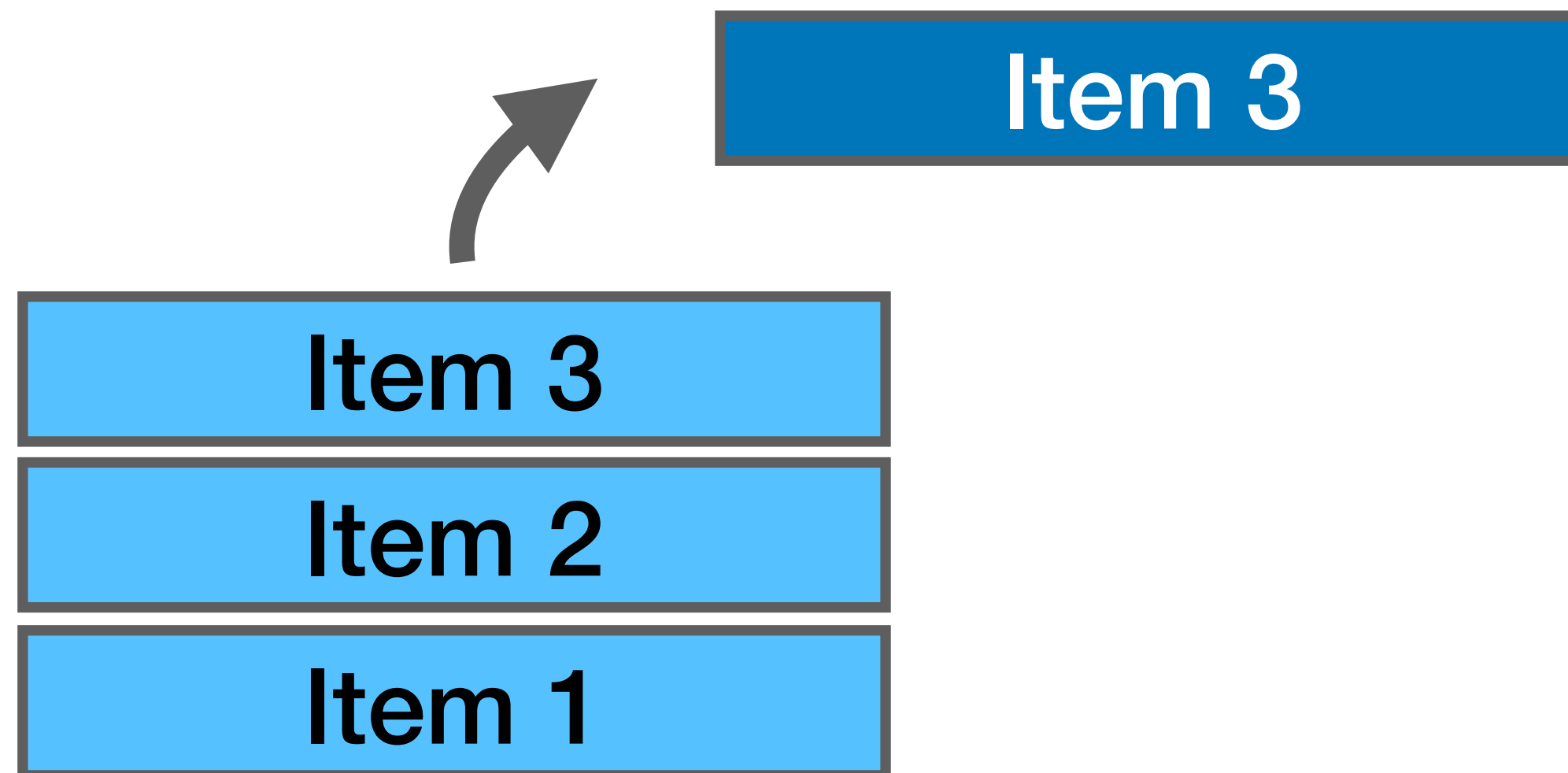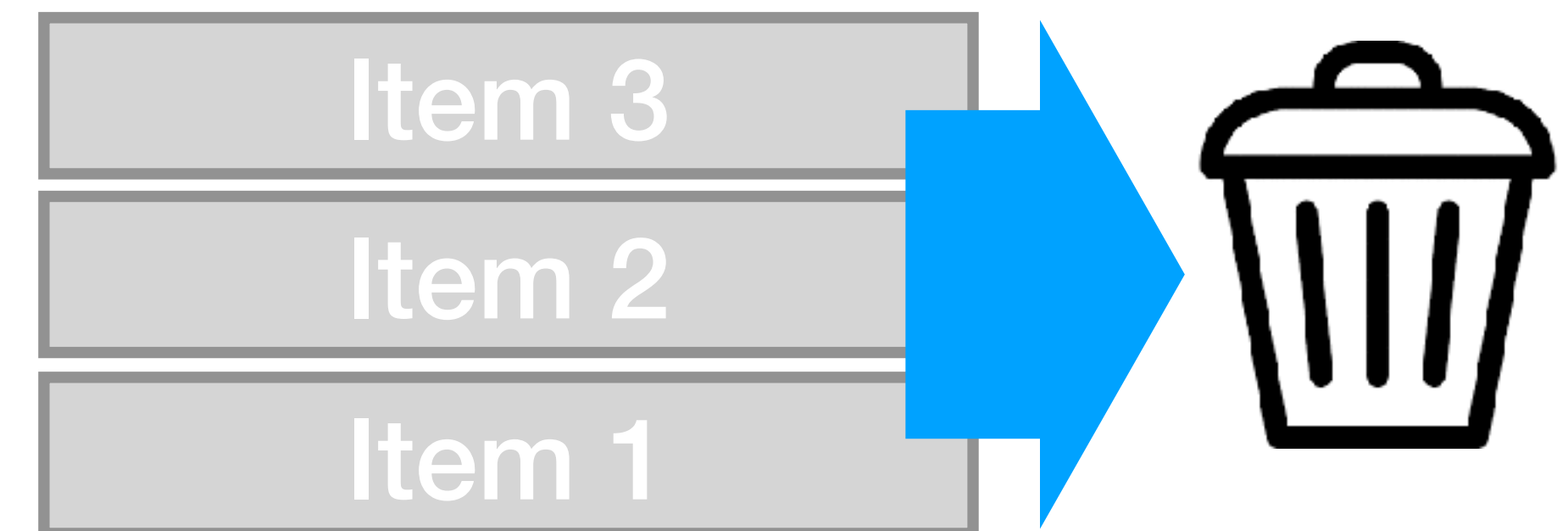| Item 3 |
| :---: |
| Item 2 |
| Item 1 |
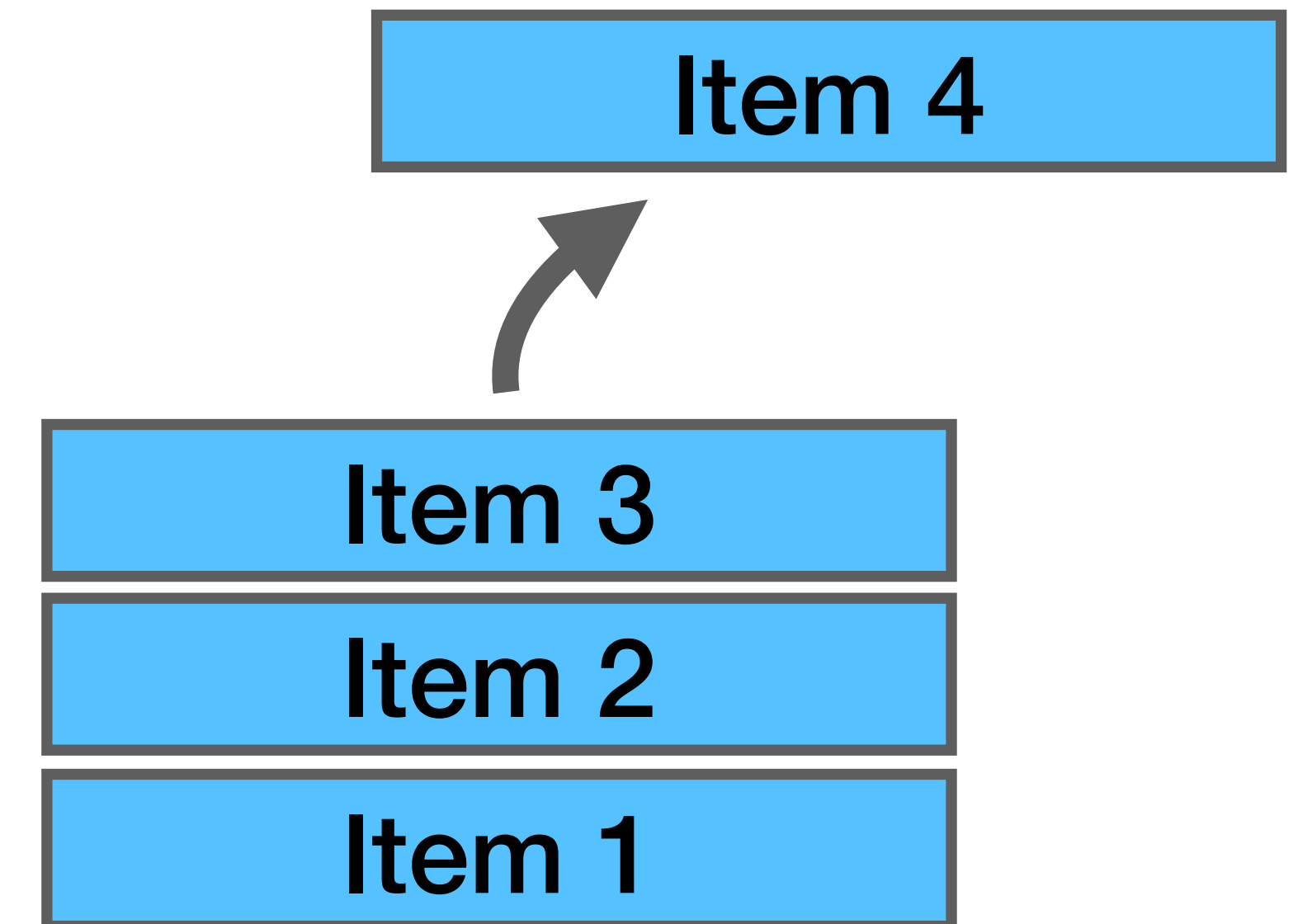
LIFO: Last-In First-Out

All **push** and **pop** operations are to/from the **top** of the stack.

Stacks

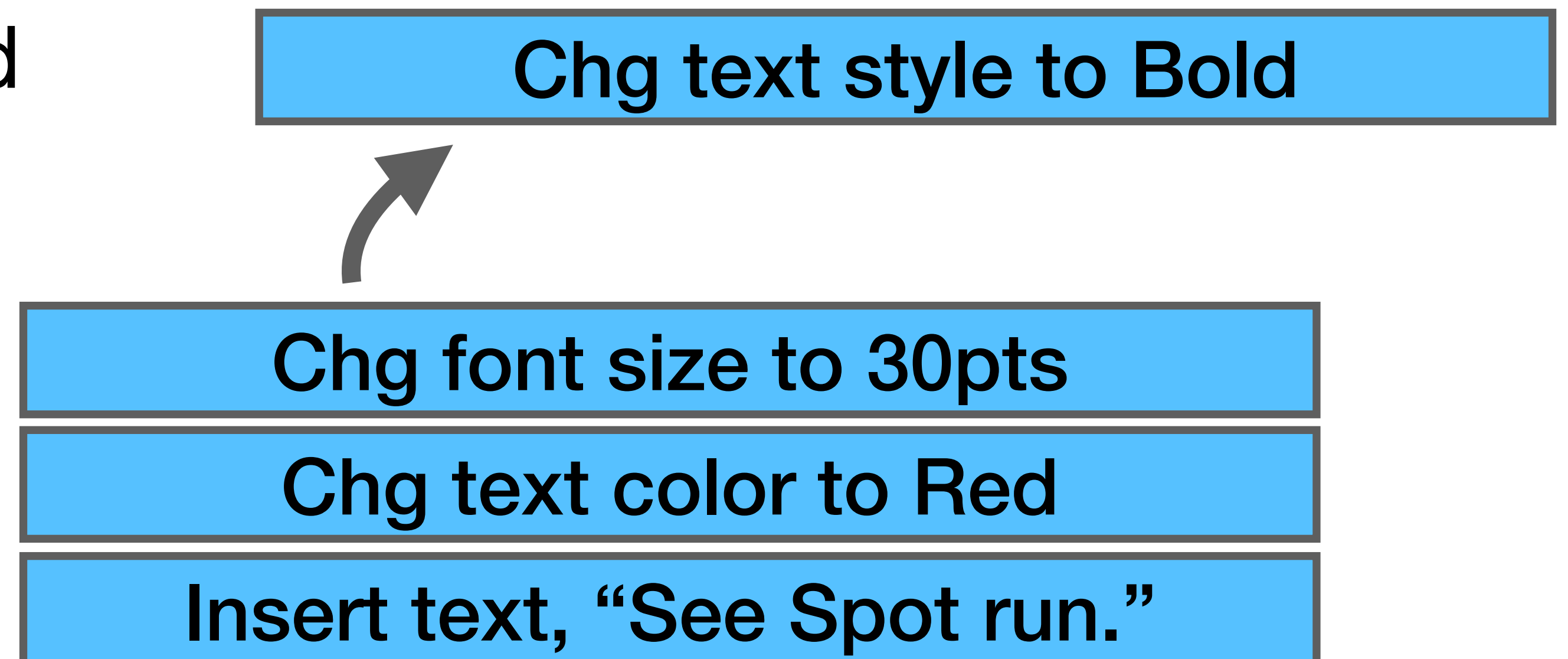**Peek** - get item on top of stack, without removing it.

Clear all items from stack

Item 3

Item 3
Item 2
Item 1

Item 3
Item 2
Item 1

Stacks Use Case

Undo - track which commands have been executed.
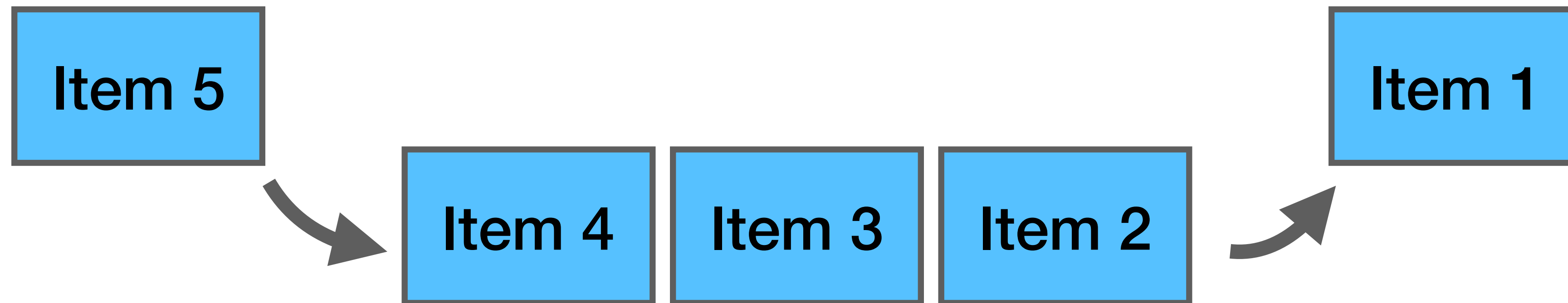Pop last command off command stack to undo it.

Pop last command
to undo bold.

Chg text style to Bold

Chg font size to 30pts
Chg text color to Red
Insert text, "See Spot run."

Queues

Enqueue - add an item to the end of the line.

Dequeue - remove an item from the front of the line.

Item 5		Item 1

Item 4   Item 3   Item 2

FIFO: First-In First-Out

Enqueue on one end, and Dequeue from the other end.

Queues Use Cases

Queues are good for modeling anything you wait in line for.

Bank tellers. Placing an order at McDonalds.

DMV customer service. Supermarket checkout.