

C307 Data Representation

**Unit-2, Part B6
Array as Stack**

By:



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What is a Stack?

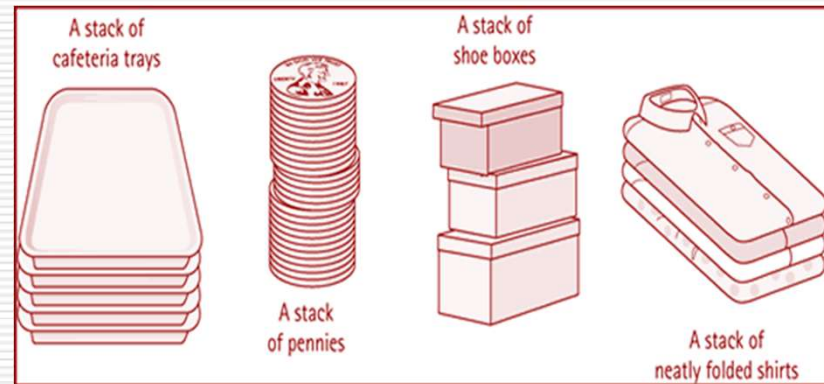
Stack of trays in cafeteria



<https://www.carlislefsp.com/dispensers-and-heaters/tray-dispensers/DXIDT1E1520>

Features of a Stack?

- Stacks have one access point called the **top**.
- All insertions and deletions occur at the top
- The stack can grow and shrink dynamically.
- Stack elements are usually homogeneous.
- "Last-In, First-Out" characteristic (LIFO)



<http://jcsites.juniata.edu/faculty/rhodes/cs2java/stacks.htm>

What is a Stack?

- A data structure in which elements are added and removed from only one end (LIFO). Element are inserted and deleted from the top of the stack.

- Stack Operations:

Push(TYPE value);	//Placed an element on top of the stack.
TYPE Pop(void);	//Remove the top element of the stack.

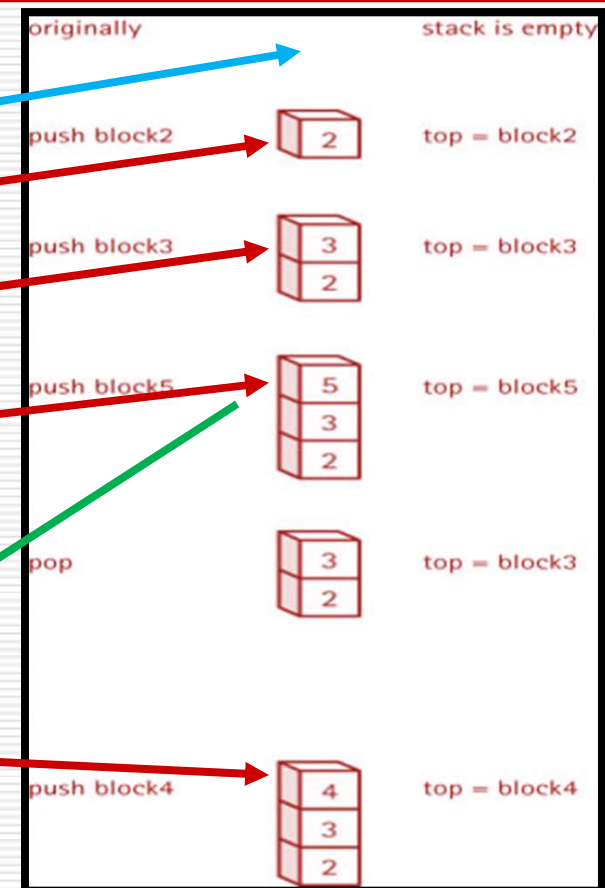
TYPE Peek(void);	// Peek at the top element but don't POP it.
boolean isEmpty(void);	// Returns TRUE if empty

void Print(void);	
void Reset(void);	// Free (pop) all the elements in the stack

Operation on Arrays

- Stack is empty.
- Push(2);
- Push(3);
- Push(5);
- X = Pop(); // returns 5 and put in X
- Push(4);

<http://jcsites.juniata.edu/faculty/rhodes/cs2java/stacks.htm>



Implementation

Stacks can be implemented as an array or a linked list

