Program Studi Teknologi Informasi, Fakultas Teknik
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Algoritma dan Struktur Data

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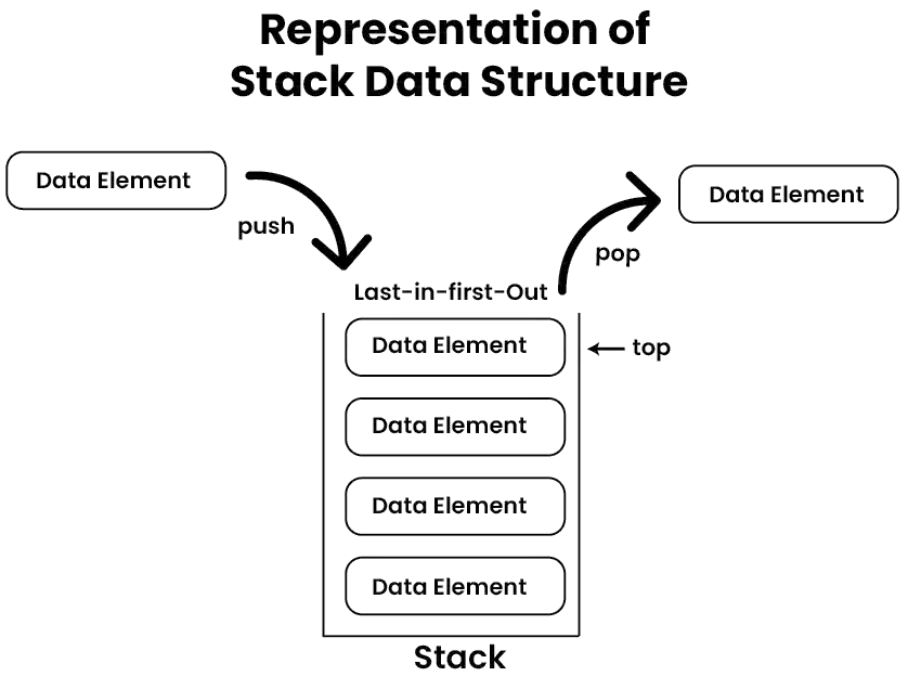
Data Structures and Algorithm
Objective

- Stack

Data Structures and Algorithm
Stack

Data Structures and Algorithm
Stack

- Stack: A stack is a linear data structure where elements are stored in the LIFO (Last In First Out) principle where the last element inserted would be the first element to be deleted



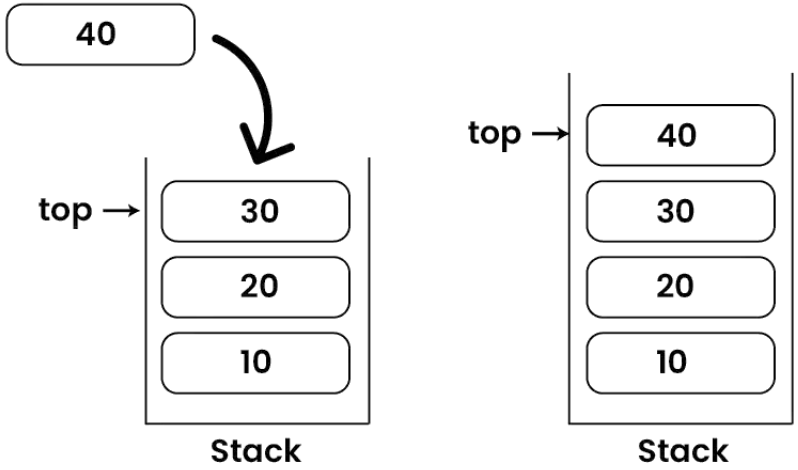
Data Structures and Algorithm
Stack

- Basic Operations on Stack:
  - **push()** to insert an element into the stack
  - **pop()** to remove an element from the stack
  - **top()** Returns the top element of the stack.
  - **isEmpty()** returns true if stack is empty else false.
  - **isFull()** returns true if the stack is full else false.

Data Structures and Algorithm
Stack

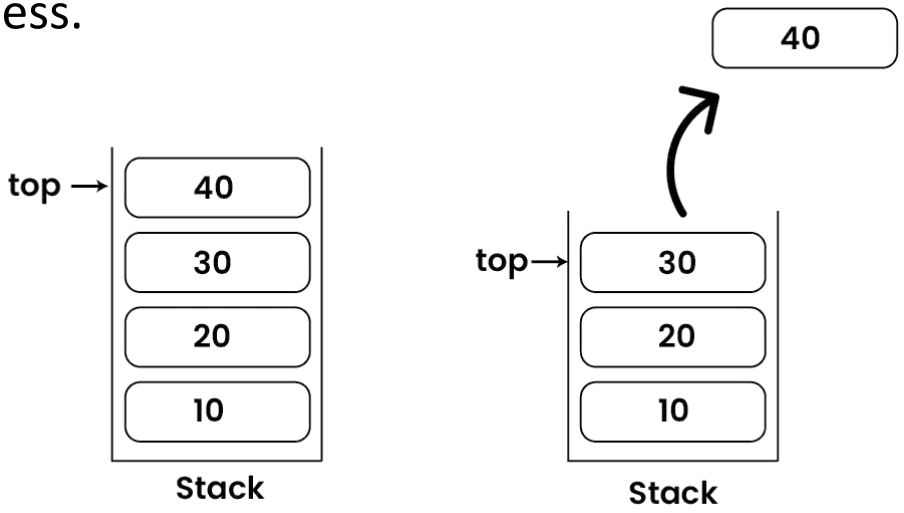
push()

- Checks if the stack is full.
- If the stack is full, produces an error and exit.
- If the stack is not full, increments top to point next empty space.
- Adds data element to the stack location, where top is pointing.
- Returns success.



pop()

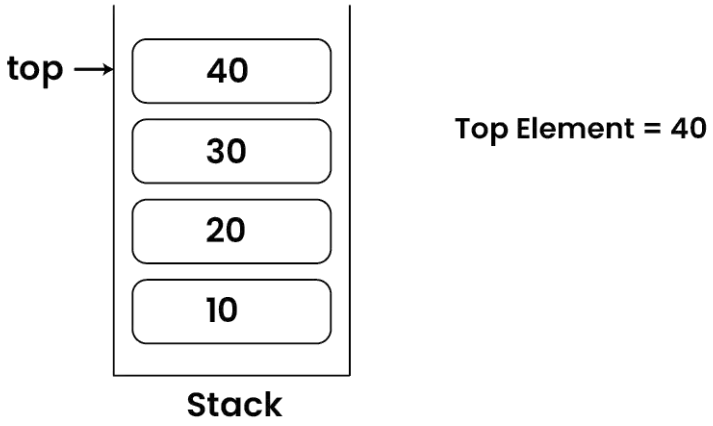
- Checks if the stack is empty.
- If the stack is empty, produces an error and exit.
- If the stack is not empty, accesses the data element at which top is pointing.
- Decreases the value of top by 1.
- Returns success.



Data Structures and Algorithm
Stack

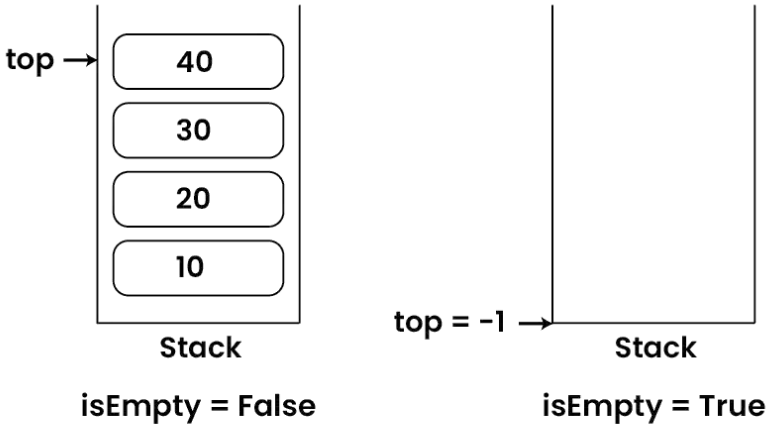
top()

- return the element at the top of the stack



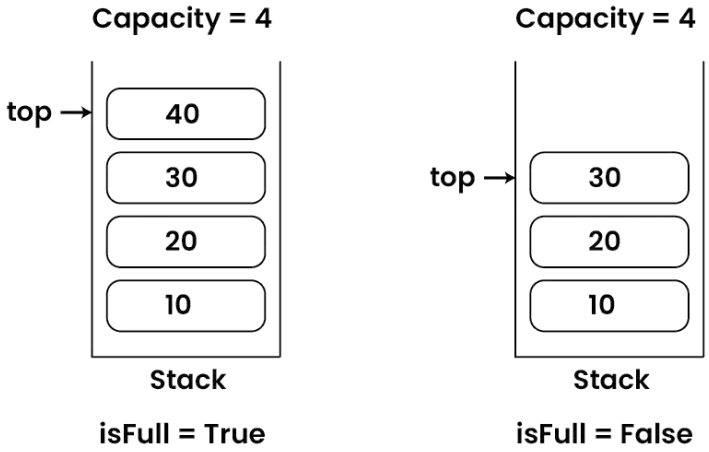
isEmpty()

- If the top value is -1, the stack is empty. Return 1.
- Otherwise, return 0.



isFull()

- If the size of the stack is equal to the top position of the stack, the stack is full. Return 1.
- Otherwise, return 0.



Data Structures and Algorithm
References

- https://www.geeksforgeeks.org/
- https://www.tutorialspoint.com/

Any Question ?