Linked List (I)

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Outline

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Definition

- We have learned array and sequential mapping (e.g., polynomial ADT).
  - Successive nodes of the data objects are stored in a fixed distance.

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  - Successive nodes of the data objects are stored in a fixed distance.
- **Issue:** When a sequential mapping is used for ordered lists:
  - no more available storage
  - waste of storage
  - Excessive data movement is required for deletions and insertions.

Example

Alan	Bill	Carter	David	Elvis	Frank	

- Insert “Charlie” after Carter.

Example

Alan	Bill	Carter	David	Elvis	Frank	

- Insert "Charlie" after Carter.

Alan	Bill	Carter	Charlie	David	Elvis	Frank

Example

Alan	Bill	Carter	David	Elvis	Frank	

- Insert "Charlie" after Carter.

Alan	Bill	Carter	Charlie	David	Elvis	Frank

Three elements are moved.

Example

Alan	Bill	Carter	Charlie	David	Elvis	Frank

- Delete "Carter" after Bill.

Example

Alan	Bill	Carter	Charlie	David	Elvis	Frank

- Delete "Carter" after Bill.

Alan	Bill	Charlie	David	Elvis	Frank	

Example

Alan	Bill	Carter	Charlie	David	Elvis	Frank

- Delete "Carter" after Bill.

Alan	Bill	Charlie	David	Elvis	Frank	

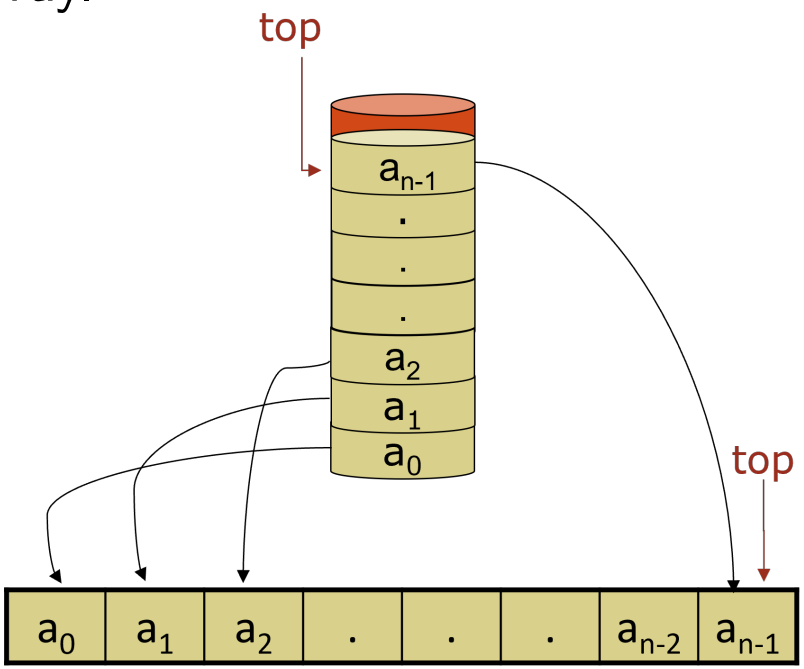
Four elements are moved.

Solution: linked presentation

Outline

Stack Implementation: Array

- The easiest way to implement the stack ADT is using one-dimensional array.



- An example in C++

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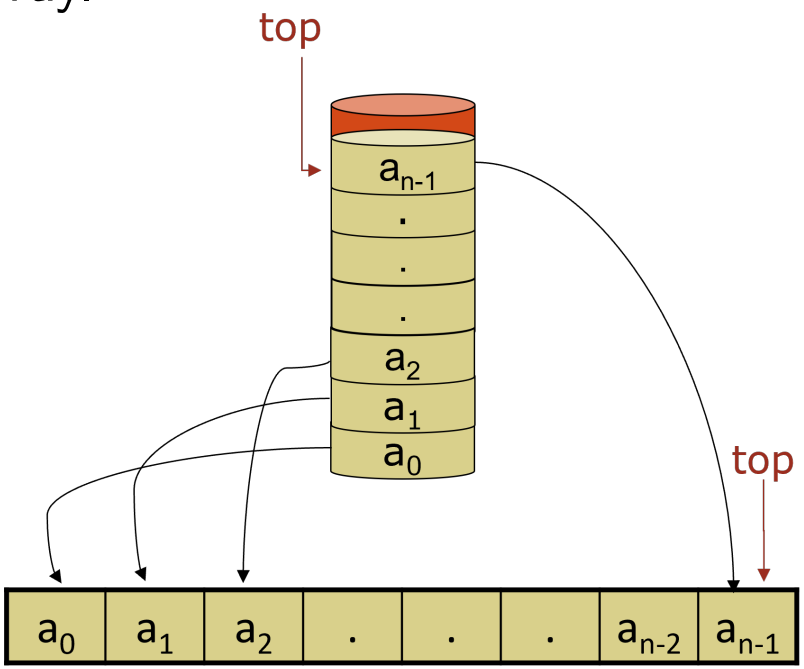

- An example in C++ (another way: using a linked list; will be introduced in the future).

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TBD


Discussions