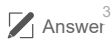


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Data Structures Data Algorithms List Question +1

What are some real-world applications of a stack data structure?



Answer



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12 Answers



Siddharth Mahapatra, Competitive-Programmer | Full-Stack Developer | Open-Source

Answered Sep 11, 2016

1. Definition :-

- A stack is a container of objects that are inserted and removed according to the **last-in first-out (LIFO)** principle. In the push-down stacks only two operations are allowed: **push** the item into the stack, and **pop** the item out of the stack.
 - A stack is a **limited access data structure** - elements can be added and removed from the stack *only at the top*.
 - **push** adds an item to the top of the stack, **pop** removes the item from the top.
- A stack is a **recursive** data structure. Here is a structural definition of a Stack:
 - a stack is either **empty** or
 - it consists of **a top and the rest which is a stack**

2. Application :-

- To **reverse a word**. You push a given word to stack - letter by letter - and then pop letters from the stack.
- An **"undo"** mechanism in text editors; this operation is accomplished by keeping all text changes in a stack.
 - **Undo/Redo** stacks in Excel or Word.
- **Language processing** :
 - *space for parameters and local variables* is created internally using a stack.
 - compiler's *syntax check for matching braces* is implemented by using stack.
- A **stack of plates/books** in a cupboard.
- A **garage that is only one car wide**. To remove the first car in we have to take out all the other cars in after it.

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Edits

- Wearing/Removing **Bangles**.
- **Back/Forward** stacks on *browsers*.
- Support for **recursion**
 - Activation *records of method calls*.

3. For further reading :-

- [Stack Applications](#)

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Saurabh Singh, zzzzz...zz..zz..

Answered Nov 15, 2016

Hash Table - used for fast data lookup - symbol table for compilers, database indexing, caches, Unique data representation.

Trie - dictionary, such as one found on a mobile telephone for autocompletion and spell-checking.

Suffix tree - fast full text searches used in most word processors.

Stack - undo\redo operation in word processors, Expression evaluation and syntax parsing, many virtual machines like JVM are stack oriented.

Queues - Transport and operations research where various entities are stored and held to be processed later ie the queue performs the function of a buffer.

Priority queues - process scheduling in the kernel

Trees - Parsers, Filesystem

Radix tree - IP routing table

BSP tree - 3D computer graphics

Graphs - Connections/relations in social networking sites, Routing ,networks of communication, data organization etc.

Heap - Dynamic memory allocation in lisp

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Mani Kandan, Techie

Answered Mar 24, 2016

One of the best example I've gone through is **Browser back button**



Every web browser has a Back button. As you navigate from web page to web page, those pages are placed on a stack (actually it is the URLs that are going on the stack). The current page that you are viewing is on the top and the first page you looked at is at the base. If you click on the Back button, you begin to move in reverse order through the pages.

Source: [What is a Stack?](#)

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Savio Aberneithie, just completed c language now..learning c++ and keen to learn dynamic c language

Answered Aug 7, 2016

Stacks

1.Stack of plates in a buffet table

2.Stack of Moulded chairs

3.A good real-life example of a stack is the pile of dinner plates that you encounter when you eat at the local cafeteria: When you remove a plate from the pile, you take the plate on the top of the pile. But this is exactly the plate that was added ("inserted") most recently to the pile by the dishwasher. If you want the plate at the bottom of the pile, you must remove all the plates on top of it to reach it.

Stack (LIFO): The tennis balls in their container.. (you cannot remove 2 balls at the same time)

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Abhishek Tiwari, Learner, Thinker, Programmer

Answered May 19, 2015

Here are some applications:

1) A good real-life example of a stack is the pile of dinner plates that you encounter when you eat at the local cafeteria: When you remove a plate from the pile, you take the plate on the top of the pile. But this is exactly the plate that was added ("inserted") most recently to the pile by the dishwasher. If you want the plate at the bottom of the pile, you must remove all the plates on top of it to reach it.

2) A sadder, example of a stack is the slogan, "last hired, first fired," which is typically utilized when a company reduces its work force.

3) Many computer algorithms work best with stacks --- stacks are used for

- a) remembering partially completed tasks, and
 - b) undoing (backtracking from) an action.
- 4) Arithmetic expression evaluation
- 5) The Java compiler translates programs into postfix notation
- 6) The Java Virtual Machine uses a stack

You can find more details in this link- [Page on ksu.edu](#)

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Ketan Mishra, works at LallanTop

Answered Nov 2, 2015

The one thing that comes immediately to my mind is when everyone in my class would submit their notebooks on the teacher's table. Everyone and not me, 'cause I never had my written work done on time. Anyways, First in Last out. The first student to submit the notebook, usually a girl in my class, would have her notebook checked in the very end and the student to submit at the very end would get his notebook checked first.

Also, when you load bullets into the magazine of a gun. The last one to go in is fired first. Bam!

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Shashikant Fayke, Programmer

Answered Sep 13, 2016

Originally Answered: What is the real time example of stack?

Stack : Last in First Out

A most popular example of stack is **Chapati** in marriage party. Fresh Chapati are **pushed** onto to the top and **popped** from the top.



Stack of chairs :



Stack of books:



Stack of dishes:



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