Tutorials (2) 10/05/2023

Stacks and Queues

(1) What is a stack?

A stack is an abstract data type that holds an ordered, linear sequence of items. It follows the Last-In-First-Out principle and allows insertion and deletion operations from one end of the stack data structure, that is top.

(2) Define push, pop, peek, Is empty, size in stacks

* Push - Adds an element to the top of the stack.
* Pop - Remove the topmost element from the stack.
* Peek - To look at the object at the top of the stack without removing it from the stack.
* Is Empty - Checks whether the stack is empty.
* Size - Sets the maximum no: of bytes that the stack is allowed to use while executing a stylesheet or other compiled content.

(3) Give 7 examples of stacks found in real life.

* A pile of books
* A stack of dinner plates
* Box of ~~baista~~ biscuits
* A pile of folded cloths.
* A stack of money
* A deck of cards.
* A stack of coins

(4) How to find out that stack is empty in a program?

A pointer called 'Top' is used to keep track of the top element in the stack. When initialising the stack, we set it's value to (-1) so that we can check if the stack is empty by comparing 'Top == -1'

* The stack is initialized to (-1). Then check is performed to determine if the stack is empty by comparing top to (-1). As element are added to the stack, the position of top is updated. As soon As elements are popped or deleted, the topmost elemen is removed and the position of top is updated.

Tutorials (3) 2023/05/18.

(1) What is a Linear seach, Explain.

A Linear search is checking each element on a list in a sequential manner. It starts with one end to another,