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**Tutorial 02**

1. **What is a Stack?**

* A stack is a fundamental data structure in computer science that follows the Last In First Out (LIFO) principle. It is a collection of elements where the last element added is the first one to be removed. In other words, the most recently added element is always at the top of the stack, while older elements are below it.

1. **Define Push, Pop, Peek, Is empty, and Size in Stacks.**

* Push :- The push operation adds an element to the top of the stack. It increases the stack size by one and places the new element at the top, making it the most recently added element.
* Pop :- The pop operation removes and returns the element at the top of the stack. It decreases the stack size by one and retrieves the element that was added last. The element is effectively removed from the stack.
* Peek :- The peek operation returns the element at the top of the stack without removing it. It allows you to view the value of the most recently added element without modifying the stack itself.
* Is empty :- The is empty operation checks whether the stack is empty or not. If the stack contains no elements, it returns true; otherwise, it returns false.
* Size :- The size operation returns the number of elements currently present in the stack. It provides information about the current size or capacity of the stack.

1. **Give examples of stacks found in real life.**

* A stack of plates :- When you stack plates on top of each other, the last plate added is the first one that can be taken off the stack.
* Browser history :- The back button in a web browser uses a stack to keep track of the visited web pages. When you hit the back button, the most recently viewed page is "popped" from the stack and displayed.
* Call stack :- In programming, a call stack is used to keep track of function calls. As each function call is made, it is added to the top of the call stack. The most recently called function is the first one to be completed and removed from the stack.

1. **How do you find out that a stack is empty in a program?**

stack = []

if len(stack) == 0:

print("Stack is empty")

else:

print("Stack is not empty")