

An exception is a problem that arises during the execution of a program. A C++ exception is a response to an exceptional circumstance that arises while a program is running, such as an attempt to divide by zero.

Exceptions provide a way to transfer control from one part of a program to another. C++ exception handling is built upon three keywords: **try**, **catch**, and **throw**.

- **throw** – A program throws an exception when a problem shows up. This is done using a **throw** keyword.
- **catch** – A program catches an exception with an exception handler at the place in a program where you want to handle the problem. The **catch** keyword indicates the catching of an exception.
- **try** – A **try** block identifies a block of code for which particular exceptions will be activated. It's followed by one or more catch blocks.

Every object in C++ has access to its own address through an important pointer called **this** pointer. The **this** pointer is an implicit parameter to all member functions. Therefore, inside a member function, this may be used to refer to the invoking object.

An array is a structured collection of components. Arrays are all of the same data type, give a single name, and stored in adjacent memory location.

Bubble sort is a sorting technique in which each pair of adjacent elements are compared, if they are in wrong order we swap them. This algorithm is named as bubble sort because, same as like bubbles the smaller or lighter elements comes up (at start) and bigger or heavier elements goes down (at end). Below I have shared a program for bubble sort in C++ which sorts a list of numbers in ascending order.

One of the simplest techniques is a selection sort. As the name suggests, selection sort is the selection of an element and keeping it in sorted order. In selection sort, the strategy is to find the smallest number in the array and exchange it with the value in first position of array. Now, find the second smallest element in the remainder of array and exchange it with a value in the second position, carry on till you have reached the end of array. Now all the elements have been sorted in ascending order.

linear search or **sequential search** is a method for finding a target value within a [list](#). It sequentially checks each element of the list for the target value until a match is found or until all the elements have been searched.

Binary search is an algorithm used to search for an element in a sorted array. In this algorithm the targeted element is compared with middle element. If both elements are equal then position of middle element is returned and hence targeted element is found. If both elements are unequal then if targeted element is less or more than middle element we discard the lower or upper half and the search continues by finding new middle element.