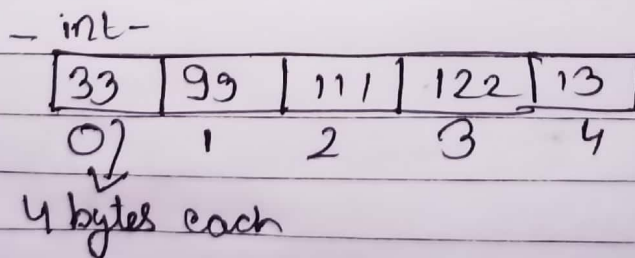


Lecture 13: Array and pointer Arithmetic in C++

Q What are arrays in C++?

- An array is a collection of items of similar type stored in contiguous memory location.
- Sometimes a simple variable is not enough to hold all data.
- e.g. say we want to store 2500 students marks, having 2500 different variable for this task is not feasible.
- To solve this problem we can define an array with size 2500 that can hold marks of all students.

e.g. `int marks[2500];`



∴
`marks[0] = 33`
`marks[1] = 99`
`marks[2] = 111`
`marks[3] = 122`
`marks[4] = 13`

C++ pointers and arrays

Marks \rightarrow

32	99	38	51
----	----	----	----

index \rightarrow 0 1 2 3

for normal variable we take address by writing "&" along with variable
e.g. `int a = 3;`
`int* b = &a;`

* But for arrays name = address of first block
Marks \rightarrow address of first block
&Marks \rightarrow wrong.

In case of arrays

P = pointer = marks
P++ ;

32	99	38	51
----	----	----	----

$\left\{ \begin{array}{l} *(P) = 32 \\ *(P+1) = 99 \\ *(P+2) = 38 \\ *(P+3) = 51 \end{array} \right.$

pointer arithmetic:

address new = address current + i * size of data type

e.g.

$$? = 32 + 1 \times 4$$