Accessing Two-Dimensional Arrays

In this lesson, you will learn how to access the elements stored in a two-dimensional array.

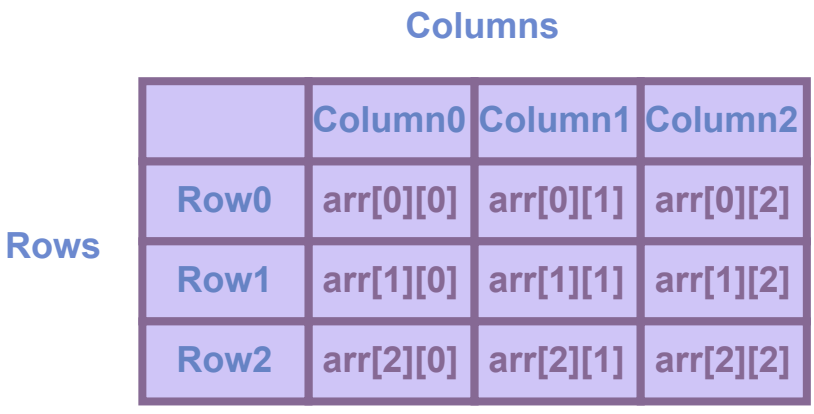
We'll cover the following

Array traversal

To access the elements in a two-dimensional array, we have to specify a row and column index.

```
ArrayName [ RowIndex ] [ ColumnIndex ] ;
```

Like a one-dimensional array, the index of rows and columns starts at **0**. For example, the first element of a two-dimensional array is at index **[0][0]**, the second element is stored at index **[0][1]**, and so on.



Indexing in a 2D array

Print all elements of a 2D array using for loop

Accessing each and every element in an array and then printing its value is a repetitive task. So, let's write a code that prints all the elements of the 2D array using the `for` loop. We will need two nested `for` loop one to iterate through the

rows of the 2D array and the other one to iterate through the columns in each row.

Press the **RUN** button and see the output!

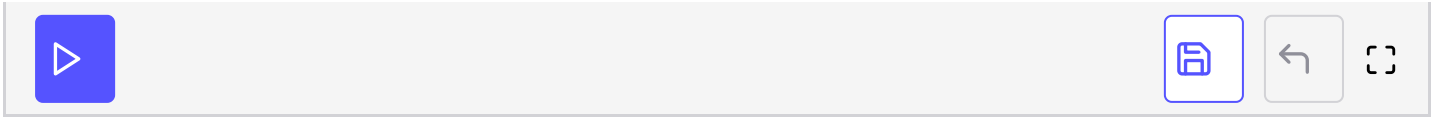
```
#include <iostream>

using namespace std;

int main() {
// Initialize row and column index
  int row = 3 , column = 3;
// Initialize static 2D array
  int Student[row][column] = {{100, 134, 234}, {34, 189, 221}, {109, 139, 56}};

  //Print static 2D Array
  for (int i = 0; i < row; i++) {
    for (int j = 0; j < column; j++) {
    // Access element at row index i and column index j
       cout << Student[i][j] << " ";
  }
  cout << endl;
  }

}
```



Line No. 9: We initialize the values of an array `Student` that can store **3*3 = 9** elements

Line No. 12: The outer `for` loop iterates through the rows of a 2D array from **0** to **row-1**.

Line No. 13: The inner `for` loop iterates through the columns of a 2D array from **0** to **column-1**.

Line No. 15: In the loop body, we are printing the array `Student` element at row index `i` and column index `j`.

What is the output of the following code?

```
{
 int row = 2 , column = 2;
 int Student[row][column] = {{100, 134}, {34, 189}};
 Student [1][1] = 67;
```

```
for (int i = 0; i < row; i++) {
  for (int j = 0; j < column; j++) {

      cout << Student[i][j] << " ";
}
cout << endl;
}
```

Retake Quiz

That wraps up our discussion of two-dimensional arrays. Let’s get our hands dirty on a few coding exercises in the upcoming lesson.