ARRAY

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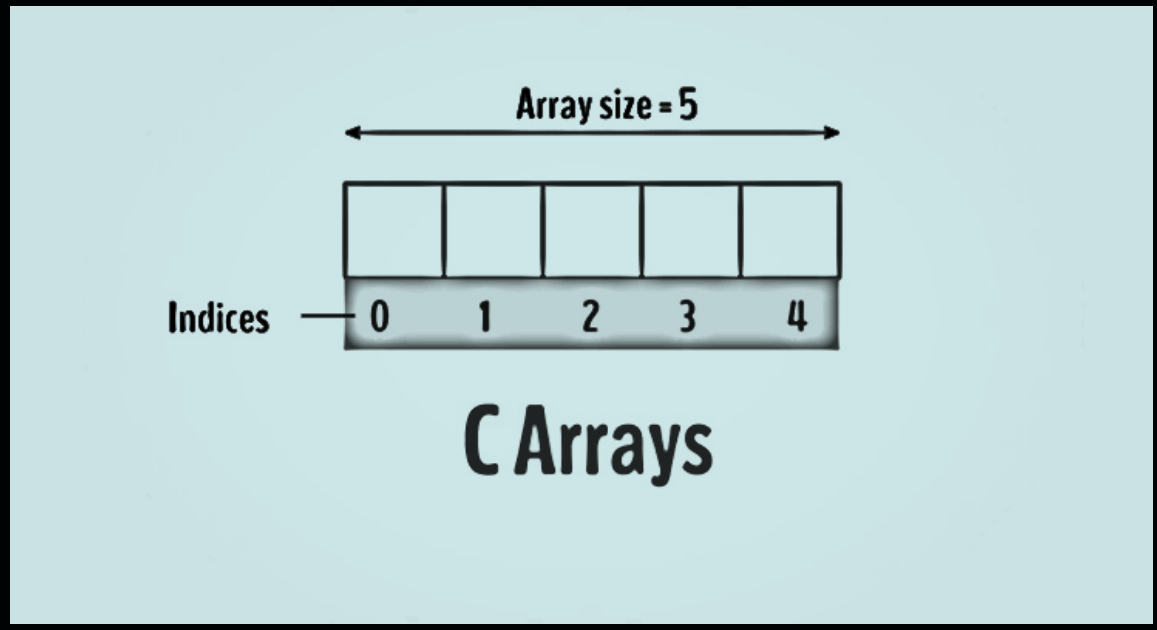
Intro



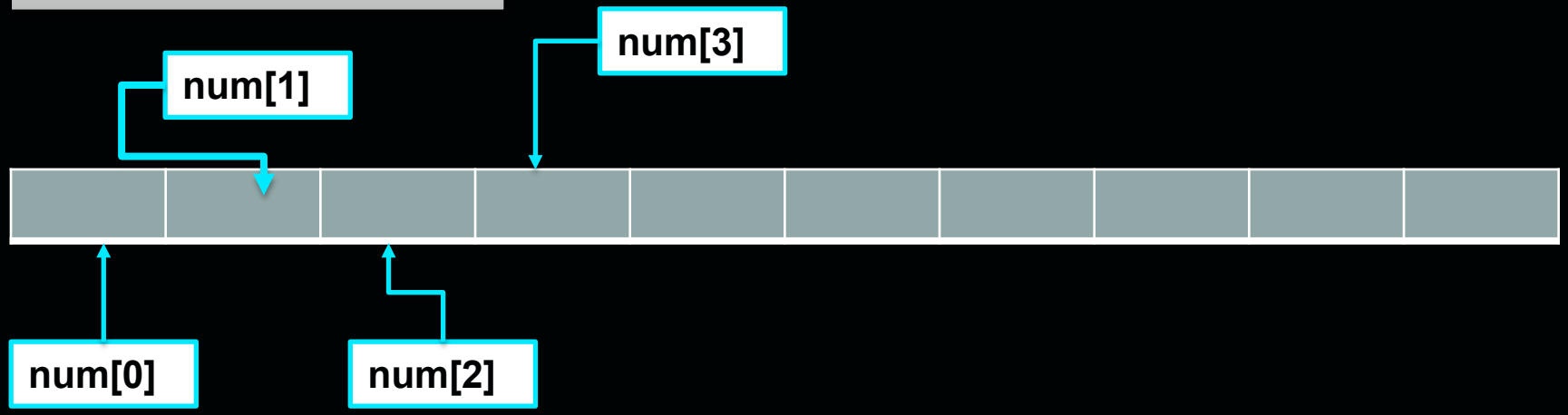
- Variable
- DS
- Fixed Size
- Sequential
- Collection of elements of same type.
    - Collection of Variables
    - Num1, Num2, Num3… → num[0], num[1], num[2],…

Syntax

```
data_type variable_name[size];
```

```
int num[10];
```

```
int num[10];
```




```
int num[5] = {11,12,13,14,15}
```

11	12	13	14	15

How to Change the value of an array?

```
int mark[5] = {19, 10, 8, 17, 9}

// make the value of the third element to -1
mark[2] = -1;

// make the value of the fifth element to 0
mark[4] = 0;
```

Input and Output

```
// take input and store it in the 3rd element
scanf("%d", &mark[2]);

// take input and store it in the ith element
scanf("%d", &mark[i-1]);
```

```
// print the first element of the array printf("%d", mark[0]);
```

Ex-1:

Program to take 5 values from users and store them in an array

```
int i, num[5];
printf("Enter 5 numbers\n");

for( i=0; i <5 ; i++){
scanf("%d", &num[i]);
}

for( i=0; i <5 ; i++){
printf("%d\n", num[i]);
}
```

```
Enter 5 integers: 1
-3
34
0
3
Displaying integers: 1
-3
34
0
3
```

```c
// Program to find the average of n numbers using arrays
#include <stdio.h>
int main() {
int marks[10], i, n, sum = 0;
double average;
printf("Enter number of elements: ");
scanf("%d", &n);
for(i=0; i < n; ++i) {
            printf("Enter number%d: ",i+1);
            scanf("%d", &marks[i]);
            // adding integers entered by the user to the sum variable
             sum += marks[i];
}
// explicitly convert sum to double
// then calculate average
average = (double) sum / n;
printf("Average = %.2lf", average);
return 0; }
```

```
Enter number of elements: 5
Enter number1: 45
Enter number2: 35
Enter number3: 38
Enter number4: 31
Enter number5: 49
Average = 39.60
```

https://www.w3resource.com/c-programming-exercises/array/index.php

Practice

1. Write a program in C to read n number of values in an array and display them in reverse order.
2. Write a program in C to find the sum of all elements of the array.
3. Write a program in C to copy the elements of one array into another array.
4. Write a program in C to count the total number of duplicate elements in an array.
5. Write a c program to sort an array
6. Write a program in C to find the maximum and minimum elements in an array.