CODING: LEC-3

Functions

A function is a block of statements that take inputs, do some specific computation and produces output.

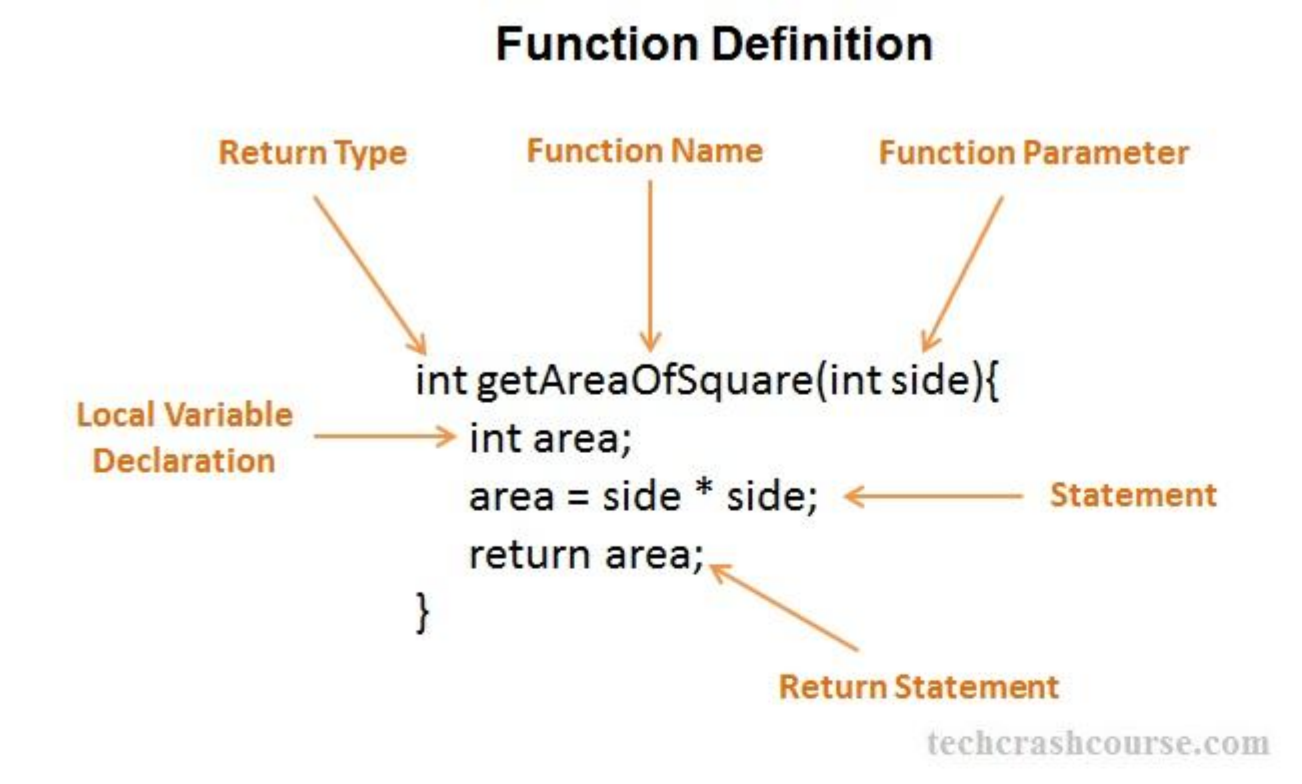
Eg: The most familiar function to y’all is the ‘main’ function.

Usage

There are two things you'll need to do to use functions in your code:

1) Declare and define the function
2) Call the function

Defining a function



Function Definition

Return Type

Function Name

Function Parameter

```
int getAreaOfSquare(int side){
    int area;
    area = side * side;
    return area;
}
```

Local Variable Declaration

Statement

Return Statement

Parts in definiton of a function:

1)Return type

2)Function name

3)Input parameters

4)Body of the function

5)Return statement

Calling a function

Now as we defined the function as we want it is time to use it!

We call a defined function in C the same way we do in mathematics; feed it with an input.

Syntax:

(With ref. to previously defined function)

```
area=getAreaOfSqaure(5);
```

So the function will return the value as defined in its body and store it in the ‘area’ variable.

Example:

Write a program which will print the sum, difference, product and ratio of two numbers using functions.

```
#include<stdio.h>
int main()
{       int x,y,sums,diff,prod;
        printf(“Enter the two integers”);
        scanf(“ %d  %d”, &a,&b);
        int sum(int a,int b)                              //function definition
        {
                return a+b;
        }
        int difference(int a,int b)
        {
                return a-b;
        }
        int product(int a,int b)
        {
                return a*b;
        }
        sums=sum(x,y);                                     //calling a function
        diff=difference(x,y);
        prod=product(x,y);
        printf(“The sum, difference  and products are %d %d and %d respectively”, sums,prod,diff);
}
```

Arrays

An array is collection of items stored at continuous memory locations.

An array can store multiple values unlike a variable

An array can only store data of the same type.

Eg: We cannot store integers and floats in the same array

An array is associated with the following :

1) Size of the array

2) Data type of the data to be stored in the array.

eg. int, char, float, etc.

Syntax:

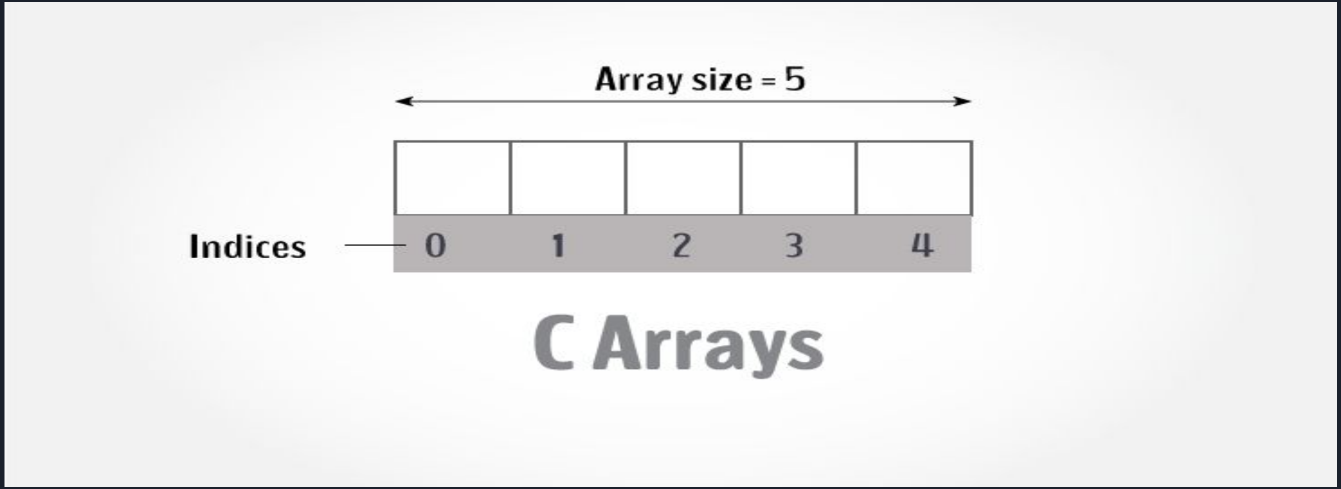
1)Defining an array.

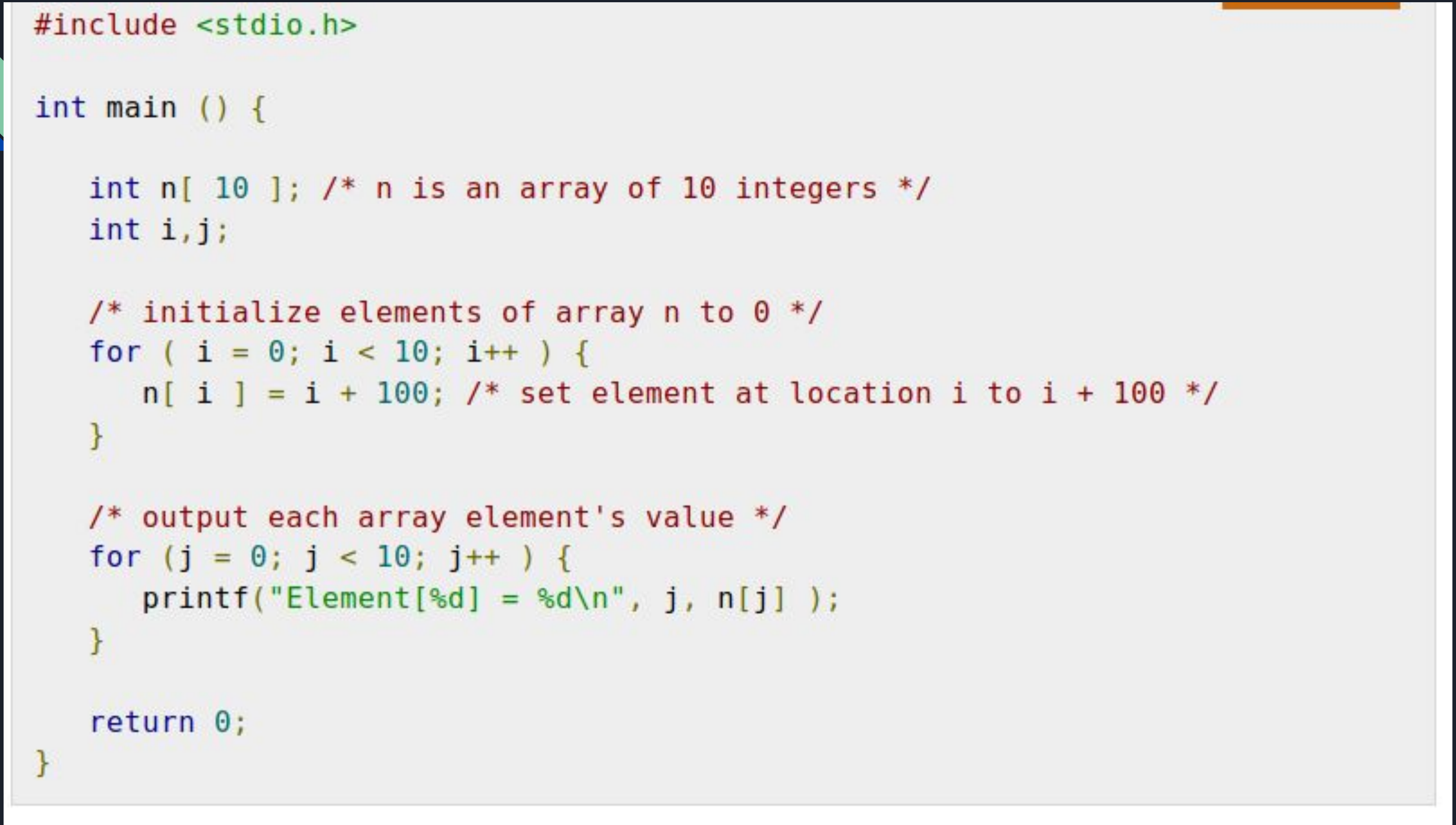
type array_name[size]={int1, int2,…….int10}

2) Using the elements of the array.

Every element of the array is associated an **index** by which it is addressed.

The indexing in arrays starts from 0 and not 1





```c
#include <stdio.h>

int main () {

   int n[ 10 ]; /* n is an array of 10 integers */
   int i,j;

   /* initialize elements of array n to 0 */
   for ( i = 0; i < 10; i++ ) {
      n[ i ] = i + 100; /* set element at location i to i + 100 */
   }

   /* output each array element's value */
   for (j = 0; j < 10; j++ ) {
      printf("Element[%d] = %d\n", j, n[j] );
   }

   return 0;
}
```