

## Structure in C++ -

C++ Structure is a collection of different data types. It is similar to the class that holds different types of data.

**Syntax -**

```
struct structure_name
{
    // member declarations.
}
```

**Example -**

```
struct Student
{
    char name[20];
    int id;
    int age;
}
```

- **How to create the instance of Structure?** - Structure variable can be defined as - **Student s;**
- **How to access the variable of Structure?** - The variable of the structure can be accessed by simply using the instance of the structure followed by the dot (.) operator and then the field of the structure. For example - **s.id = 4;**

```
#include<iostream.h>
#include<conio.h>

struct Rectangle
{
    int width, height;

};

void main()
{
    struct Rectangle rec;

    rec.width=8;
    rec.height=5;

    cout<<"Area of Rectangle is: "<<(rec.width * rec.height);
}
```

```
#include<iostream.h>
#include<conio.h>
```

```
struct Rectangle
{
    int width, height;
    Rectangle(int w, int h)
    {
        width = w;
        height = h;
    }
    void areaOfRectangle()
    {
        cout<<"Area of Rectangle is: "<<(width*height);
    }
};
```

```
void main()
{
    struct Rectangle rec=Rectangle(4,6);
    rec.areaOfRectangle();
}
```

## **Instance Variables –**

Instance variables are non-static variables and are declared in a class outside any method, constructor or block. As instance variables are declared in a class, these variables are created when an object of the class is created and destroyed when the object is destroyed.

- ❑ Unlike local variables, we may use access specifiers for instance variables. If we do not specify any access specifier then the default access specifier will be used.
- ❑ Initialization of Instance Variable is not Mandatory.
- ❑ Instance Variable can be accessed only by creating objects.

```
#include<iostream.h>
#include<conio.h>

class Marks
{
public:
    static int studentNumber;
    int engMarks;
    int mathsMarks;
    int phyMarks;
public:
    Marks()
    {
        ++studentNumber;
    };
};
```

```
int Marks::studentNumber = 0;
```

```
void main()
{
    Marks obj1;
    obj1.engMarks = 50;
    obj1.mathsMarks = 80;
    obj1.phyMarks = 90;

    cout << Marks::studentNumber << endl;
    cout << obj1.engMarks << endl;
    cout << obj1.mathsMarks << endl;
    cout << obj1.phyMarks << endl;
}
```