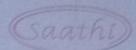# C++ Classes & Object

In previous tutorial, we learned about function & variables. Sometime it's describle to put related functions & data in one place so that it's logical & easier to work with.

Suppose, we need to store the length, bredth & height of a rectangular room & calculate it's area and volume.

To handle this task, we can create three variable say length, bredth & height along with the functions with the functions CalculateArea & CalculateVolume().

However, in c++, rather than creating seprate variables & functions, we can also wrap these related data & functions, in a single place (by creating object). This programming paradigm is known as a object oriented programming.

C++ Class:

A class is a blueprint for the object.

We can think of a class as a sktch (prototype) of a house. It contains all these details about floor doors, window etc. House is an object.

Create an Class:

A class is define in C++ using keyword Class followed by the name of the class.

The body of the class is define inside the curly brackets & terminates by a simicolon at the end.

Ex.
```
Class ClassName {
    // some data
    // some functions
};
```

-: for Example :-

```
Class Room {
public:
    double length;
    double bredth;
    double height;

    double calculateArea() {
        return length * bredth;
    }
    double calculateVolumn() {
        return length * bredth * height;
    }
};
```

Syntex to Define object in C++

```
ClassName objectVariableName;
```

We can create object of Room class.

```
// sample function
void samplefunction() {
    // create objects
    Room room1, room2;
}
int main() {
    Room room3, room4;
}
```

Here, two object Roo1, & room2 of Room class are created in other classes.

Also, we can create as many objects as we want from a single class.

C++ Access Data Member & Member functions

We can access the data member & member function of a class by using . (dot) operator.

```
room2.calculateArea();
```

This will call the CalculateArea() function inside the Room class for object Room2.

Similarly, the data member can be accessed as:

$$Room1.length = 5.5;$$

Most IMP

Quick Quiz :—

Write a cpp program to demonstrate access of data members.

Quick Quiz :—

Write a cpp program to create instance of the class, initializes the object & print the object value.