

Object

Object

- An object is an instance of a Class.
- It is an identifiable entity with some characteristics and behavior.
- To access the members defined inside the class, we need to create the object of that class.
- Objects are the basic units of object-oriented programming.
- It may be any real-world object like a person, chair, table, pen, animal, car, etc.
- Code in object-oriented programming is organized around objects.
- Once you have your objects, they can interact with each other to make something happen.

Syntax to create an object in C++:

```
class_name objectName;
```

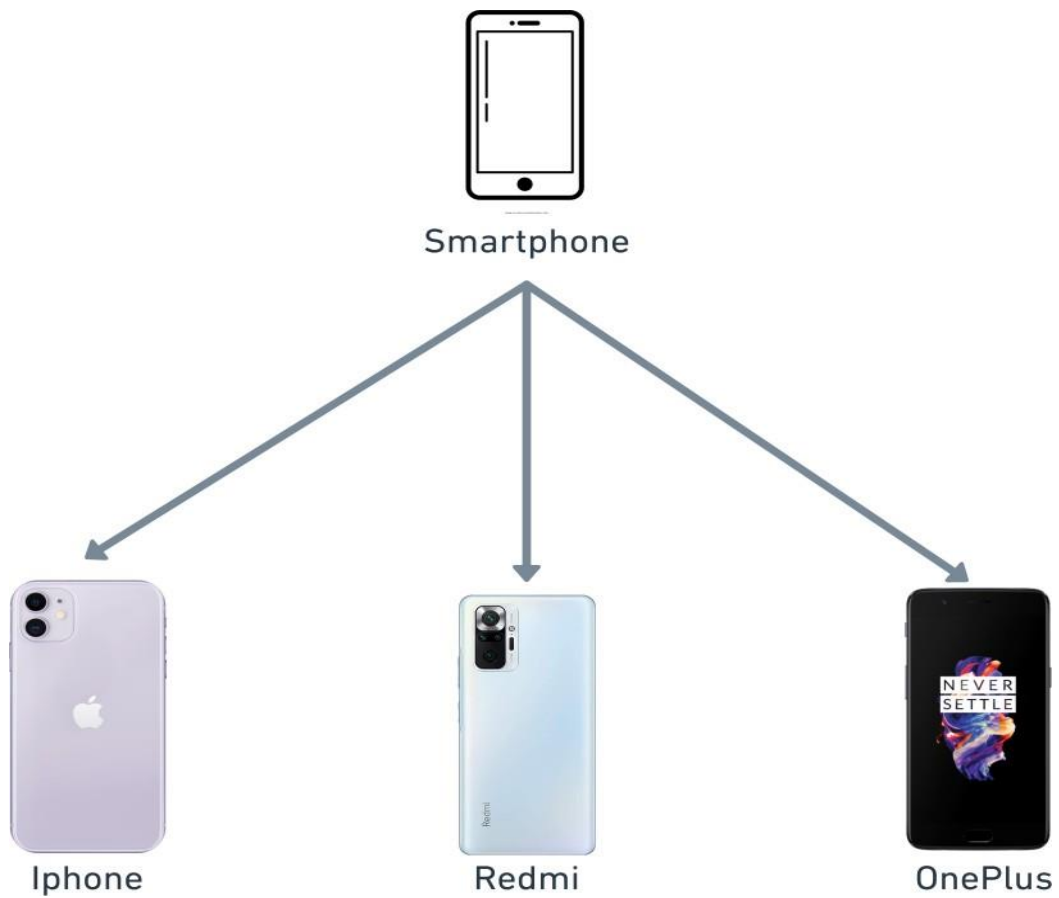
Syntax to create an object dynamically in C++:

```
class_name * objectName = new class_name();
```

Here,

- ❖ objectName: It is the name of the object created by class_name.
- The class's default constructor is called, and it dynamically allocates memory for one object of the class.
- The address of the memory allocated is assigned to the pointer, i.e., objectName.

Explaining object using Smartphone example with code:-



```
#include <iostream>
using namespace std;

//creating class
class smartphone{
    //class body

    //Data Members(Properties)
    string model;
    int year_of_manufacture;
```

```

    bool _5g_supported;

    //Constructor
    smartphone(string model_string, int manufacture, bool _5g_){
        //initialzing data members
        model = model_string;
        year_of_manufacture = manufacture;
        _5g_supported = _5g_;
    }

    //methods
    void print_details(){
        cout << "Model : " << model << endl;
        cout << "Year of Manufacture : " << year_of_manufacture << endl;
        cout << "5g Supported : " << _5g_supported << endl;
    }
};

int main(){
    //creating objects of smartphone class
    smartphone iphone("iphone 11", 2019, false );
    smartphone redmi("redmi note 11 t", 2021, true );
    smartphone oneplus("oneplus nord", 2020, true );

    //accessing class variables
    int iphone_manufacture_date = iphone.year_of_manufacture;
    bool redmi_support_5g = redmi._5g_supported;
    string oneplus_model = oneplus.model;

    //calling methods on objects
    iphone.print_details();
    redmi.print_details();
    oneplus.print_details();
}

```

- ★ To create an object of a smartphone, specify the class name, followed by the object name.
- ★ To access the class attributes or data members (like model), use the dot syntax (.) on the object followed by the attribute name.
- ★ To call any method (print_details()) of class, use the dot syntax (.) on the object followed by the method name.

You need to have a class before you can create an object. When a class is defined, no memory is allocated, but memory is allocated when it is instantiated (i.e., an object is created).

Graphical Representation of smartphone class and its object:-

