

The lifecycle of an object in object-oriented programming (OOP) involves the creation and destruction of objects.

These areas are uniquely addressed by constructors and destructors, which are special member functions in languages like C++ and others.

## Construction of Objects:

### 1. Constructor:

- Any time a new object of the class is created, a constructor is automatically called.
- It initializes the state of the object, allocates resources and carries out some setup tasks that may be necessary.
- Constructors do not have any return type, but they bear the name of their class.


C++

```
class MyClass {  
public:  
    // Constructor  
    MyClass() {  
        // Initialization code goes here  
        cout << "Constructor called!";  
    }  
};
```

### 2. Default constructor:

- If you don't write a constructor for your class, the compiler will make one for you.
- Such automatic constructor creates an object with default values or uninitialized

members according to their types.

C++ 

```
class MyClass {  
    // No explicit constructor, so a default constructor is provided  
    by the compiler  
};
```

### 3. Parameterized Constructor:

- Constructors can take parameters, allowing you to initialize the object with specific values.

C++ 

```
class Point {  
public:  
    // Parameterized constructor  
    Point(int x, int y) : xCoord(x), yCoord(y) {  
        cout << "Parameterized constructor called!";  
    }  
  
private:  
    int xCoord;  
    int yCoord;  
};
```

## Destruction of Objects:

### 1. Destructor:

A destructor is a special member function called when an object goes out of scope or is explicitly deleted, and it is used to release resources, perform cleanup and deallocate memory.

```
C++   
  
class MyClass {  
public:  
    // Constructor  
    MyClass() {  
        cout << "Constructor called!";  
    }  
  
    // Destructor  
    ~MyClass() {  
        // Cleanup code goes here  
        cout << "Destructor called!";  
    }  
};
```

### 2. Automatic Destruction:

At the end of a function, for example when an object goes out of its scope, its destructor is called automatically.

C++ 

```
void someFunction() {  
    MyClass obj; // Constructor called  
  
    // obj goes out of scope here, and its destructor is automatically  
    called  
    // Destructor called  
}
```

### 3. Manual Destruction:

The 'delete' keyword can be used to manually delete a dynamic object.

C++ 

```
void anotherFunction() {  
    MyClass* objPtr = new MyClass(); // Constructor called  
  
    delete objPtr; // Destructor called  
}
```

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