

.NET > C#.NET > OOP

Inheritance

- by Harsha Vardhan

What is Inheritance

- Concept of extending the parent class, by creating child class.
- "Child class" extends "parent class".
- The child class can access members of parent class [but not reverse].
- The child class's object stores members of both child class and parent class.
- Parent class = Base Class = Super Class
- Child class = Derived class = Sub class

Creating Parent Class

```
class ParentClassName
{
    Parent Class Members here
}
```

Creating Child Class

```
class ChildClassName : ParentClassName
{
    Child Class Members here
}
```

Object of Child Class

Parent Class's
Members

Child Class's
Members

Types of Inheritance

1. Single Inheritance

One Parent Class, One Child Class.

I. Single Inheritance

```
class ParentClassName
{
}

class ChildClassName: ParentClassName
{
}
```

2. Multi-Level Inheritance

One Parent Class, One Child Class, and the Child Class has another Child Class.

2. Multi-Level Inheritance

```
class ParentClassName
{
}

class ChildClass1: ParentClassName
{
}

class ChildClass2: ChildClass1
{
}
```

3. Hierarchical Inheritance

One Parent Class, Multiple Child Classes.

3. Hierarchical Inheritance

```
class ParentClassName
{
}

class ChildClass1 : ParentClassName
{
}

class ChildClass2 : ParentClassName
{
}
```

4. Multiple Inheritance

Multiple Parent Classes, One Child Class.

4. Multiple Inheritance

```
class ParentClass1
{
}

class ParentClass2
{
}

class ChildClass : ParentClass1, ParentClass2
{
}
```

5. Hybrid Inheritance

Hierarchical Inheritance + Multi Level Inheritance

5. Hybrid Inheritance

```
class ParentClassName
{
}

class ChildClass1 : ParentClassName
{
}

class ChildClass2 : ChildClass1
{
}

class ChildClass3 : ChildClass1
{
}
```