Inheritance

Explanation/Application:

Inheritance is the programming concept of one or more child classes receiving fields, methods, etc from a common parent. It is like people inherit genes from their parents. In programming we can do something similar. Parents classes can have children and anything that parent class has the child class now have. Example let create a parent class Vehicle just a generic Vehicle class and there will be one field speed and one method go(). We can inherit the speed field and the method from the parent class. This vehicle class is going to have children a car class, a bicycle class, and a boat class.

Car is going to be the child class and Vehicle the parent class. Car will have access to parent field speed and method go() and we can add anything for example number of wheels. Bicycle and Boat classes will inherit from the parent class as well. We can then instantiate the car, bicycle and boat object. Since Car is child class and Vehicle is the parent class Car has access to the method go() and field speed of the parent class Vehicle. In inheritance we can reuse code. We can copy and paste the methods in various classes but imagine you have 100 of different classes and you need to change go() method to start() method. It is a lot easier to make the change in one place rather than manually go through all the classes.

Benefit of Inheritance:

- Inheritance helps in code reuse. ...
- Inheritance can save time and effort as the main code need not be written again.
- Inheritance provides a clear model structure which is easy to understand.
- An inheritance leads to less development and maintenance costs.

Use of Code example in inheritance:

```
Using System;

Namesspace MyFirstProgram

{

class Program

}

Static void Main(string[] args)

{
```

```
Car car = new Car();

Bicycle bicycle = new Bicycle();

Boat boat = new Boat();

Console. WriteLine(car.speed);

Console. WriteLine(car.wheels);

car.go();


Console. WriteLine(bicycle.speed);

Console. WriteLine(bicycle.wheels);

bicycle.go();


Console. WriteLine(boat.speed);

Console. WriteLine(boat.wheels);

boat.go();


}

{

class Vehicle

}

public inst speed = 0;

Public void go();

 {

Console.WriteLine(“This vehicle is moving);
```

```
}
}
class Car : Vehicle
{
public int wheels =4
}
class Bicycle : Vehicle
{
public int wheels = 2;
}
class Boat : Vehicle
{
public int wheels = 0;
}
```