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**Explain Inheritance**

# Meaning of Inheritance

Inheritance means that one class can obtain the attributes and methods of another class directly without typing them. It is the same idea that people inherit certain characteristics from their parents.

## Benefit of Inheritance

A significant advantage of inheritance lies in its facilitation of code reusability. It facilitates the creation of new classes, known as derived classes, which inherit the attributes and methods of pre-existing classes, referred to as base classes, thereby minimizing the necessity for repetitious code implementation. This results in code that is both more efficient and easier to maintain.

## Application of Inheritance

Inheritance helps in creating a new class (child class) from an existing class (parent class) while maintaining the existing class's behavior and extending or overriding it to add new functionalities. This allows the child class to inherit properties and behavior from a single-parent class. It enables code reusability as well as you can add new features to the existing code. This makes the code less repetitive.

## Code Example of Inheritance

Example 1:

*// a regular class called Person*

*public class Person*

*{*

*public string GetName()*

*{*

*return "Joseph";*

*}*

*}*

*// a class that inherits from Person*

*public class Student : Person*

*{*

*public string GetNumber()*

*{*

*return "0123456789";*

*}*

*}*

Example 2:

*public class Assignment*

*{*

*private string \_studentName;*

*private string \_topic;*

*public Assignment(string studentName, string topic)*

*{*

*\_studentName = studentName;*

*\_topic = topic;*

*}*

*public string GetStudentName()*

*{*

*return \_studentName;*

*}*

*public string GetTopic()*

*{*

*return \_topic;*

*}*

*public string GetSummary()*

*{*

*return \_studentName + " - " + \_topic;*

*}*

*}*

*public class WritingAssignment : Assignment*

*{*

*private string \_title;*

*public WritingAssignment(string studentName, string topic, string title)*

*: base(studentName, topic)*

*{*

*\_title = title;*

*}*

*public string GetWritingInformation()*

*{*

*string studentName = GetStudentName();*

*return $"{\_title} by {studentName}";*

*}*

*}*