

## Inheritance.

**Meaning:** Inheritance is a programming concept which as the name suggests, involves the relationship between a parent class (also known as the base class) and a child class(also known as the derived class).

One amazing **benefit** of Inheritance is that the child class is able to inherit/ use the attributes and the methods of the parent class hence helping to eliminate redundancy.

**Application:** Inheritance is used when writing programs where there are different variations of an object each of which have their own unique behaviours but share a certain set of attributes and behaviours. An example is from the assignment practice activity where the math and writing assignments each had some varying behaviours and attributes but also some common attributes and behaviours hence making a parent assignment class viable.

### Code Example

#### Assignment base class

```
public class Assignment
{
    protected string _name;
    protected string _topic;

    public Assignment(string name, string topic)
    {
        _name = name;
        _topic = topic;
    }

    public string GetSummary()
    {
        return $"{_name} - {_topic}";
    }
}
```

#### MathAssignment child class

```
public class MathAssignment : Assignment
{
    private string _txtBookSection = "";
    private string _problems = "";
}
```

```
public MathAssignment(string name, string topic, string txtBookSection,  
string problems) : base(name, topic)  
  
    {  
        _txtBookSection = txtBookSection;  
        _problems = problems;  
    }  
  
    public string GetMathInformation()  
    {  
        return $"{_txtBookSection} - {_problems}";  
    }  
}
```

The base class can have several child classes but it is best advised that it does not exceed 4.