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Homework

Task 1:

1. Multiple Inheritance is the process whereby a sub-class can be derived from more than one super class.

- **The advantage of multiple inheritance**

- Inheritance promotes reusability. When a class inherits or derives another class, it can access all the functionality of inherited class.
- Reusability enhanced reliability. The base class code will be already tested and debugged.
- As the existing code is reused, it leads to less development and maintenance costs.
- Inheritance makes the sub classes follow a standard interface.
- Inheritance helps to reduce code redundancy and supports code extensibility.
- Inheritance facilitates creation of class libraries.
- that it allows a class to inherit the functionality of more than one base class thus allowing for modeling of complex relationships.

- **The disadvantage of multiple inheritance**

- Inherited functions work slower than normal function as there is indirection.
- Improper use of inheritance may lead to wrong solutions.
- Often, data members in the base class are left unused which may lead to memory wastage.
- Inheritance increases the coupling between base class and derived class. A change in base class will affect all the child classes
- it can lead to a lot of confusion when two base classes implement a method with the same name.

Example1:

```
<?php
//The base class
class Car {
    // Private property inside the class
    private string $Color;

    //Public setter method
    public function setColor($Color) {
        $this->Color = $Color;
```

```
}  
public function Brand() {  
    return " Car's color is ". $this -> Color;  
}  
}
```

```
//The child class get the code from the base class  
class Lamborghini extends Car { }  
//Create an object from the child class  
$Brand1 = new Car();  
$Brand1 -> setColor('Red');  
echo $Brand1 -> Brand();  
?>
```

Output = Car's color is Red