Object Oriented Programming
Inheritance

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1 Questions

1. The superclass from the case study above is `Karyawan` and the subclasses are `Manager` and `Staff`
2. We use the keyword `extend` to inherit a class.
3. The attributes of the `Manager` class are:
   - name: String (inherited)
   - alamat: String (inherited)
   - age: int (inherited)
   - gender: String (inherited)
   - salary: int (inherited)
   - allowance: int
4. The identifier `super` is used to refer to the parent class. So, `super.salary` is used to access the `salary` attribute from the parent class which is the `Karyawan` class.
5. It's a hierarchal inheritance because it only inherit from a single class.

2 Task

- **Computer.java**

```java
public class Computer {
    public String brand;
    public int processorSpeed;
    public int ramSize;
    public String processorType;

    public Computer(String brand, int processorSpeed, int ramSize, String processorType) {
        this.brand = brand;
        this.processorSpeed = processorSpeed;
        this.ramSize = ramSize;
        this.processorType = processorType;
    }

    public void showData() {
        System.out.println("Brand: " + brand);
        System.out.println("Processor Speed: " + processorSpeed);
        System.out.println("RAM Size: " + ramSize);
        System.out.println("Processor Type: " + processorType);
    }
}
```

- **Laptop.java**

```
public class Laptop extends Computer {
    public String batteryType;

    public Laptop(String brand, int processorSpeed, int ramSize, String processorType,
                  String batteryType) {
        super(brand, processorSpeed, ramSize, processorType);
        this.batteryType = batteryType;
    }

    public void showLaptop() {
        super.showData();
        System.out.println("Battery Type: " + batteryType);
    }
}
```

- **Mac.java**

```
public class Mac extends Laptop {
    public String security;

    public Mac(String brand, int processorSpeed, int ramSize, String processorType,
               String batteryType, String security) {
        super(brand, processorSpeed, ramSize, processorType, batteryType);
        this.security = security;
    }

    public void showMac() {
        super.showLaptop();
        System.out.println("Security: " + security);
    }
}
```

- **Windows.java**

```
public class Windows extends Laptop {
    public String feature;

    public Windows(String brand, int processorSpeed, int ramSize, String processorType,
                   String batteryType, String feature) {
        super(brand, processorSpeed, ramSize, processorType, batteryType);
        this.feature = feature;
    }

    public void showWindows() {
        super.showLaptop();
        System.out.println("Feature: " + feature);
    }
}
```

- **Pc.java**

```
public class Pc extends Computer {
    public int monitorSize;

    public Pc(String brand, int processorSpeed, int ramSize, String processorType,
              int monitorSize) {
        super(brand, processorSpeed, ramSize, processorType);
        this.monitorSize = monitorSize;
    }

    public void showPc() {
        super.showData();
        System.out.println("Monitor Size: " + monitorSize);
    }
}
```

- **InheritanceTaskMain.java**

```
public class InheritanceTaskMain {
    public static void main(String[] args) {
        Mac mac = new Mac("Apple", 2, 4, "Intel", "Lithium", "Fingerprint");
        Pc pc = new Pc("Dell", 2, 4, "Intel", 15);
        Windows windows = new Windows("Microsoft", 2, 4, "Intel", "Lithium", "Touchscreen");

        mac.showMac();
        System.out.println("---");
        windows.showWindows();
        System.out.println("---");
        pc.showPc();
    }
}
```

- **Output**

```
Brand: Apple
Processor Speed: 2
RAM Size: 4
Processor Type: Intel
Battery Type: Lithium
Security: Fingerprint
---
Brand: Microsoft
Processor Speed: 2
RAM Size: 4
Processor Type: Intel
Battery Type: Lithium
Feature: Touchscreen
---
Brand: Dell
Processor Speed: 2
RAM Size: 4
Processor Type: Intel
Monitor Size: 15
```