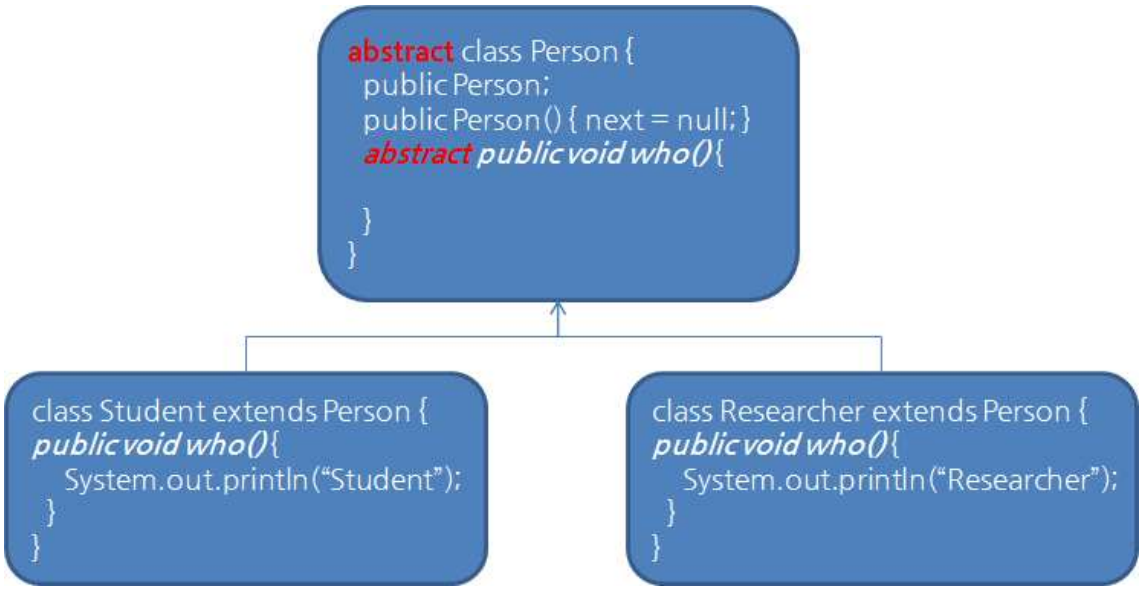
Week 6 : Interfaces

Part1. Abstract Class

- Abstract class' inheritance

When subclass is inherited from an abstract class, a subclass become an abstract class.

For preventing a subclass from becoming an abstract class, abstract methods have to be overrided.



Part2. Interfaces

One of the abstract classes, make a multiple inheritance possibly.

'implements' keyword means implementing abstract methods in the class.

- Feature of interface

① Only Being composed of abstract methods and constants.

② Every methods can omit 'abstract public'.

③ Constants can omit 'public static final'.

④ Not possibly generating interface's objects.

⑤ Possibly inherited from other interface.

⑥ Interface can be used as a type of reference variable.

- Example

```
interface CanFight {
        void fight();
}

interface CanSwim {
        void swim();
}

interface CanFly {
        void fly();
}

class ActionCharacter {
        public void fight() {
        System.out.println("fight");
        }
}

class Hero extends ActionCharacter implements CanFight, CanSwim, CanFly {
        public void swim() {
        System.out.println("swim");
        }

        public void fly() {
        System.out.println("fly");
        }
}

public class Adventure {
        public static void t(CanFight x) {
        x.fight();
        }

        public static void u(CanSwim x) {
        x.swim();
```

```
        }

        public static void v(CanFly x) {
        x.fly();
        }

        public static void w(ActionCharacter x) {
        x.fight();
        }

        public static void main(String[] args) {
        Hero h = new Hero();
        t(h); // Treat it as a CanFight
        u(h); // Treat it as a CanSwim
        v(h); // Treat it as a CanFly
        w(h); // Treat it as an ActionCharacter
        }
}
```

-Example : interface including inheritance

```
interface Monster {
        void menace();
}

interface DangerousMonster extends Monster {
        void destroy();
}

interface Lethal {
        void kill();
}

class DragonZilla implements DangerousMonster {
        public void menace() {
        System.out.println("menace1");
        }

        public void destroy() {
        System.out.println("destory1");
        }
```

```
}

interface Vampire extends DangerousMonster, Lethal {
        void drinkBlood();
}

class VeryBadVampire implements Vampire {
        public void menace() {
        System.out.println("menace2");
        }

        public void destroy() {
        System.out.println("destroy2");
        }

        public void kill() {
        System.out.println("kill2");
        }

        public void drinkBlood() {
        System.out.println("drinkBlood2");
        }
}

public class HorrorShow {
        static void u(Monster b) {
        b.menace();
        }

        static void v(DangerousMonster d) {
        d.menace();
        d.destroy();
        }

        static void w(Lethal l) {
        l.kill();
        }

        public static void main(String[] args) {
        DangerousMonster barney = new DragonZilla();
```

```
        System.out.println("1");
        u(barney);
        System.out.println("2");
        v(barney);
        Vampire vlad = new VeryBadVampire();
        System.out.println("3");
        u(vlad);
        System.out.println("4");
        v(vlad);
        System.out.println("5");
        w(vlad);
        }
}
```

☞ Possibly inheriting a multiple interface, making a interface. You can check a multiple inheritance using interface.

- Interface vs Abstract class

Abstract class	Interface
- Including not abstract methods. - Constant and variable fields can include. - Abstract class is suitable when every subclasses have a same method.	- Every methods are abstract methods. - Only constant fields include. supporting a multiple inheritance.