

Static var, fun, <sup>block</sup>class \*\*\*.

Unit-2

- static kw can be used with var, fun, class, block, class & import

Static var → All obj will share same copy of the static var

Static fun → St. fun can be accessed w/o creating an obj. It can be called directly using class name.

Static block → St. block is similar to a const<sup>r</sup>.

- It runs auto<sup>y</sup> when a class is first used.
- It can be used to initialize the var.

Q) Why is st. block used, if it is similar to const<sup>r</sup>?

A) When st. kw is used, then obj is not created. So const<sup>r</sup> will not be called. ∴ St. block is used.

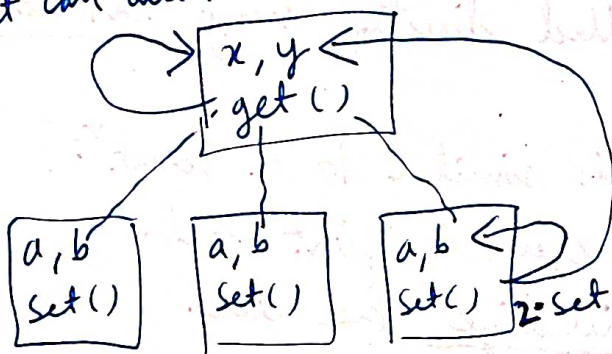
# Rule w/ st. fun

- St. fun can call only other st. var & fun.
- Non st. fun can access all " var & fun.

eg var x, y r static  
" a, b r normal.

fun set is normal - it can access all var a, b, x, y  
" get " static - " " " only static var  
x & y.

1. get can access only static var



2. Set can access st. & non st. variables

Obj1      Obj2      Obj2.

// all obj have same copy of x, y (Static)  
" " " diff " " a, b (Normal).

```

class box {
    protected static int l, w, h; //st. var.
    static {
        l=0; w=0; h=0; //static block.
    }
    public static void set(int x, int y, int z) {
        l=x; w=y; h=z; //st. fun
    }
    public static void get() {
        println(l); println(w); println(h); //st. fun.
    }
}

```

```

C D { P S U M (-) }

```

//No need to create obj of box.  
 //Static fun can be called using class name

```

box.set(1, 2, 3);
box.get();

```

```

}
}

```



## Nested Classes

- A class created / defined inside another class is called a nested class.
- Inner class can directly access var of outer class but outer class can't " " " " inner class.
- Outer class need to create obj of inner class to access its variables.

```
outerclass {  
    PV outerfun() {  
(PV → public void) // define  
    }  
  
    class innerclass {  
        PV innerfun() {  
            // define  
            outerfun();  
        }  
    }  
}
```

→ innerclass can directly call outerfun.

```
innerclass obj = new innerclass();  
obj.innerfun();
```

→ outer class needs to create obj of inner class to call innerfun.

Can't call innerfun directly.

## Creating obj of innerclass in demo class

- Obj of a simple class is created inside main()

eg box obj = new box(1);

- However, obj of an innerclass can't be created directly

- Ist we need to create obj of outer class.

Then we can create obj of innerclass using outer class.

eg

```
class outerclass {  
    PV outerfun() {  
        println("outerfun");  
    }  
      
    class innerclass {  
        PV innerfun() {  
            println("innerfun");  
        }  
    }  
}
```

PV → public void

```
c d { P S V M (---) }
```

// to create obj of innerclass, Ist we need to create obj of outer class.

Create outer obj ← `outerclass obj1 = new outerclass();`

Create inner obj ← `outerclass.innerclass obj2 = obj1.new innerclass();`

Class name      inner obj      outer obj      innerclass.

obj1 → outer obj

obj2 → inner "

// call fun using inner obj

obj2.innerfun();

}

} // demo ends.

## Static Class

- An inner class can be declared as static
- The purpose of static inner class is that its obj can be created w/o creating obj of outer class.

**Note**: outer class can't be st.  
Only inner class can be static.

```
outer class {
```

```
    pv outerfun() {
```

```
        // define
```

```
    }
```

```
    class static innerclass {
```

```
        pv innerfun() {
```

```
            // define
```

```
        }
```

```
    }
```

```
}
```



CD of Psum (---)  $\rightarrow$  class demo

pub st. void main(...)

1/No need to create obj of ostream.

11 obj of inner class can be created directly

outerclass.innerclass obj = new outerclass.innerclass();

Class name

innerclan  
obj.

class name

\*\*\*  
// Here inner class is static, so its obj can be created directly w/o creating obj of outer class.

# Import & Static Import

(Unit-2)

- We can import any class & use it.

eg ~~for~~ import java.lang.System;

```
CD { psuM() }
```

```
System.out.println();
```

↓  
use System class after importing

}

**Note** :- System class is auto<sup>l</sup> imported, but it can be manually imported too.

What does System.out.println() mean

```
class System {
```

```
static PrintStream out = new PrintStream();
```

```
}
```

// System is a class

// out is an obj inside System.

// out " not an obj of System, but out is an  
obj of PrintStream class.

// out is static, so, it can be accessed by using  
class name  
System.out...



## What is static import

- Another way to implement a class through static import

## How to statically import

- 1) ~~use~~ use static kw  
`import static java.lang.System.*;`
- 2) When statically importing, use \* after class name wh. means all members of a class are imported & <sup>not just</sup> a particular class.

## What happens when u statically import a class? Benefit?

- We can access members w/o using class name

eg `System.out.println();` // Normal import  
`out.println();` // with static import,  
class name is not needed.

- So, it reduces effort of typing classname everytime.

import

vs

Static import

• Syntax:

& import <class>

eg import java.lang.System;

• class name must be used

System.out.println();

import static <class>.\*

eg:-

import static

java.lang.System.\*;

\* means all members of class.

• members can be accessed w/o class name

out.println();

**Note** :-

• St. import doesn't make a class static or it doesn't make the members static.

• The class members r already static.

• It simply allows to use the members directly w/o using class name.