

Q1. Explain static block, static variables and static methods?

Ans:

The static keyword in java is used to indicate that a particular member (field, block or methods) belongs to the class rather than object / instance of a class.

Note: static member recommended to access via name of the class

Syntax:

Static Variable:

ClassName.memberdataName;

Static Methods:

ClassName.methodName();

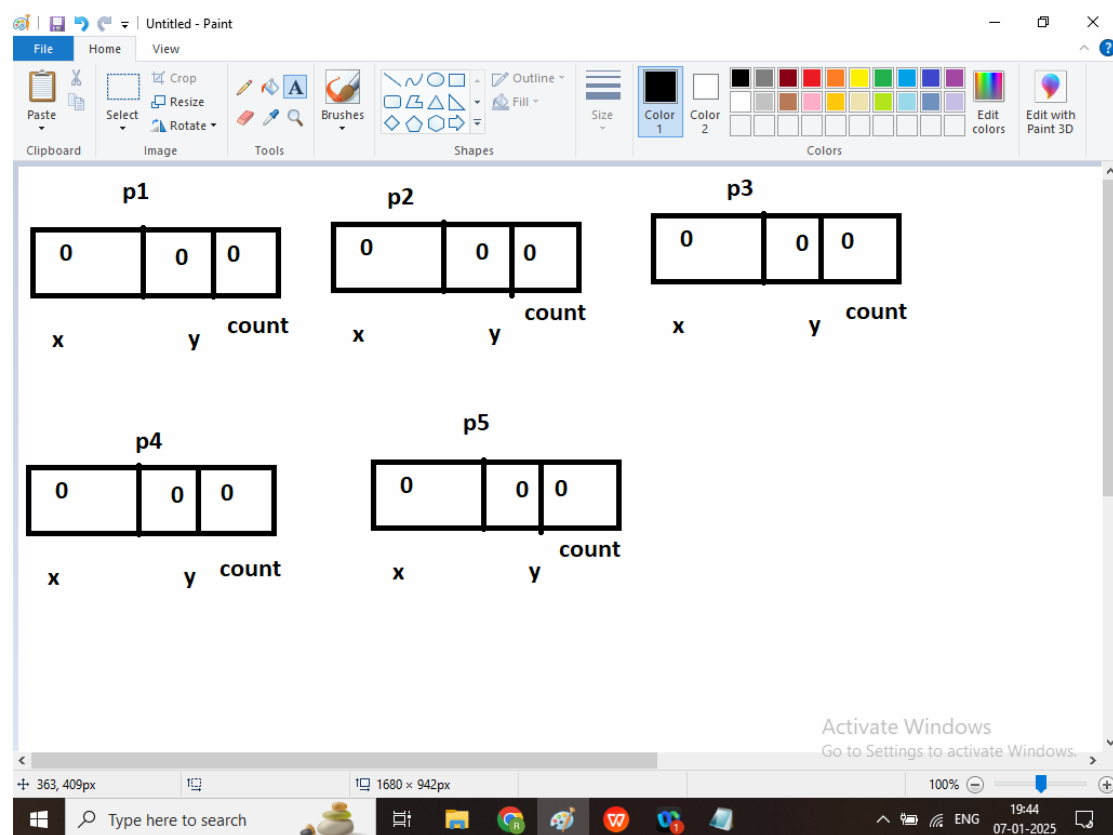
Static block is automatically called when object class is loaded.

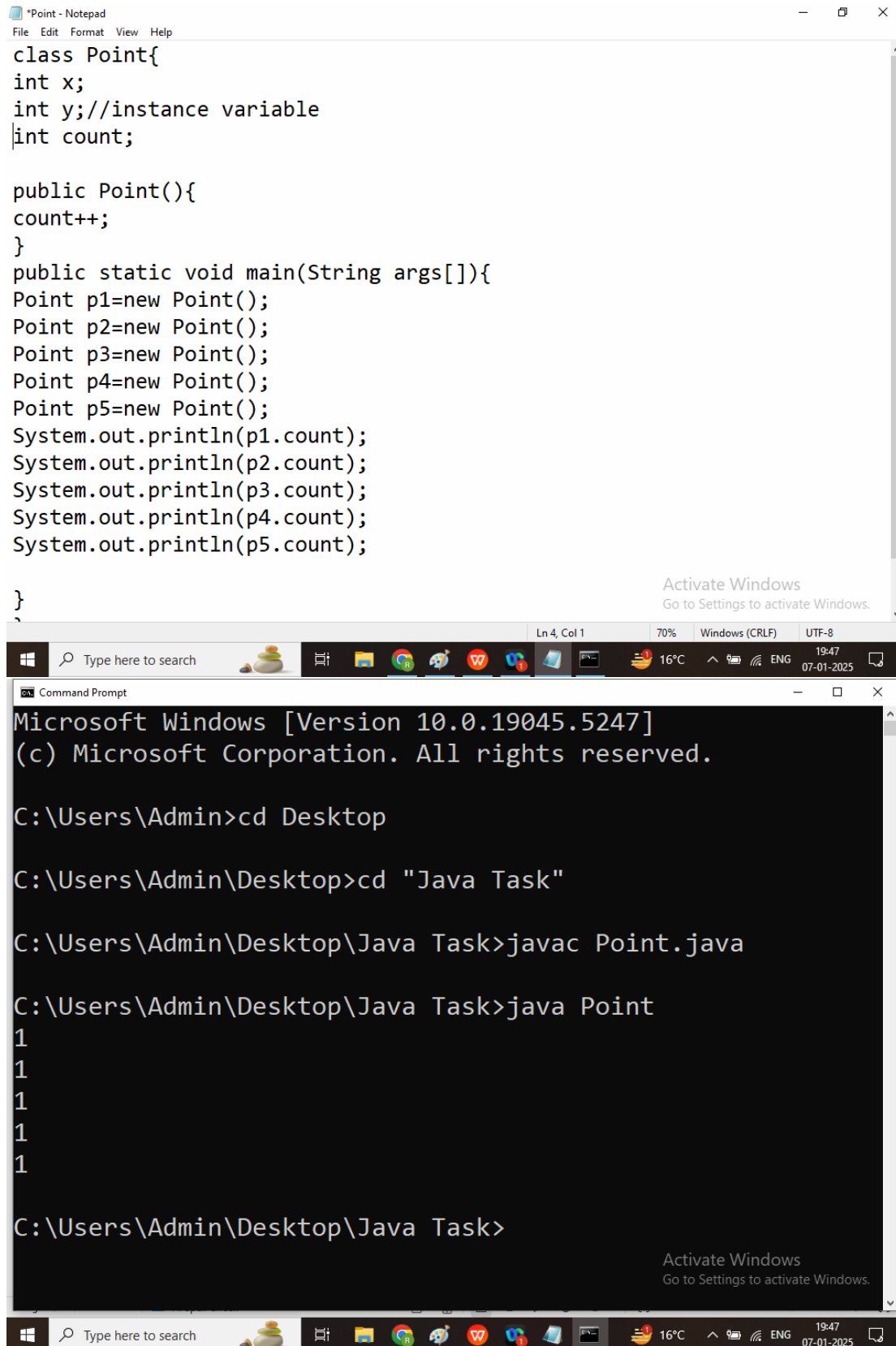
Static block always executed before main method

If a class contain multiple static block then it will be executed according to the order in which they are defined top to bottom

Static Variables: A static variable is shared among all instance of a class

Memory is allocated once for static variables at the time of class loading





The image shows a Windows desktop environment. At the top, a Notepad window titled '*Point - Notepad' contains the following Java code:

```
class Point{
int x;
int y;//instance variable
int count;

public Point(){
count++;
}
public static void main(String args[]){
Point p1=new Point();
Point p2=new Point();
Point p3=new Point();
Point p4=new Point();
Point p5=new Point();
System.out.println(p1.count);
System.out.println(p2.count);
System.out.println(p3.count);
System.out.println(p4.count);
System.out.println(p5.count);
}
}
```

Below the Notepad window, a Command Prompt window is open, displaying the following commands and output:

```
Microsoft Windows [Version 10.0.19045.5247]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd Desktop

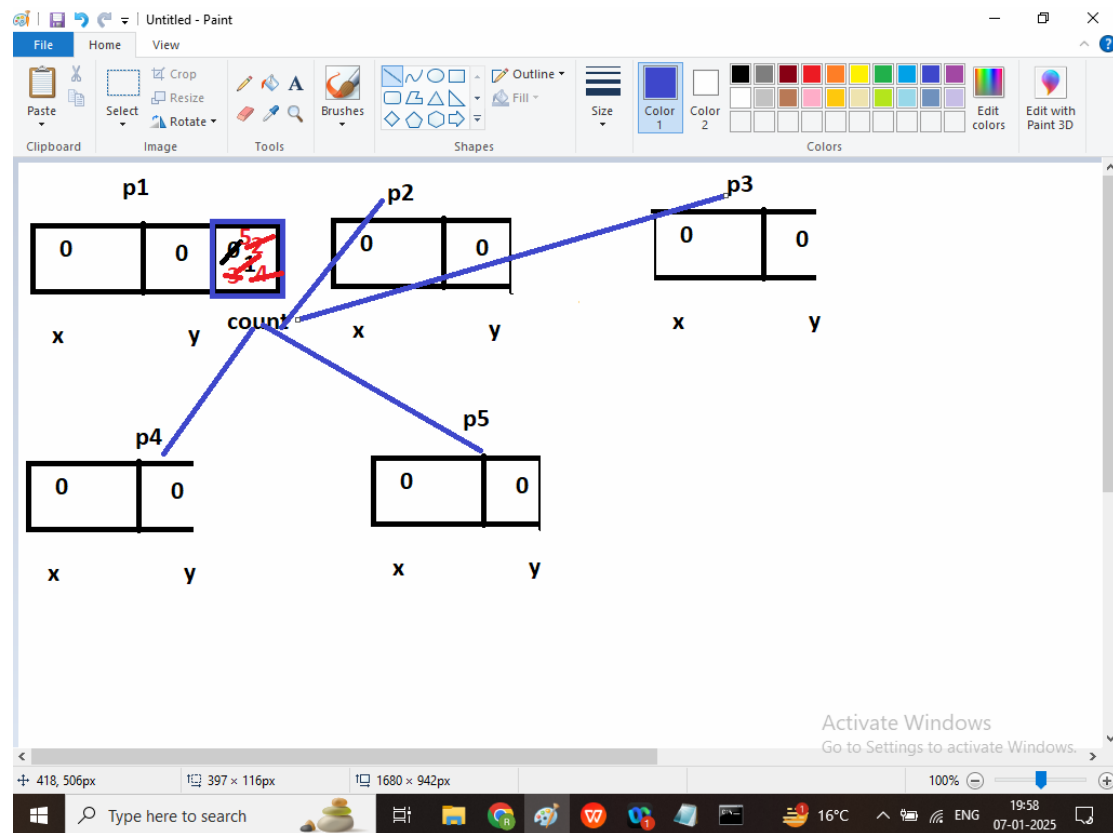
C:\Users\Admin\Desktop>cd "Java Task"

C:\Users\Admin\Desktop\Java Task>javac Point.java

C:\Users\Admin\Desktop\Java Task>java Point
1
1
1
1
1

C:\Users\Admin\Desktop\Java Task>
```

The taskbar at the bottom of the screen shows the Windows Start button, a search bar, and several application icons including File Explorer, Google Chrome, and Microsoft Word. The system tray on the right indicates a temperature of 16°C, network status, and the date and time as 19:47 on 07-01-2025. An 'Activate Windows' watermark is visible in the bottom right corner of the Command Prompt window.



```
//static variable example
class Point{
    int x;
    int y;//instance variable
    static int count;

    public Point(){
        count++;
    }
    public static void main(String args[]){
        Point p1=new Point();
        Point p2=new Point();
        Point p3=new Point();
        Point p4=new Point();
        Point p5=new Point();
        System.out.println(p1.count);
    }
}
```

Static method: static methods can be called without creating an object of the class

These methods can only access static variables and other static methods directly (without using this and super)

Static method is recommended to call using class Name

```
ClassName.methodName();
```

//static methods example

```
class Point{
```

```
int x;
```

```
int y;//instance variable
```

```
static int count;
```

```
public Point(){
```

```
count++;
```

```
}
```

```
public static int getCtr(){
```

```
return count;
}
public static void main(String args[]){
Point p1=new Point();
Point p2=new Point();
Point p3=new Point();
Point p4=new Point();
Point p5=new Point();
System.out.println(p1.count);
System.out.println("Number of Object
is created : "+count);
System.out.println("Number of Object
is created : "+Point.count);
System.out.println("=====static
methods call=====>");
System.out.println("No. of Object
Created : "+p1.getCtr());
System.out.println("No. of Object
Created : "+Point.getCtr());
System.out.println("No. of Object
Created : "+getCtr());
```

```
}  
}
```

Static block: static block is used to initialize static variables

Executed only once when the class is loaded in the memory

```
//static methods example  
class Point{  
    int x;  
    int y;//instance variable  
    static int count;  
    static{  
        count=100;  
        System.out.println("This is Static Block  
1 here");  
    }  
    public Point(){
```

```
count++;  
}  
public static int getCtr(){  
    return count;  
}  
static{  
    count=300;  
    System.out.println("This is Static Block  
3 here");  
}  
public static void main(String args[]){  
    System.out.println("This is Main  
Method Here");  
    Point p1=new Point();  
    Point p2=new Point();  
    Point p3=new Point();  
    Point p4=new Point();  
    Point p5=new Point();  
    System.out.println(p1.count);  
    System.out.println("Number of Object  
is created : "+count);  
}
```



```
System.out.println("Number of Object  
is created : "+Point.count);  
System.out.println("=====static  
methods call=====>");  
System.out.println("No. of Object  
Created : "+p1.getCtr());  
System.out.println("No. of Object  
Created : "+Point.getCtr());  
System.out.println("No. of Object  
Created : "+getCtr());
```

```
}  
static{  
count=200;  
System.out.println("This is Static Block  
2 here");  
}  
  
}
```
