Concepts of Programming
Day 3: Mar 2023

Introduction to Java

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*C:\Users\mayan\cdac course\testing\Actor.java - Notepad++

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Pattern.java | Pat.java | Ab.java | Practice17.java | Practice17_1.java | Actor.java

```
96
97
98  //3.
99
100 public class Radio
101 {
102     public static void main(String[] args)
103     {
104         Variables:-
105
106         String RJ_name;
107         float station_frequency;
108         String station_name;
109         String time;
110         String guest_name;`
111         String city_name;
112
113         Methods:-
114
115     void input_RJ_name()
116     void input_station_frequency()
117     void input_station_name()
118     void input_time()
119     void input_guest_name()
120     void input_city_name()
121
122     void display_RJ_name()
123     void display_station_frequency()
124     void display_station_name()
125     void display_time()
126     void display_guest_name()
127     void display_city_name()
128
129 }}
130
```

Local variable

OOPs

class Abc{

variables

methods

psvoid main()

}

-Arrays

Types of variables:
---
1. instance variable
   -class variable

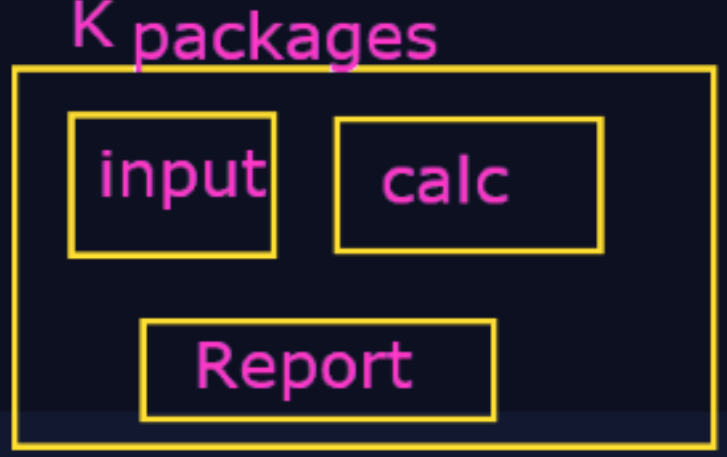
2. local variables
   -methods variables

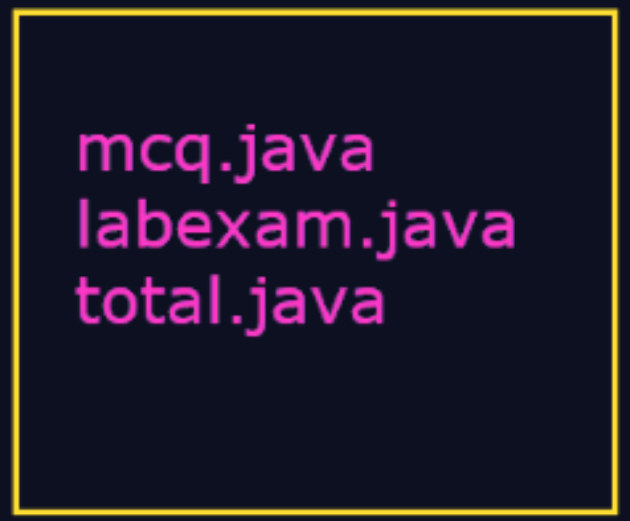
```
float Calculate()
{
    float offer;
    offer=5000*(10/100);
    return offer;
}
```

3.static variables
   -add keyword 'static'

```
public static void main()
{
    int i,j;
    int k;

}
```

```
    -Arrays

Types of variables:
--------------------
1. instance variable
    -class variable

 class Result
 {
    int m1mcq;
    int m1lab;
 }
2. local variables
    -methods variables

    float Calculate()
    {
        float offer;
        offer=5000*(10/100);
        return offer;
    }
```





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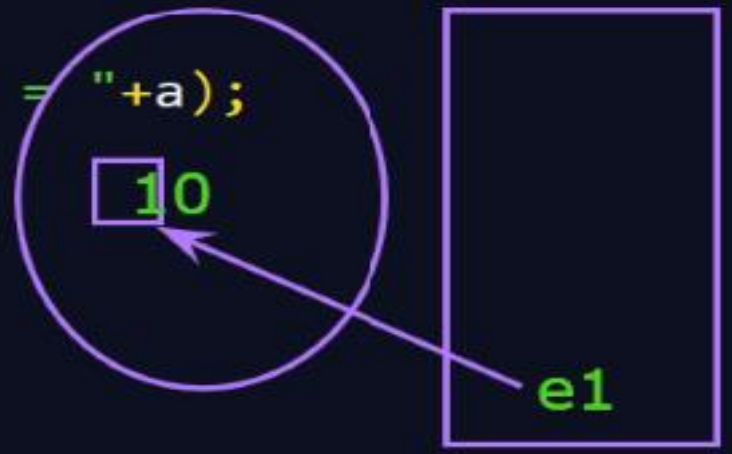
```java
class Employee{
    int a=10;


    void display(){
        System.out.println("Instance variable = "+a);
    }

    public static void main(String args[])
    {
        //Object create
        Employee e1 = new Employee();

        System.out.println("Instance variable = "+e1.a);
        e1.display();


    }
}
```



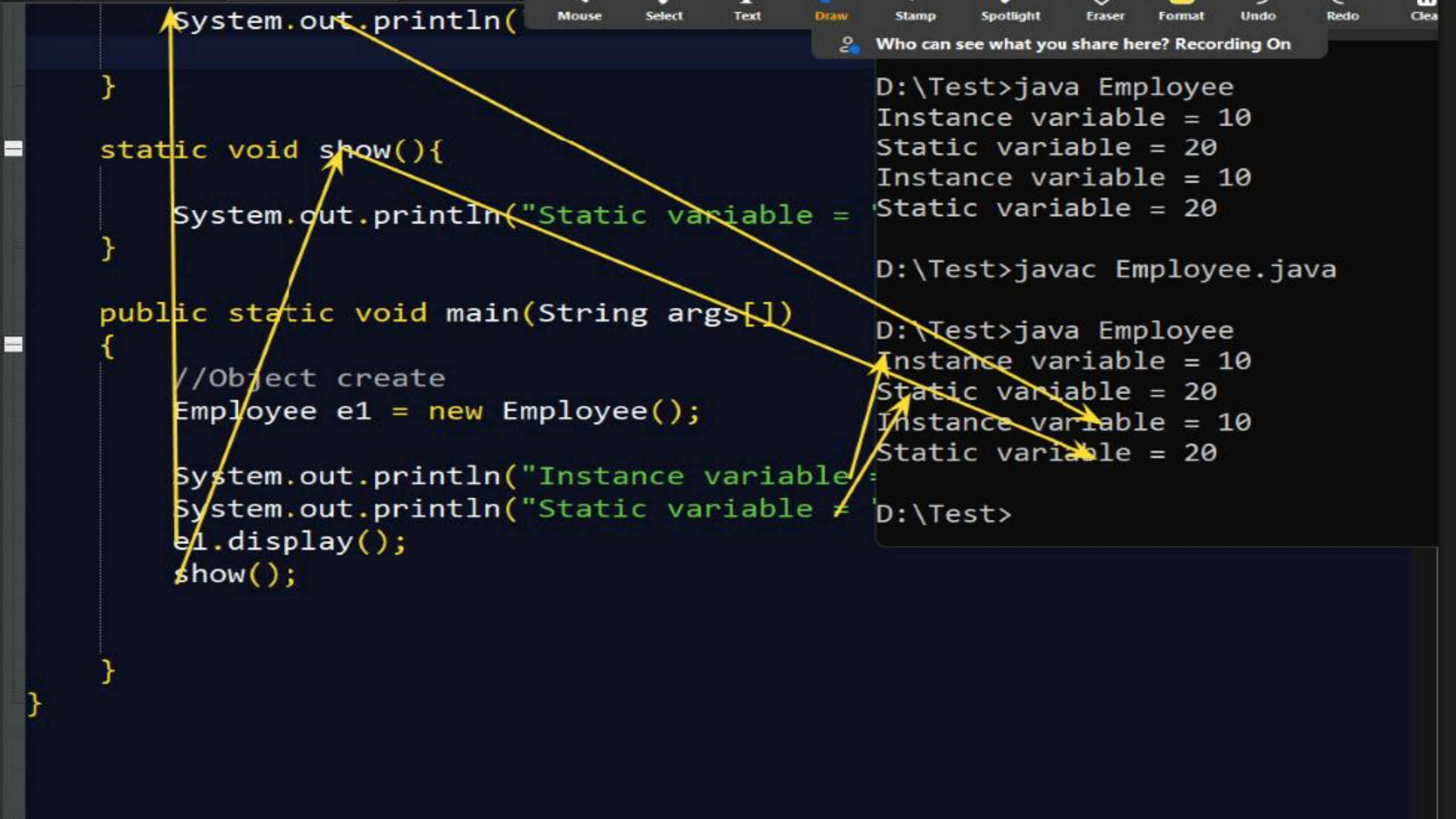
```java
class Employee{
    int a=10;//instance variable
    static int j=20;// static variable


    void display(){
        System.out.println("Instance variable = "+a);
        System.out.println("Static variable = "+j);
    }

    public static void main(String args[])
    {
        //Object create
        Employee e1 = new Employee();

        System.out.println("Instance variable = "+e1.a);
        e1.display();


    }
}
```

```
D:\Test>javac Employee.ja

D:\Test>java Employee
Instance variable = 10

D:\Test>javac Employee.ja

D:\Test>java Employee
Instance variable = 10
Instance variable = 10
Static variable = 20

D:\Test>
```

```java
class Employee{
    int a=10;//instance variable
    static int j=20;// static variable


    void display(){
        System.out.println("Instance variable = "+a);
        System.out.println("Static variable = "+j);
    }

    public static void main(String args[])
    {
        //Object create
        Employee e1 = new Employee();

        System.out.println("Instance variable = "+e1.a);
        System.out.println("Static variable = "+j);
        e1.display();


    }
}
```

```
D:\Test>java Employee
Instance variable = 10
Instance variable = 10
Static variable = 20

D:\Test>javac Employee.java

D:\Test>java Employee
Instance variable = 10
Static variable = 20
Instance variable = 10
Static variable = 20

D:\Test>
```

```java
class Employee{
    int a=10;//instance variable
    static int j=20;// static variable

    void display(){
        System.out.println("Instance variable = "+a);

    }

    static void show(){

        System.out.println("Static variable = "+j);
    }

    public static void main(String args[])
    {
        //Object create
        Employee e1 = new Employee();

        System.out.println("Instance variable = "+e1.a);
        System.out.println("Static variable = "+j);
        e1.display();
        show();

    }
```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Who can see what you share here? Recording On
System.out.println(
}
static void show(){
System.out.println("Static variable =
}
public static void main(String args[])
{
//Object create
Employee e1 = new Employee();
System.out.println("Instance variable =
System.out.println("Static variable =
e1.display();
show();
}
}
D:\Test>java Employee
Instance variable = 10
Static variable = 20
Instance variable = 10
Static variable = 20
D:\Test>javac Employee.java
D:\Test>java Employee
Instance variable = 10
Static variable = 20
Instance variable = 10
Static variable = 20
D:\Test>

```
    //used as a constant
    //'final' keyword : define it as a int I
    //does not required any object to access
}
```

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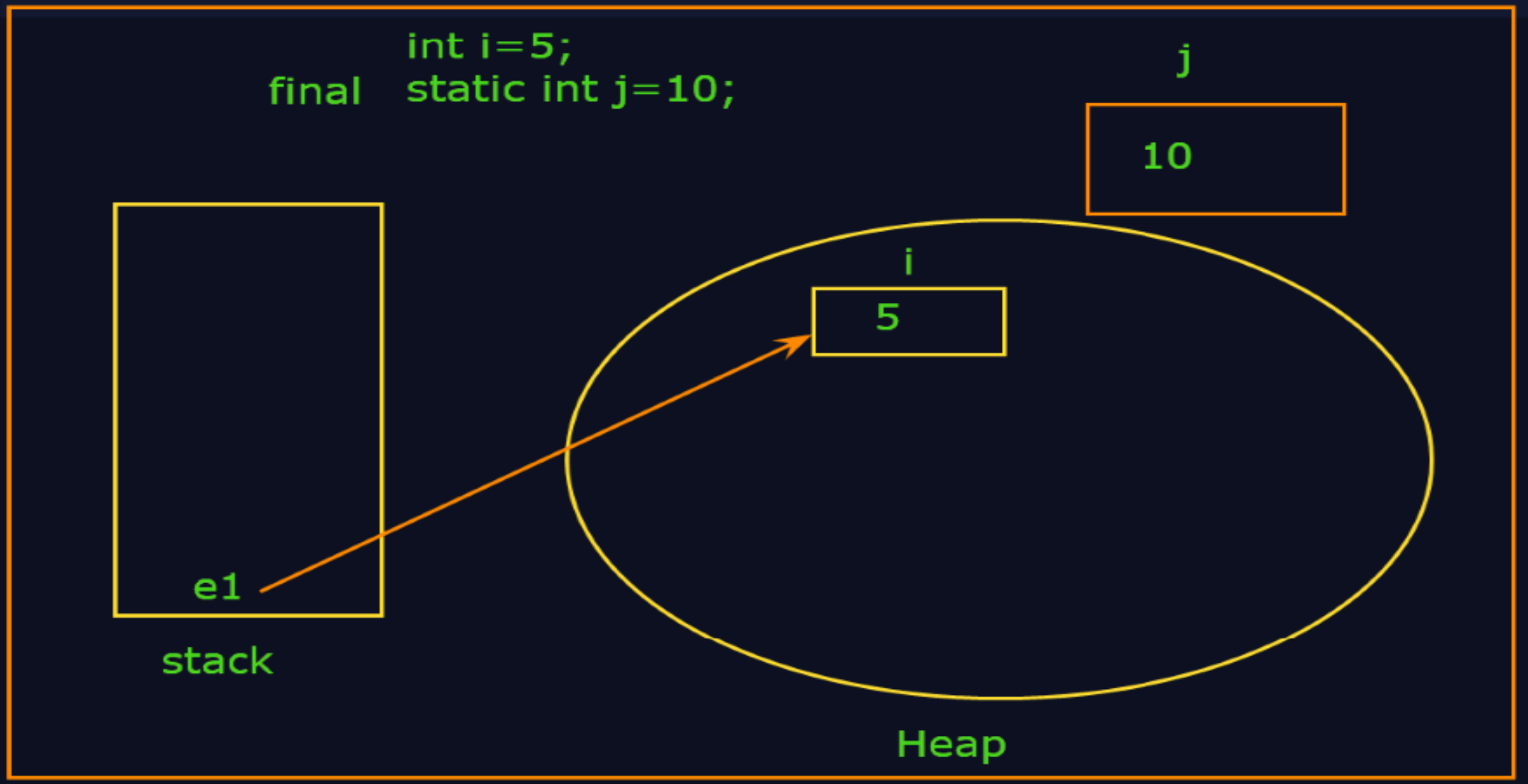

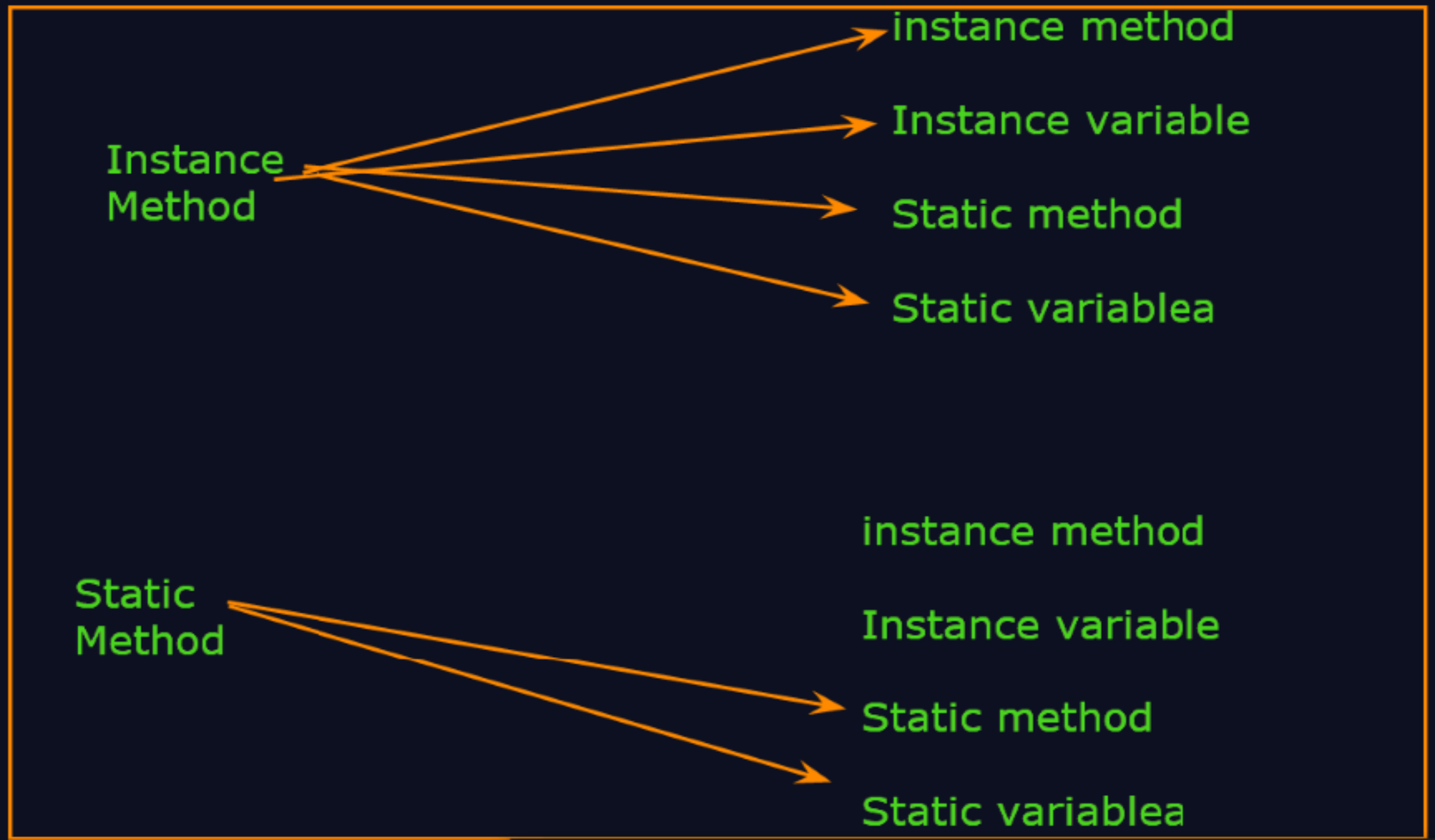
instance method
Instance variable
Instance
Method
Static method
Static variablea
instance method
Static
Method
Instance variable
Static method
Static variablea

```
//file name= > class containing main().
```

```
class Emp{
    String name;
    int id;

    Emp()//default constructor
    {
        name="Aniket";
        id=111;

    }

    Emp(String s1, int n1)//parameterised constructor
    {
        name=s1;
        id= n1;

    }

    void display()
    {
        System.out.println(name + " " + id);
    }

}
//Driver class
class EmployeeDemo2{


    public static void main(String args[])
    {

        Emp em1 = new Emp();
        Emp em2 = new Emp("Sagar",222);

        em1.display();
        em2.display();
    }
}
```

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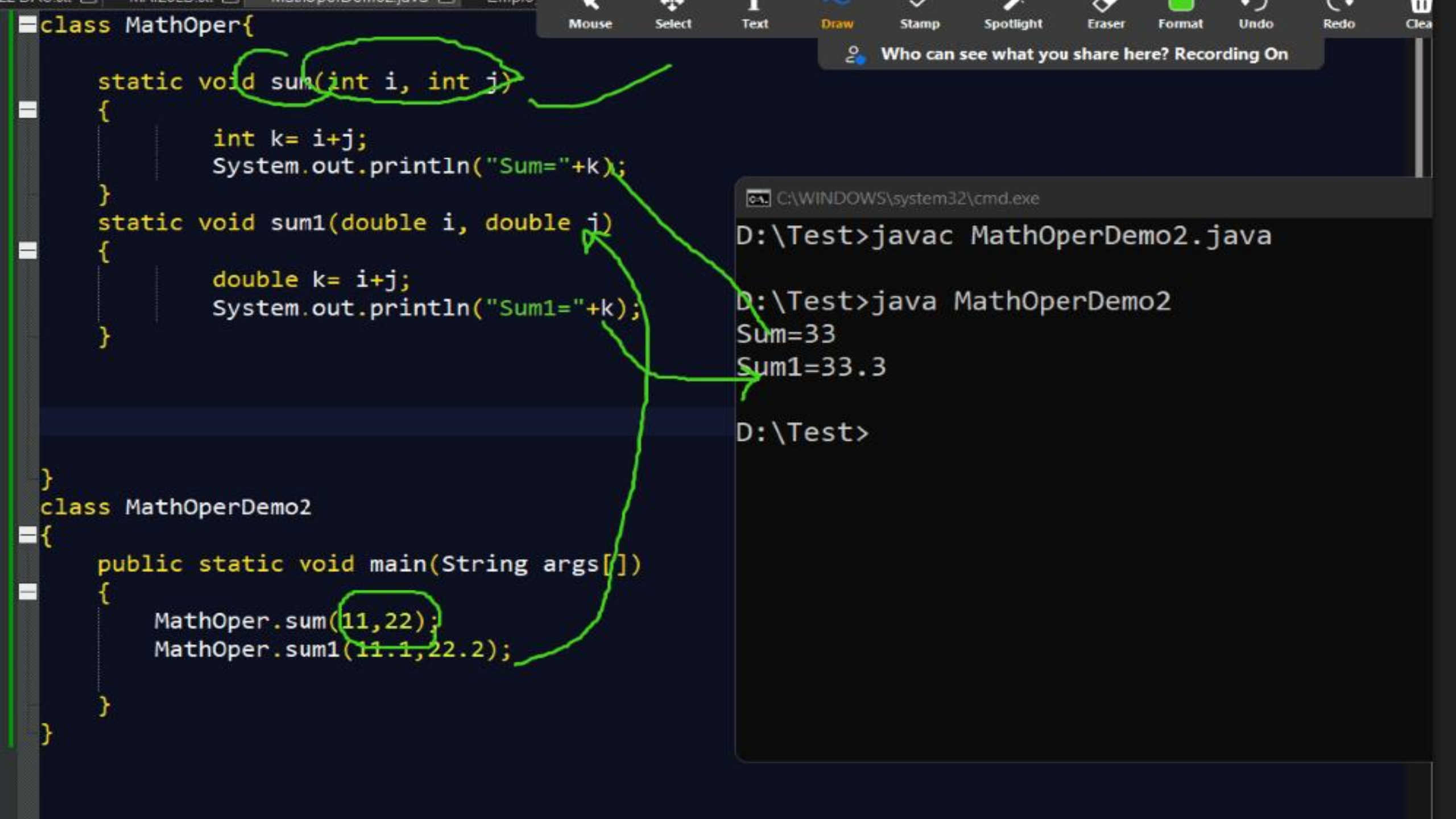
C:\WINDOWS\system32\cmd.exe

```
D:\Test>javac EmployeeDemo2.java

D:\Test>java EmployeeDemo2
Aniket 111
Sagar 222

D:\Test>
```

```java
class MathOperDemo
{

    static int sum(int i, int j)
    {

        int k=i+j;
        return k;
    }

    public static void main(String args[])
    {
        sum();
        int s = sum(11,22);//pass by value
        System.out.println("Sum="+s);
    }
}
```

```java
class MathOper{

    static int sum(int i, int j)
    {
        return i+j;
    }

    static void display(int res)
    {
        System.out.println(res)
    }

}
class MathOperDemo1
{
    public static void main(String args[])
    {
        //Metgod 1: user defined values
        Scanner sc =new Scanner(System.in);
        int i=sc.nextInt();
        int j=sc.nextInt();

        int s = MathOper.sum(i,j);

        //Method 2: complie time values
        int s = MathOper.sum(12,13);

        //Method 3: paa be value using resultant value
        MathOper.display(s)
```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Who can see what you share here? Recording On
class MathOper{
static void sum(int i, int j)
{
int k= i+j;
System.out.println("Sum="+k);
}
static void sum1(double i, double j)
{
double k= i+j;
System.out.println("Sum1="+k);
}
}
class MathOperDemo2
{
public static void main(String args[])
{
MathOper.sum(11,22);
MathOper.sum1(11.1,22.2);
}
}
C:\WINDOWS\system32\cmd.exe
D:\Test>javac MathOperDemo2.java
D:\Test>java MathOperDemo2
Sum=33
Sum1=33.3
D:\Test>

```java
class MathOper{

    static void sum(int i, int j)
    {
            int k= i+j;
            System.out.println("Sum="+k);
    }
    static void sum(double i, double j)
    {
            double k= i+j;
            System.out.println("Sum1="+k);
    }
    static void sum(int i, int j, int m)
    {
            int k= i+j+m;
            System.out.println("Sum="+k);
    }


}
class MathOperDemo3
{
    public static void main(String args[])
    {
        MathOper.sum(11,22);
        MathOper.sum(11.1,22.2);
        MathOper.sum(11,22,33);

    }
}
```

```
C:\WINDOWS\system32\cmd.exe
Sum1=33.3

D:\Test>javac MathOperDemo3.java

D:\Test>java MathOperDemo3
Sum=33
Sum1=33.3

D:\Test>javac MathOperDemo3.java

D:\Test>java MathOperDemo3
Sum=33
Sum1=33.3
Sum=66

D:\Test>
```

```java
class MathOper{

    static void sum(int i, int j)
    {
            int k= i+j;
            System.out.println("Sum="+k);
    }
    static void sum(double i, double j)
    {
            double k= i+j;
            System.out.println("Sum1="+k);
    }
    static void sum(int i, int j, int m)
    {
            int k= i+j+m;
            System.out.println("Sum="+k);
    }



}
class MathOperDemo3
{
    public static void main(String args[])
    {
        MathOper.sum(11,22,33);
        MathOper.sum(11,22);
        MathOper.sum(11.1,22.2);


    }
}
```

Function overloading

-function name is same.
-compile time polymorphism
but=>
1.checking data type of functions
2.no. of parameter

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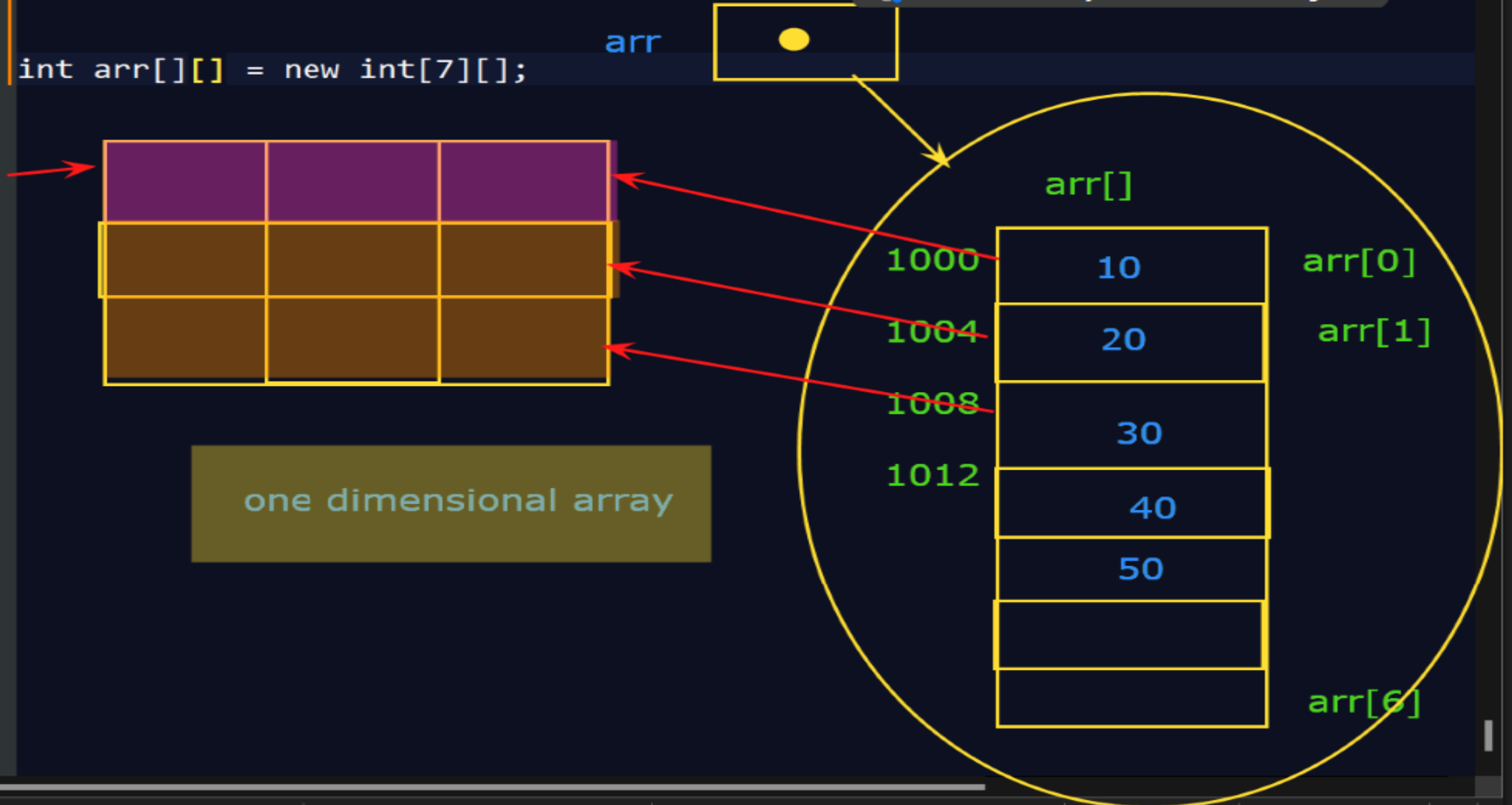
```
int arr[][] = new int[7][];
```



```java
import java.util.Scanner;

class Arrays
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int arr[] = new int[5];
        //Array input
        for(int i=0;i<5;i++)
        {
            System.out.println("Enter element :");
            arr[i] =sc.nextInt();
        }
        ///Array Output
        for(int i=0;i<5;i++)
        {
            System.out.println("Array element :"+

        }
    }
}
```

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C:\WINDOWS\system32\cmd.exe

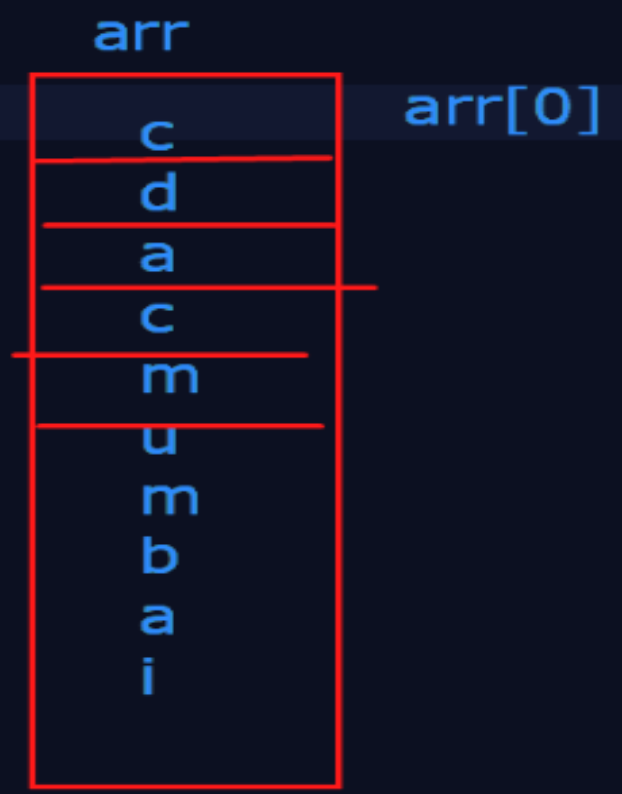
```
1
Enter element :
2
Enter element :
3
Enter element :
4
Enter element :
5
Array element :1
Array element :2
Array element :3
Array element :4
Array element :5

D:\Test>
```

```java
import java.util.Scanner;

class Arrays4
{
    public static void main(String args[])
    {
        //char arr[]={'c','d','a','c','m','u','m','b','a','i'};
        char arr[]=new char[]{'c','d','a','c','m','u','m','b','a','i'};

        System.out.println(arr[5]);
        for(char a : arr)
        {
            System.out.println(a);
        }
    }
}
```



```java
import java.util.Scanner;

class Arrays5
{
    public static void main(String args[])
    {
        int a[] = {1,2,3};//row 1
        int b[] = {1,2,3};//row 2
        int c[] = {1,2,3};//row 3

        int arr[][] = new int[3][];
                      row col
    }
}
```