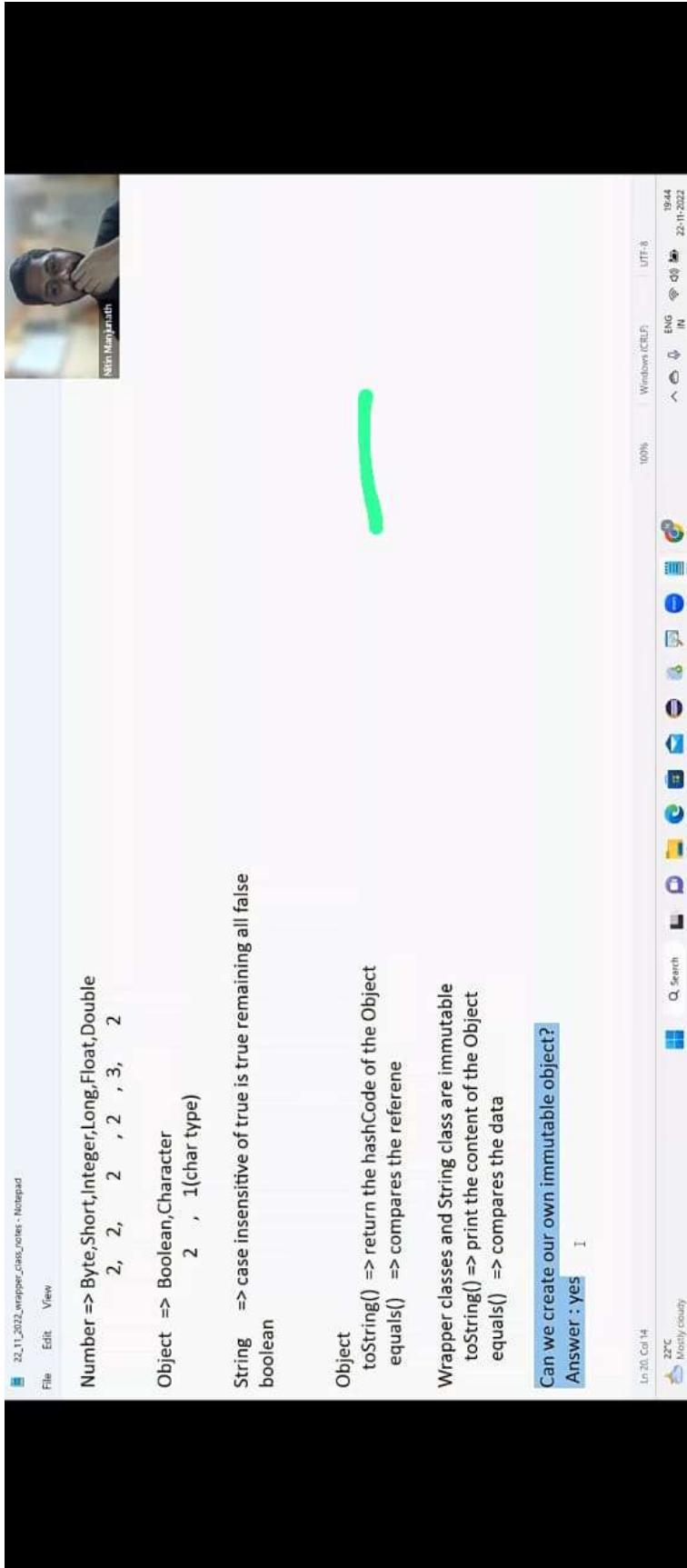


Java Wrapper Classes Part -2



File Edit View
22.11.2022_wrapper_classes_notes - Notepad

```
Number => Byte,Short,Integer,Long,Float,Double
2, 2, 2 , 2 , 3, 2

Object => Boolean,Character
2 , 1(char type)

String => case insensitive of true is true remaining all false
boolean

Object
toString() => return the hashCode of the Object
equals() => compares the reference

Wrapper classes and String class are immutable
toString() => print the content of the Object
equals() => compares the data

Can we create our own immutable object?
Answer : yes
```

1

Ln 20 Col 14 22°C Mostly cloudy Q Search Windows (C:\UF) 100% Windows (C:\UF) UTF-8
A ^ & Q IN ENG IN 19:44 22-11-2022

Command Prompt

```
public static java.lang.String toBinaryString(int);
static int formatUnsignedInt(int, int, char[], int, int);
public static java.lang.String toString(int);
public static java.lang.String toUnsignedString(int);
static void getchars(int, int, char[]);
static int stringSize(int);
public static int parseInt(java.lang.String, int) throws java.lang.NumberFormatException;
public static int parseInt(java.lang.String) throws java.lang.NumberFormatException;
public static int parseUnsignedInt(java.lang.String, int) throws java.lang.NumberFormatException;
public static int parseUnsignedInt(java.lang.String) throws java.lang.NumberFormatException;
public static java.lang.Integer valueOf(java.lang.String, int) throws java.lang.NumberFormatException;
f(java.lang.String) throws java.lang.NumberFormatException;
public static java.lang.Integer valueOf(int);
public java.lang.Integer valueOf();
public java.lang.Integer(Integer);
public byte byteValue();
public short shortValue();
public int intValue();
public long longValue();
public float floatValue();
public double doubleValue();
public java.lang.String toString();
public int hashCode();
public boolean equals(java.lang.Object);
public static int hashCode(int);
public static java.lang.Integer getInteger(java.lang.String, int);
public static java.lang.Integer getInteger(java.lang.String, java.lang.Integer);
public static java.lang.Integer decode(java.lang.String) throws java.lang.NumberFormatException;
public int compareTo(java.lang.Integer);
public static int compare(int, int);
public static int compareUnsigned(int, int);
public static long toUnsignedLong(int);
public static int divideUnsigned(int, int);
public static int remainderUnsigned(int, int);
```

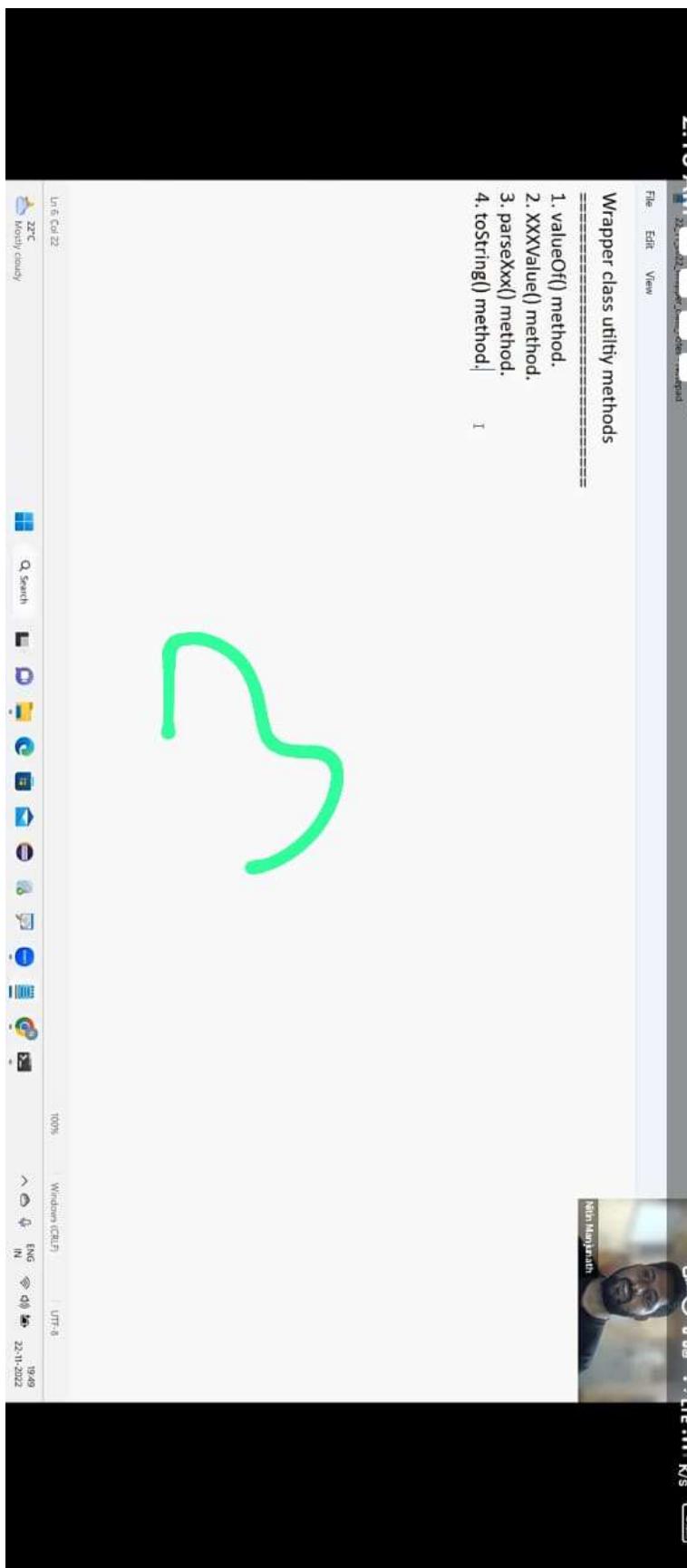
Nitin Manjrekar



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File Edit View

Wrapper class utility methods

=====

1. valueOf() method.
2. XXXValue() method.
3. parseXXX() method.
4. toString() method.

public static Integer valueOf(String, int) throws java.lang.NumberFormatException;
public static Integer valueOf(String) throws java.lang.NumberFormatException;
public static Integer valueOf(int data);

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Windows (CEP7) | UTF-8

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Nitin Naikpath



Untitled - IntelliJ IDEA

File Edit View Search Document Project Icons Brower Emmet Window Help

Directory Object Functions

[D] New Volume

D:\ Whisper classes

Test.java

```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         Integer i1 = Integer.valueOf(10);
6         System.out.println(i1);
7
8         Integer i2 = Integer.valueOf("10");
9         System.out.println(i2);
10
11     Boolean b1 = Boolean.valueOf("sachin");
12     System.out.println(b1);
13
14     Integer i3 = Integer.valueOf("ten");
15     System.out.println(i3); //NumberFormatException
16
17 }
18
19 }
```

Untitled - Print

Java (*.java)

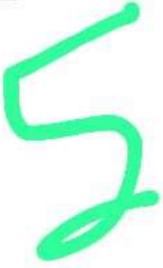
* Test.java

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Q. Search

PC ANSI ENG ⌂ ⌂ IN 22.11.2022



Java (Java)

Java (Java) Test.java

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Q. Search

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File Edit View Search Document Project Tools Browser Editors Window Help

Directory Object Folders

[D] New Volume D:\

Wiper classes

1 class Test

2 {

3 public static void main(String[] args)

4 {

5 // Number System

6 // base-2(binary), base-8(octal), base-10(decimal), base-16(hexadecimal), base-36

7 Integer i1 = Integer.valueOf("100", 2);

8 System.out.println(i1); //4

9

10

11 System.out.println("MAX_RADIX => "+Character.MAX_RADIX);

12 System.out.println("MIN_RADIX => "+Character.MIN_RADIX);

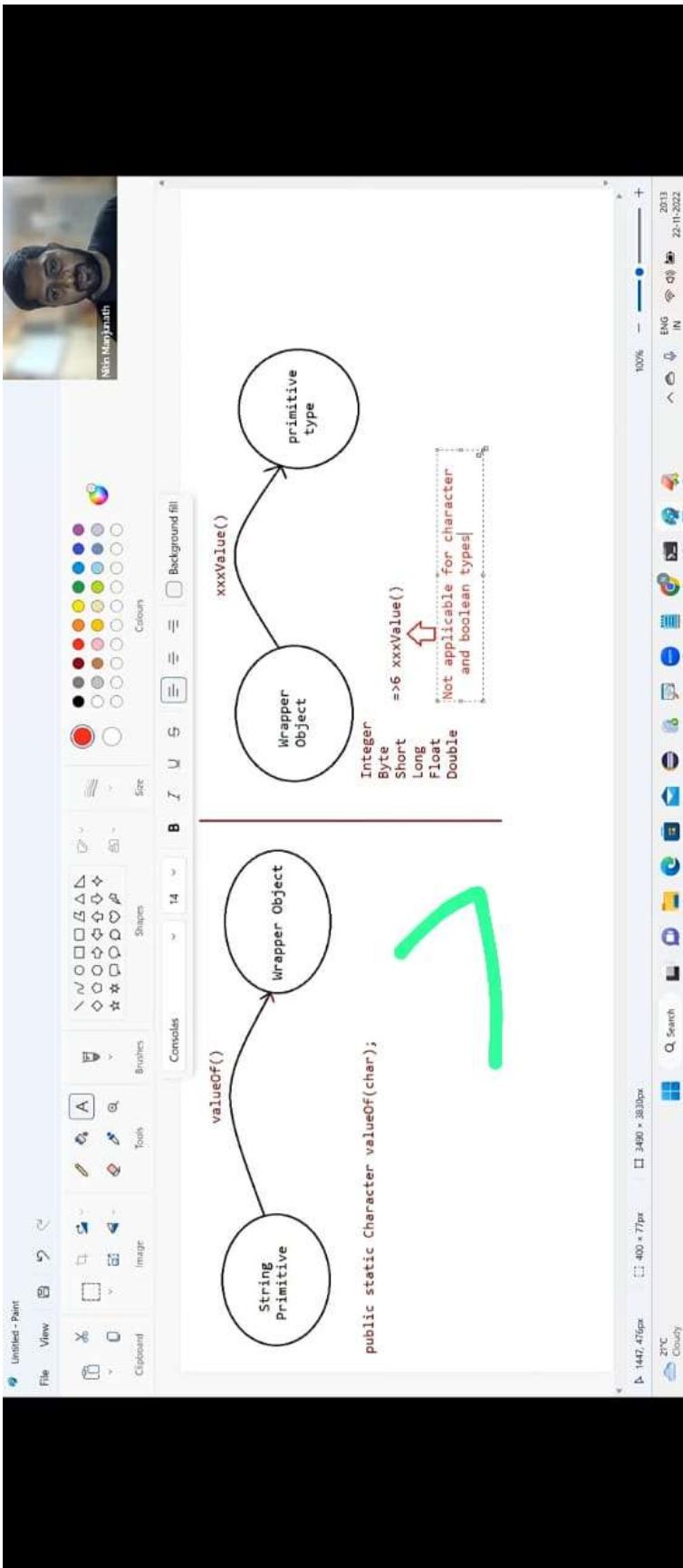
13 }

14 }

15

Nitin Manjrekar






```
File Edit View  
Character c=Character.valueOf('a');  
Boolean b=Boolean.valueOf(true);  
Primitive<String =>valueOf() => WrapperObject
```

2. xxxValue()

We can use `xxxValue()` to get primitive type for the given `Wrapper Object`.

These methods are to print on every Number type object.

Methods

```
public byte byteValue();
public short shortValue();
public int intValue();
public long longValue();
public float floatValue();
public double doubleValue();
```

```
eg#1.  
Integer i=new Integer(130);  
System.out.println(i.byteValue());//-126
```



22.11.2022 wrapper-class-notes - Notepad

File Edit View

3. charValue()
Character class contains charValue() to get Char primitive for the given Character
Object.
public char charValue()

eg#1.

```
Character c=new Character('c');
char ch=c.charValue();
System.out.println(ch);
```

4. booleanValue()
Boolean class contains booleanValue() to get boolean primitive for the given boolean
Object.
public boolean booleanValue()

eg#1.

```
Boolean b=new Boolean("nitin");
boolean b1=b.booleanValue();
System.out.println(b1);//false
```

In total xxxValue() are 36 in number.
=> xxxValue() => convert the Wrapper Object => primitive.

10

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22.11.2022 wrapper-class-notes - Notepad

File Edit View

```
Boolean b=Boolean.valueOf(true);
Primitive/String =>valueOf() => WrapperObject
```

2. xxxValue()

We can use xxxValue() to get primitive type for the given Wrapper Object.

These methods are a part of every Number type Object.
(Byte,Short,Integer,Long,Float,Double) all these classes have these 6 methods which is written as shown below.

Methods

```
=====
public byte byteValue();
public short shortValue();
public int intValue();
public long longValue();
public float floatValue();
public double doubleValue();
```

eg#1.

```
Integer i=new Integer(130);
System.out.println(i.byteValue());//126
System.out.println(i.shortValue());//130
```

100% Windows (CEP) UTF-8

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Nitin Nagprath

Editor - D:\Whisper classes\Tutorial

File Edit View Search Document Project Tools Browser Edit Window Help

Directory Object Functions

[D] New Volume

D:\

Wrapper classes

Test.java

1 class Test

2 {

3 public static void main(String[] args)

4 {

5 //valueOf() => Converts String/Primitive to Wrapper type

6 //xxxValue() => Converts Wrapper type to Primitive type

7 //parseXXX() => converts String to primitive type

8 }

9 int i = Integer.parseInt("10");

10 System.out.println(i);

11

12 boolean b1 = Boolean.parseBoolean("sachin");

13 System.out.println(b1);

14

15 double d1 = Double.parseDouble("10.0");

16 System.out.println(d1);

17

18

19 }

20 }

21

Java (*.java)

* TestJava

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Nitin Mopuri

12



```
Editor - Java - Eclipse IDE for Java Developers
File Edit View Search Document Project Tools Browser Errors Window Help
New Volume D:\ New Volume
Wrapper classes
Directly Copied functions
1 //WAP to take inputs from the command line and perform arithmetic operations
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         //valueOf() => Converts String/Primitive to Wrapper type
7         //xxx(value()) => Converts Wrapper type to Primitive type
8         //parseXXX() => converts String to primitive type
9
10    //commandline arguments => String inputs = args[0],args[1]
11
12    int i1 = Integer.parseInt(args[0]);
13    int i2 = Integer.parseInt(args[1]);
14
15    System.out.println(i1+i2);
16    System.out.println(i1-i2);
17    System.out.println(i1*i2);
18    System.out.println(i1/i2);
19
20
21 }
```

Java (*.java) TextJava

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File Help press F1

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```
22.11.2022 wrapperclass.pptx - Notepad
File Edit View
=====
toString()

To convert the Wrapper Object or primitive to String.
Every Wrapper class contain toString()

form1

=====
public String toString()

1. Every wrapper class (including Character class) contains the above toString()
   method to convert wrapper object to String.
2. It is the overriding version of Object class toString() method.
3. Whenever we are trying to print wrapper object reference internally this
   toString() method only executed

eg: Integer i=Integer.valueOf("10");
System.out.println(i); //internally it calls toString() and prints the Data.
```

14

22.11.2022 wrapperclassnotes - Notepad
File Edit View
System.out.println(i); //internally it calls toString() and prints the Data.

form2

=====
public static String toString(primitiveType)



1. Every wrapper class contains a static `toString()` method to convert primitive to String.

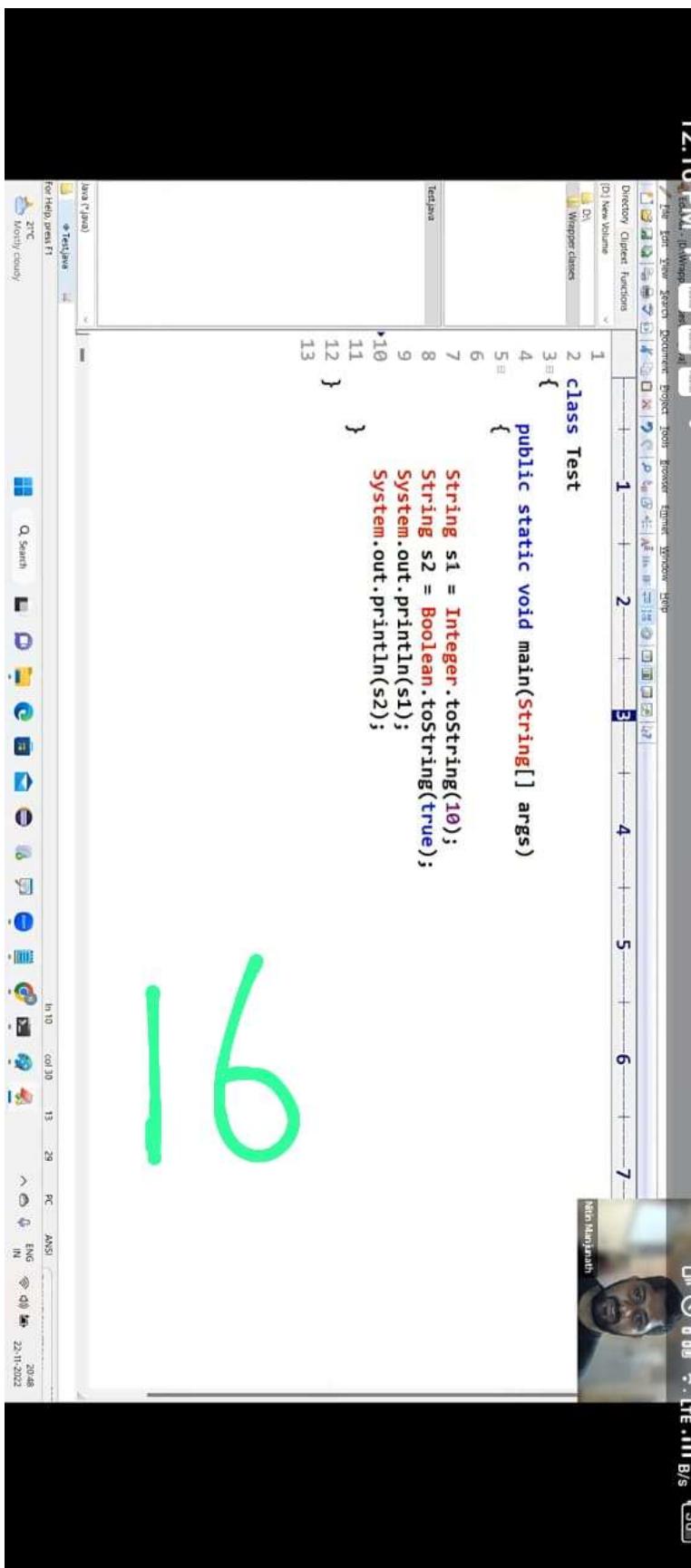
String s=Integer.toString(10);
|=> primitive type int.

e.g:

```
String s=Integer.toString(10);
String s=Boolean.toString(true);
String s=Character.toString('a');
```

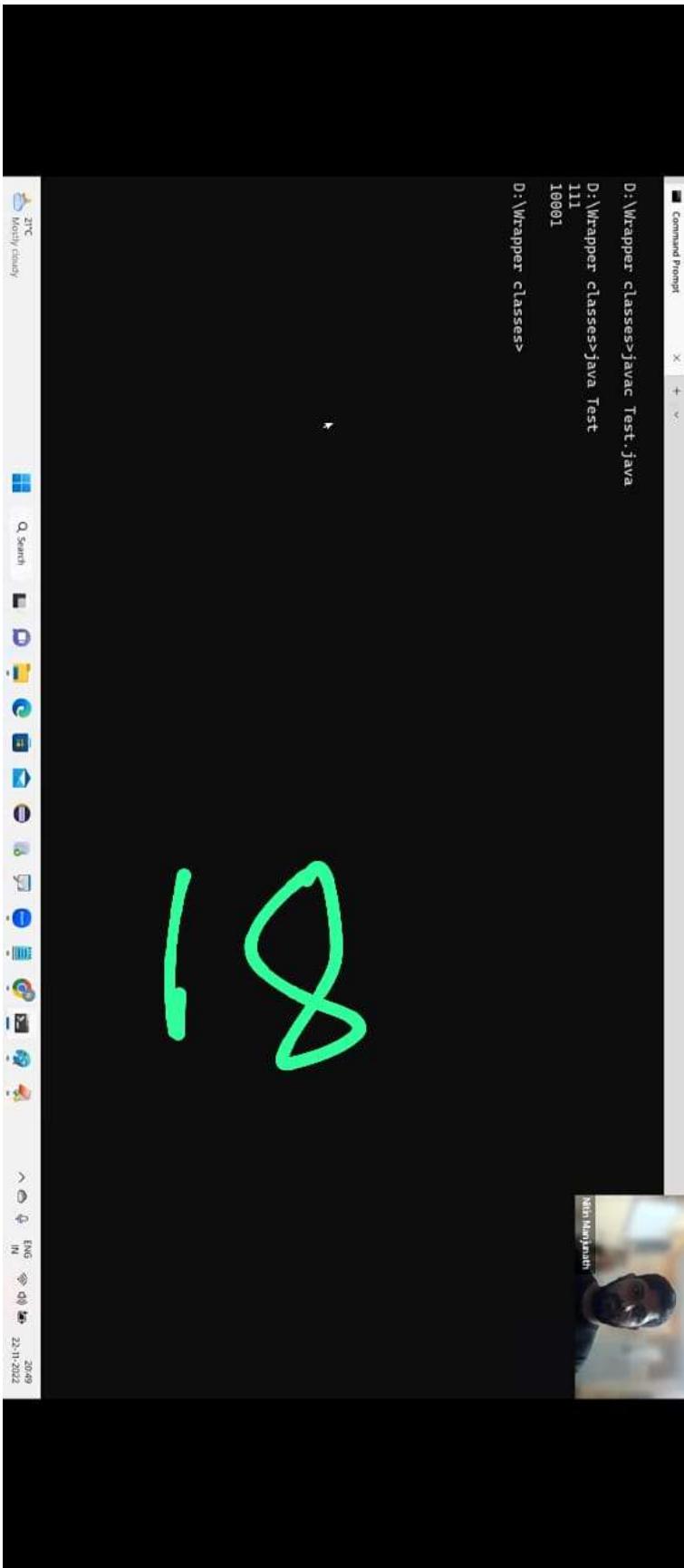
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File Edit View Nitin Manjrekar
20°C Q. Search ↻ ENG ⇧ ⇩ IN 22.11.2022
Mostly cloudy



```
4 public static void main(String[] args)
5 {
6     7     String s1 = Integer.toString(7,2);
7     8     String s2 = Integer.toString(17,2);
8     9     System.out.println(s1);
9    10    System.out.println(s2);
10   11 }
11 12 }
12 13 }
```

17



```
File Edit View  
  
public static String toString(primitive p,int radix)  
|=> 2 to 36
```

```
eg: String s=Integer.toString(15,2)  
System.out.println(s); // 1111
```

form4

Integer and Long classes contains the following `toXXXString()` methods.

```
public static String toOctalString(primitive p);  
public static String toHexString(primitive p);
```

```
Example:  
class WrapperClassDemo {
```

```
public static void main(String[] args) {  
    String s1=Integer.toBinaryString(7);
```

21°C
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19

Editor - D:\Whisper classes\TextJava

File Edit View Search Document Project Tools Browser Ethernet Window Help

D:\ New Volume Whisper classes

Text.java

```
public static void main(String[] args)
{
    String result1 = Integer.toString(7,2); // 111
    String result2 = Integer.toString(10,8); // 111
    String result3 = Integer.toString(10,16); // 111

    System.out.println(result1);
    System.out.println(result2);
    System.out.println(result3);

    System.out.println();

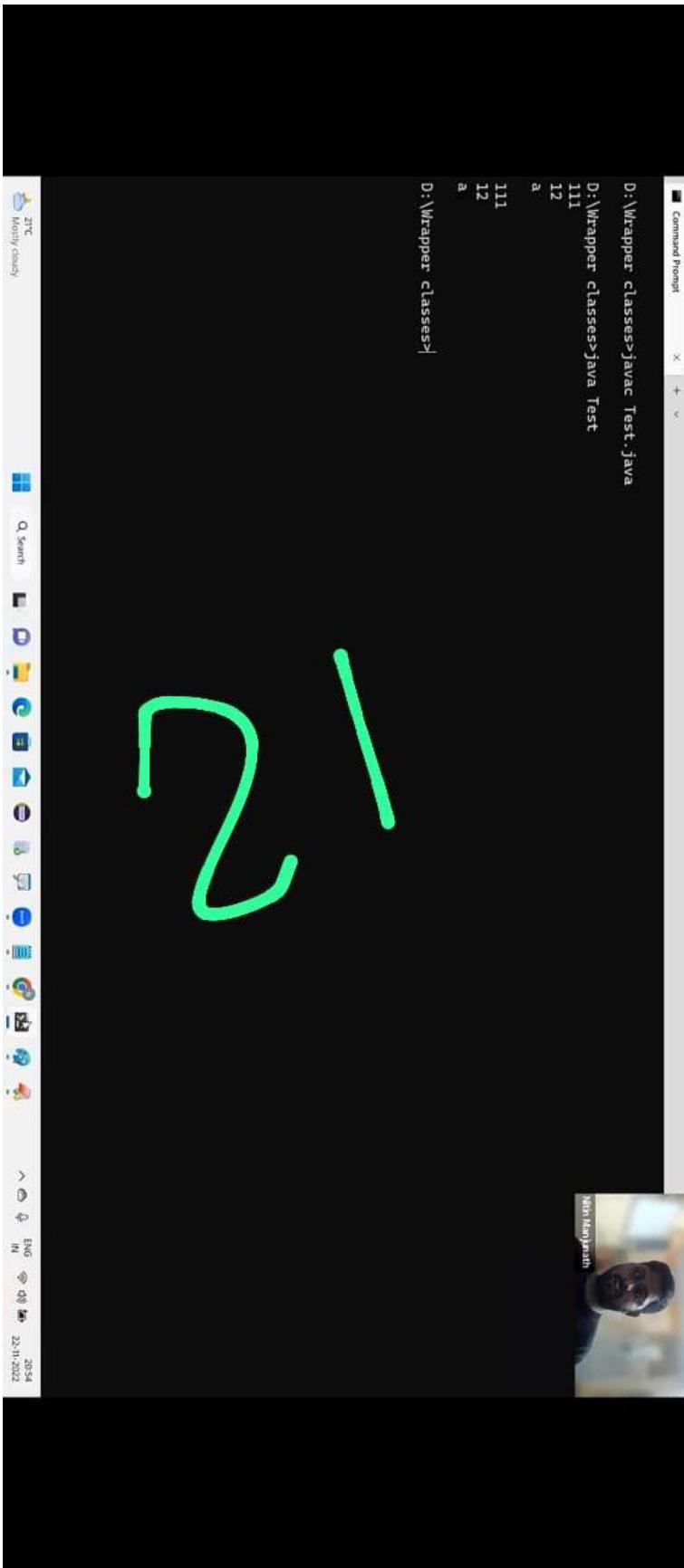
    String s1=Integer.toBinaryString(7); //0,1
    String s2=Integer.toHexString(10); //0-7
    String s3=Integer.toHexString(10); //0-9,a-f

    System.out.println(s1);
    System.out.println(s2);
    System.out.println(s3);
}
```

Java (Text) * TestJava For Help press F1 20°C Mostly cloudy

Q_Short L D E A S C M P N ENG ⇧ ⇩ ⌂ 22.11.2022

20



File Edit View Insert Document Tools Options Window Help

D:\ New Volume

Wrapper classes

Directory Object Functions

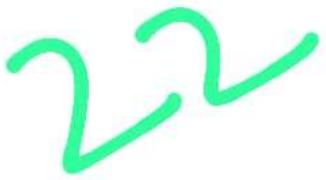
1 // String/primitive to wrapper => valueOf()
2 // Wrapper type to primitive => xxValue()
3 // String type to primitive => parseXX()
4 // Primitive type to String => toString(), toHexString(), toBinaryString(), toOctalString()
5 // Primitive type to int => intValue(), longValue(), floatValue(), doubleValue()
6 // Primitive type to float => valueOf()
7
8
9 class Test
10 {
11 public static void main(String[] args)
12 {
13 String result1 = Integer.toString(7,2); // 111
14 String result2 = Integer.toString(10,8); // 111
15 String result3 = Integer.toString(10,16); // 111
16
17 System.out.println(result1);
18 System.out.println(result2);
19 System.out.println(result3);
20
21 System.out.println();
22 }
23 }

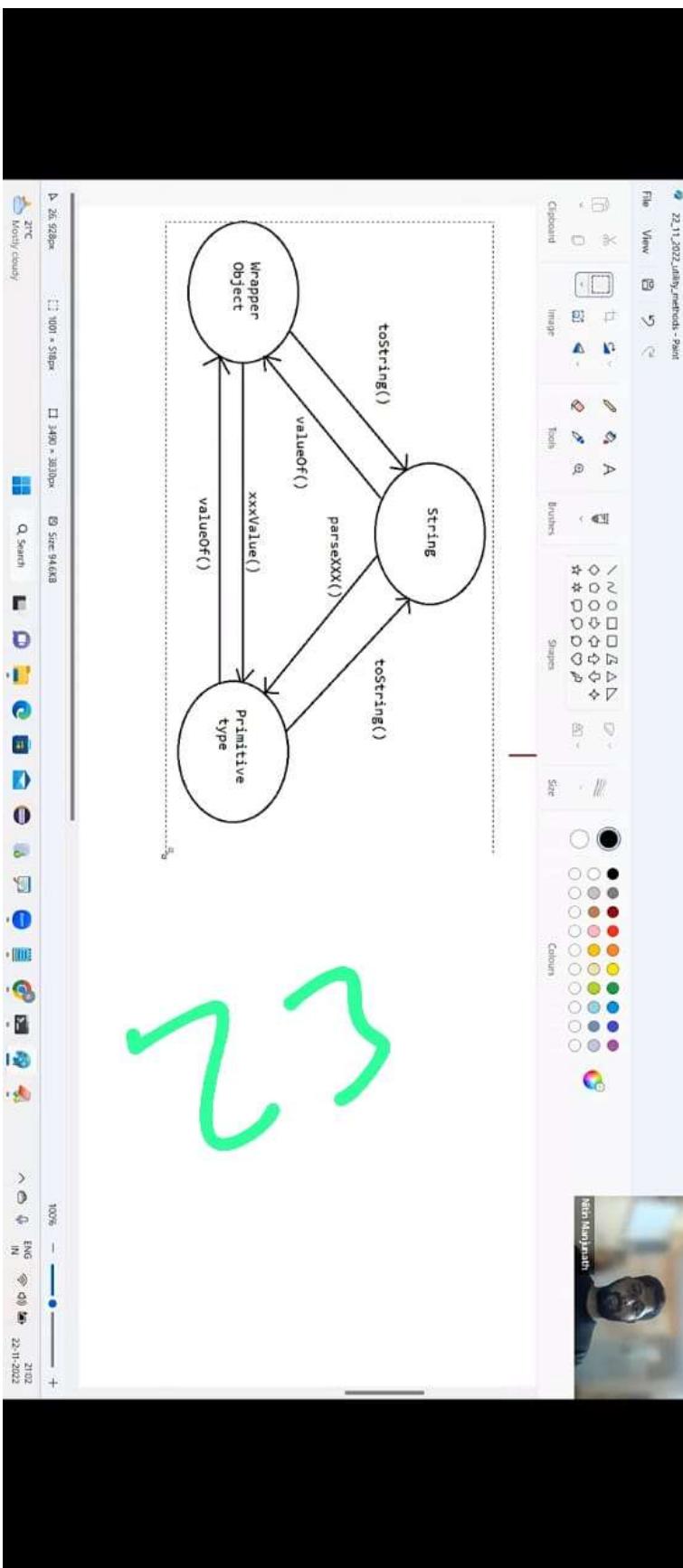
Java(TM) SE Runtime Environment
Java(TM) SE Runtime Environment
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22.11.2022_wiproper_class_notes - Notepad

File Edit View

}

Note:

String class

```
public static String valueOf(boolean);
public static String valueOf(char);
public static String valueOf(int);
public static String valueOf(long);
public static String valueOf(float);
public static String valueOf(double);
```

String data = String.valueOf('a');//static factory methods

String data = "sachin".toUpperCase();//instance factory methods

24

Nitin Manjrekar

100% Windows (CET) UTF-8

20°C Mostly cloudy

Q. Search

```
7
8  {
9
10 public static void main(String[] args)
11 {
12     Boolean b1 = Boolean.valueOf(true);
13     if (b1)
14     {
15         System.out.println("hello");
16     }
17 }
18 }
19 }
```

25

AutoBoxing and AutoUnBoxing

=====

until 1.4 Version, we can't provide wrapper class objects in place of primitive and primitive in place of wrapper object all the required conversions should be done by the programmer.

But from jdk1.5 Version onwards, we can provide primitive in place of wrapper and in place of wrapper we can keep primitive also. All the required conversion will be done by the compiler automatically, this mechanism is called as "AutoBoxing" and "AutoUnBoxing".

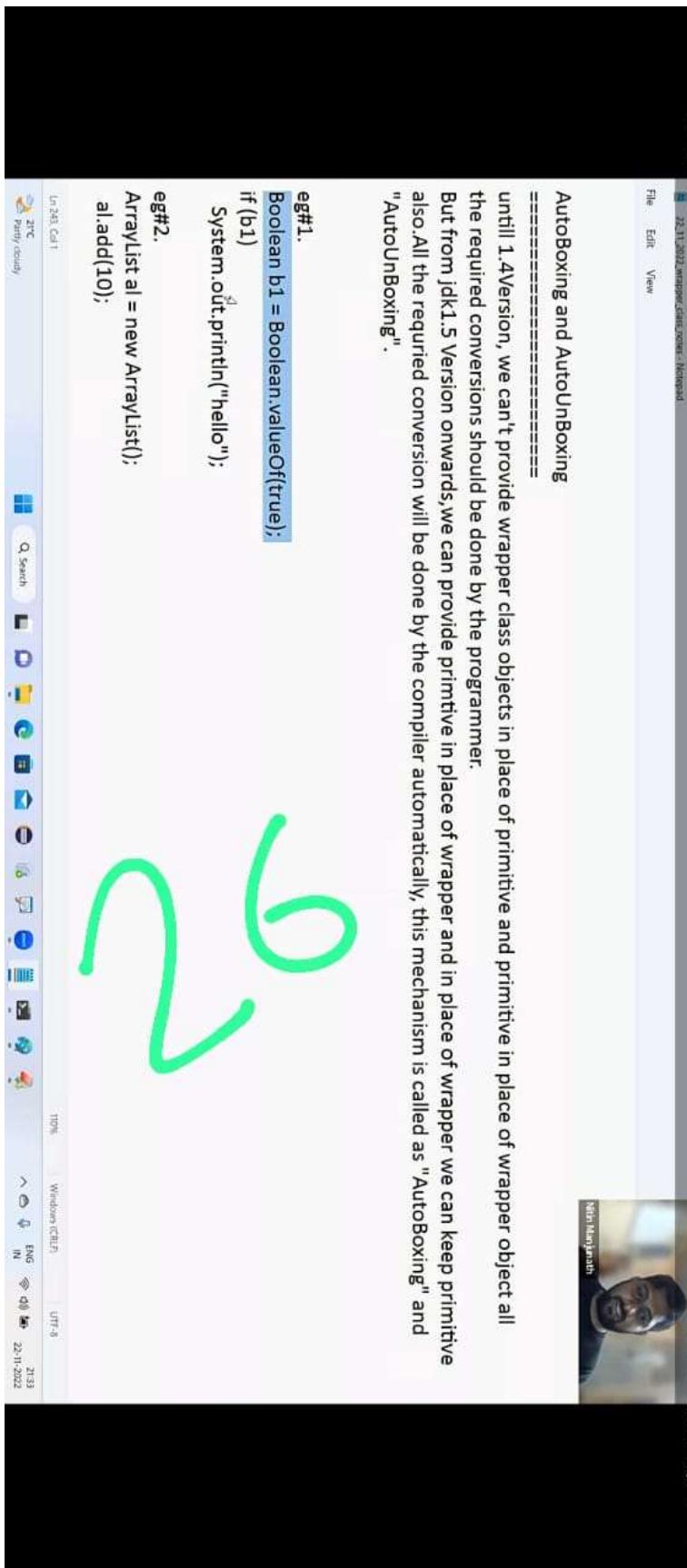
eg#1.

```
Boolean b1 = Boolean.valueOf(true);
if(b1)
    System.out.println("hello");
```

eg#2.

```
ArrayList al = new ArrayList();
al.add(10);
```

26



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File Edit View Search Document Project Tools Power Editor Window Help

Directory Object Functions

[D] New Volume D:\ Websphere classes

1 2 3 4 5 6 7

```
1 public static void main(String[] args)
2 {
3     Integer i1 = 10; //Integer i1 = Integer.valueOf(10);
4 }
5 class Test
6 {
7 }
```

Java(TM) SE Runtime Environment (build 1.8.0_291-b10)

Java(TM) SE Development Kit (build 1.8.0_291-b10)

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Q Search

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27

```
22.11.2022 - netbeans - Home
```

```
File Edit View
```

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

```
eg#2.
```

```
ArrayList al = new ArrayList();
```

```
al.add(10);
```

```
Autoboxing
```

```
=====
```

```
Automatic conversion of primitive type to wrapper object by the compiler is called "AutoBoxing".
```

```
Integer i1 = 10;
```

```
After compilation the code would be
```

```
Integer i1 = Integer.valueOf(10);
```

Note: Autoboxing is done by the compiler using a method called "valueOf()".

AutoUnBoxing



Editor - (D:\Whisper classes\HelloWorld)

File Edit View Search Document Project Tools Brower Ethernet Window Help

Directory Object Functions

[D] New Volume D:\ Whisper classes

```
1 class Test
2 {
3     public static void main(String[] args)
4     {
5         Integer i1 = new Integer(10);
6         int i2 = i1;// int i2 = i1.intValue();
7         System.out.println(i2);
8     }
9 }
10
11
12
13
14
15
16
17
```

Nitin Mahajan

Java (*.java) Test.java For Help press F1 20°C Party cloudy

Q Search

In 11 col 26 17 74 PC ANSI ~ ⌂ ⌄ ENG ⇢ ⇣ ⇤ ⇥ 22.11.2022

```
22.11.2022 whisper class power - Reopened
File Edit View
|
Integer i1 = Integer.valueOf(10);

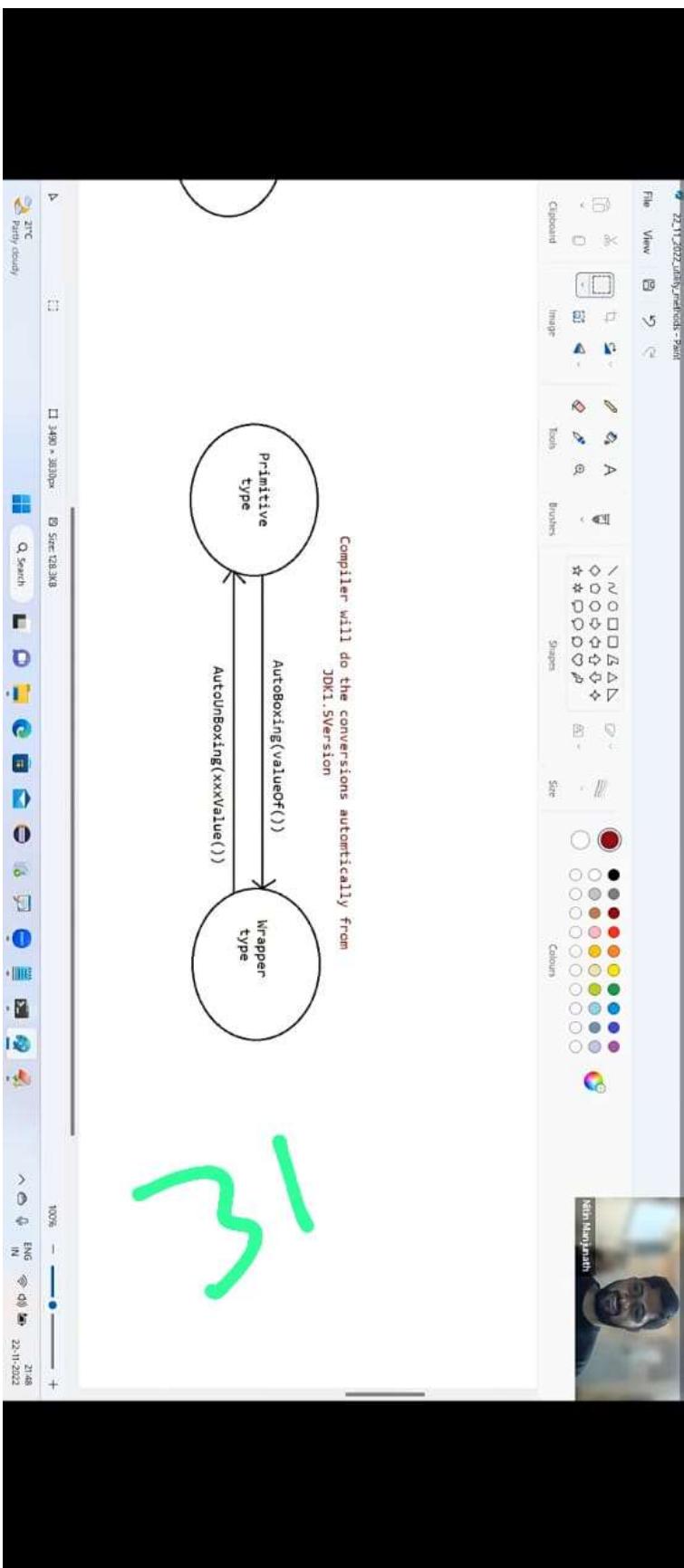
Note: Autoboxing is done by the compiler using a method called "valueOf()".
=====
AutoUnBoxing
=====
Automatic conversion of wrapper object to primitive type by compiler is called "AutoUnBoxing".

Integer i1 = new Integer(10);
int i2 = i1;
| compiler converts Integer to int type using intValue()
|
int i2 = i1.intValue();

Note: AutoUnBoxing is done by the compiler using a method called "xxxValue()"



```

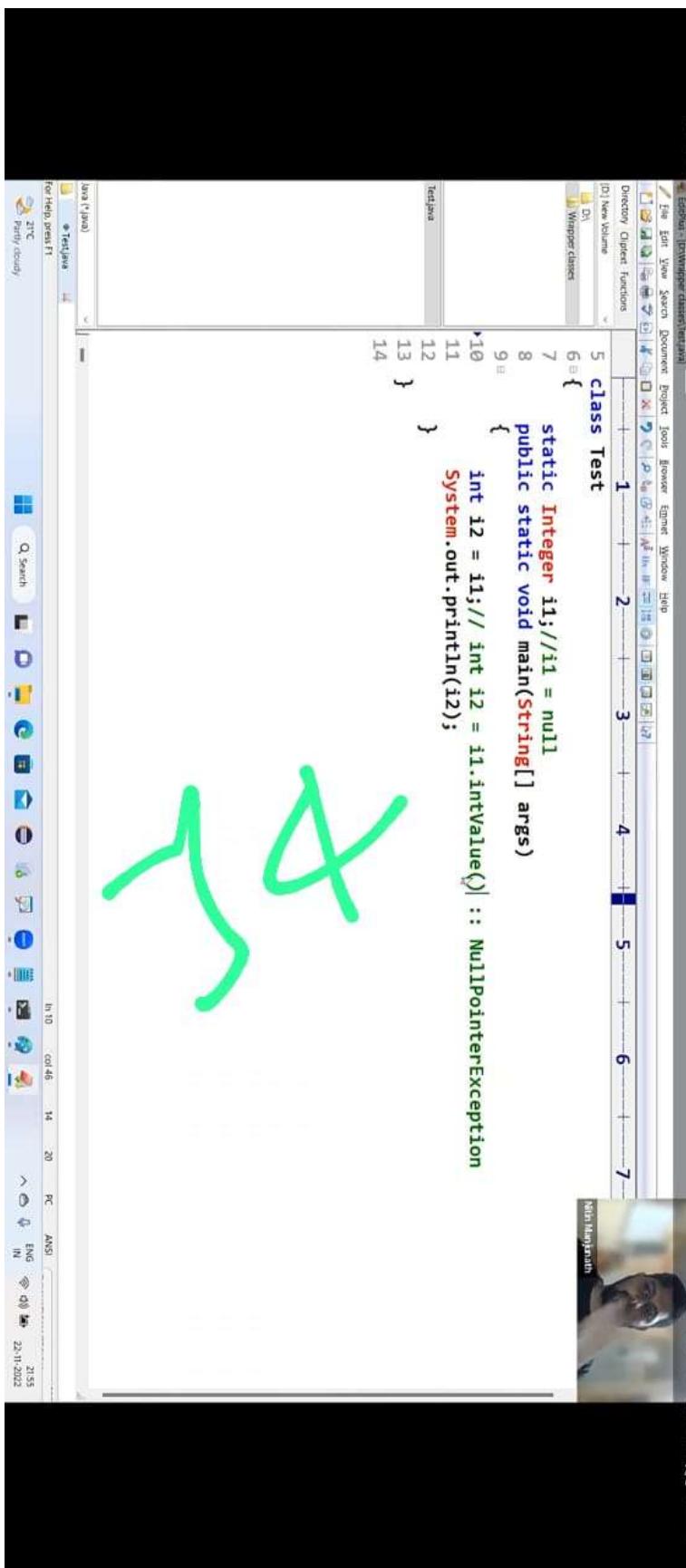


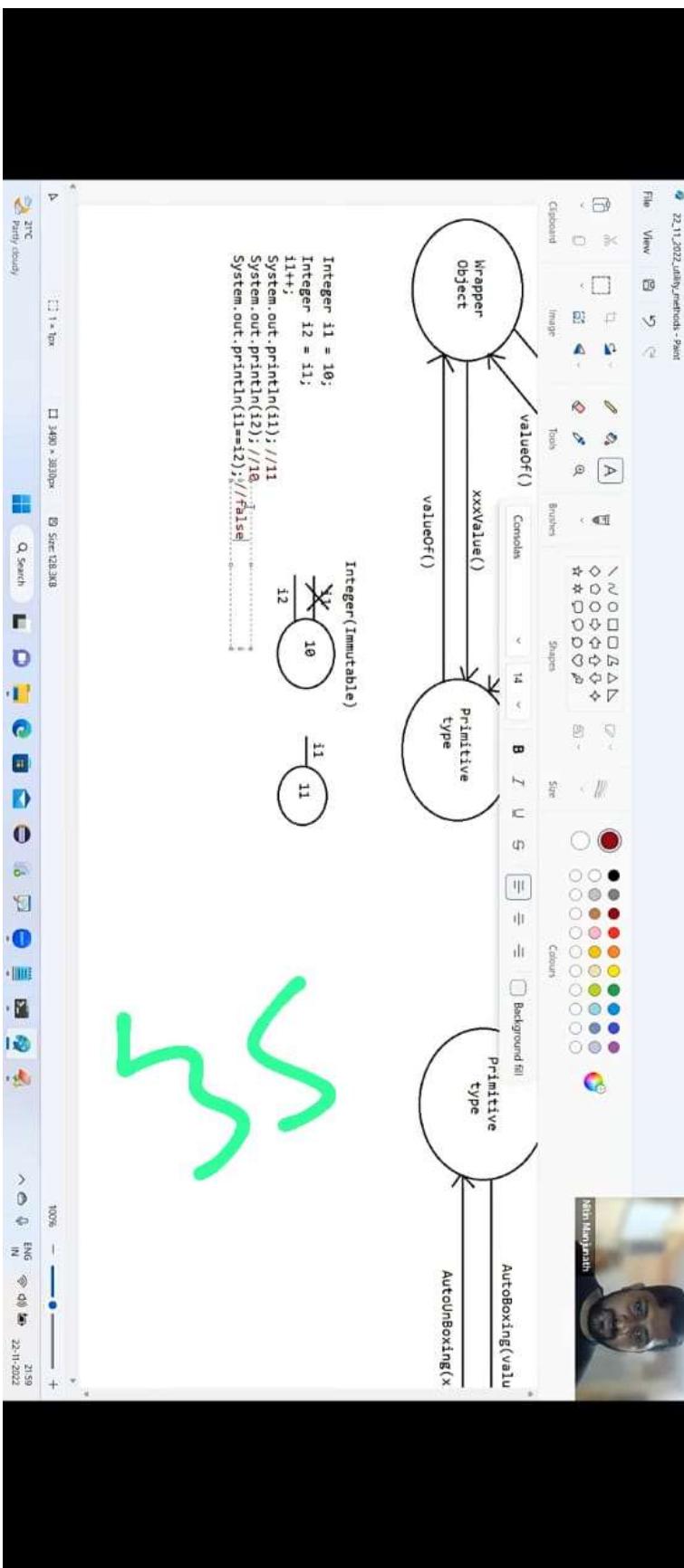
```
7 static Integer i1 = 10;// AutoBoxing
8 public static void main(String[] args)
9 {
10     int i2 = i1;//AutoUnBoxing
11     m1(i2);
12 }
13 */
14 public static void m1(Integer i2){//AutoBoxing
15     int k = i2;//AutoUnBoxing
16     System.out.println(k);//10
17 }
18 }
```

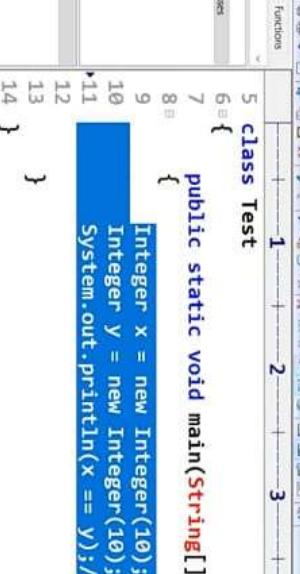


```
22.11.2022 whisper class power - Notepad  
File Edit View  
=====  
class Test  
{  
    static Integer i1 = 10;// AutoBoxing  
    public static void main(String[] args)  
    {  
        int i2 = i1;//AutoUnBoxing  
        m1(i2);  
    }  
    public static void m1(Integer i2){//AutoBoxing  
        int k = i2;//AutoUnBoxing  
        System.out.println(k);//10  
    }  
}  
  
Compiler is responsible for conversion of primitive to wrapper and wrapper to primitive using the concept of "AutoBoxing and AutoUnBoxing".
```



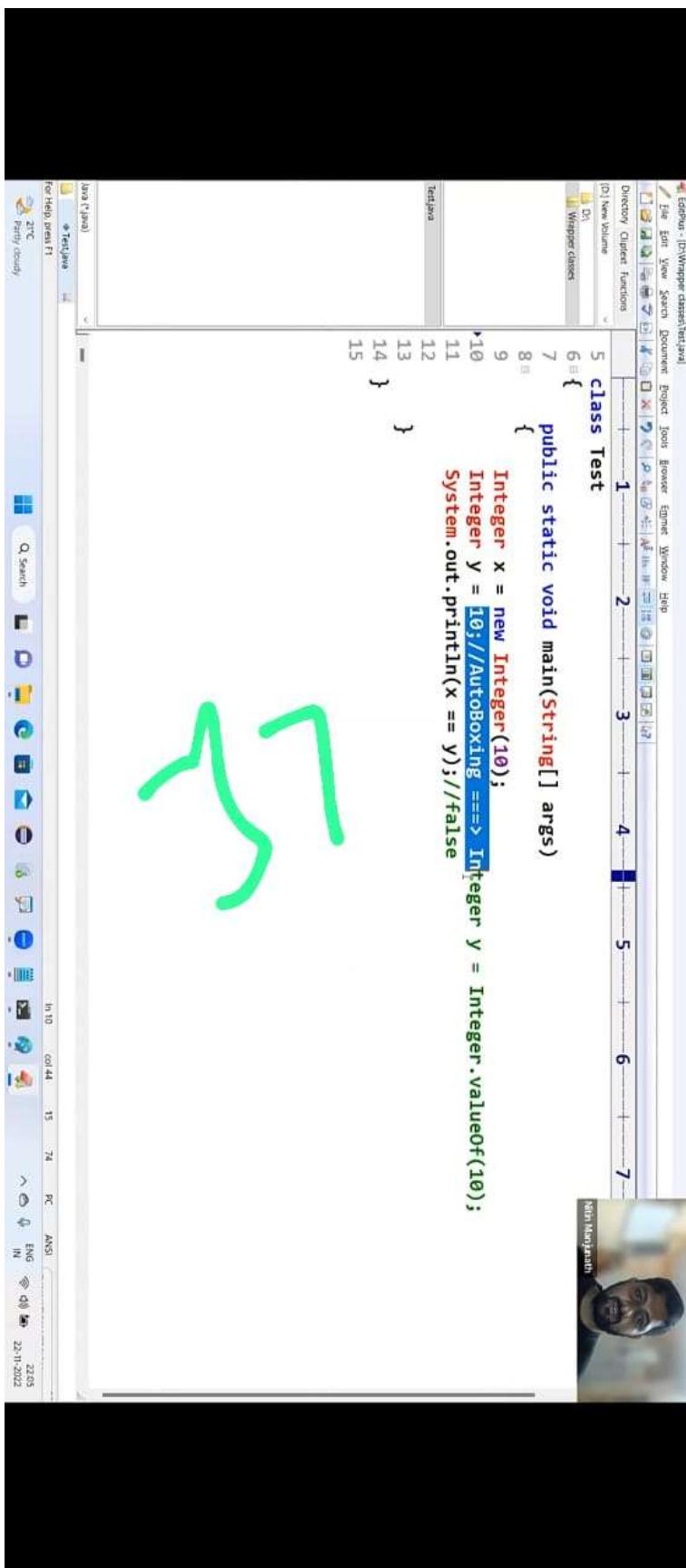






```
 1  package com.example;
 2
 3  public class Test {
 4      public static void main(String[] args) {
 5          Integer x = new Integer(10);
 6          Integer y = new Integer(10);
 7          System.out.println(x == y); //false
 8      }
 9  }
```

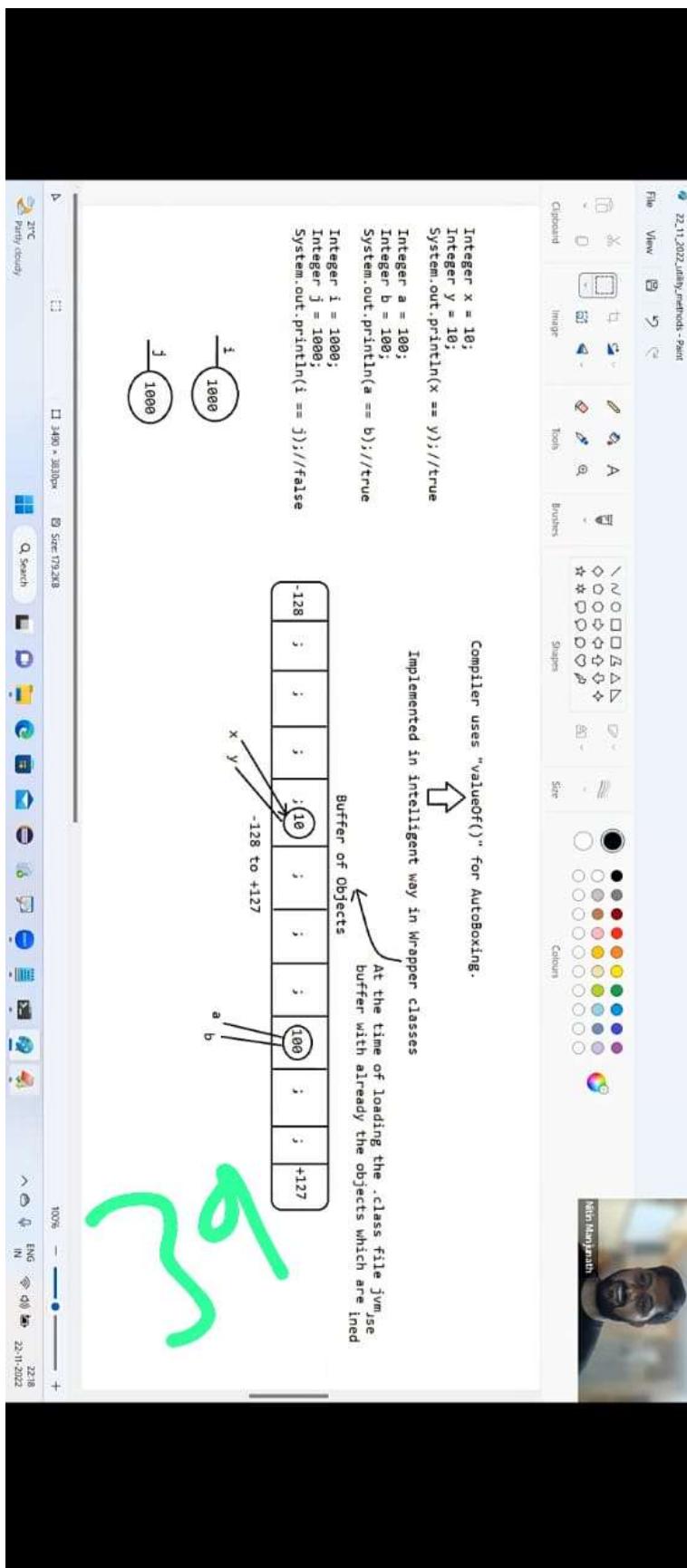
36





```
Java (Test.java) * Test.java ④ For Help press F1 20°C Party cloudy
 1 package com.example;
 2
 3 public class Test {
 4     public static void main(String[] args) {
 5         Integer x = new Integer(10);
 6         Integer y = x;
 7         System.out.println(x == y); //true
 8     }
 9 }
10
11
12
13
14
15
```

The screenshot shows a Java code editor with a file named `Test.java`. The code defines a class `Test` with a `main` method. Inside the `main` method, it creates two `Integer` objects, `x` and `y`, and prints their equality. A large green hand-drawn question mark is overlaid on the code editor area. The status bar at the bottom shows the file name, line number (In 11), column number (col 42), and other system information like temperature and weather.



22.11.2022.wnppc_consider - Notepad

File Edit View

```
Integer x = new Integer(10);
Integer y = new Integer(10);
System.out.println(x == y); //false

Case5:
Integer x = new Integer(10); //memory from heap area
Integer y = 10; //AutoBoxing ==> Integer y = Integer.valueOf(10);
System.out.println(x == y); //false

Case6:
Integer x = new Integer(10);
Integer y = x; ==> reference is reused so pointing to same object
System.out.println(x == y); //true

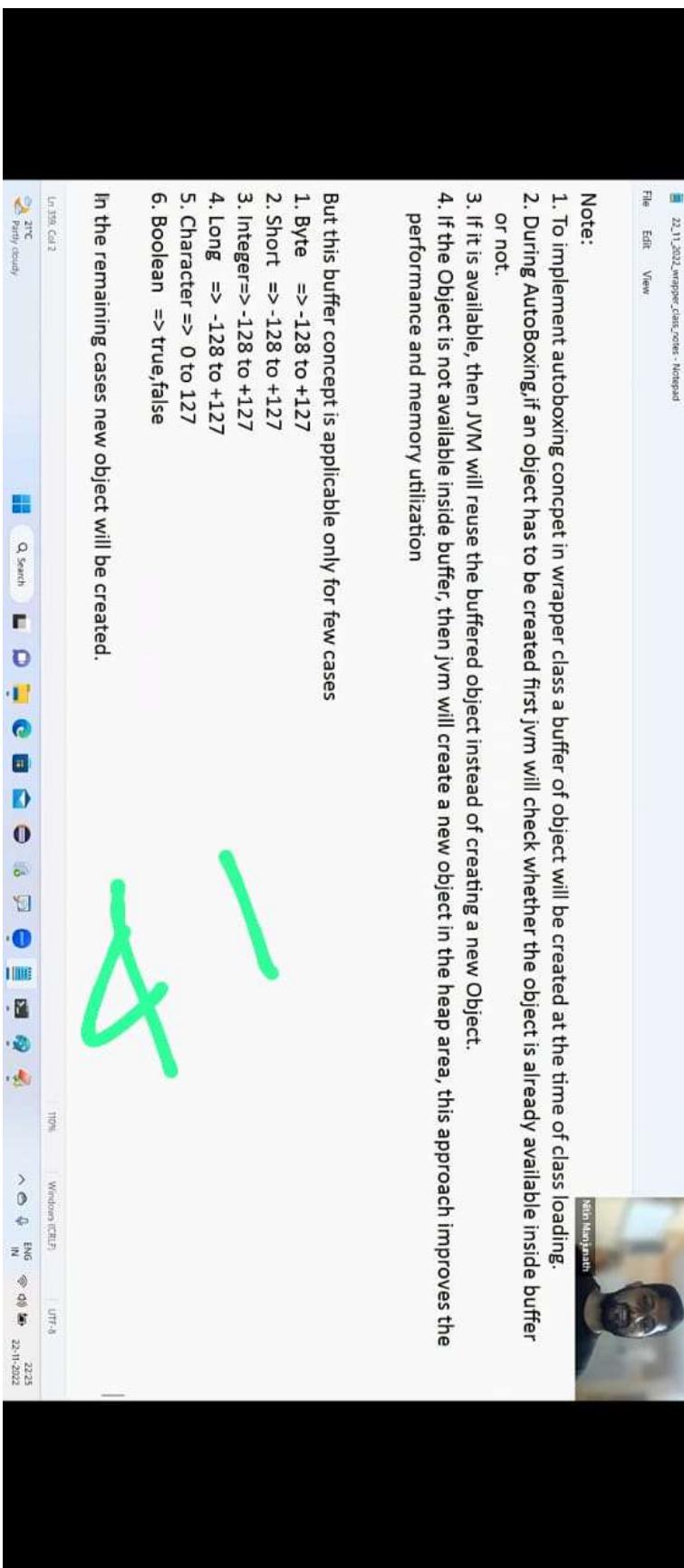
Case7:
Integer x = 10;
Integer y = 10;
System.out.println(x == y);

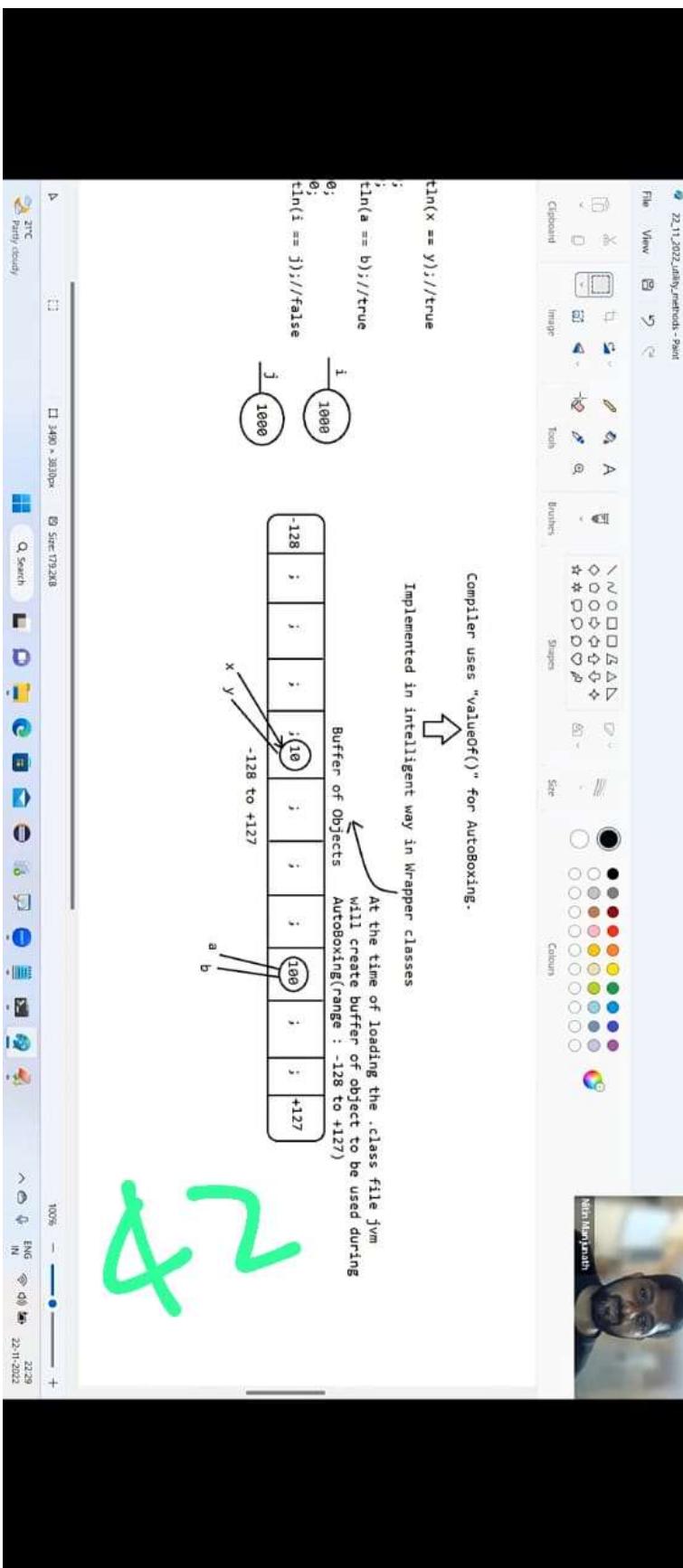
Integer a = 100;
```

40



20°C Partly cloudy





Editor - D:\Whisper classes\HelloWorld

File Edit View Search Document Project Tools Browser Ethernet Window Help

Directory Object Functions

[D] New Volume

D:\ Whisper classes

Tet.java

```
1 {  
2     Integer x = 128;  
3     Integer y = 128;  
4     System.out.println(x == y); //false  
5     Integer a = 127;  
6     Integer b = 127;  
7     Boolean b1 = true;  
8     Boolean b2 = true;  
9     System.out.println(b1==b2); //true  
10    Double d1 = 10.0;  
11    Double d2 = 10.0;  
12    System.out.println(d1==d2); //false  
13}  
14 }  
15 }
```

Java (*.java)

* Tet.java

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20°C Party cloudy

Q Search

43

Nitin Manjrekar

In 23 col 43 26 00 PC ANSI

ENG ⇔ CHI 22.11.2022