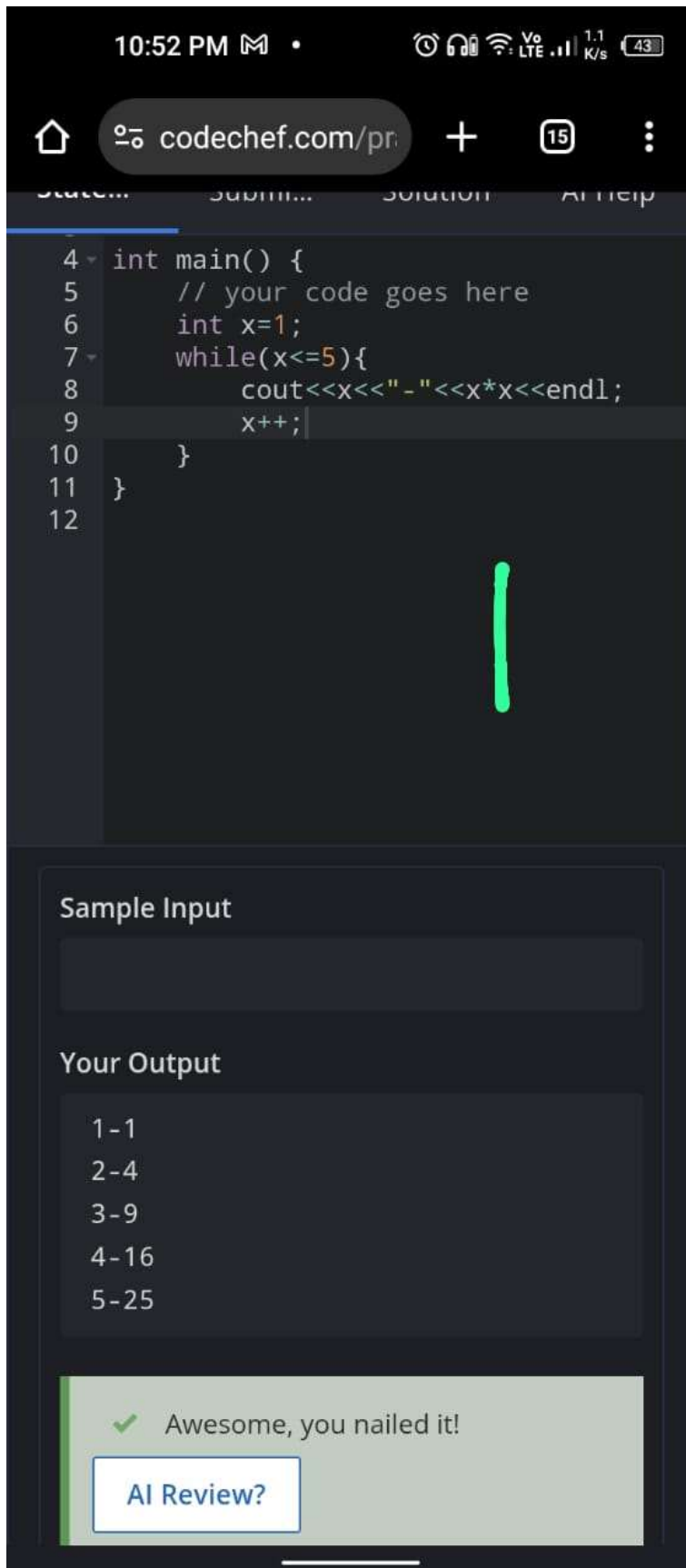


Java Inner Classes And Interfaces



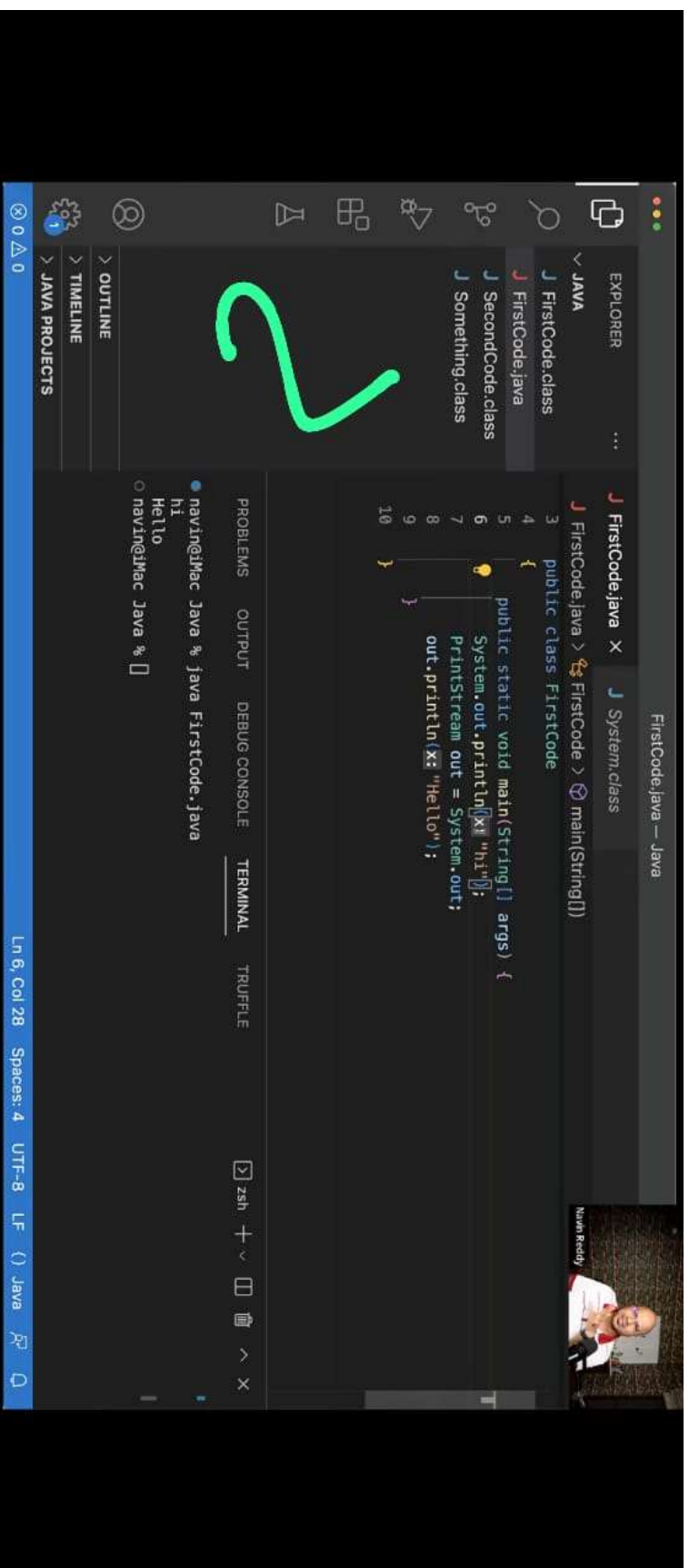
The screenshot shows a mobile interface of a CodeChef problem page. At the top, the status bar shows the time 10:52 PM and battery level 43%. The browser address bar shows the URL codechef.com/pr. Below the address bar, there are tabs for 'State...', 'Submit...', 'Solution', and 'AI Help'. The main code editor displays a C++ program with line numbers 4 to 12. The code is as follows:

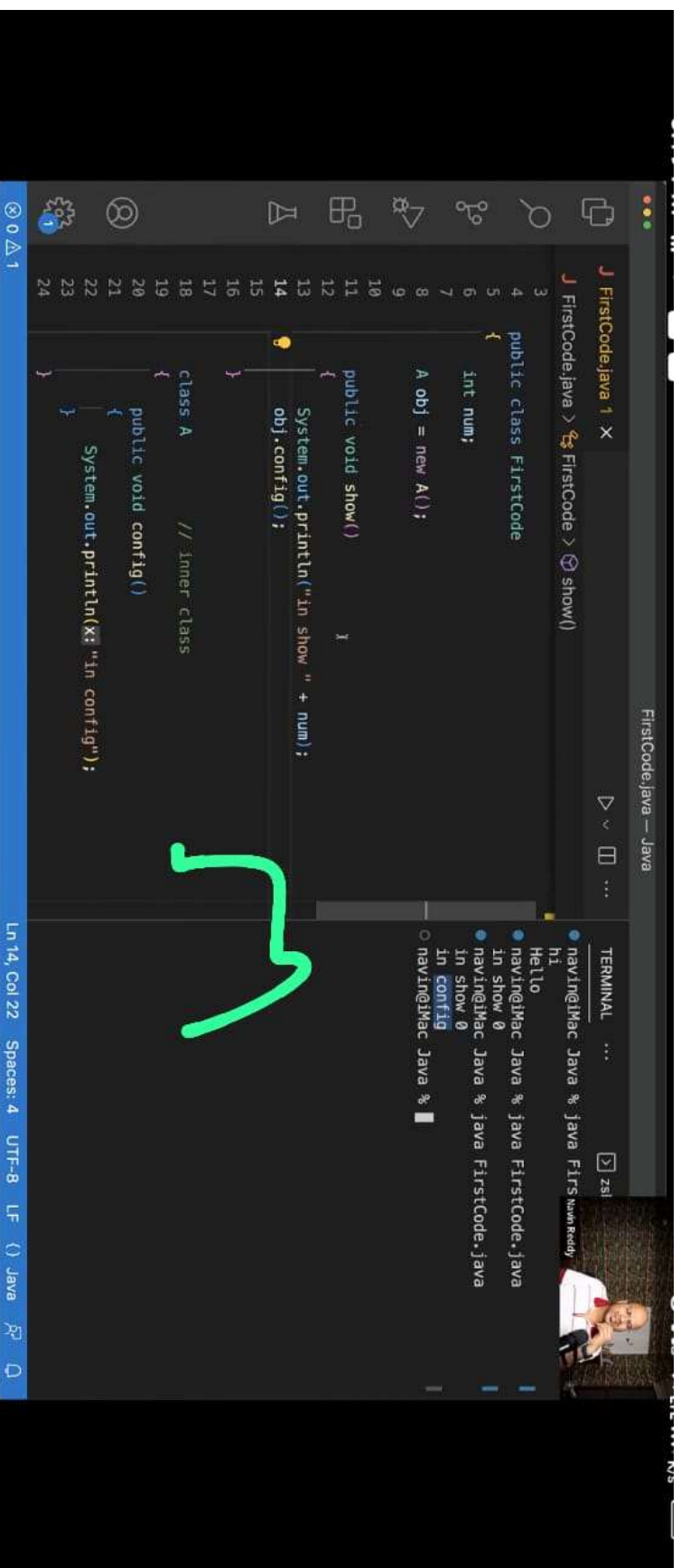
```
4 int main() {  
5     // your code goes here  
6     int x=1;  
7     while(x<=5){  
8         cout<<x<<"- "<<x*x<<endl;  
9         x++;  
10    }  
11 }  
12
```

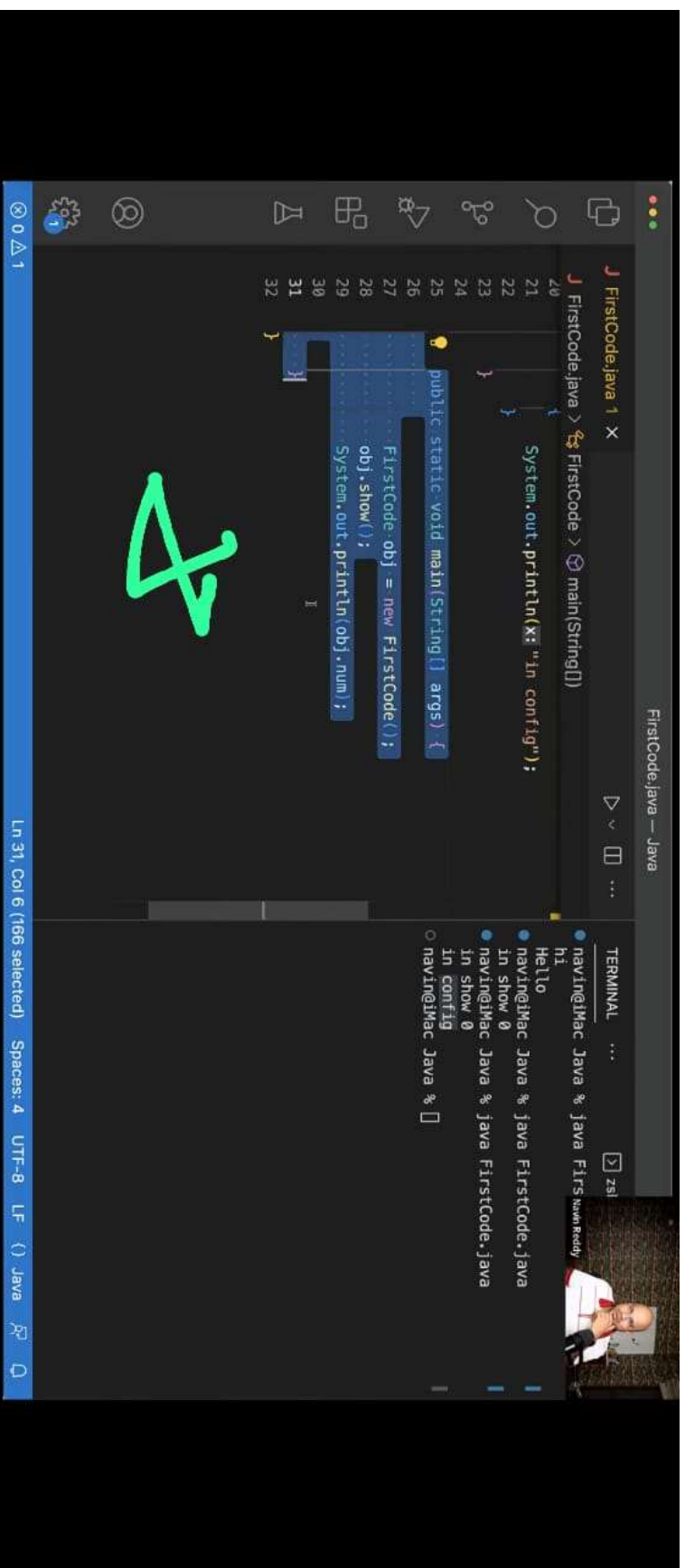
Below the code editor, there is a 'Sample Input' section with an empty text box. Underneath that is the 'Your Output' section, which displays the following output:

```
1-1  
2-4  
3-9  
4-16  
5-25
```

At the bottom of the page, there is a green banner with a checkmark icon and the text 'Awesome, you nailed it!'. Below this banner is a button labeled 'AI Review?'.







FirstCode.java — Java

EXPLORER

▼ JAVA

▼ B.class

▼ FirstCode.class

▼ FirstCode.java

▼ FirstCode\$.class

▼ FirstCode.java X

▼ FirstCode > FirstCode > A

```
1  class B{
2
3  }
4
5  public class FirstCode
6  {
7      private int num;
8
9      A obj = new A();
10
11     public void show()
12     {
13         System.out.println("in show ")
14         obj.config();
15     }
16
17     }
18     class A{ // inner class
19     {
20         public void config()
21         {
22             System.out.println("in c
```

TERMINAL

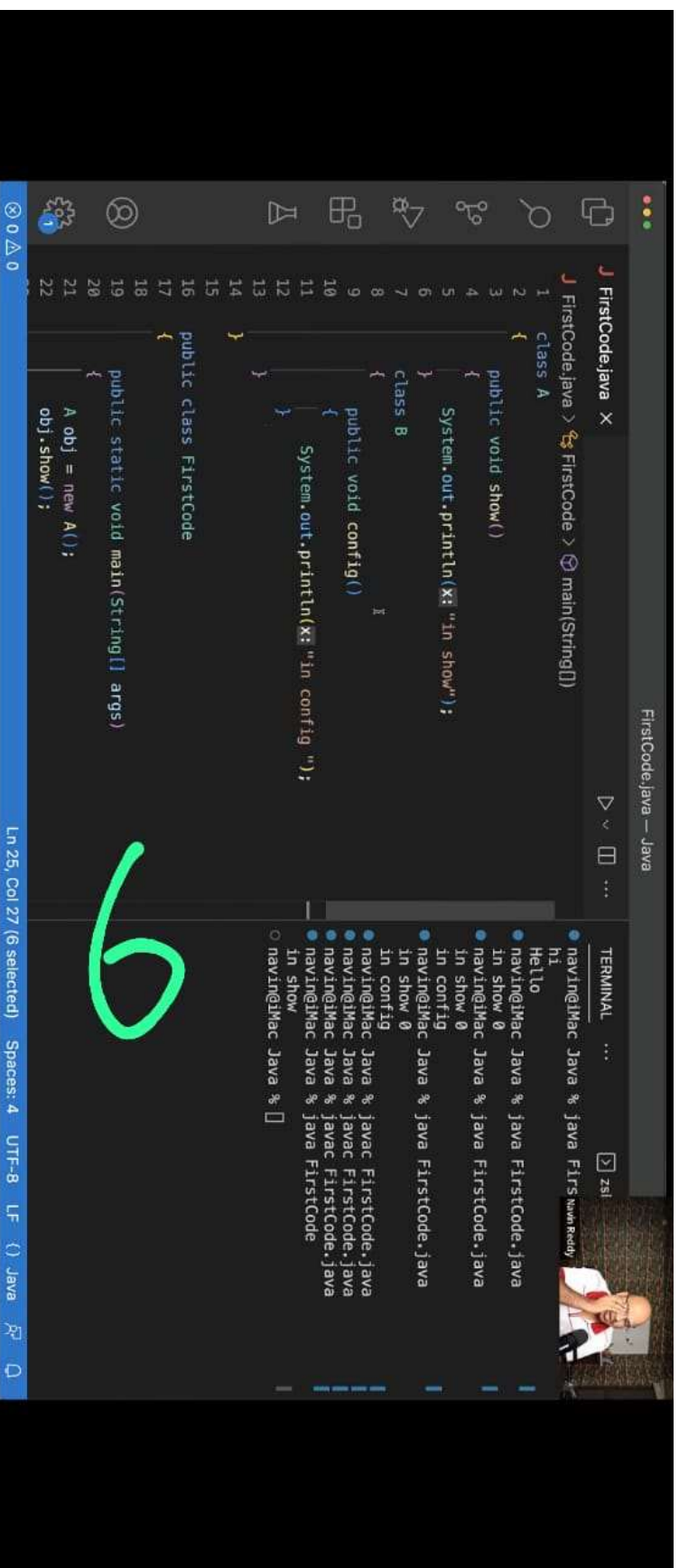
...

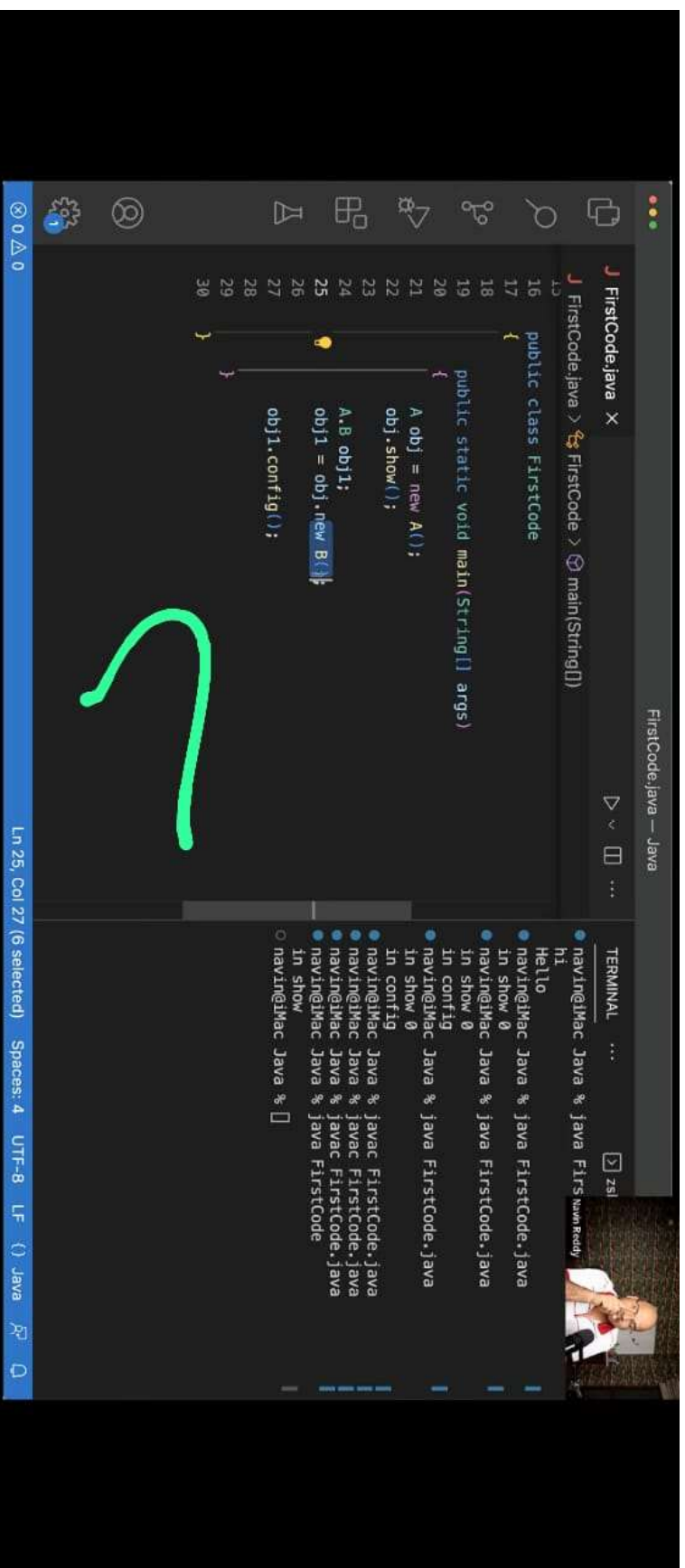
zsl

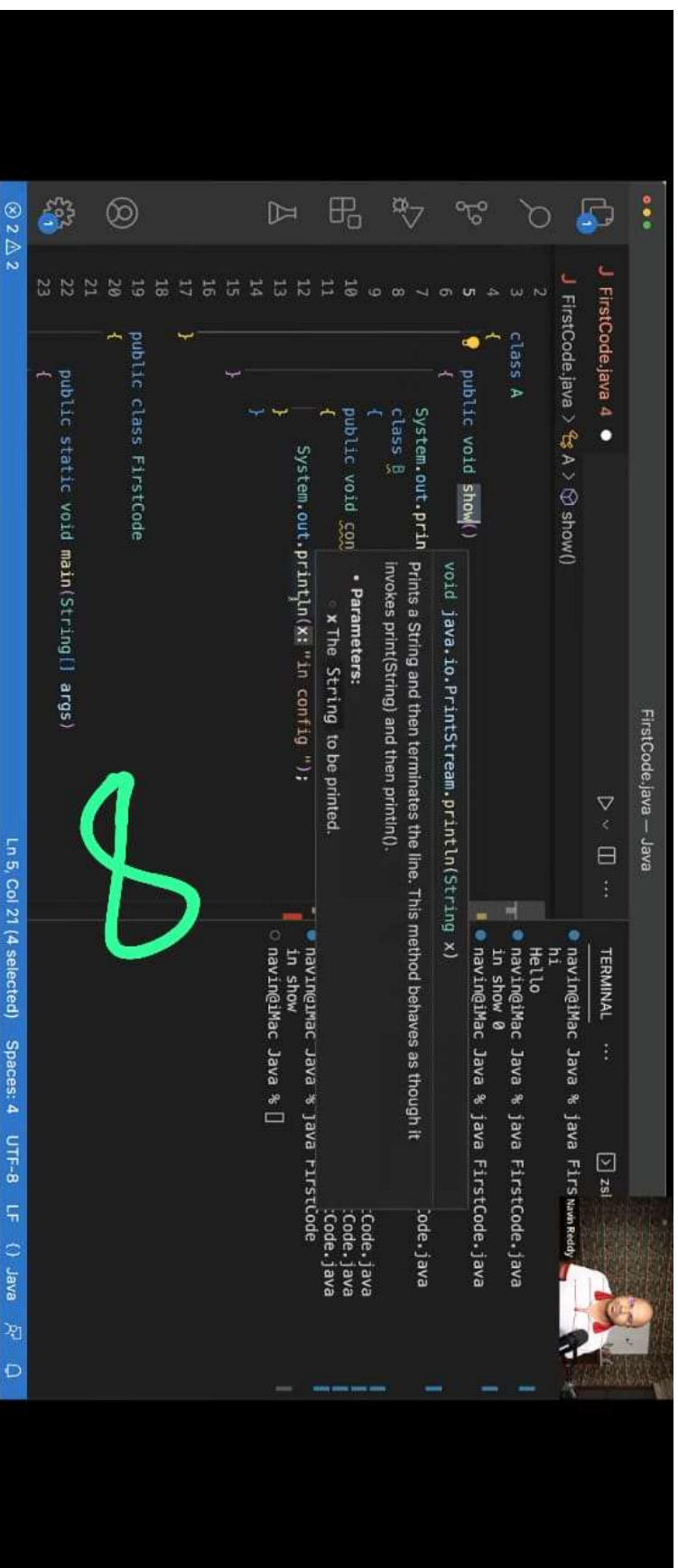
```
navin@Mac Java % java FirstCode.java
hi
Hello
navin@Mac Java % java FirstCode.java
in show 0
navin@Mac Java % java FirstCode.java
in show 0
navin@Mac Java % java FirstCode.java
in config
navin@Mac Java % java FirstCode.java
in show 0
navin@Mac Java % javac FirstCode.java
navin@Mac Java % javac FirstCode.java
navin@Mac Java %
```

Ln 18, Col 11 (3 selected) Spaces: 4 UTF-8 LF () Java

CS







FirstCode.java X

FirstCode.java > A

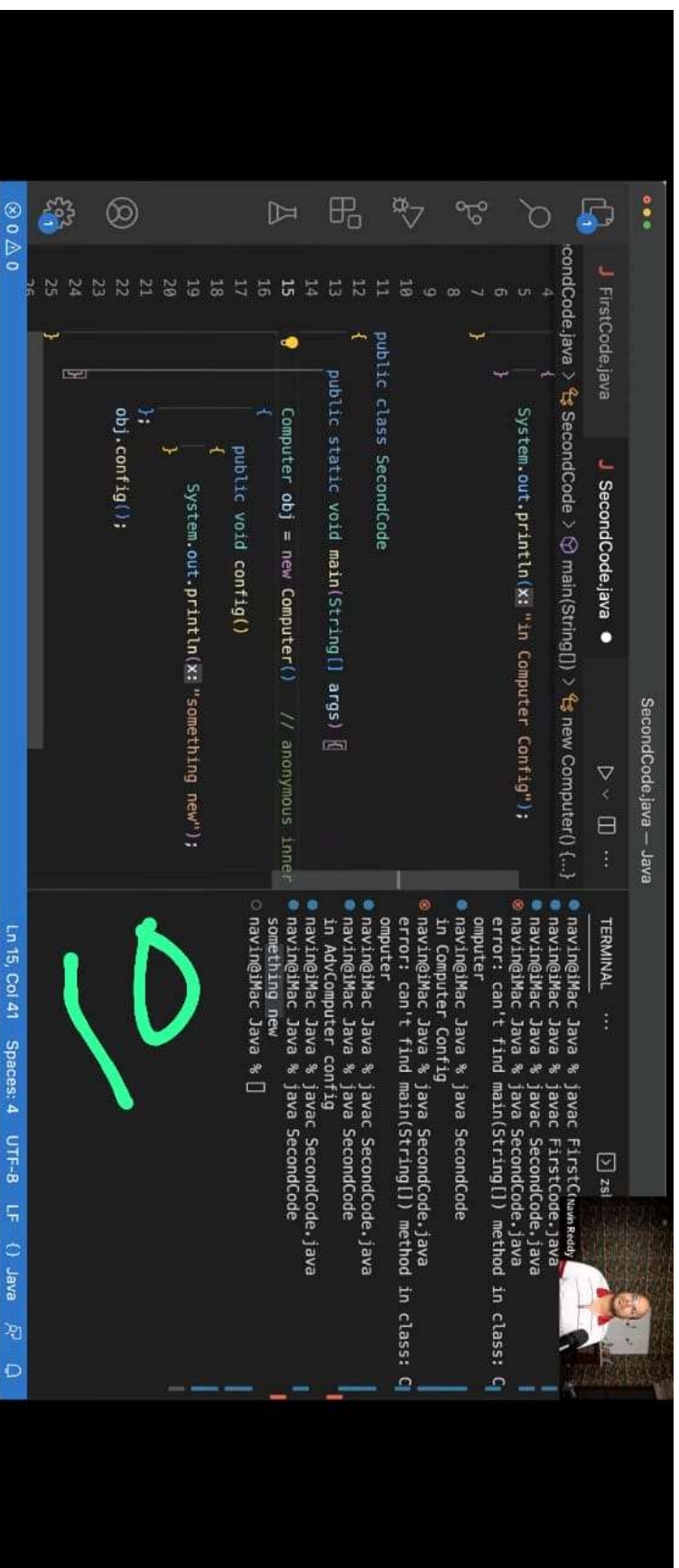
```
1  *
2  * Build by Navin
3  *
4  *
5  */
6
7  class A {
8      public void show() {
9          System.out.println("in show");
10     }
11
12     class B {
13         public void config() {
14             System.out.println("in config");
15         }
16     }
17 }
18
19 // Main class
20 public class FirstCode {
21
22     public static void main(String[] args) {
```

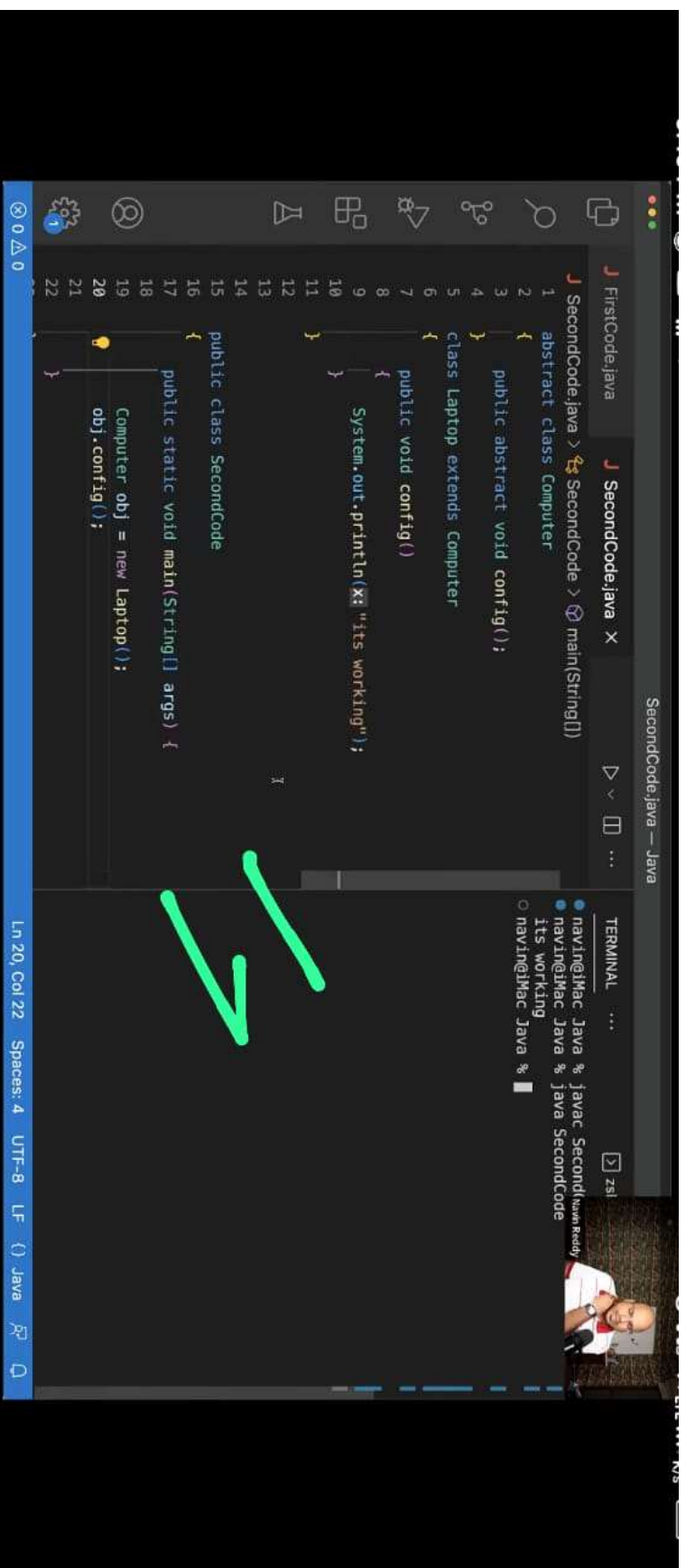
TERMINAL ... javadoc

navin@iMac Java % java FirstCode.java
hi
Hello
navin@iMac Java % java FirstCode.java
in show 0
navin@iMac Java % java FirstCode.java
in show 0
navin@iMac Java % java FirstCode.java
in config
navin@iMac Java % java FirstCode.java
in show 0
navin@iMac Java % javac FirstCode.java
navin@iMac Java % javac FirstCode.java
navin@iMac Java % javac FirstCode.java
navin@iMac Java % java FirstCode
in show
navin@iMac Java % javadoc FirstCode.java
Loading source file FirstCode.java...
Constructing Javadoc information...
Building index for all the packages and classes
...
Standard Doclet version 19+36-2238
Building tree for all the packages and classes.
...
Generating ./FirstCode.html...

Ln 2, Col 10 Spaces: 4 UTF-8 LF Java







SecondCode.java — Java

FirstCode.java

SecondCode.java X

main(String[]) > new Computer() {...} > config()

SecondCode > main(String[]) > new Computer() {...} > config()

```
1 // \n2 // \n3 // \n4 // \n5 // \n6 // \n7 // \n8 // \n9 // \n10 // \n11 // \n12 // \n13 // \n14 // \n15 // \n16 // \n17 // \n18 // \n19 // \n20 // \n21 // \n22 // \n23 // \n24 // \n25 // \n26 // \n27 // \n28 // \n\npublic class SecondCode {\n\n    public static void main(String[] args) {\n\n        Computer obj = new Computer();\n        public void config()\n        {\n            System.out.println("its working very fine");\n        }\n    }\n}
```

TERMINAL ...

zsl

navin@iMac Java % javac SecondCode.java

navin@iMac Java % java SecondCode

its working

navin@iMac Java % javac SecondCode.java

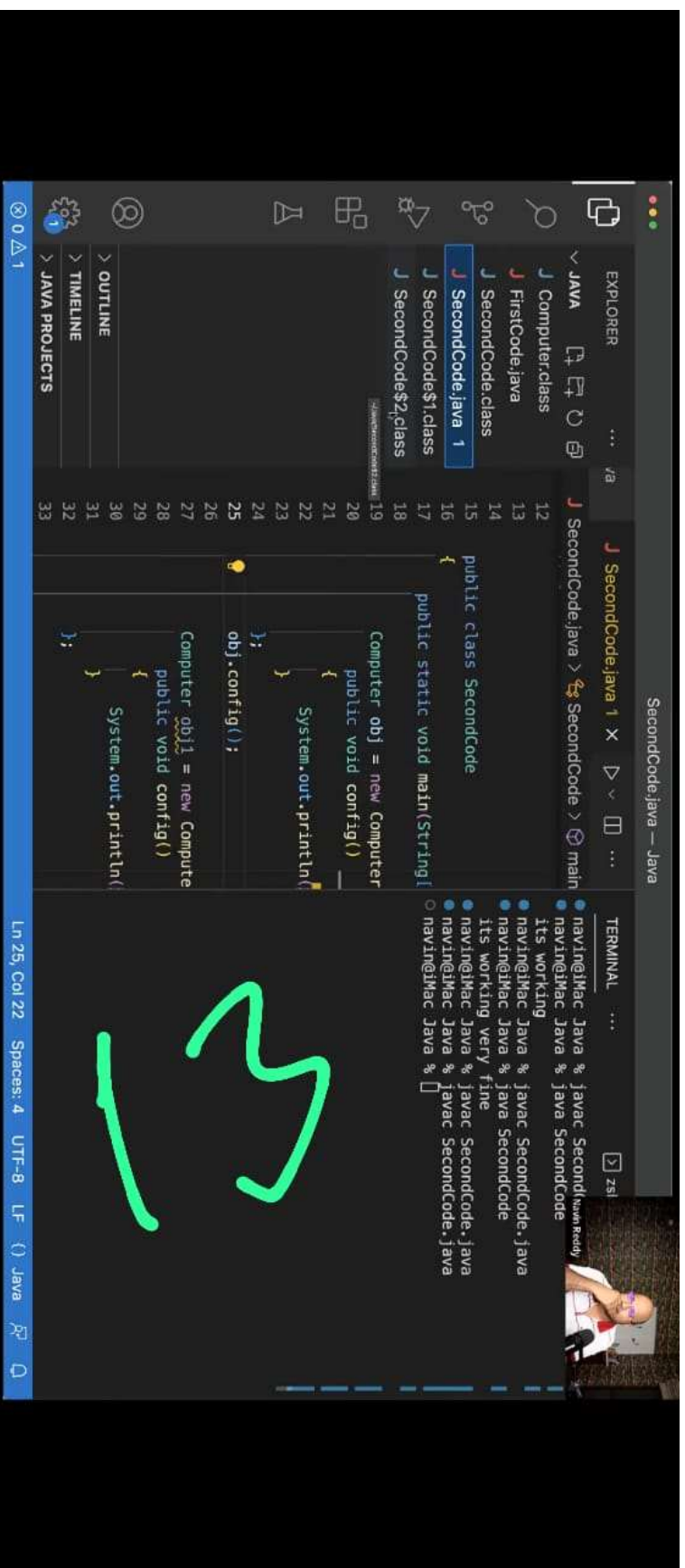
navin@iMac Java % java SecondCode

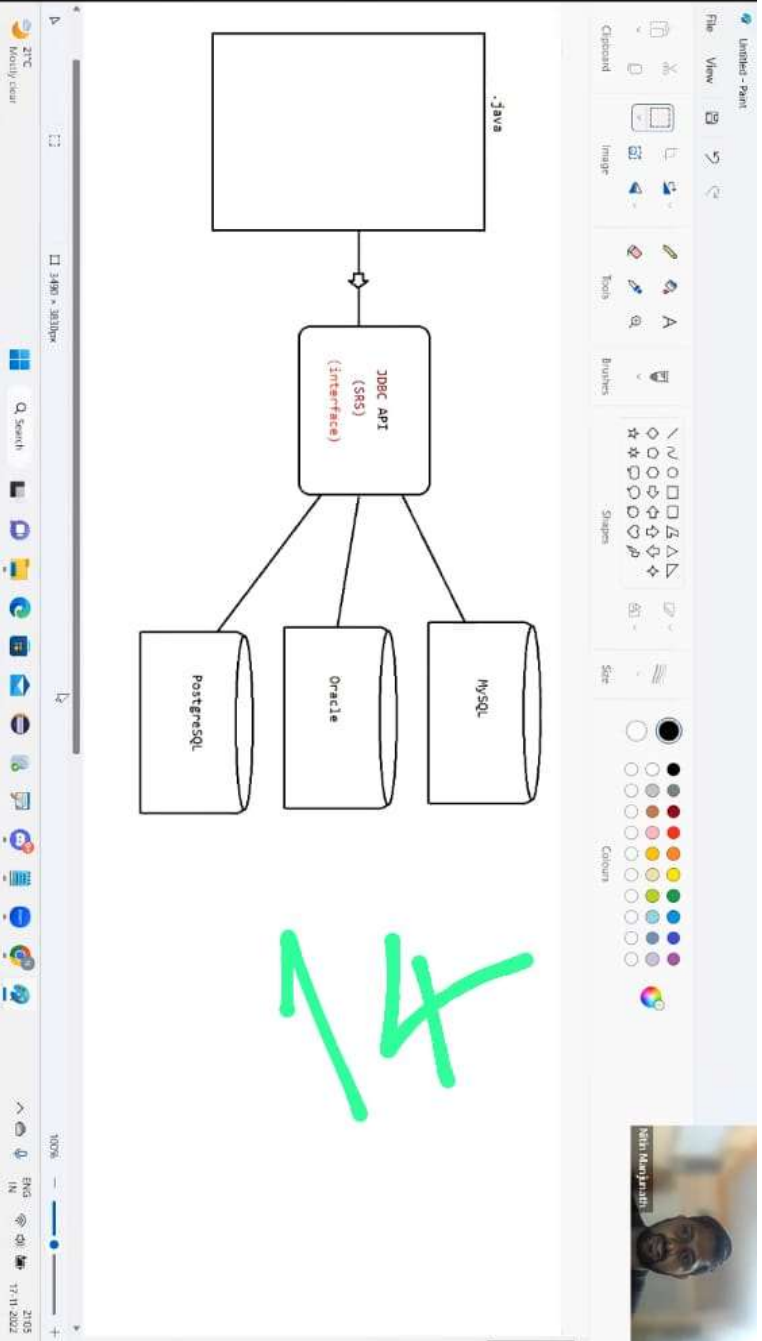
its working very fine

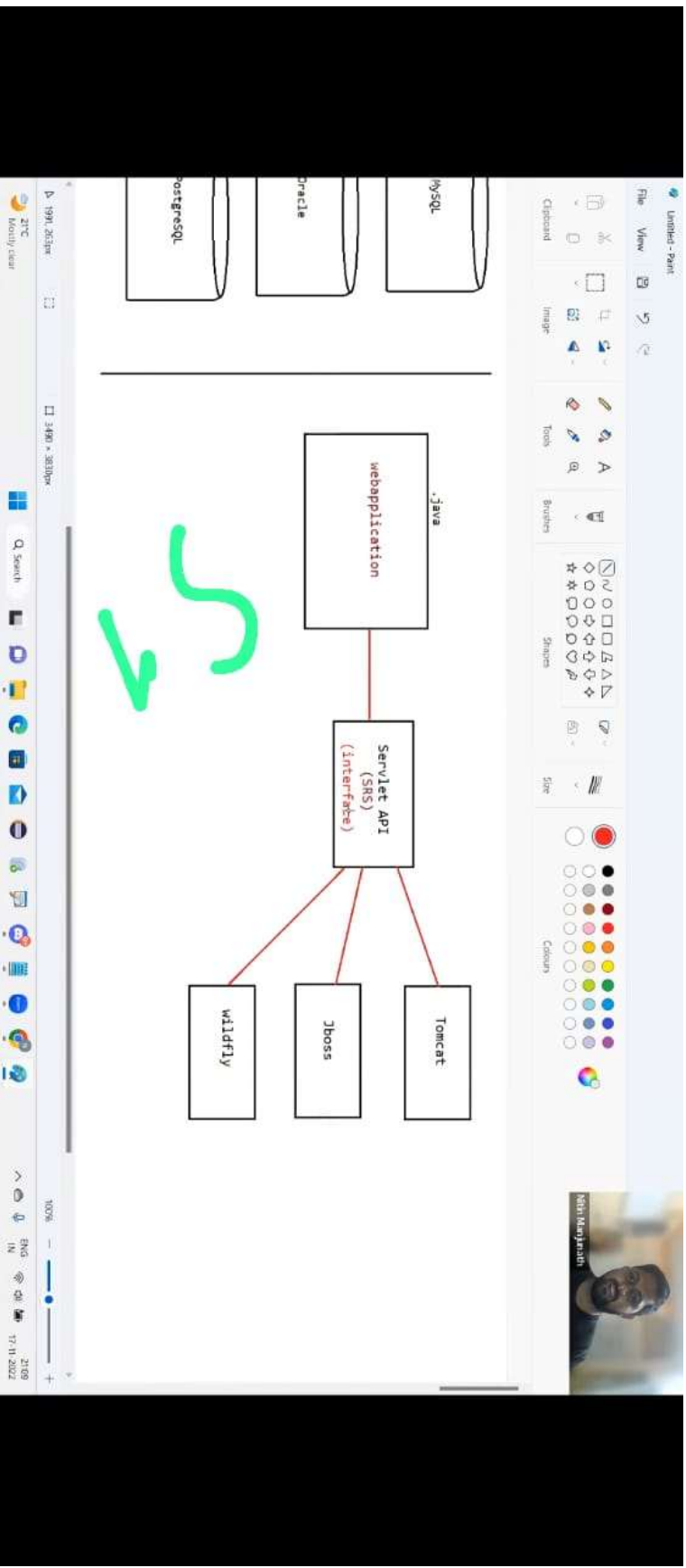
navin@iMac Java %

Ln 22, Col 58 Spaces: 4 UTF-8 LF () Java

12



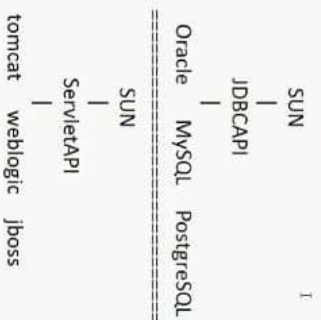




Interface

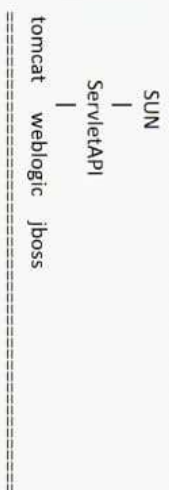
Def1::Any service requirement specification(SRS) is called interface.

eg:: SUN people responsible to define JDBC API and database vendor will provide implementation for that



16





```
.class => JVM(part of jdk software)
```

`.class ==> JVM(part of special software called servers like tomcat, g`

۱۷

The screenshot shows a Windows 10 desktop. The Start menu is open, displaying a grid of application icons including the Windows logo, Search, File Explorer, Microsoft Edge, Word, PowerPoint, OneDrive, and various games like Candy Crush and Solitaire. The taskbar at the bottom contains the Start button, pinned application icons (Edge, File Explorer, Word, PowerPoint, OneDrive), and the system tray on the right showing the date and time as 17:11 on 17/11/2022.

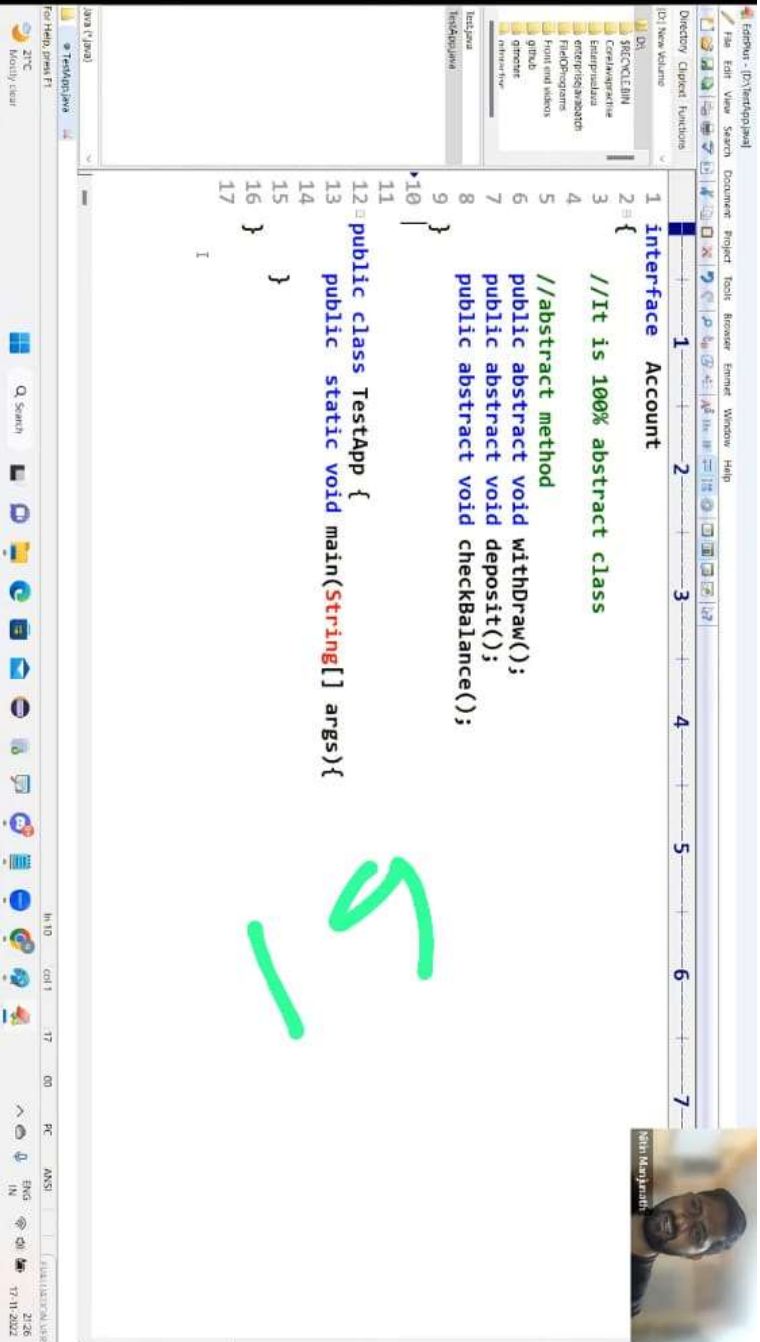


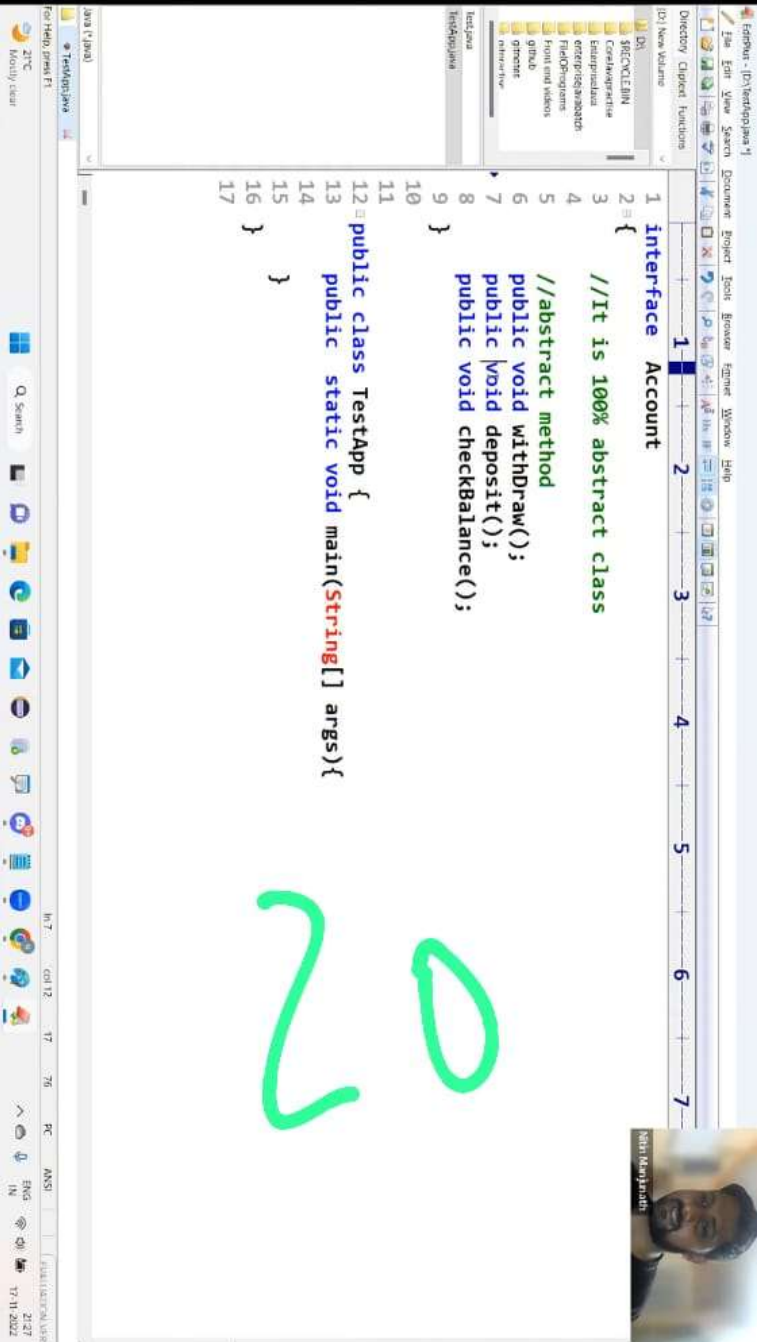
```
17-11-2022, interface, Javatpoint - Notepad
File Edit View
ServletAPI
|
tomcat weblogic jboss
=====
```

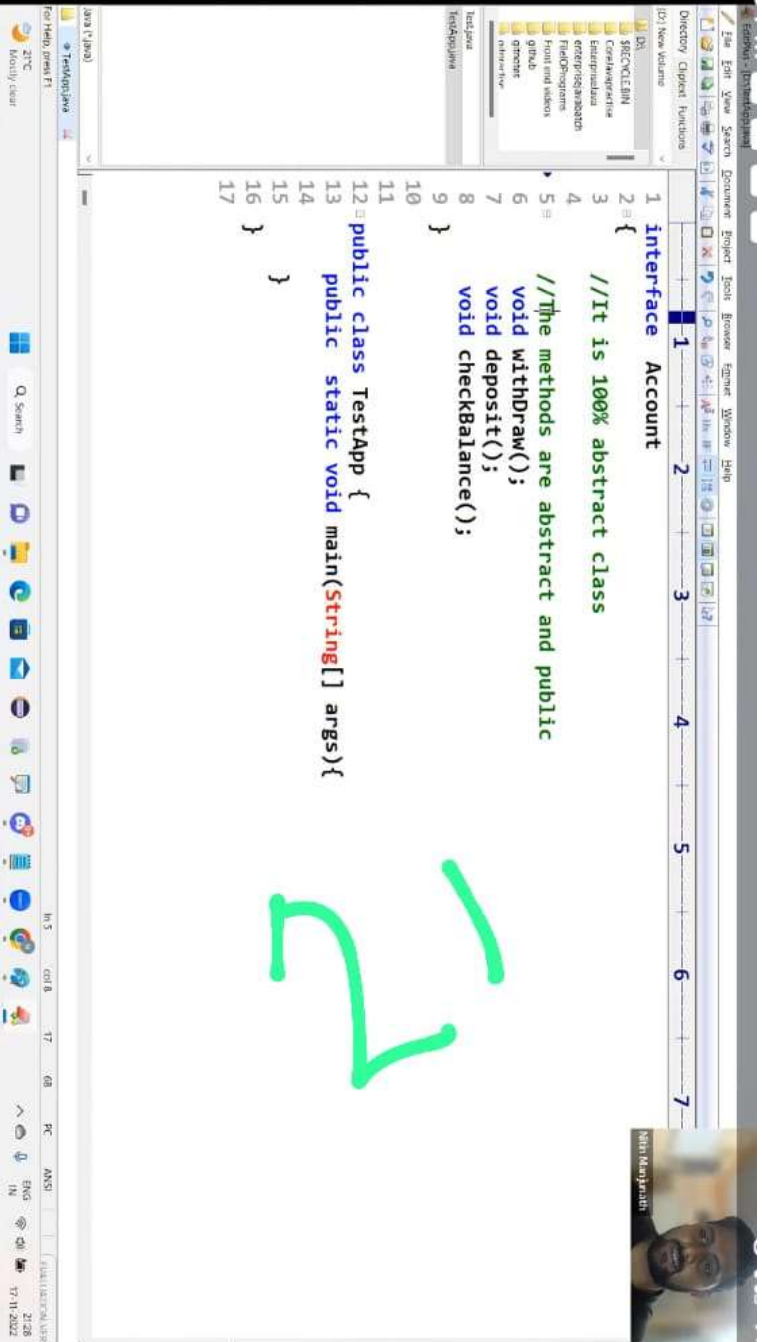
Def2::From client point of view an interface define the set of services what is expecting.
From service provider point of view an interface define the set of services what is "offering".
So interface acts a contract b/w client and serviceprovider.

eg:: GUI screen of ATM defines the set of services what the customer is expecting,
Bank people offered the same set of services what the customer is expecting.
Cusomter => GUI => Bank

87







So interface acts a contract b/w client and serviceprovider.

eg:: GUI screen of ATM defines the set of services what the customer is expecting,
Bank people offered the same set of services what the customer is expecting.
Customer => GUI => Bank

Def3:: Inside interface every method is always abstract whether we are declaring or not hence interface is considered as 100% pure abstract class.

eg:

```
interface Account
```

```
{
```

```
    //It is 100% abstract class
```

```
    //The methods are by default "abstract and public"
```

```
    void withdraw();
```

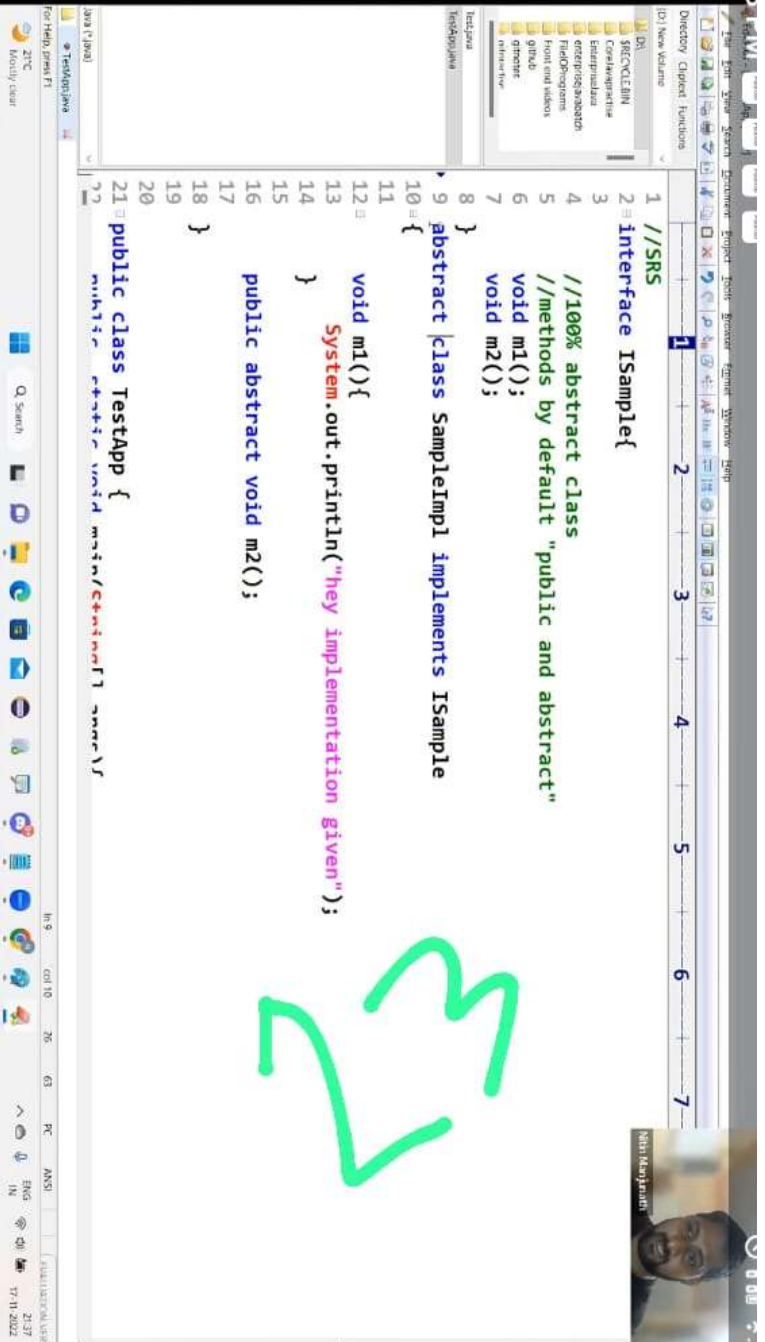
```
    void deposit();
```

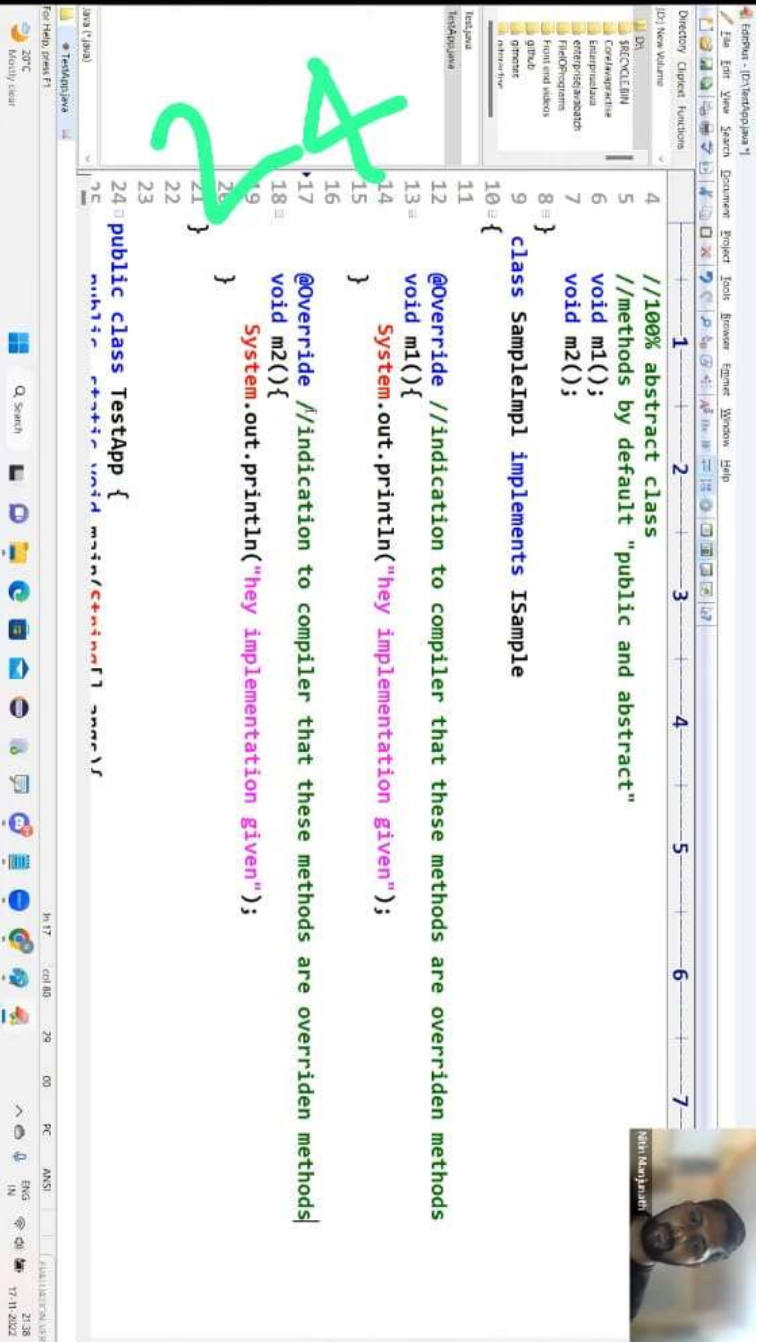
```
    void checkBalance();
```

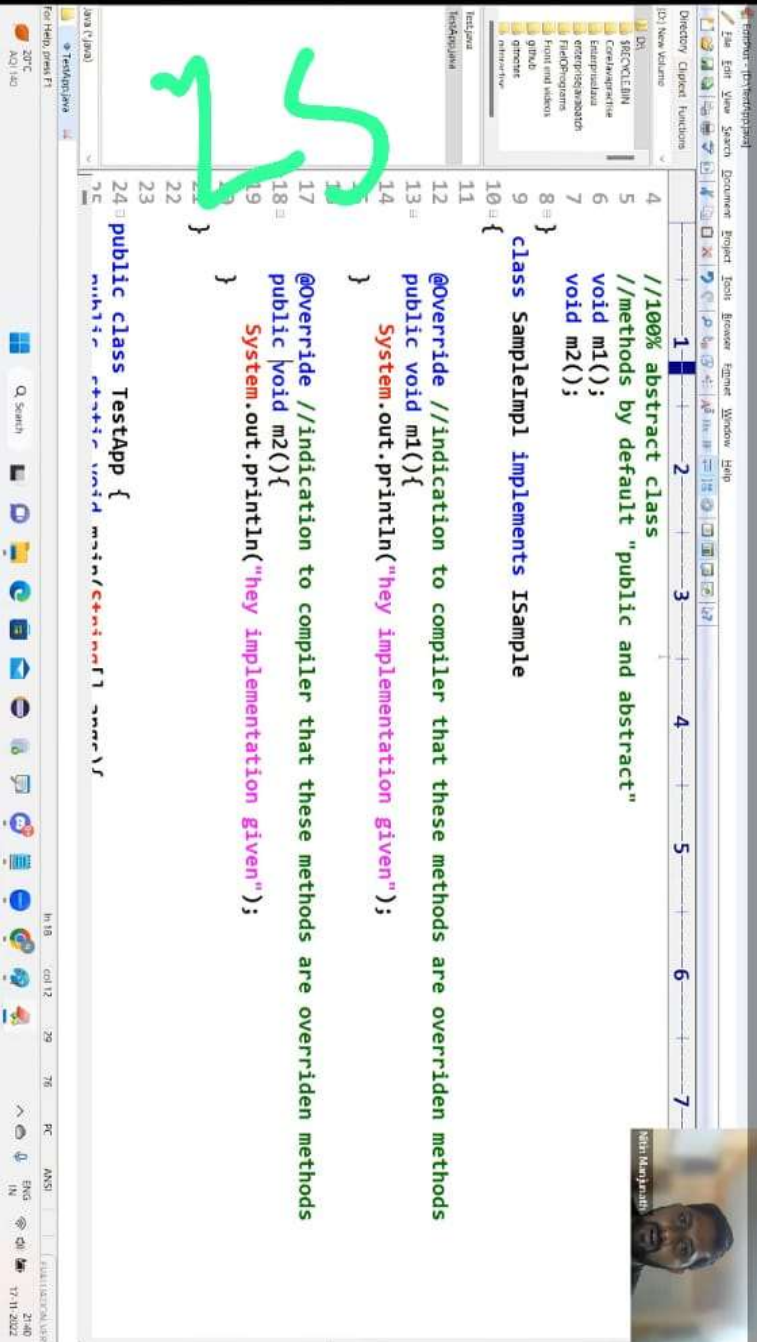
```
}
```

~









10:36 PM

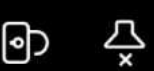


13.3 K/s 36%

Declaration and Implementation of Interface

a. Whenever we are implementing an interface compulsorily for every method of that interface we should provide implementation otherwise we have to declare class as abstract class in that case child class is responsible to provide implementation for remaining methods.

b. Whenever we are implementing an interface method compulsorily it should be declared as public otherwise it would result in CompileTime Error.



```
eg:: interface ISample{  
    void methodOne();  
    void methodTwo();  
}
```

```
abstract class Sample implements ISample{  
    public void methodOne(){...}
```

2:23:10

-1:10:25

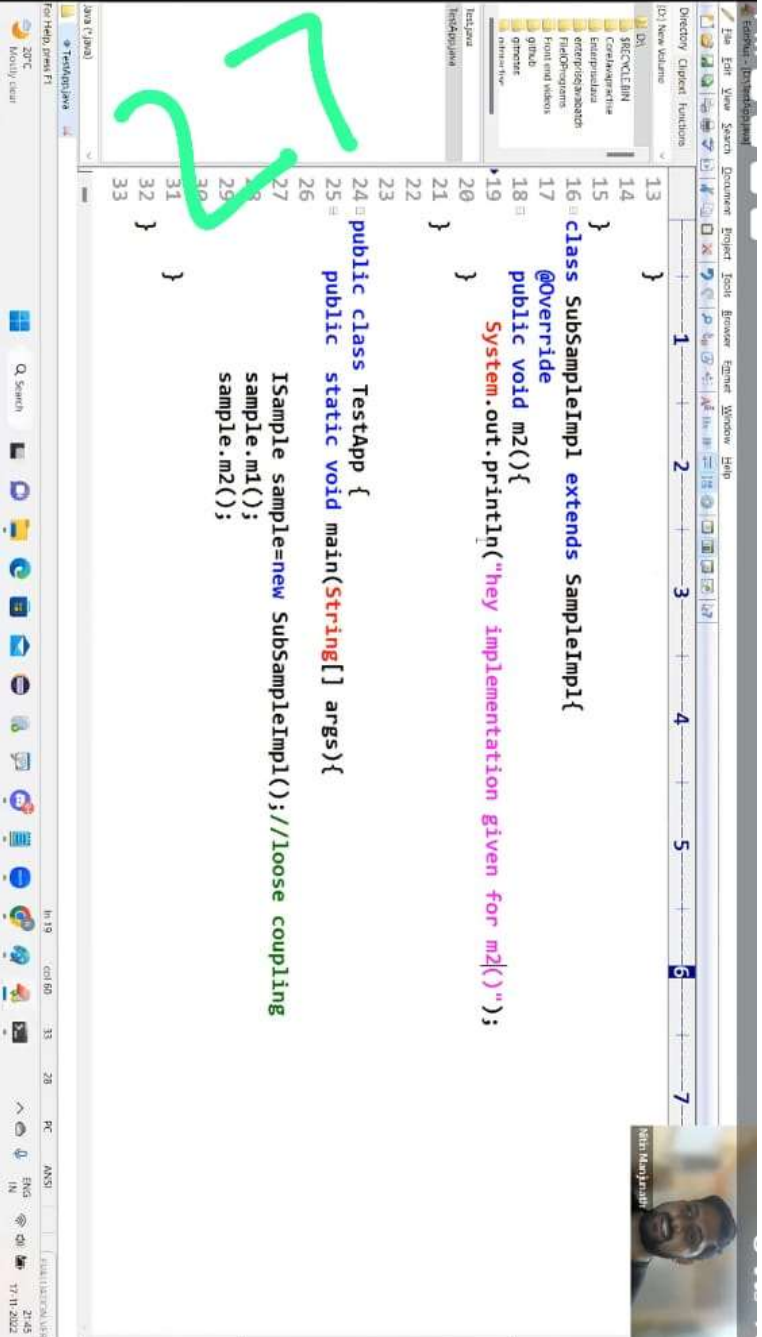


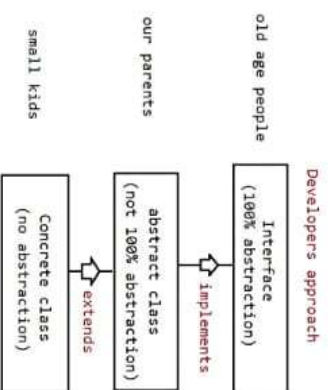
```
class SubServiceProvider extends Sample{  
    @Override  
    public void methodTwo(){...}
```

2.0X



Windows (Ctrl) Ctrl A





Declaration and implementation of Interface

a. Whenever we are implementing an interface compulsorily for every method of that interface we should provide implementation otherwise we have to declare class as abstract class in that case child class is responsible to provide implementation for remaining methods.

b. Whenever we are implementing an interface method compulsorily it should be declared as public otherwise it would result in CompileTime Error.

```
eg:: interface ISample{  
    void methodOne();  
    void methodTwo();  
}
```

```
abstract class Sample implements ISample{  
    public void methodOne(){...}  
}
```

```
class SubServiceProvider extends Sample{  
    @Override  
    public void methodTwo(){...}
```

29





File View

Clipboard Image Tools Brushes Shapes Size Colors

17-11-2022 Interface Images - 29x1

20°C
Brisley, near

029 x 139m 3490 x 3810m 59 Src: 10.20x8

Q Search

100% ENG IN 27:55 17-11-2022

old age people

Interface (100% abstraction)

our parents

abstract class (not 100% abstraction)

small kids

Concrete class (no abstraction)

implements

extends

Developer's approach

```
ISample(I)
  |
  |
SampleImpl(AC)
  |
  |
SubSampleImpl(CC)
```

SampleImpl ref = new SubSampleImpl(); (not a good approach)

ISample ref = new SubSampleImpl(); (good approach)

30

FileView

17.11.2022 interface images - Part

20°C
Broadly clear

ClipboardImageToolsBrushesShapesSizeColors

Consolidate14B I U SBackground fill

list(I)

implementsimplementsimplements

ArrayList(C)LinkedList(C)Vector(C)

extends

Stack(C)

list ref = object is of listImplementation class

31

Nar Karjane

100%17.11.2022

FileViewImageToolsBrushesShapesSizeColors

17.11.2022 interface images - Part

20°C
Breezily clear

100%

17.11.2022 22:01

ENG IN

new ArrayList();
new LinkedList();
new Vector();
new Stack();

list ref =
new Vector();
new Stack();

Polymorphism

implements

implements

implements

extends

List(I)

ArrayList(C)

LinkedList(C)

Vector(C)

Stack(C)

52

Non Rajarajan

File Edit View

17-11-2022, 2:00PM Classroom - New

Q>

Which of these classes have delete() and reverse() method
java.lang.String, java.lang.StringBuffer and java.lang.StringBuilder?
ans: StringBuffer and StringBuffer

Q>

String str = " ";
System.out.println(str.isBlank()); //true
System.out.println(str.isEmpty()); //false

Q> java.lang.String class has append() method. Right or Wrong?

ans: False (we have concat())

Q>

String str = "iNeuron Technology private limited";
System.out.println(str.replace("a", "A").lastIndexOf('a')); 1

Answer: -1

53



Ln 18, Col 11

20°C
Brisly clear

Q Search

100%

Windows [CTRL]

UT 8

ENG IN 22:05 17-11-2022

File Edit View



Nishi Manjunath

```
String s1 = "1";  
System.out.println(s1.concat("2").concat("3"));
```

```
System.out.println(s1.concat("2").concat("3"));
```

```
Q>
String s1 = "ONE";
s1.concat("TWO");
s1.concat("THREE");
System.out.println(s1);
Answer: ONE
```

Answer: ONE

34

Untitled - Paint

FileView

Clipboard

Image

Tools

Brushes

Shapes

Size

Colors

14B I U S Background fill

String str1 = "Java";
String str2 = str1.intern();
String str3 = new String("Java");
System.out.println(str1 == str2); //true
System.out.println(str2 == str3); //false
System.out.println(str3 == str1); //false

SCP

str1
Java

Hesparea

str3
Java

35

20°C
Brouly clear

100%
ENG IN 17-11-2022

17-11-2022 String explanation - Part 1

FileView

Clipboard

Image

Tools

Brushes

Shapes

Size

Colours

Console

SCP

HeapArea

String str1 = "Java";
String str2 = str1.intern();
System.out.println(str1 == str2); //true
System.out.println(str1.equals(str2));
//true

str1

Java

str2

36

20°C

22.24

17-11-2022

48.657cm

3498 x 3810px

File Explorer

Search

Taskbar


100%

ENG

IN

17-11-2022

Nitin Dasgupta



Answer: true,true

Q>

```
StringBuffer sb1 = new StringBuffer("11111");  
StringBuffer sb2 = sb1.append(22222).reverse();// sb1 ,sb2 =2222211111  
System.out.println(sb1 == sb2);//true
```

Q>

StringBuffer and StringBuilder classes have intern() method. True or False?
answer: False

Q>

```
System.out.println(String.join(" ", "1", "2", "3").concat(" ").repeat(3).lastIndexOf(' '));
```

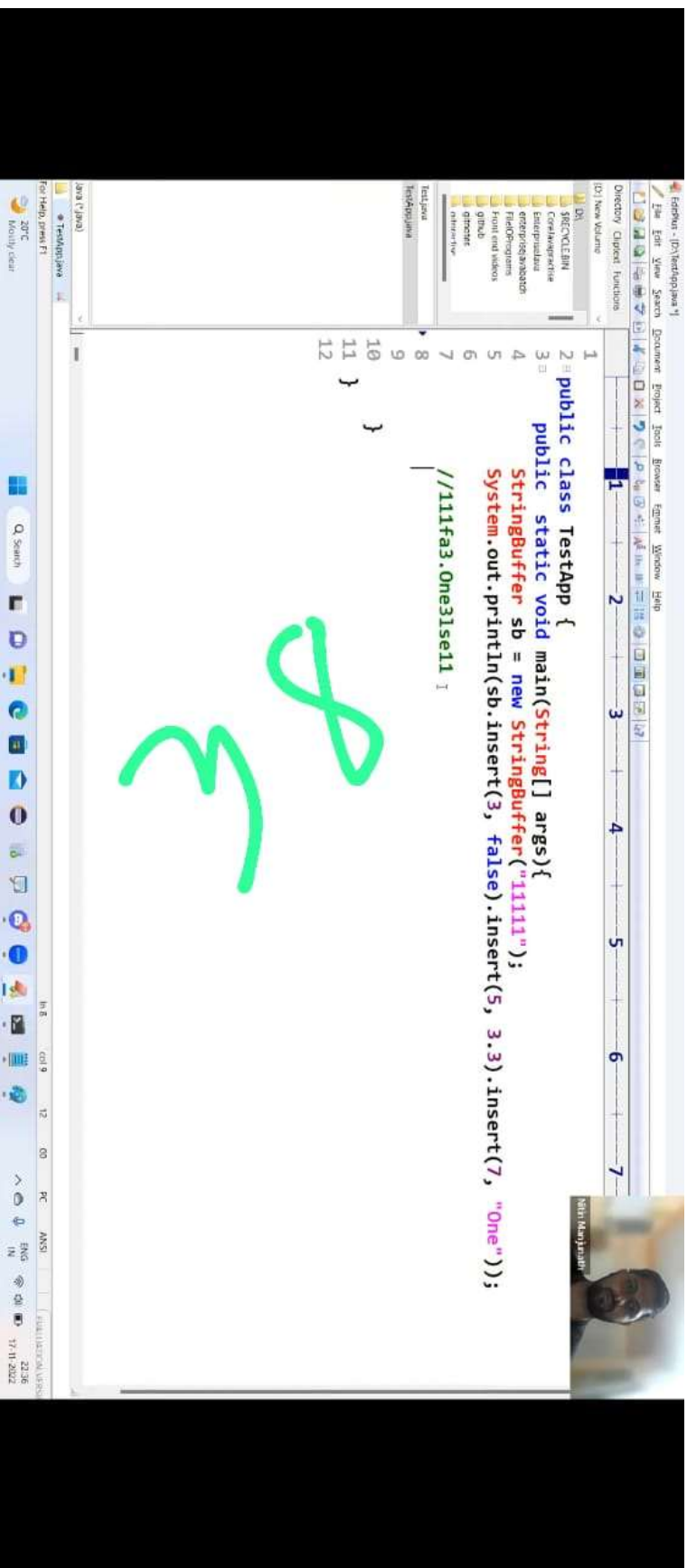
output:: 1,2,3,1,2,3,1,2,3,

Answer: 17

Q>



Handwritten green text: "17"



Answer: 17

Q>

```
String str1 = "One tWo ThRee fOUr";  
String str2 = "oNeTwOtHrEeFOur";  
System.out.println(str1.trim().equalsIgnoreCase(str2));//false
```

Q>

```
StringBuffer sb = new StringBuffer("11111");  
System.out.println(sb.insert(3, false).insert(5, 3.3).insert(7, "One"));
```

Answer: 111fa3.One3se11

Q>

```
String str1 = "Java J2EE Spring Hibernate SQL";  
String str2 = "Python Java Scala C C++";  
System.out.println(str1.contains("HTML") == str2.contains("HTML"));
```

Q>

```
StringBuffer sb = new StringBuffer("One Two Three Four Five");  
System.out.println(sb.reverse().indexOf("Two"));
```



30

File Edit View

Answer: 111fa3.One3lse11

```
false == false
true
```

40

UNB4.C0113

 Q Search

Windows (CTRL)

ENG
IN

2237
17-11-2022


```
System.out.println(sb.reverse().indexOf("Two"));
```

Answer: -1

Q>

```
String str = null;  
System.out.println(str.isBlank()); //NullPointerException
```

Q>

```
StringBuilder sb = new StringBuilder("0123456789");  
System.out.println(sb.delete(3, 6).deleteCharAt(4).deleteCharAt(5));  
I
```

Answer: 01268

Q>



Handwritten green text: "24"

```
String s1="sachinrameshtendulkar";
System.out.println(s1.replace('a','A').indexOf('a'));
Answer: -1
```

Q>.

```
String str = "neuron Technology Private Limited";
System.out.println(str.indexOf('n', 5));
Answer: 6
```

Q>.

```
String str = "neuron technology private limited"; //length -> no of characters
System.out.println(str.charAt(str.length()-1)); //charAt -> from the index 0.
Answer: StringIndexOutOfBoundsException
```

Q>.

```
StringBuilder sb = new StringBuilder(32);
sb.append("ABC");
System.out.println(sb);
Answer: NegativeArraySizeException
```

28



Nishu Dhanraj