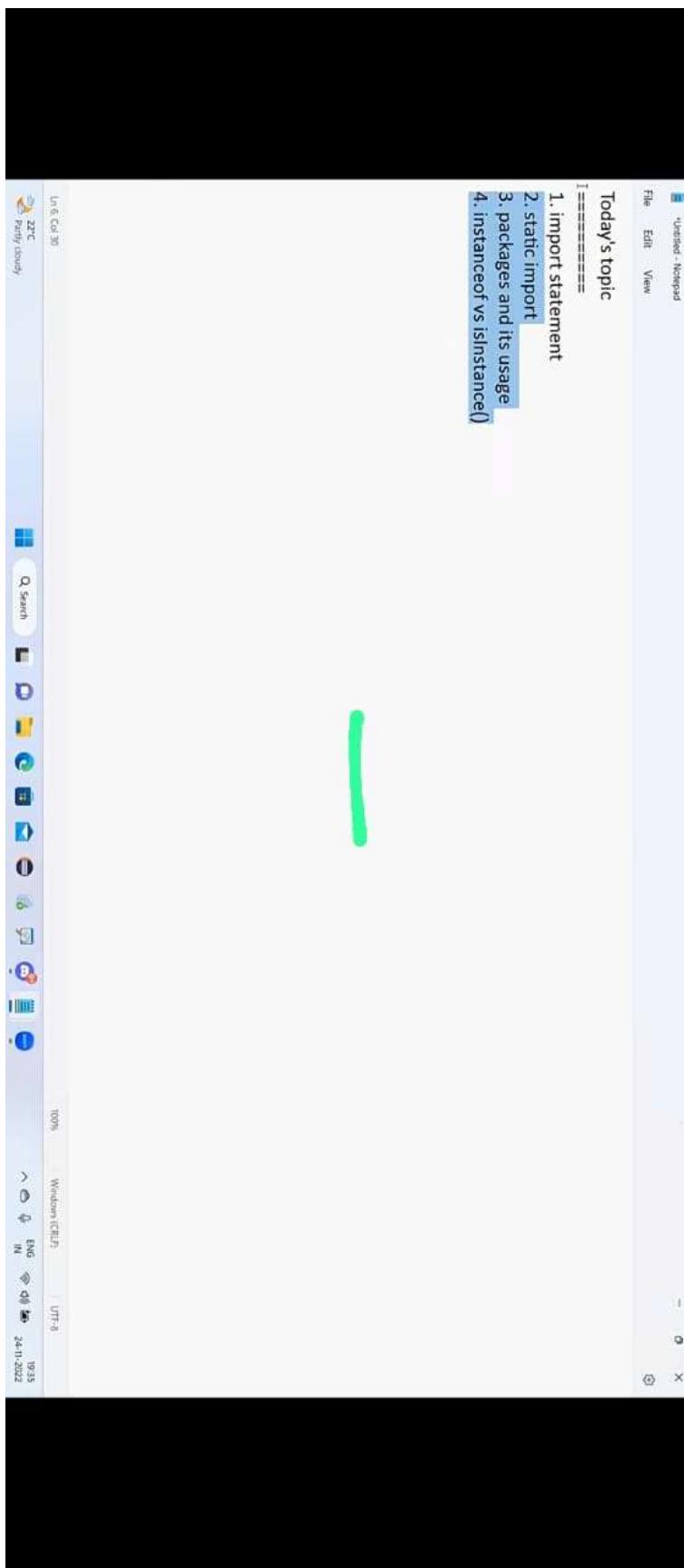
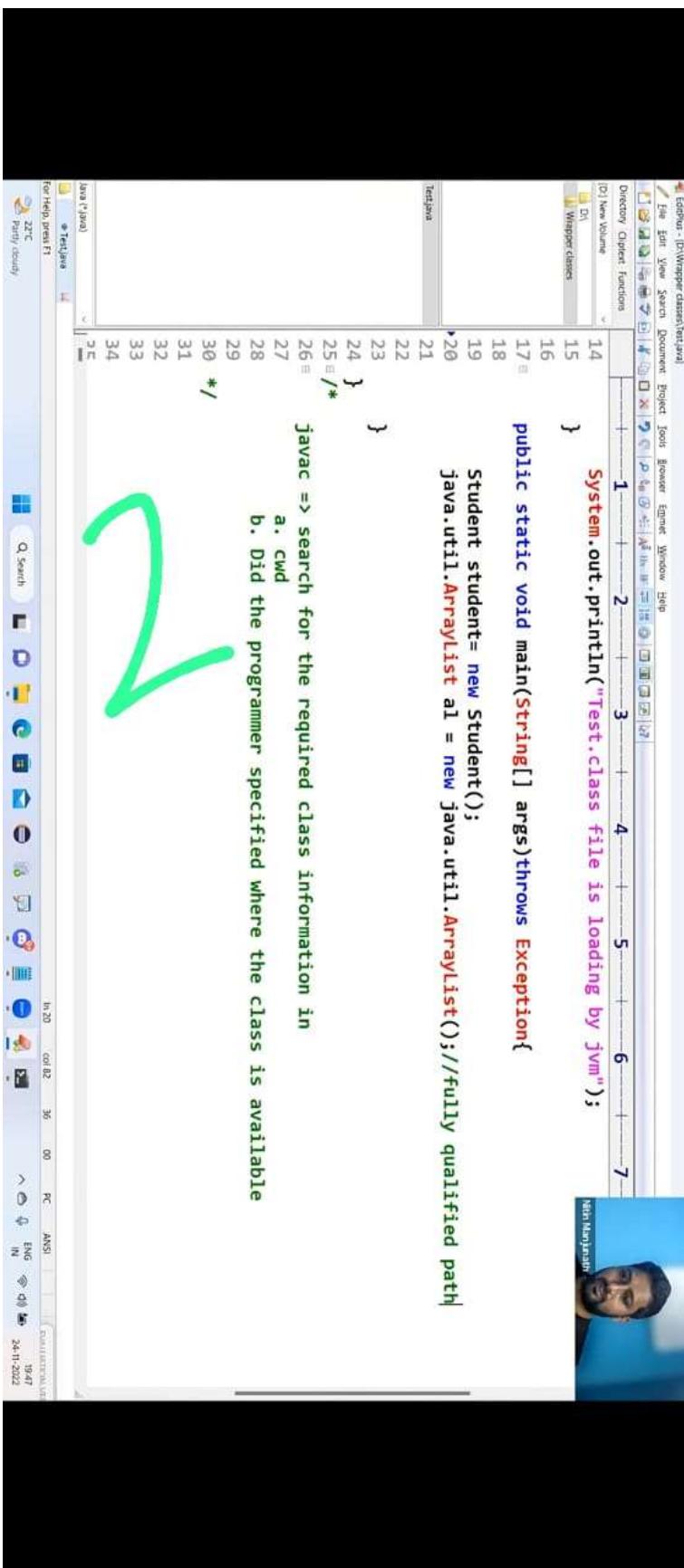


Java Import Statement Functional Interface Lamda Expression

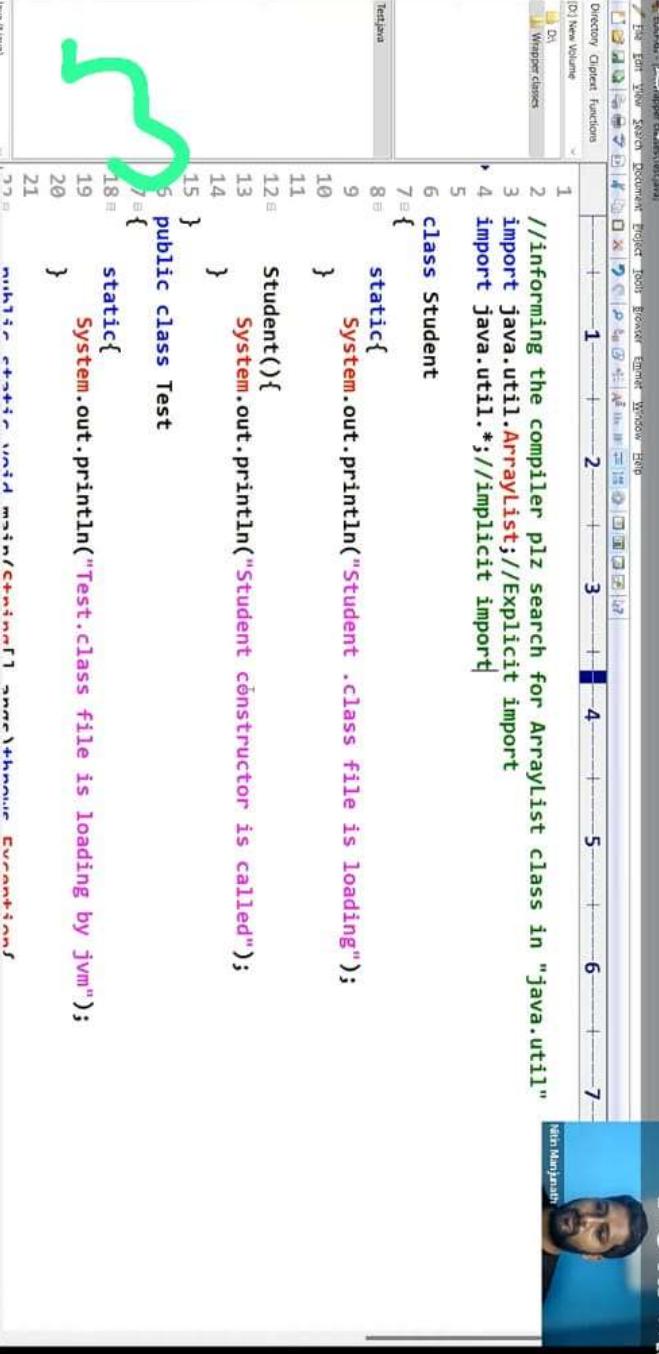




Notepad - D:\Whisper classes\Java\

```
1 System.out.println("Test.class file is loading by jvm");
2
3 public static void main(String[] args) throws Exception{
4     Student student= new Student();
5     java.util.ArrayList al = new java.util.ArrayList();//fully qualified path
6 }
7
8 /*
9  * javac => search for the required class information in
10 a. cwd
11 b. Did the programmer specified where the class is available
12 */
13
14
15
16
17
18
19
20 Test.java
21
22
23
24
25
26
27
28
29
30
31
32
33
34
```

A large green checkmark is drawn over the code area.



The screenshot shows a Java code editor with the following code:

```
1 //Informing the compiler plz search for ArrayList class in "java.util"
2 import java.util.ArrayList;/Explicit import
3 import java.util.*;/implicit import
4
5 class Student
6 {
7     static{
8         System.out.println("Student .class file is loading");
9     }
10 }
11
12 Student(){
13 }
14
15 }
16
17 public class Test
18 {
19     static{
20         System.out.println("Test.class file is loading by jvm");
21     }
22 }
```

A green curly brace highlights the static block at lines 7-10. A red curly brace highlights the entire class definition from line 17 to the final closing brace at line 22.

File Edit View
24.11.2022 wrapperclass_out - Notepad

```
public static void main(String args[]){
    ArrayList l=new ArrayList();
}
}

Output:
Compile time error.
D:\Java>javac Test.java
Test.java:3: cannot find symbol
symbol : class ArrayList
location: class Test
ArrayList l=new ArrayList();
```

4

=> We can resolve this problem by using fully qualified name "java.util.ArrayList"
l=new java.util.ArrayList(); But problem with using fully qualified name every time is it increases length of the code and reduces readability.

=> We can resolve this problem by using import statements.

Example:

```
import java.util.ArrayList;
class Test{
    public static void main(String args[]){
        ArrayList l=new ArrayList();
    }
}
```

L 37 Col 28

22PC
Parth Vaidya

Q Search

100% Windows [C:\Users\Parth Vaidya\OneDrive\Desktop\Java\wrapperclass_out\bin\] | UTF-8

~ ⌂ ⌄ ENG ⇔ QWERTY 19.53 24.11.2022

Nitin Kuppanath

- => We can resolve this problem by using fully qualified name "java.util.ArrayList"
 `l=new java.util.ArrayList();`. But problem with using fully qualified name every time is it increases length of the code.
 reduces readability.
- => We can resolve this problem by using import statements.

Example:

```
import java.util.ArrayList;
class Test{
    public static void main(String args[]){
        ArrayList l=new ArrayList();
    }
}
```

45

Output:

D:\Java>javac Test.java

Hence whenever we are using import statement it is not require to use This approach decreases length of the code and improves readability.

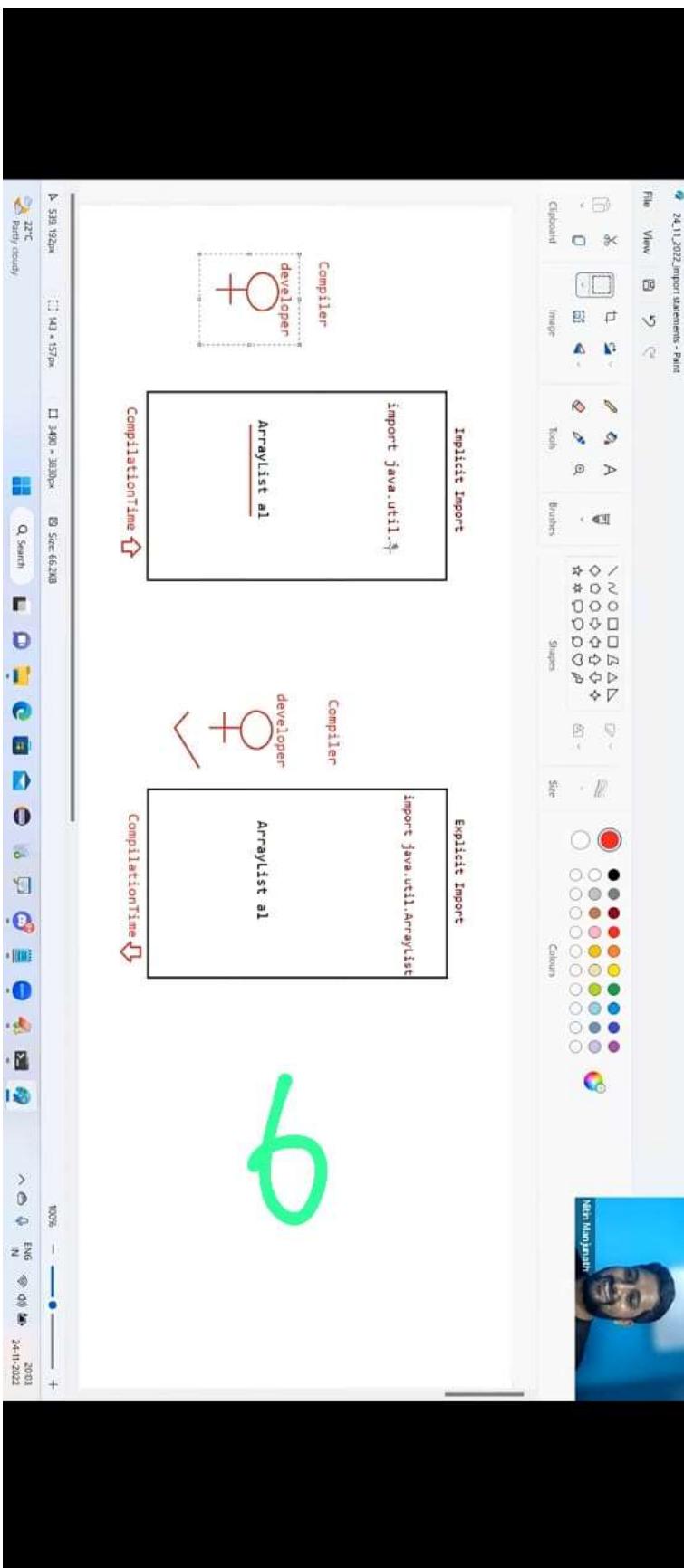
Case 1: Types of Import Statements:
There are 2 types of import statements.

- 1) Explicit class import
- 2) Implicit class import.

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A vertical toolbar on the right side of the screen containing various icons for file operations like search, copy, paste, and save.

100% Windows (Call)



23.11.2022 import statements class notes - Notepad

File Edit View

There are 2 types of import statements.

- 1) Explicit class import
- 2) Implicit class import.

Explicit class import:

Example: `import java.util.ArrayList;`

=> This type of import is highly recommended to use because it improves readability of the code.

=> Best suitable for developers where readability is important.

Implicit class import:

Example: `import java.util.*;`

=> It is never recommended to use because it reduces readability of the code.

=> Best suitable for students where typing is important.

1



24.11.2022 import statements class notes - Notepad

File Edit View

a. import java.util;
b. import java.util.ArrayList.*;
c. import java.util.*;
d. import java.util.ArrayList;

Answer: c and d

Case3:
consider the following code.

```
import java.util.ArrayList;
class MyArrayList extends java.util.ArrayList
{}
```

22°C Party cloudy

Q. Search

100% Windows (CEP) | UTF-8

Nilan Jayasinghe

24.11.2022



File Edit View

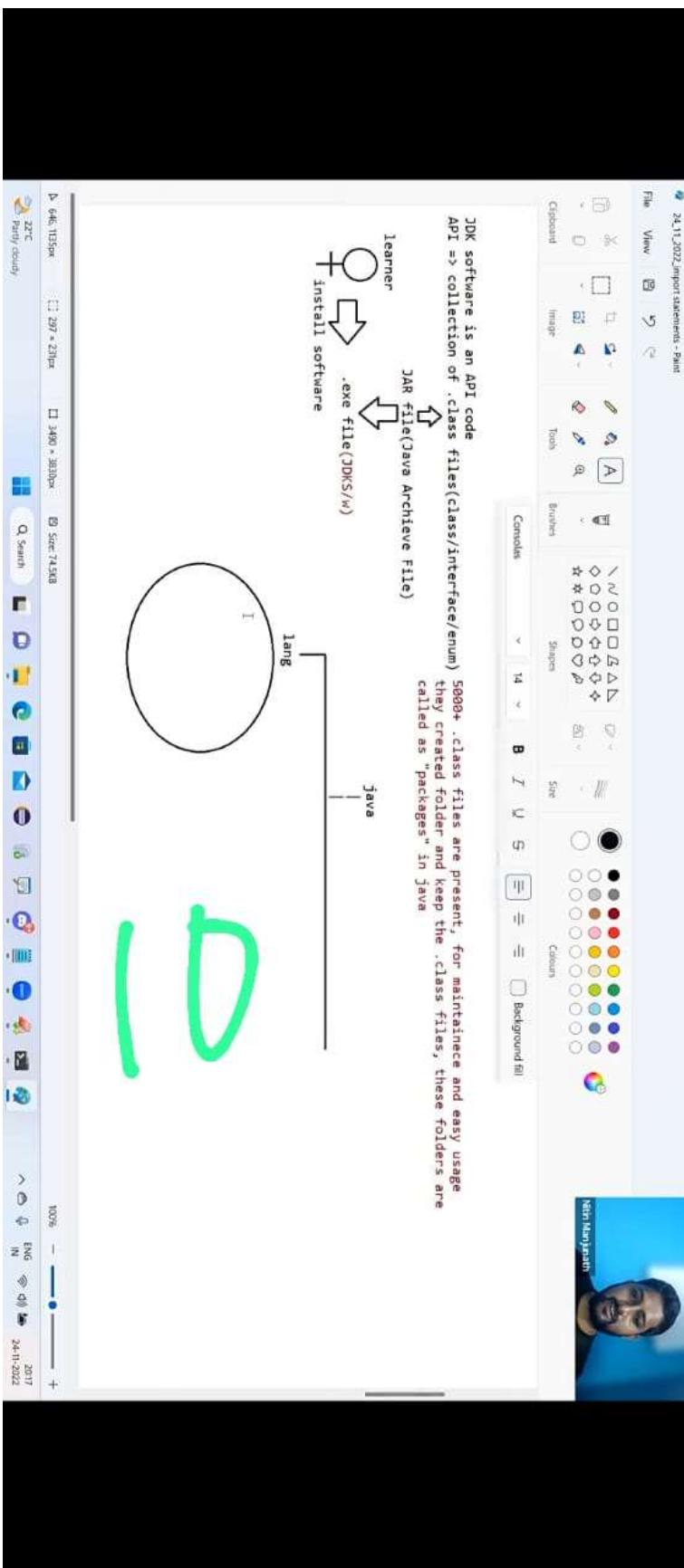
Case3:

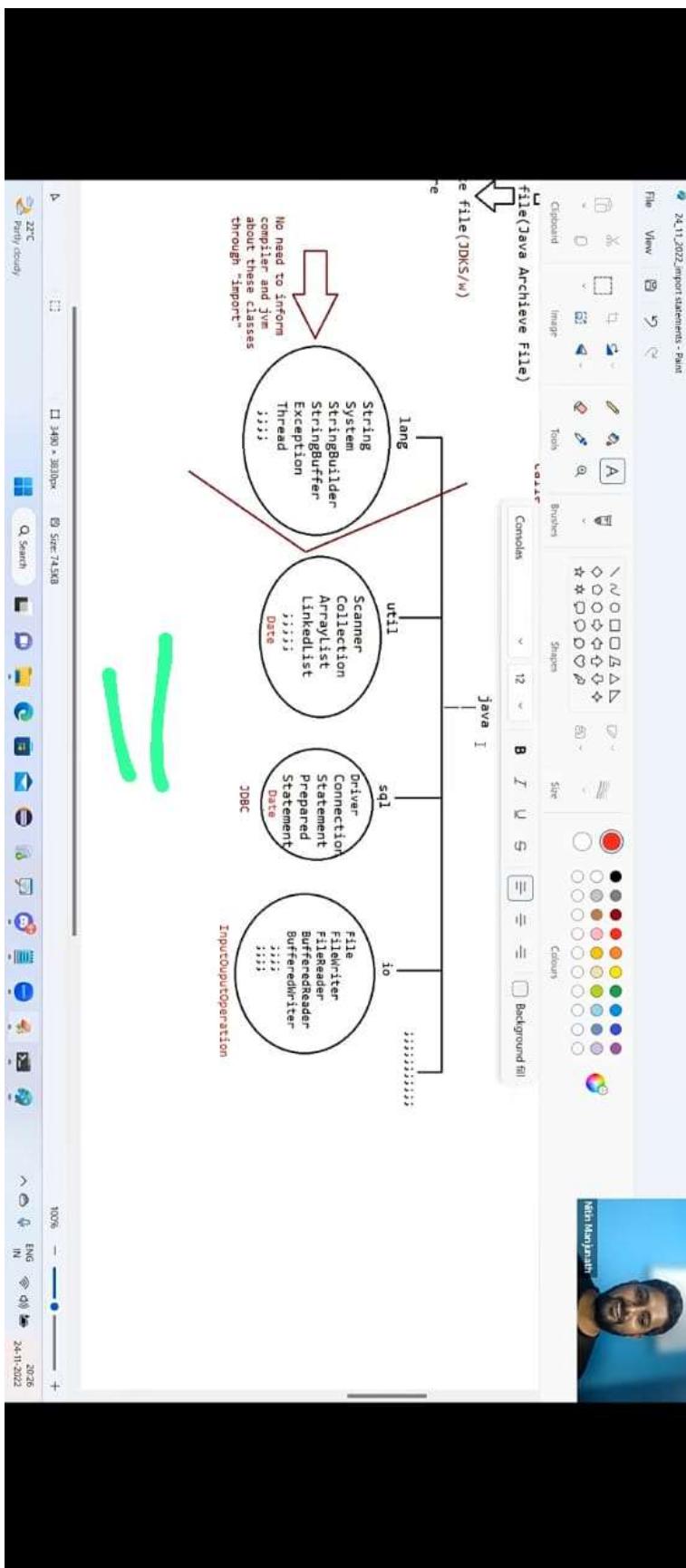
consider the following code.

```
class MyArrayList extends java.util.ArrayList { }
```

=> The code compiles fine even though we are not using import statements because we used fully qualified name.
=> Whenever we are using fully qualified name it is not required to use import statement.
Similarly whenever we are using import statements it is not require to use fully qualified name.

- > the code compiles fine even though we are not using import statements because we used fully qualified name.
=> Whenever we are using fully qualified name it is not required to use import statement.
Similarly whenever we are using import statements it is not required to use fully qualified name.





24.11.2022 import statements class notes - Notepad

File Edit View



Case5:

While resolving class names compiler will always gives the importance in the following order.

1. Explicit class import
2. Classes present in current working directory.
3. Implicit class import.

Example:

```
import java.util.Date;  
import java.sql.*;  
class Test{  
    public static void main(String args[]){  
        }  
        Date d=new Date();  
    }
```

22

The code compiles fine and in this case util package Date will be considered.

1104, Col 1 22°C Party cloudy Q. Search ↻ ENG IN 24.11.2022

Note:
* => It refers to only .class files not subpackages .class files

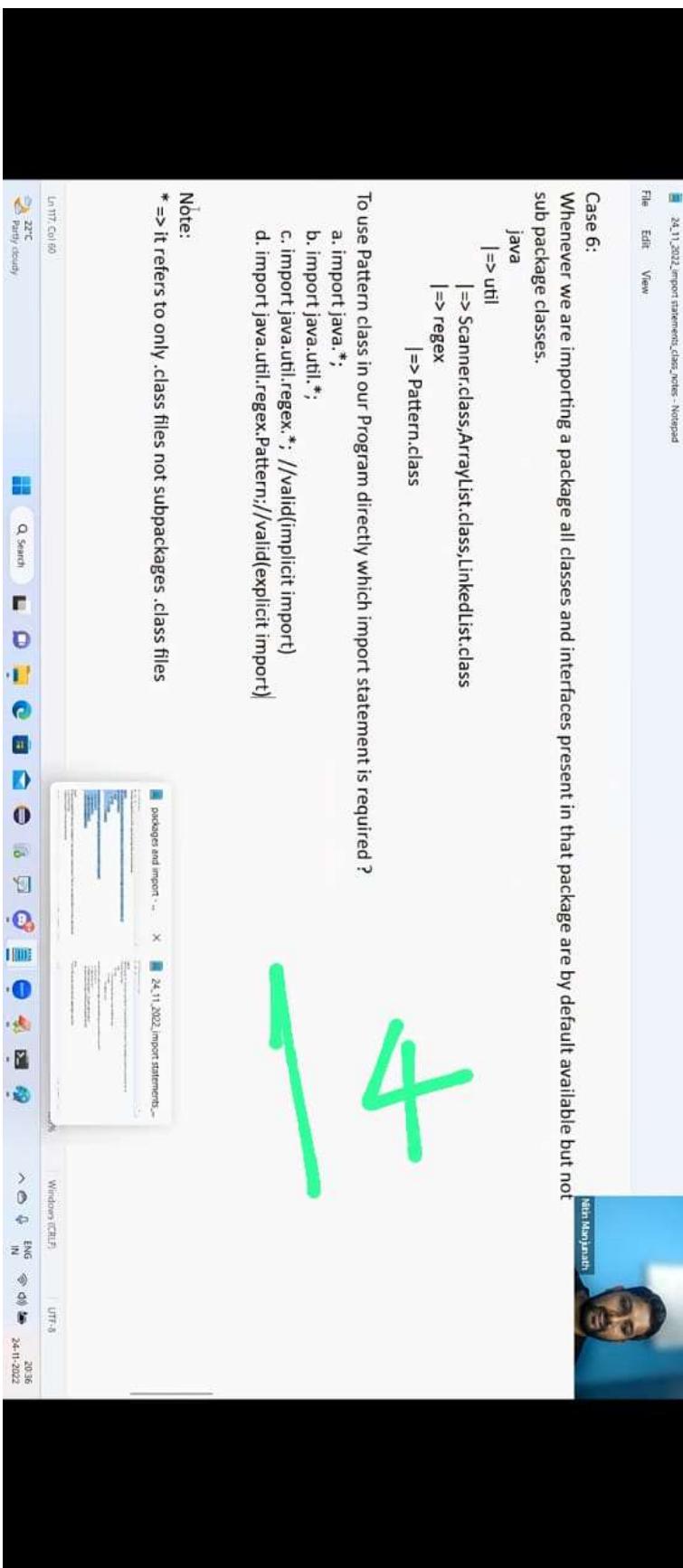
To use Pattern class in our Program directly which import statement is required ?

a. import java.*;
b. import java.util.*;
c. import java.util.regex.*; //valid(implicit import)
d. import java.util.regex.Pattern;//valid(explicit import)

Case 6:
Whenever we are importing a package all classes and interfaces present in that package are by default available but not sub package classes.

```
java  
|=> util  
|=> Scanner.class,ArrayList.class,LinkedList.class  
|=> regex  
|=> Pattern.class
```

4

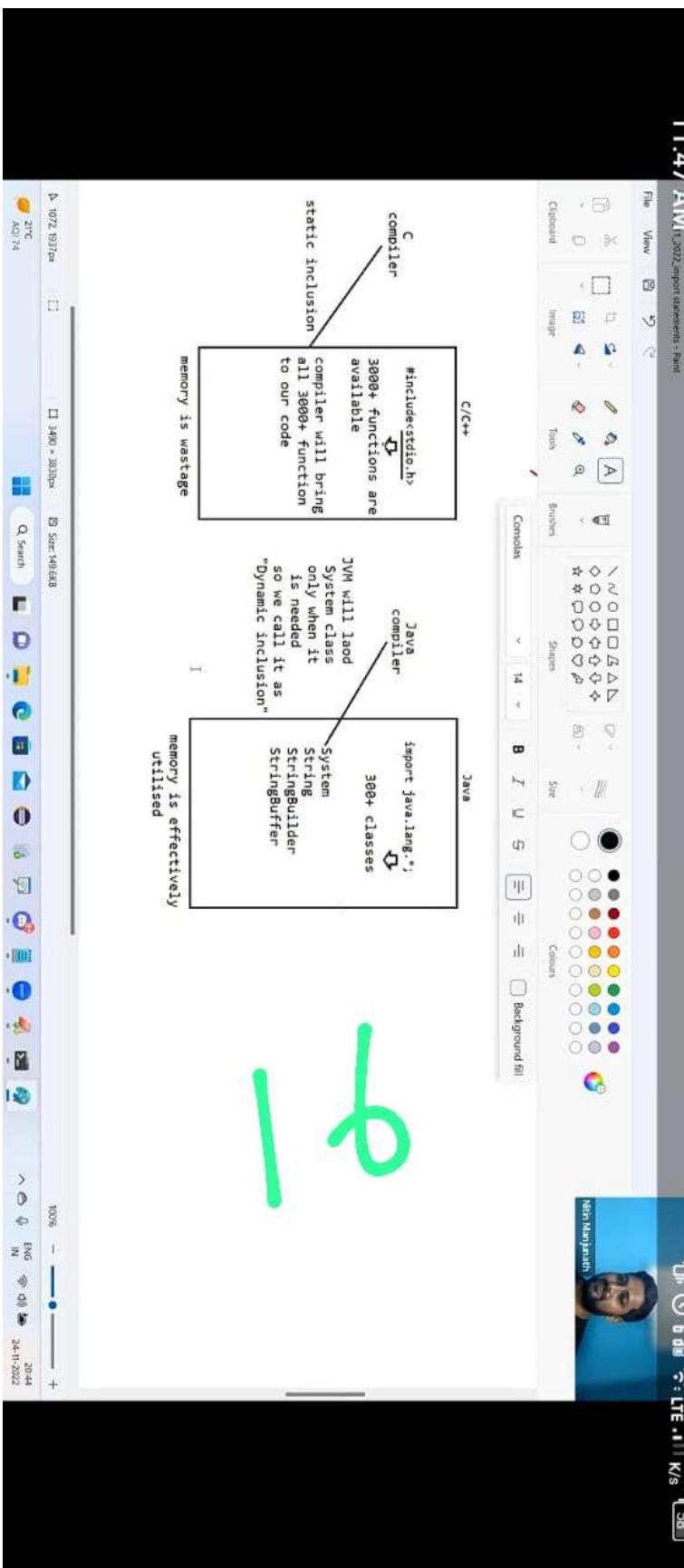


Case7:
In any java Program the following 2 packages are not require to import because these are available by default to every java Program.

1. java.lang package
2. default package(current working directory)

```
I C=>#include<stdio.h>
java =>import java.lang.*;
```





24.11.2022 import statements class notes - Notepad

File Edit View

Nitin Marajpath

Case 8:
"import statement is totally compile time concept" if more no of imports are there then more will be the compile time but there is "no change in execution time".

Difference between C language #include and java language import ?

```
#include  
=====  
1. It can be used in C & C++  
2. At compile time only compiler copy the code from standard library and placed in current program.  
3. It is static inclusion  
4. wastage of memory
```

Ex : <jsp:@ file="">

```
import  
=====
```

1. It can be used in Java
2. At runtime JVM will execute the corresponding standard library and use it's result in current program.
3. It is dynamic inclusion
4. No wastage of memory

17

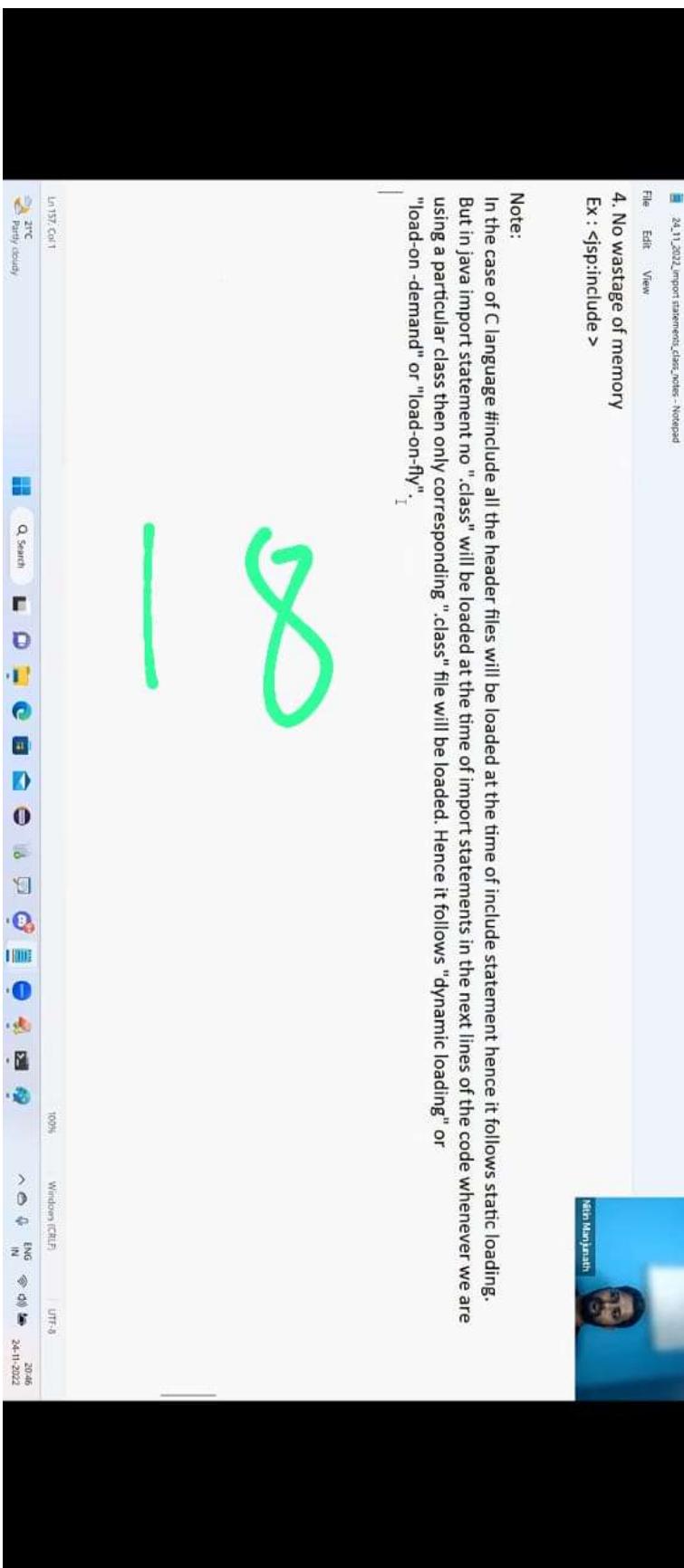
1100x500 24.11.2022

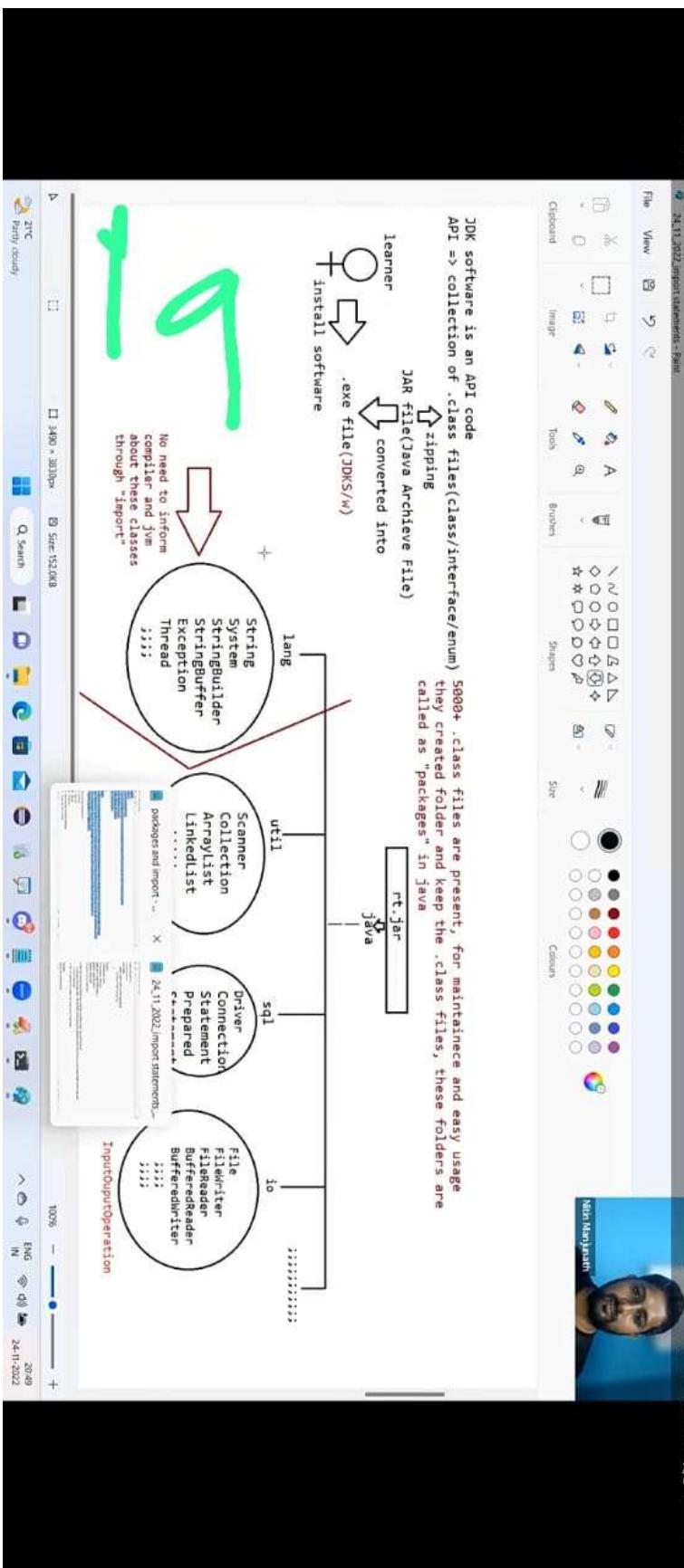
Q. Search

20°C Party cloudy

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JDK 1.5 versions new features :

1. For-Each
2. Var-arg
3. Queue
4. Generics
5. Auto boxing and Auto unboxing
6. Co-variant return types
7. Annotations
8. Enum
9. **Static import**
10. String builder

20

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Party cloudy

Q. Search



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UTF-8 ENG ⌂ 20:50 24/11/2022

File Edit View Search Document Project Tools Browser Timer Window Help

Directory Object Functions

[D] New Volume D:\ Wipro classes TestJava

TestJava

Wipro classes

1 /*
2 //normal import where * refers to .class files
3 import java.lang.*;
4
5 import static java.lang.Math.sqrt;
6 import static java.lang.Math.random;
7 import static java.lang.Math.max;
8
9 public class Test
10 {
11 static{
12 System.out.println("Test.class file is loading by jvm");
13 }
14
15 public static void main(String[] args) throws Exception{
16 System.out.println(sqrt(5));
17 System.out.println(max(10,20));
18 System.out.println(random());
19
20 }
21 }

Java (*.java)

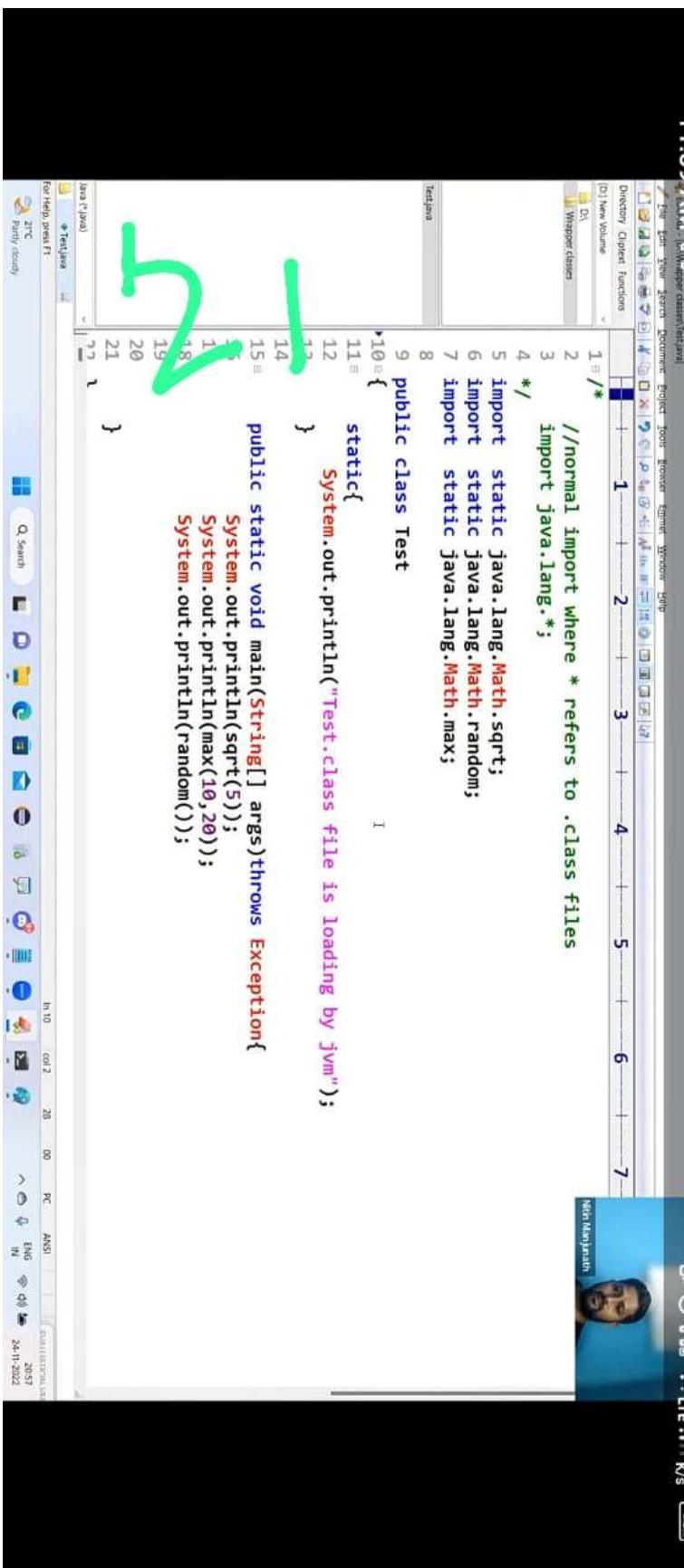
TestJava

For Help press F1

20C Party cloudy

Q. Search

In 10 col 2 20 00 PC ANSI TRANSLATE ENG ⇄ CHN IN 24-Nov-2022



22

```
D:\Wrapper\classes>javac Test.java
D:\Wrapper\classes>java Test
Test.class file is loading by jvm
2.23606797749979
20
0.8837454798603263
D:\Wrapper\classes>
```



```
Editor - [D:\Wrapper class\test.java]
File Edit View Search Document Project Tools Browser Internet Window Help
[D:\] New Volume D:\ Wrapper classes
1 /**
2 //normal import where * refers to .class files
3 import java.lang.*;
4 */
5 import static java.lang.Math.*;/static import * refers to the class static elements
6
7
8 public class Test
9 {
10     static{
11         System.out.println("Test.class file is loading by jvm");
12     }
13
14     public static void main(String[] args) throws Exception{
15         System.out.println(sqrt(5));
16         System.out.println(max(10, 20));
17         System.out.println(random());
18     }
19
20
21 }
```

In 5 col 29 28 48 PC ANSI Date/Time Value
Java (*.java)
Test.java
File Help print F1
20°C Party cloudy

Nitin Raghavath

```
24.11.2022 import statements_class_notes - Notepad  
File Edit View  
class Test{  
    static String name = "sachin";  
}  
  
output  
=====  
Test.name.length() =====> 6
```

24

20C
Partly cloudy

Q. Search





```
File Edit View  
import java.io.PrintStream;  
class System{  
    static PrintStream out;  
}  
  
class PrintStream{  
    public void println(){  
        .....  
    }  
  
    System.out.println()  
    |=> It is a method of PrintStream class  
    |=> It is a reference of PrintStream Class  
|=> It is an class
```

25

```
File Edit View  
|=> It is a method of PrintStream class  
|=> It is a reference of PrintStream Class  
|=> It is an class  
  
Example 3:  
  
import static java.lang.System.out;  
class Test{  
    public static void main(String args[]){  
        out.println("hello");  
        out.println("hi");  
    }  
}  
Output:  
D:\Java>javac Test.java  
D:\Java>java Test  
hello  
hi
```

26

Ln 253 Col 1 100% Windows (CEP) | UTF-8
20°C Party cloudy Q. Search ENG ENG 24.11.2022

both variable MAX VALUE in j

Note:
Two packages contain a class or interface with the same name is very rare hence ambiguity problem is very rare in normal import.
But 2 classes or interfaces can contain a method or variable with the same name is very common hence ambiguity problem is also very common in static import.

While resolving static members compiler will give the precedence in the following order:

- 2. Explicit static import
- 3. implicit static import

88

```
import static java.lang.Integer.MAX_VALUE;
import static java.lang.System.out.println;

class Test{
    static int MAX_VALUE = 999;
    public static void main(String[] args){
        System.out.println(MAX_VALUE);
    }
}
```

28

23.11.2022 import statements class notes - Notepad

File Edit View

```
import static java.lang.Byte.*;
class Test{
    static int MAX_VALUE = 999;
    public static void main(String[] args){
        System.out.println(MAX_VALUE);
    }
}
```

Which of the following import statement is valid?

- import java.lang.Math.*; //invalid
- import static java.lang.Math.*; //valid
- import java.lang.Math;//valid
- import static java.lang.Math;//invalid
- import static java.lang.Math.sqrt.*; //invalid
- import java.lang.Math.sqrt;//invalid
- import static java.lang.Math.sqrt();//invalid
- import static java.lang.Math.sqrt;//valid

29

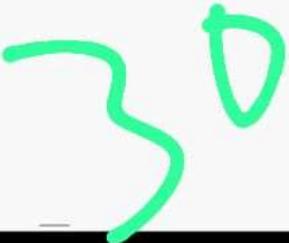
20C Party today

Q. Search

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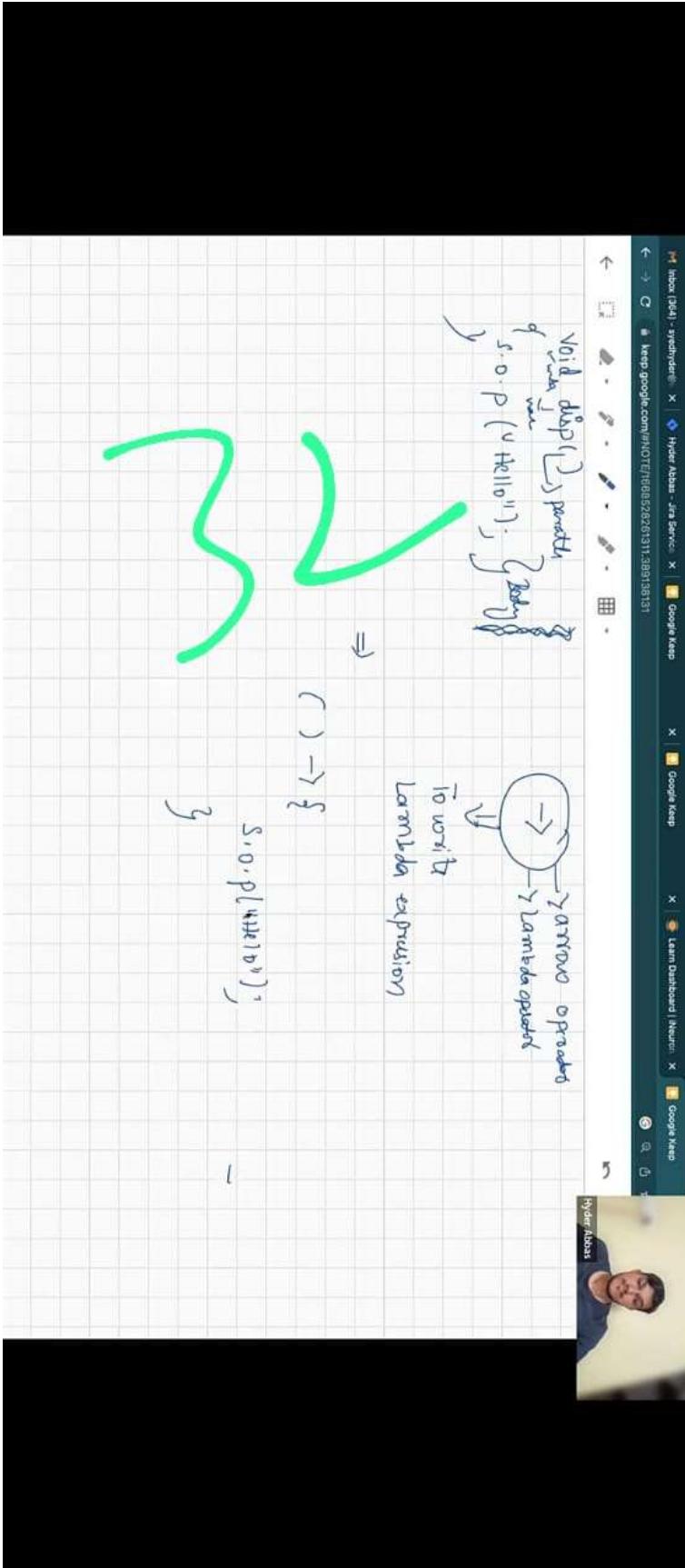
```
24.11.2022 import statements class notes - Notepad  
File Edit View  
import static java.lang.Math.sqrt();//invalid  
import static java.lang.Math.sqrt;//valid  
  
Usage of static import reduces readability and creates confusion hence if there is no specific requirement never recommended to use static import.  
  
What is the difference between general import and static import ?  
normal import  
=====  
=> We can use normal imports to import classes and interfaces of a package.  
=> whenever we are using normal import we can access class and interfaces directly by their short name it is not require to use fully qualified names.  
  
static import  
=====  
=> We can use static import to import static members of a particular class.  
=> whenever we are using static import it is not require to use class name we can access static members directly.
```

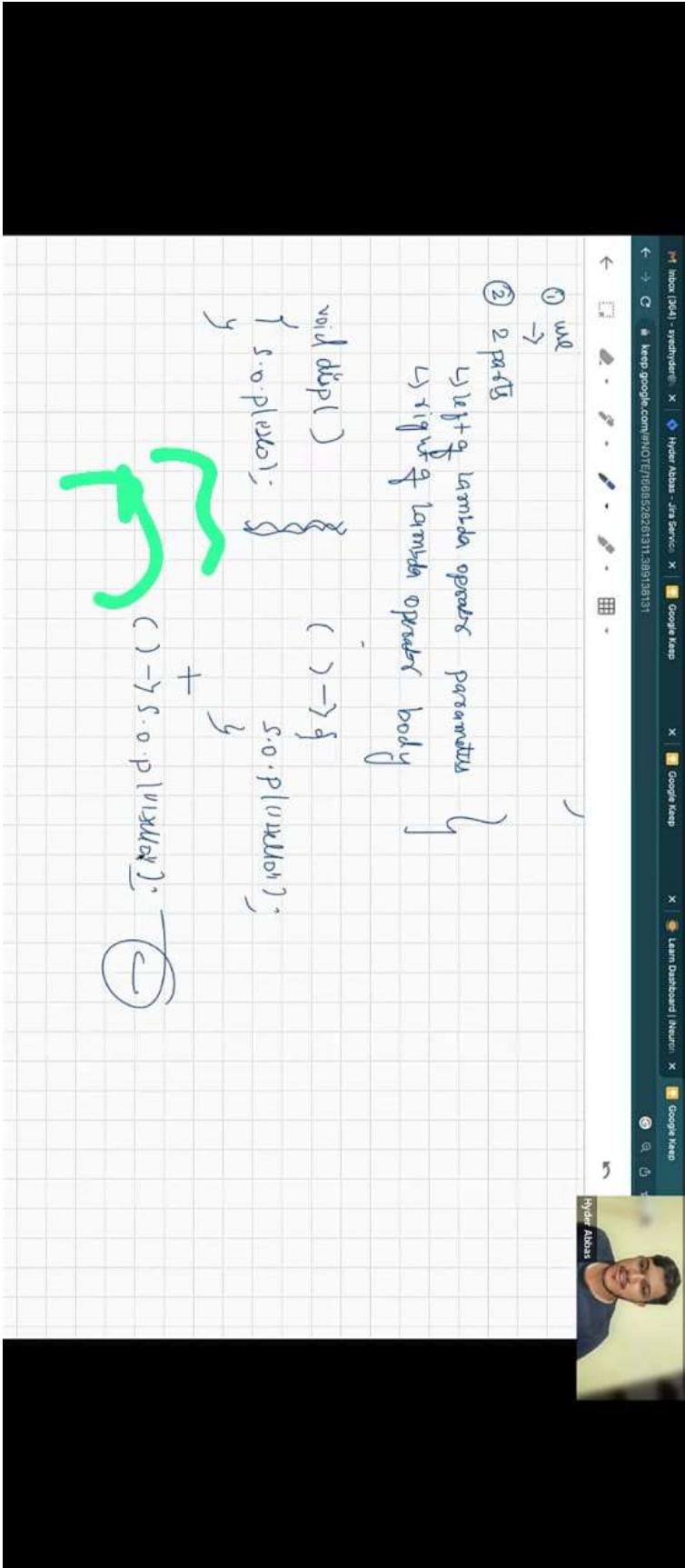


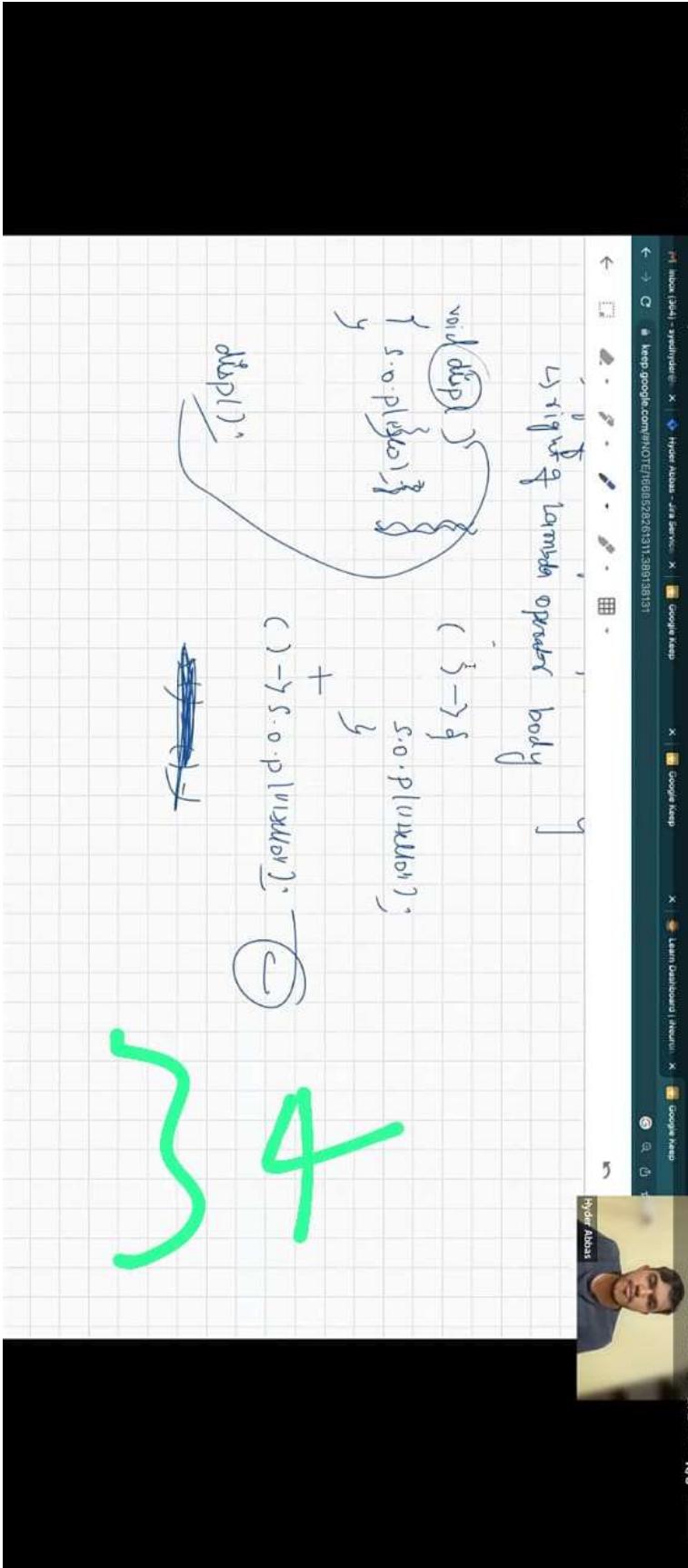
3 =

=> Lambda expression => Functional interface => "interface
+
abstact
+
methods"









35

```
1. package com.iNeuron;
2. import java.util.*;
3. import java.awt.*;
4. import javax.swing.*;
5. import java.awt.event.*;
6. import java.awt.image.*;
7. import java.awt.Toolkit;
8. import java.awt.BorderLayout;
9. import java.awt.SystemColor;
10. import java.awt.Container;
11. import java.awt.GridLayout;
12. import java.awt.Window;
13. import java.awt.WindowEvent;
14. import java.awt.WindowListener;
15. import java.awt.WindowFocusListener;
16. import java.awt.WindowIconListener;
17. import java.awt.WindowListener;
18. import java.awt.WindowFocusListener;
19. import java.awt.WindowIconListener;
20. import java.awt.WindowEvent;
21. import java.awt.Window;
22. import java.awt.Window;
23. import java.awt.Window;
24.
```

The screenshot shows an IDE interface with a code editor and a video player window.

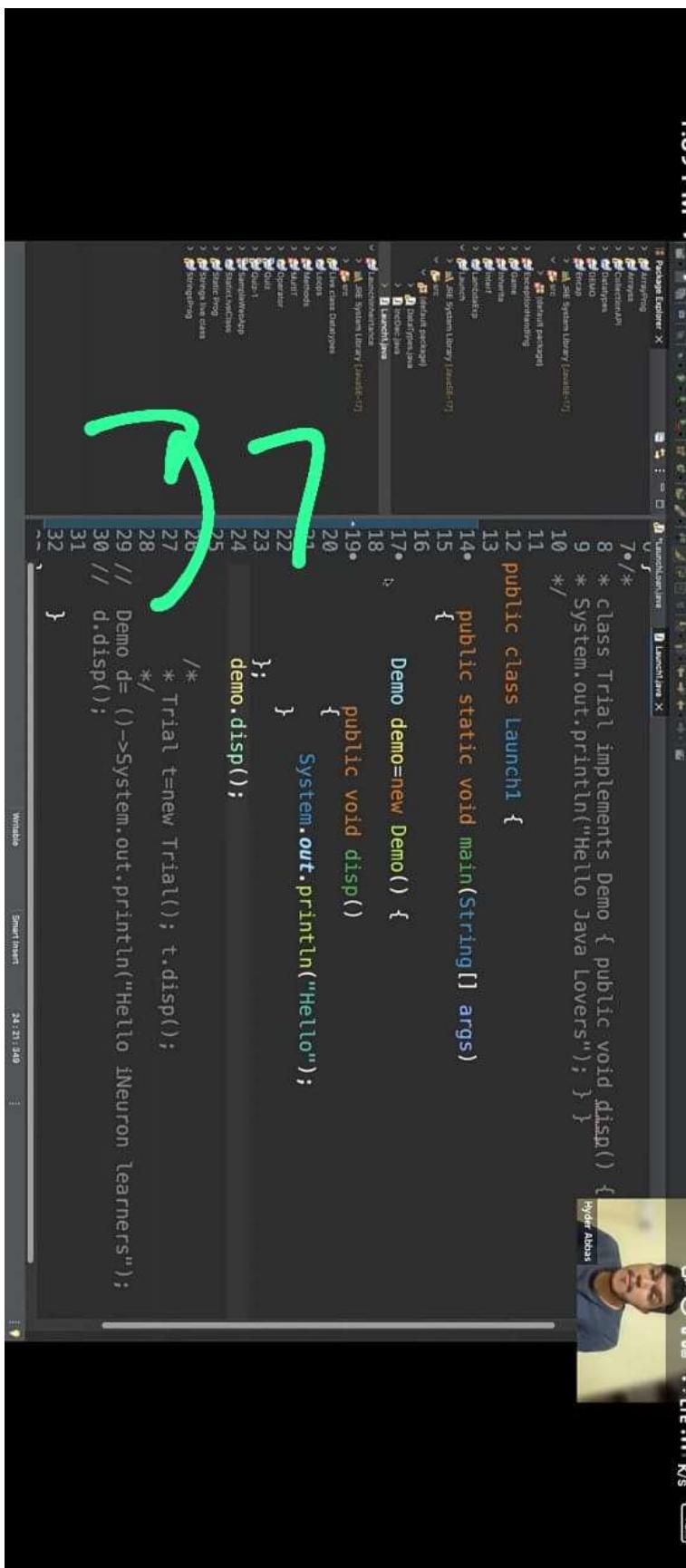
Code Editor Content:

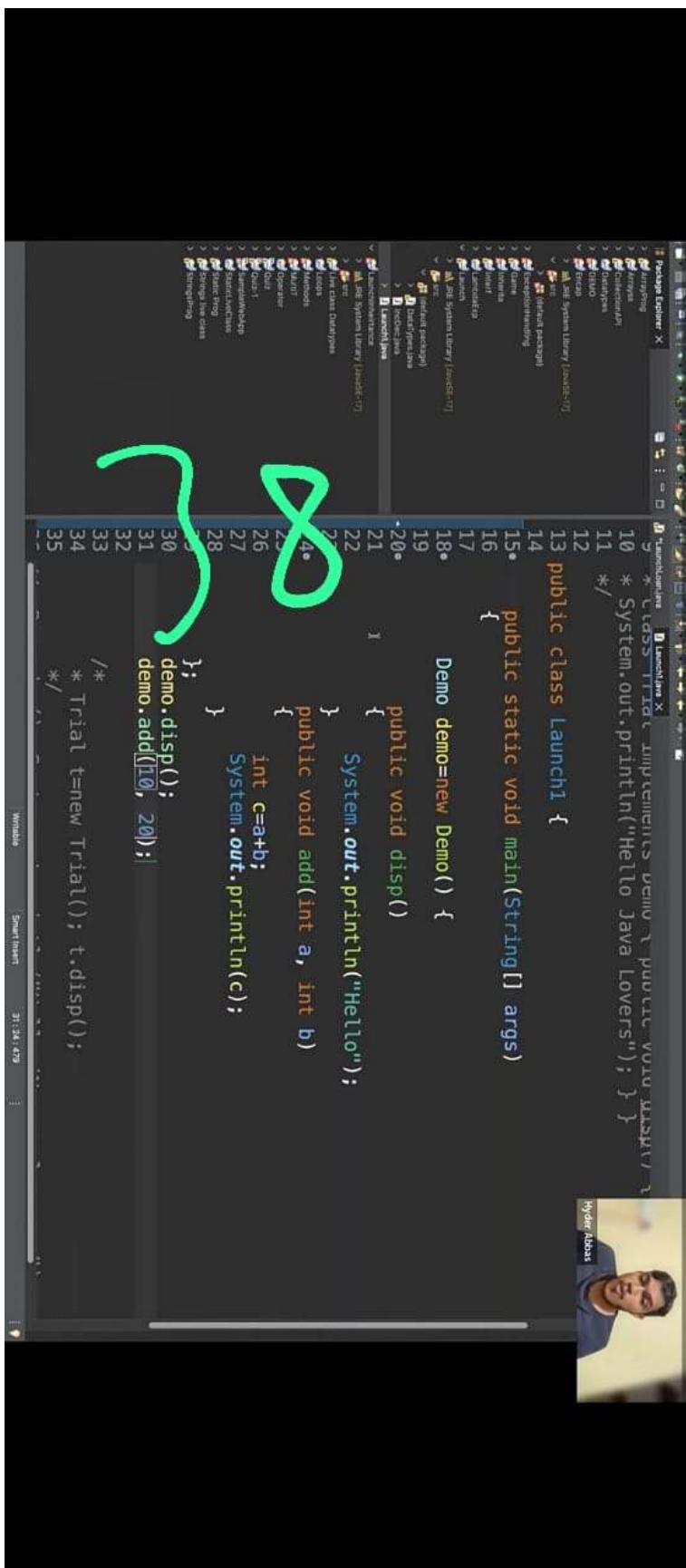
```
1 package Engine.X;
2
3 import java.awt.*;
4 import javax.swing.*;
5 import java.awt.event.*;
6 import java.awt.image.*;
7 import java.awt.Container;
8 import java.awt.GridLayout;
9 import java.awt.BorderLayout;
10 import java.awt.Dimension;
11 import java.awt.Toolkit;
12 import java.awt.Window;
13 import java.awt.WindowEvent;
14 import java.awt.WindowListener;
15 import java.awt.WindowAdapter;
16 import java.awt.WindowFocusListener;
17 import java.awt.WindowIconListener;
18 import java.awt.WindowFocusEvent;
19 import java.awt.WindowIconEvent;
20 import java.awt.WindowStateListener;
21 import java.awt.WindowStateEvent;
22 import java.awt.WindowListener;
23 import java.awt.WindowIconListener;
24 import java.awt.WindowFocusListener;
25 import java.awt.WindowFocusEvent;
26 import java.awt.WindowIconEvent;
27
```

Video Player Window:

Hyder Abbas

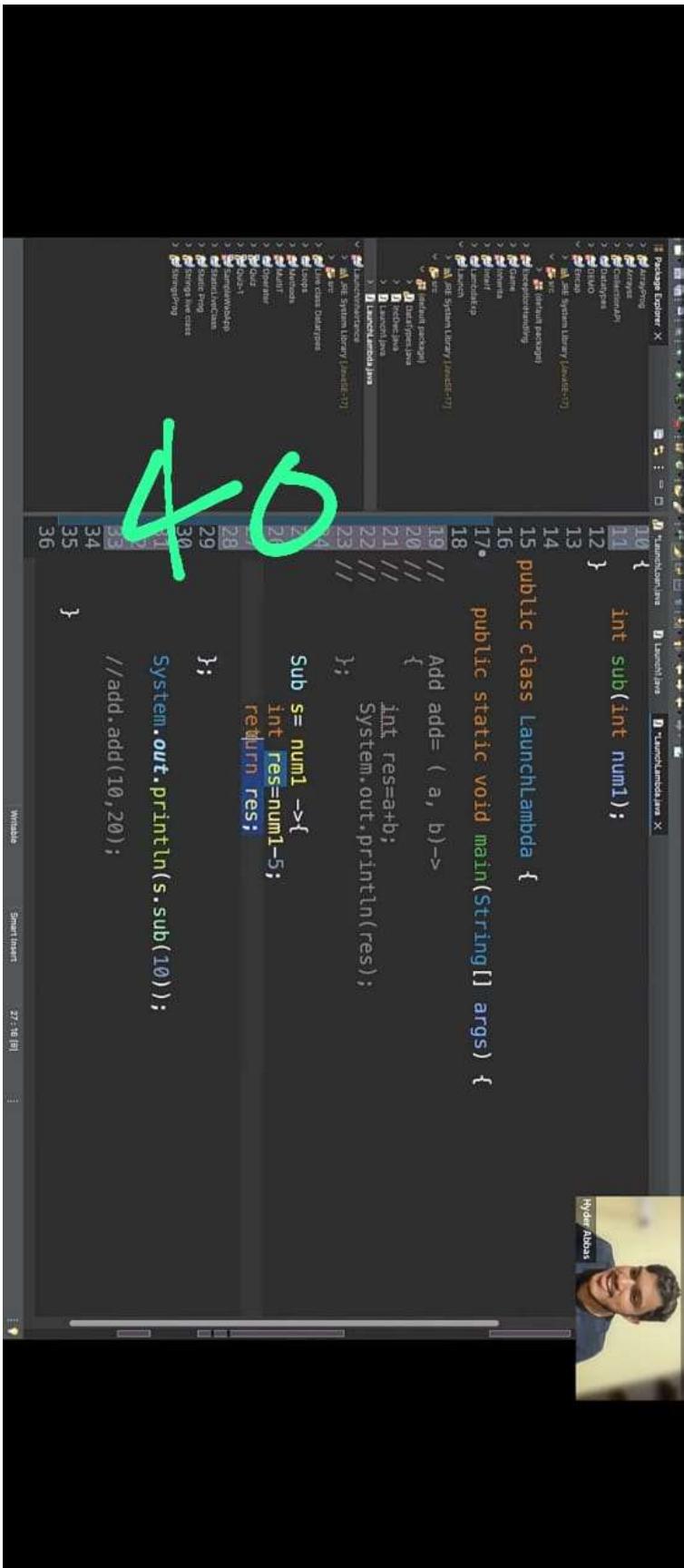
The video player window displays a video of a man speaking, identified as Hyder Abbas.





39

```
1 //  
2 //  
3 @FunctionalInterface  
4 interface Add  
5 {  
6     void add();  
7 }  
8  
9 public class LaunchLambda {  
10    public static void main(String[] args) {  
11        Add a = ()->{  
12            int num1=10;  
13            int num2=20;  
14            int res=num1+num2;  
15            System.out.println(res);  
16        };  
17        a.add();  
18    }  
19 }  
20  
21 }  
22 }  
23 }  
24 }  
25 }  
26 }
```



```
1 package com.example;
2
3 import java.util.ArrayList;
4 import java.util.List;
5
6 public class Main {
7     public static void main(String[] args) {
8         List<String> list = new ArrayList<String>();
9         list.add("Hello");
10        list.add("World");
11        list.add("!");
12    }
13
14    public static void main() {
15        System.out.println("Hello World!");
16    }
17
18    public static void main(String[] args) {
19        Add add = (a, b) ->
20        {
21            int res=a+b;
22            System.out.println(res);
23        };
24
25        Sub s = num1 ->{
26            int res=num1-5;
27            return res;
28        };
29
30        System.out.println(s.sub(10));
31
32        //add.add(10,20);
33
34    }
35
36 }
```

1:53 PM

```
1  package Lambda;
2  import java.util.*;
3  import java.util.function.*;
4  import java.util.stream.*;
5  import java.util.*;
6  import java.util.*;
7  import java.util.*;
8  import java.util.*;
9  import java.util.*;
10 import java.util.*;
11 import java.util.*;
12 import java.util.*;
13 import java.util.*;
14 import java.util.*;
15 import java.util.*;
16 import java.util.*;
17 import java.util.*;
18 import java.util.*;
19 import java.util.*;
20 import java.util.*;
21 import java.util.*;
22 public class LaunchLambda {
23
24    public static void main(String[] args) {
25        Add add= ( a, b)=>
26        {
27            int res=a+b;
28            System.out.println(res);
29        };
30
31        Sub s= num1 ->num1-5;
32
33        System.out.println(s.sub(10));
34
35        //add.add(10,20);
36
}

```



By der Abbas

42

```
10
11
12
13
14 lambda operator (->)
15 2 parts to write lambda exp
16 we write parameters required
17 we write body or implementation
18 atype is optional
19 or body has one statement then {} is optional
20 single then () and type of data both optional
21 single line implementation then return statement is also optional
22
23
24 res[] args) {
25
26
27
28
29
30
31
32
33
34
35
36
```

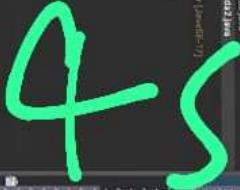


43

```
1 //  
2 //  
3 @FunctionalInterface  
4 interface Add  
5 {  
6     void add(int a, int b);  
7 }  
8 @FunctionalInterface  
9 interface Sub  
10 {  
11     int sub(int num1);  
12 }  
13  
14 // to write lambda exp we use lambda operator (->  
15 // lambda operator divided into 2 parts to write lambda exp  
16 // left side of lambda operator we write parameters required  
17 // right side of lambda operator we write body or implementation  
18 // left side for parameters datatype is optional  
19 // write side if implementation or body has one statement then  
20 // left side if parameter is single then () and type of data bo-  
21 // write side in body if its single line implementation then reti-  
22 public class LaunchLambda {  
23  
24     public static void main(String[] args)  
25     {  
26         Add add= (a, b)->{  
27             int res=a+b;
```

```
1.0.61 F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F29 F30 F31 F32 F33 F34 F35 F36 F37 F38 F39 F40 F41 F42 F43 F44 F45 F46 F47
```

```
21 // write side in body if its single line implementation
22 // {} is mandatory if there are more then one statement
23 public class LaunchLambda {
24
25     public static void main(String[] args) {
26         Add add= (a, b)->{
27             int res=a+b;
28             System.out.println(res);
29         };
30         add.add(10, 20);
31
32         Sub sub= num1->{
33             int res=num1-5;
34             return res;
35         };
36         Sub sub= num1 -> {
37             Sub sub= num1 -> {
38                 Sub sub= num1 -> {
39                     Sub sub= num1 -> {
40                         Sub sub= num1 -> num1-5;
41
42
43
44
45
46
47 }
```



```
1 package Explorer_X;
2
3 import java.util.ArrayList;
4 import java.util.List;
5
6
7
8
9
10
11
12
13
14
15
16
17
18 public class LaunchLambda2 {
19
20     public static void main(String[] args) {
21         LOS l=new LOS();
22         System.out.println(l.getLength("iNeuron.ai"));
23     }
24
25
26
27 }
28
```

The screenshot shows a Java code editor with a dark theme. The code is a simple program that prints the length of a string. A large green hand-drawn '45' is overlaid on the left side of the code editor window. The code editor has tabs for 'File', 'Edit', 'Search', 'Run', 'Run Configuration', 'Project', 'CollectionNode', 'Docker', 'Eclipse', 'all system library [local-1]', 'git', 'git (local branch)', 'EclipseLinkMapping', 'junit', 'junit4', 'Lambdas', 'Launch', 'All System Library [remote-1]', 'git (distant repository)', 'Data (remote-1)', 'JDBC-H2', 'LaunchLambda2.java', and 'LaunchLambda2.java'. The status bar at the bottom shows 'Wrinkle' and 'Smart Insert' on the left, and '16:21:200' on the right.

```
1  Package Explorer X | 2  Arranging 3  Arrives 4  CollectionMode 5  Database 6  DDDO 7  Errors 8  all system library (LaunchLambda2) 9  File 10  Find 11  Help 12  Home 13  Import 14  int length=str.length(); 15  int length; 16  LaunchLambda2.java 17  LaunchLambda2.java 18  public class LaunchLambda2 { 19  System.out.println("LaunchLambda2"); 20  public static void main(String[] args) { 21  LOS l=new LOS(); 22  System.out.println(l.getLength("iNeuron.ai")); 23  // 24  LaunchLambda2.java 25  LOS l=new LOS(); 26  System.out.println(l.getLength("iNeuron.ai")); 27  // 28  LOS l=new LOS(); 29  System.out.println(l.getLength("iNeuron.ai")); 30  // 31  LOS l=new LOS(); 32  System.out.println(l.getLength("iNeuron.ai")); 33  // 34  LOS l=new LOS(); 35  System.out.println(l.getLength("iNeuron.ai")); 36  // 37 }
```

2:03 PM

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47
14 // return length;
15 //}
16 //}
17
18 public class LaunchLambda2 {
19     public static void main(String[] args) {
20         LOS l=new LOS();
21         System.out.println(l.getLength("iNeuron.ai"));
22     }
23     public int getLength(String str) {
24         Data d=new Data();
25         d.length(str);
26         return d.length();
27     }
28 }
29
30 /**
31 * @param str
32 */
33 public class Data {
34     public int length(String str) {
35         int count=0;
36         for (int i=0; i<str.length(); i++) {
37             if (str.charAt(i) != ' ' && str.charAt(i) != '\n') {
38                 count++;
39             }
40         }
41         return count;
42     }
43 }
44
45 public class LOS {
46     public int length(String str) {
47         int count=0;
48         for (int i=0; i<str.length(); i++) {
49             if (str.charAt(i) != ' ' && str.charAt(i) != '\n') {
50                 count++;
51             }
52         }
53         return count;
54     }
55 }
```