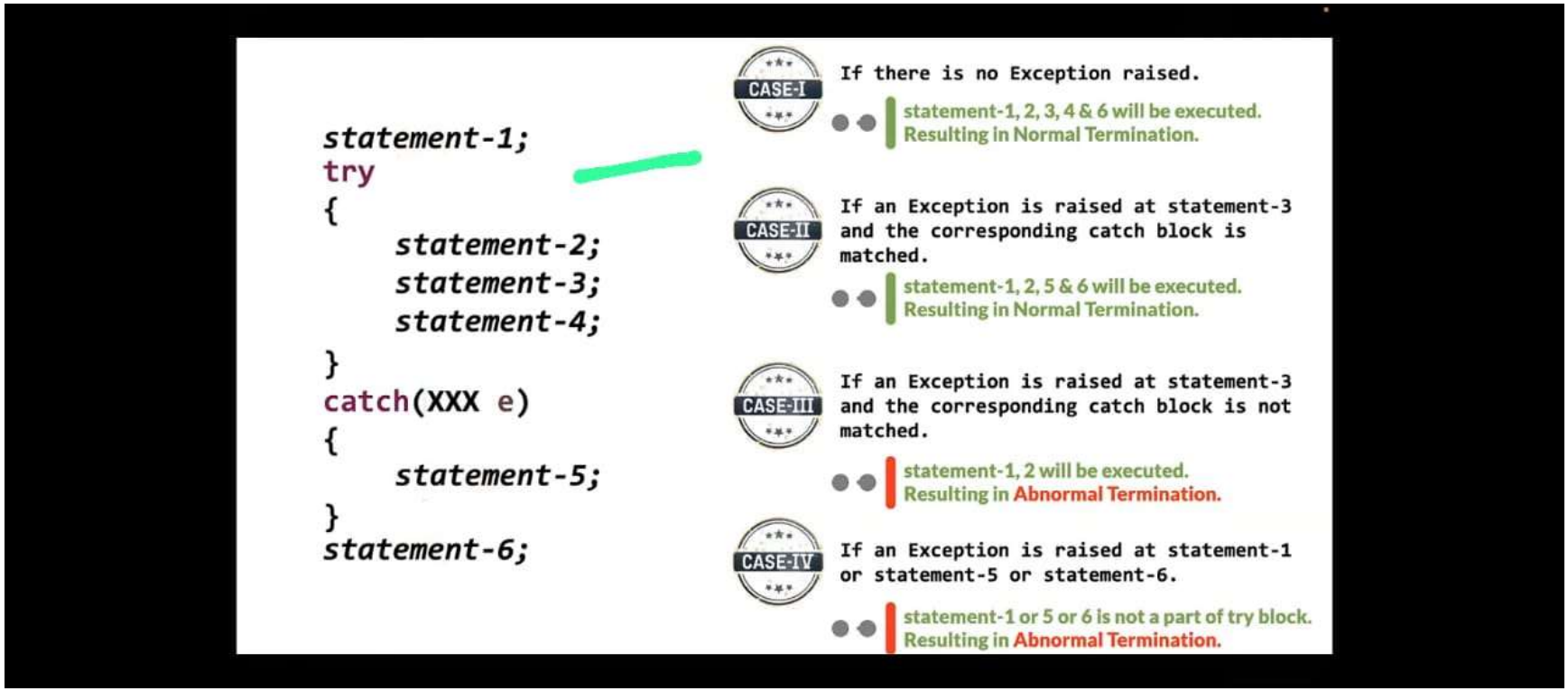
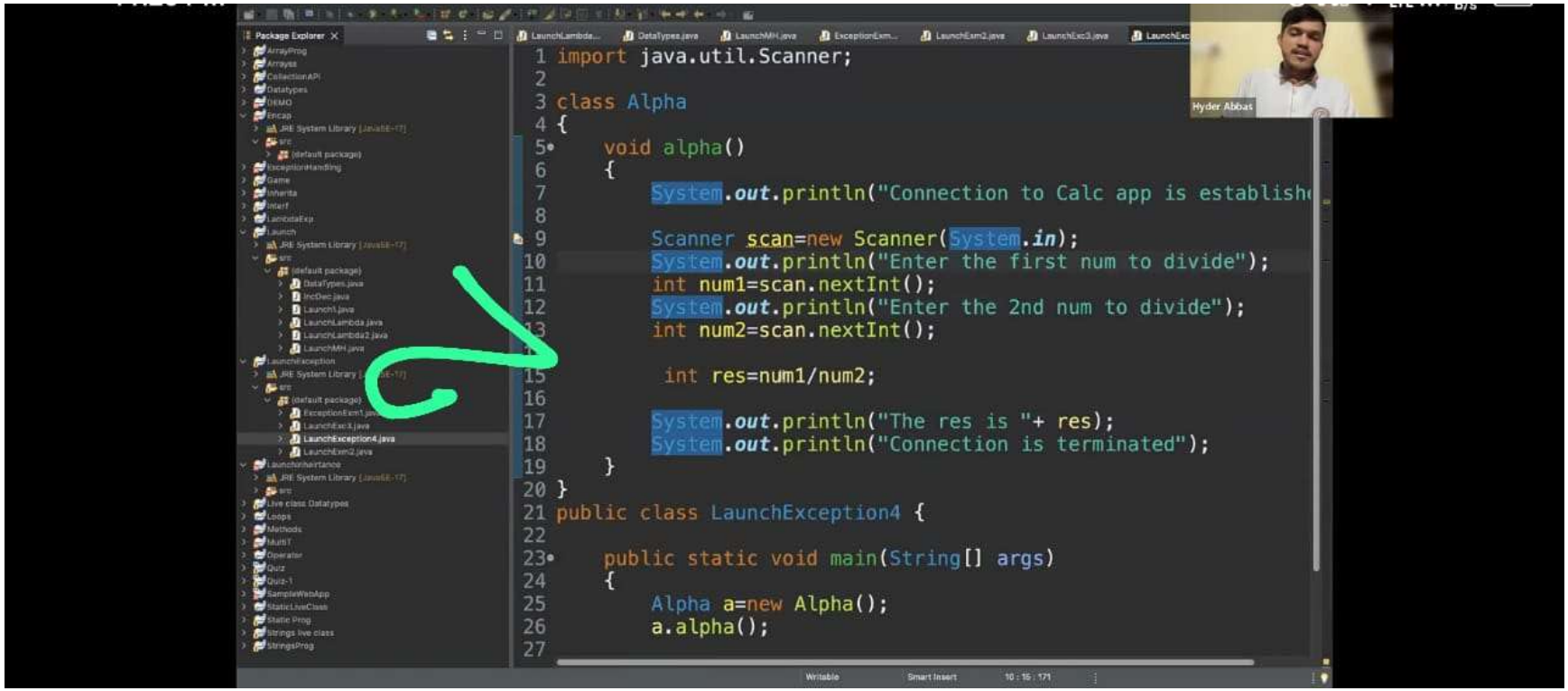
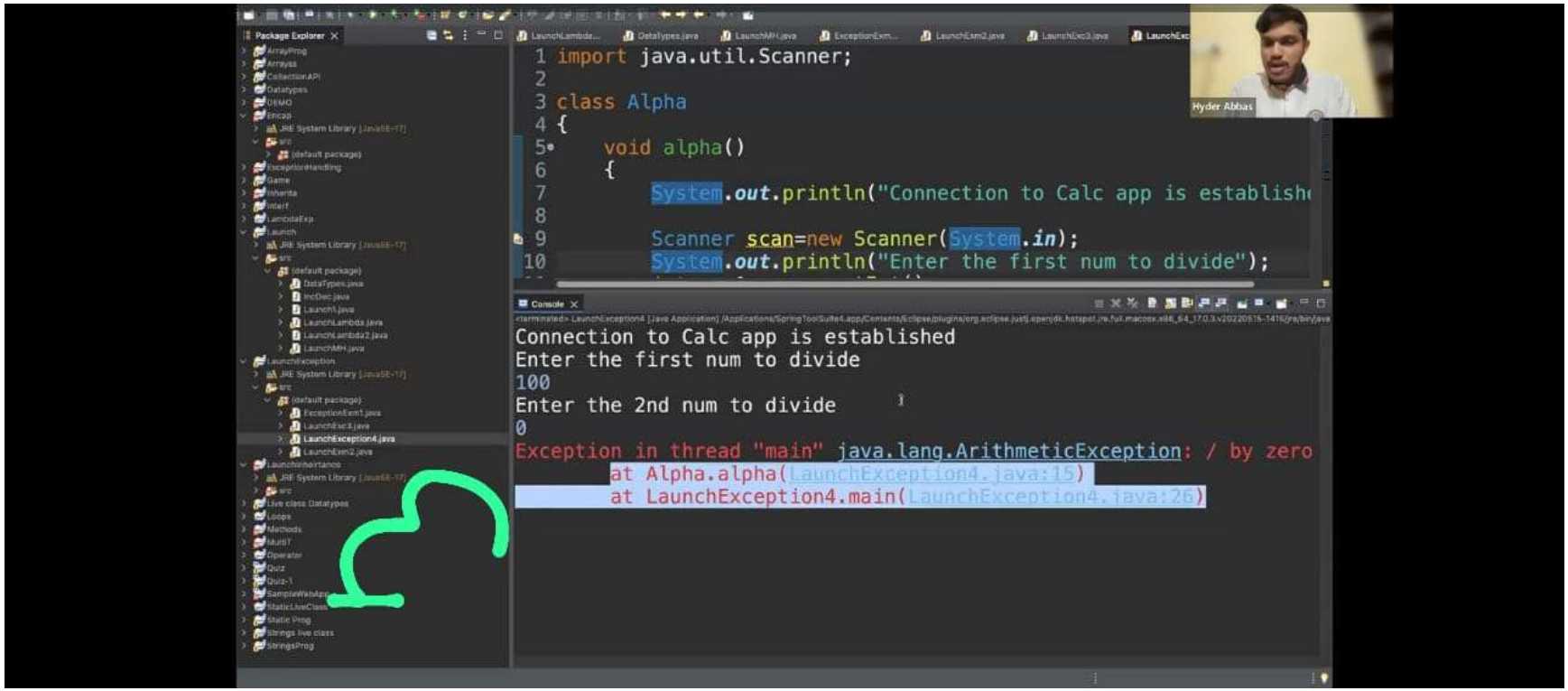
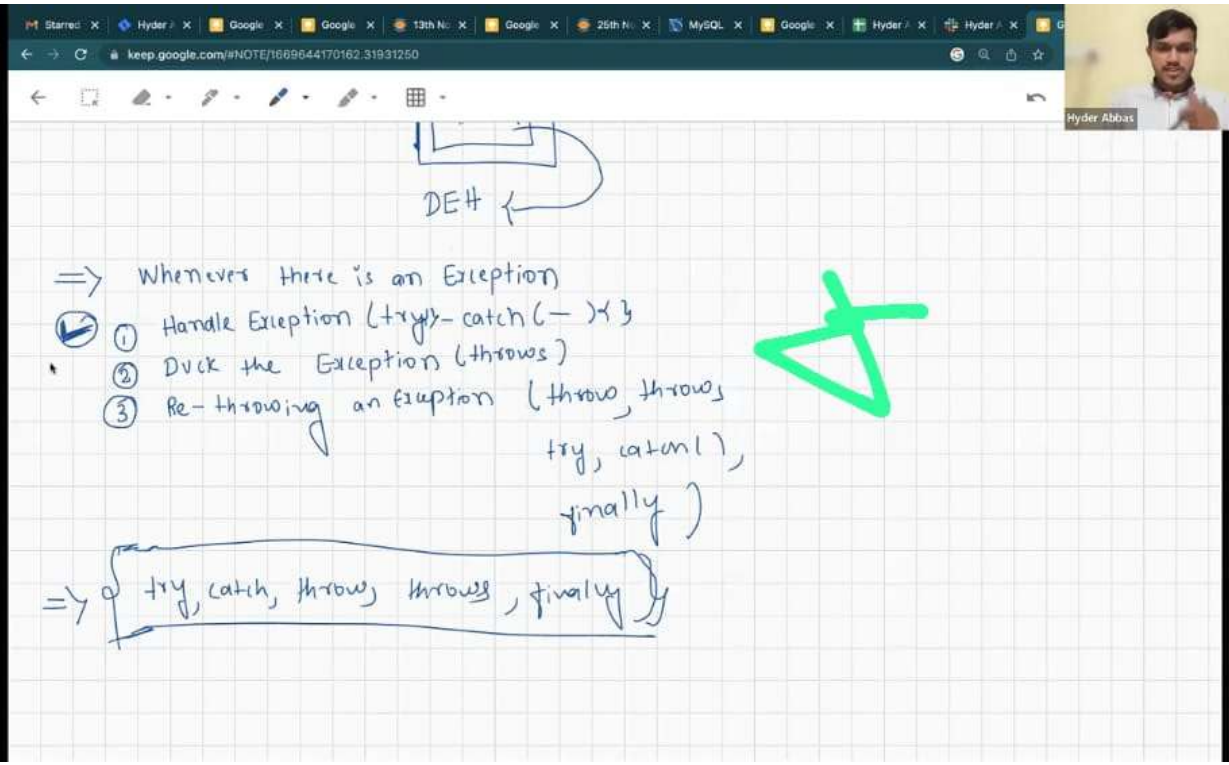
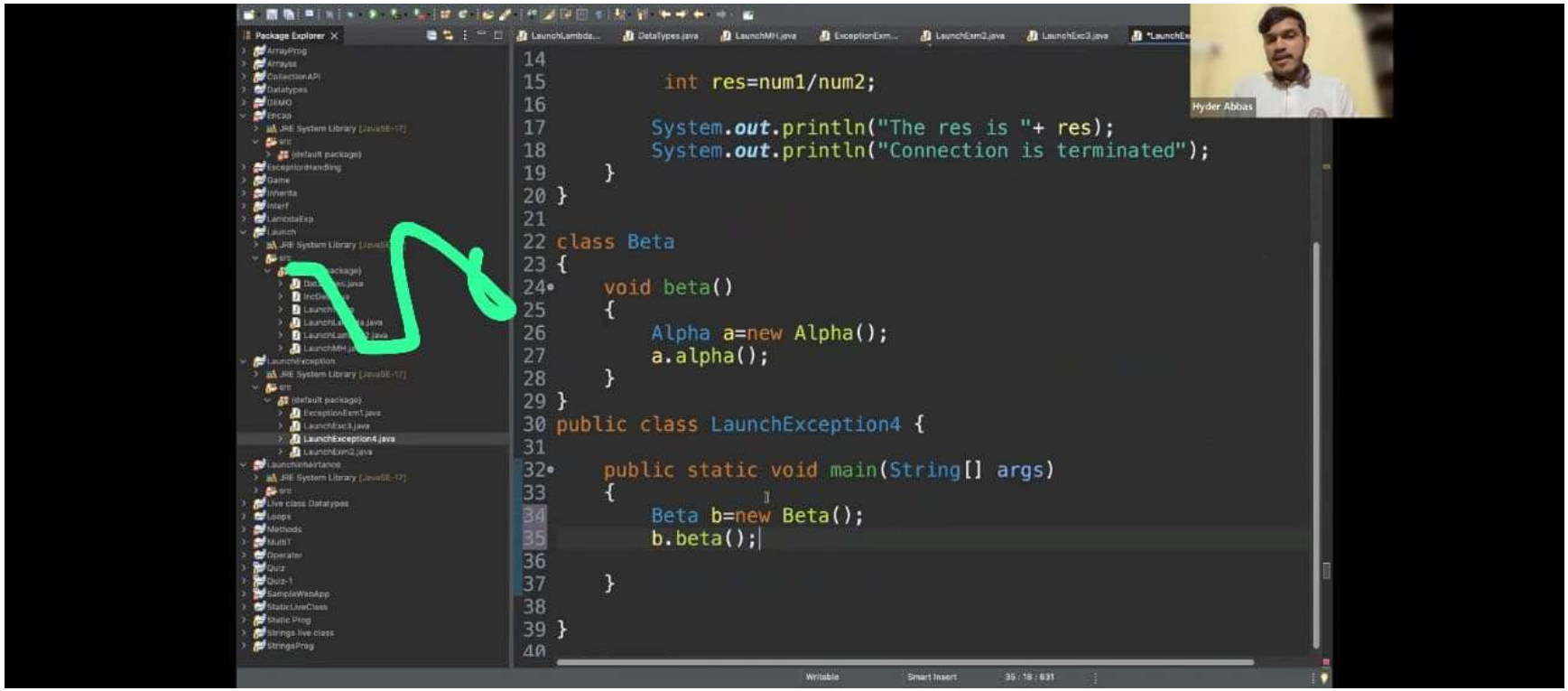
JAVA EXCEPTION Part2

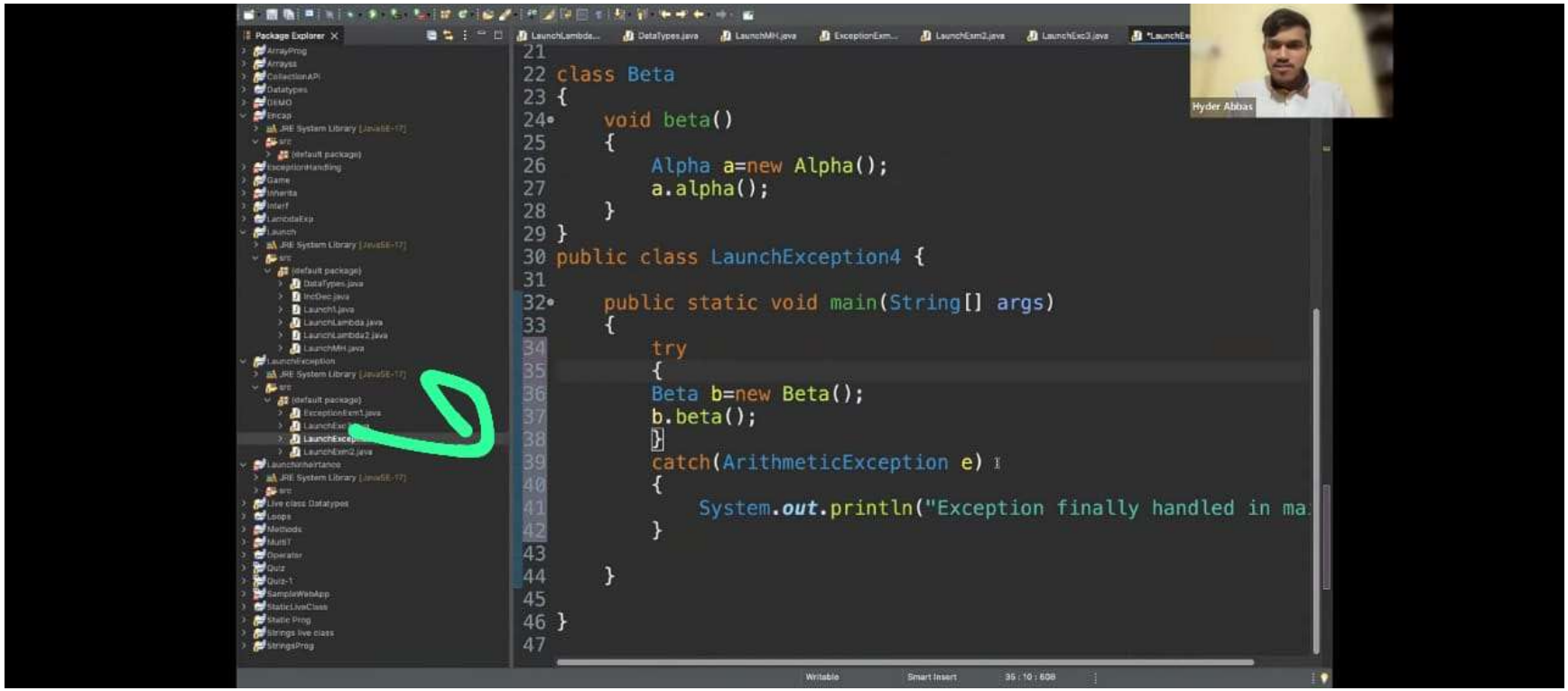


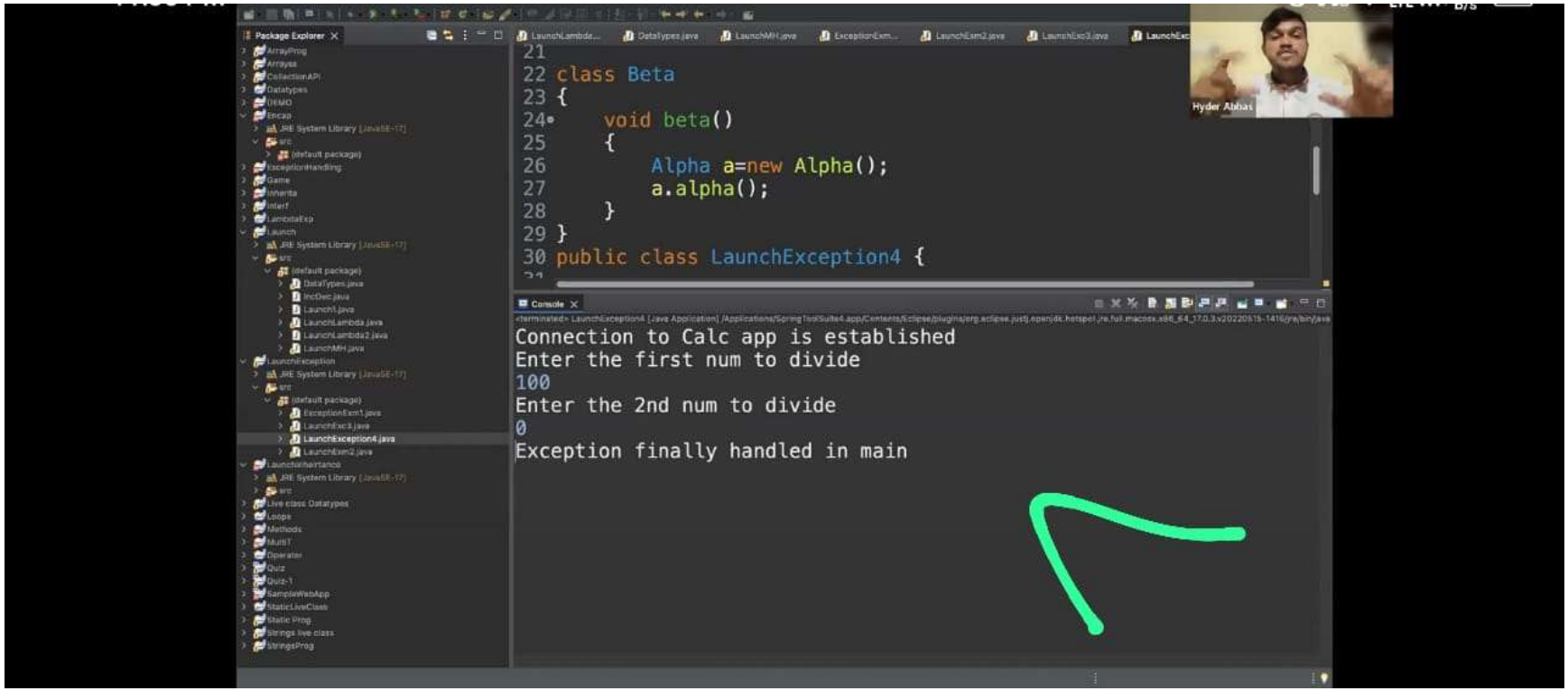

Package Explorer
LaunchLambda...
DataTypes.java
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
Hyder Abbas
1 import java.util.Scanner;
2
3 class Alpha
4 {
5 void alpha()
6 {
7 System.out.println("Connection to Calc app is establish
8
9 Scanner scan=new Scanner(System.in);
10 System.out.println("Enter the first num to divide");
11 int num1=scan.nextInt();
12 System.out.println("Enter the 2nd num to divide");
13 int num2=scan.nextInt();
15 int res=num1/num2;
16
17 System.out.println("The res is "+ res);
18 System.out.println("Connection is terminated");
19 }
20 }
21 public class LaunchException4 {
22
23 public static void main(String[] args)
24 {
25 Alpha a=new Alpha();
26 a.alpha();
27
Writable
Smart Insert
10 : 15 : 171

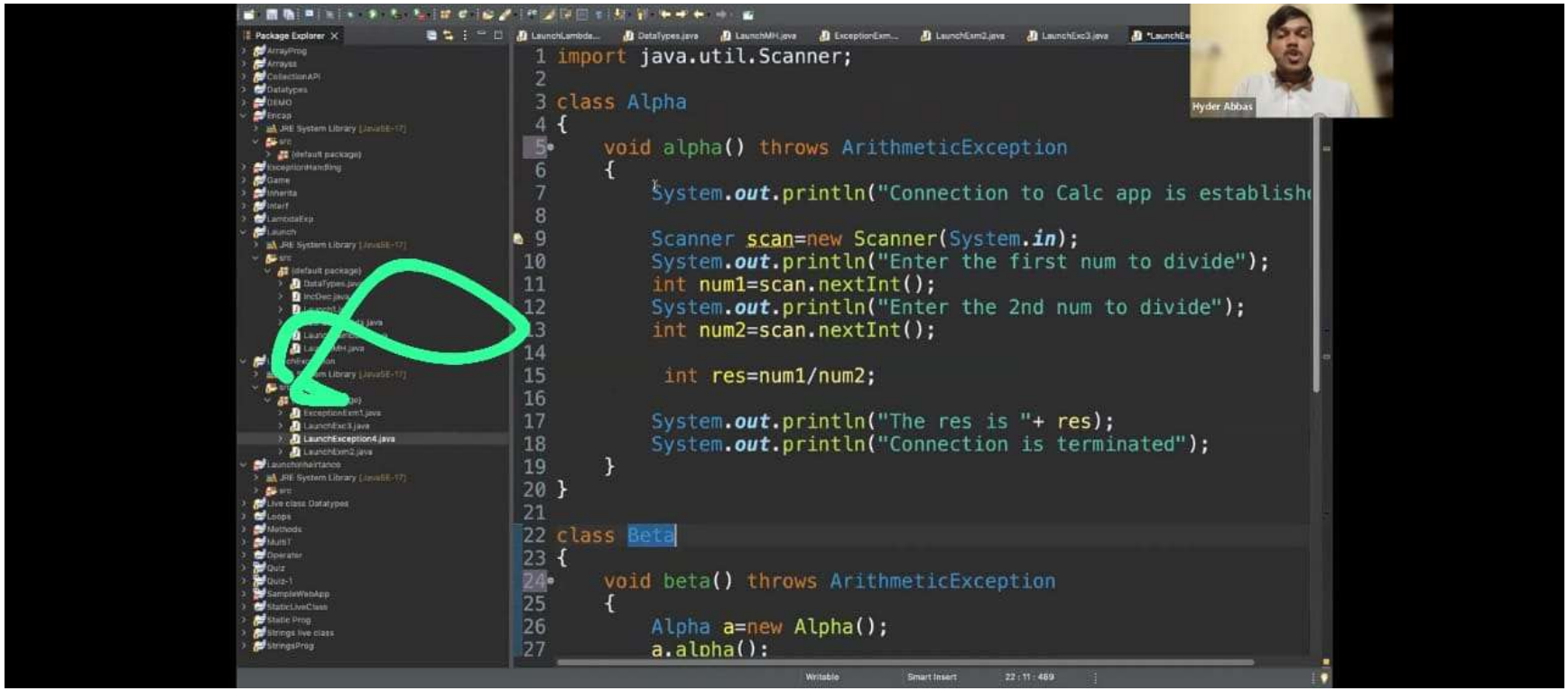

Package Explorer
1 import java.util.Scanner;
2
3 class Alpha
4 {
5 void alpha()
6 {
7 System.out.println("Connection to Calc app is establish
8
9 Scanner scan=new Scanner(System.in);
10 System.out.println("Enter the first num to divide");
Hyder Abbas
Console
Connection to Calc app is established
Enter the first num to divide
100
Enter the 2nd num to divide
0
Exception in thread "main" java.lang.ArithmeticException: / by zero
at Alpha.alpha(LaunchException4.java:15)
at LaunchException4.main(LaunchException4.java:26)

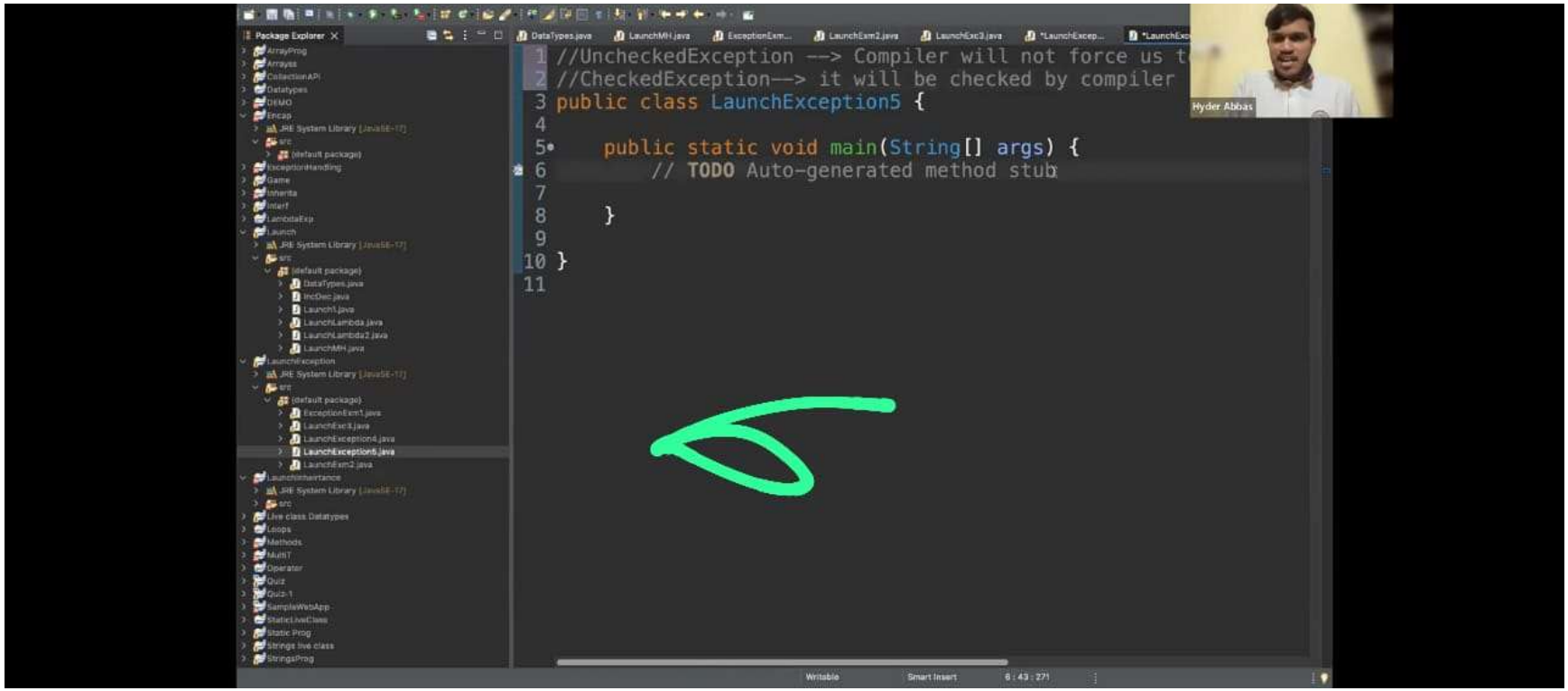

keep.google.com/#NOTE/1669644170162.31931250
Hyder Abbas
DEH
=> Whenever there is an Exception
1 Handle Exception (try{}- catch(-){}
2 Duck the Exception (throws)
3 Re-throwing an exception (throw, throws
try, catch),
finally)
=> try, catch, throw, throws, finally

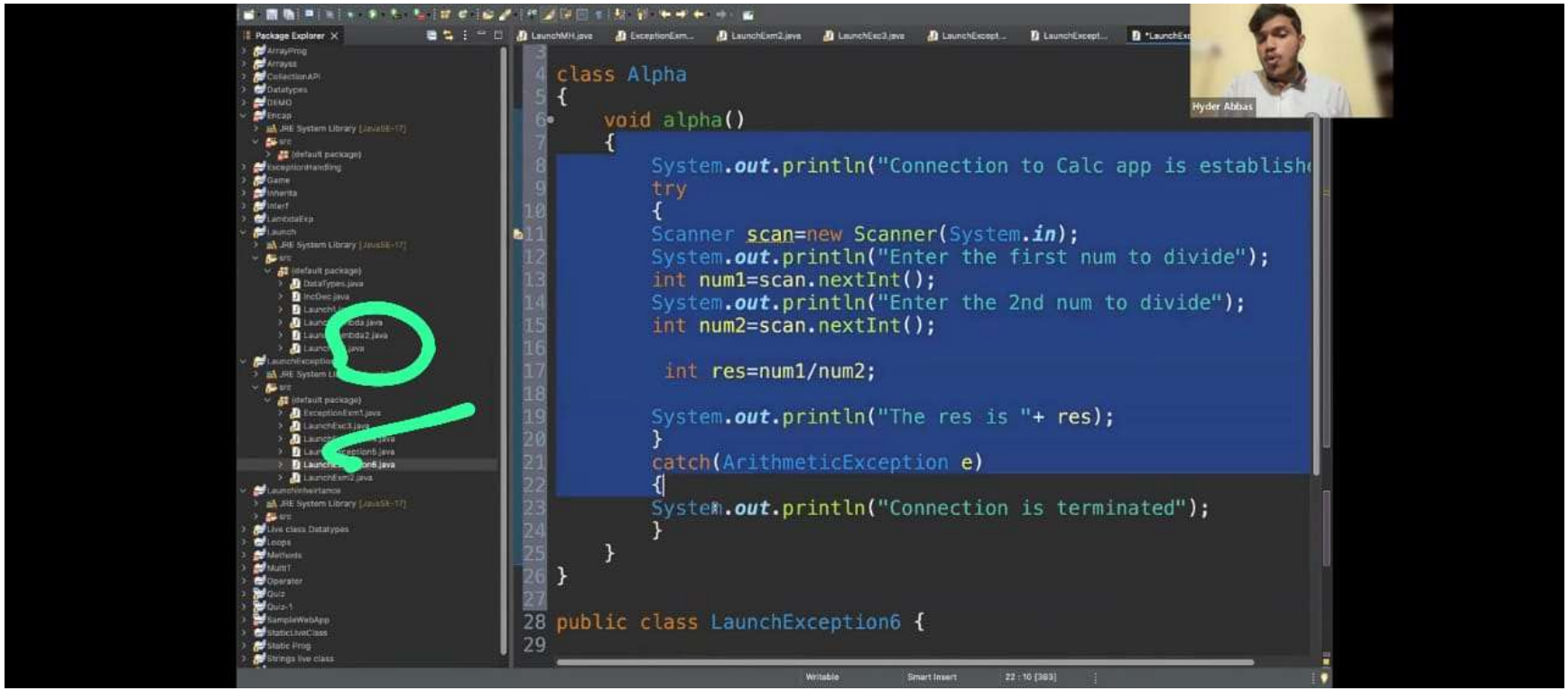

Package Explorer
LaunchLambda...
DataTypes.java
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
Hyder Abbas
int res=num1/num2;
System.out.println("The res is "+ res);
System.out.println("Connection is terminated");
}
}
class Beta
{
void beta()
{
Alpha a=new Alpha();
a.alpha();
}
}
public class LaunchException4 {
public static void main(String[] args)
{
Beta b=new Beta();
b.beta();
}
}
Writable
Smart Insert
35 : 18 : 631

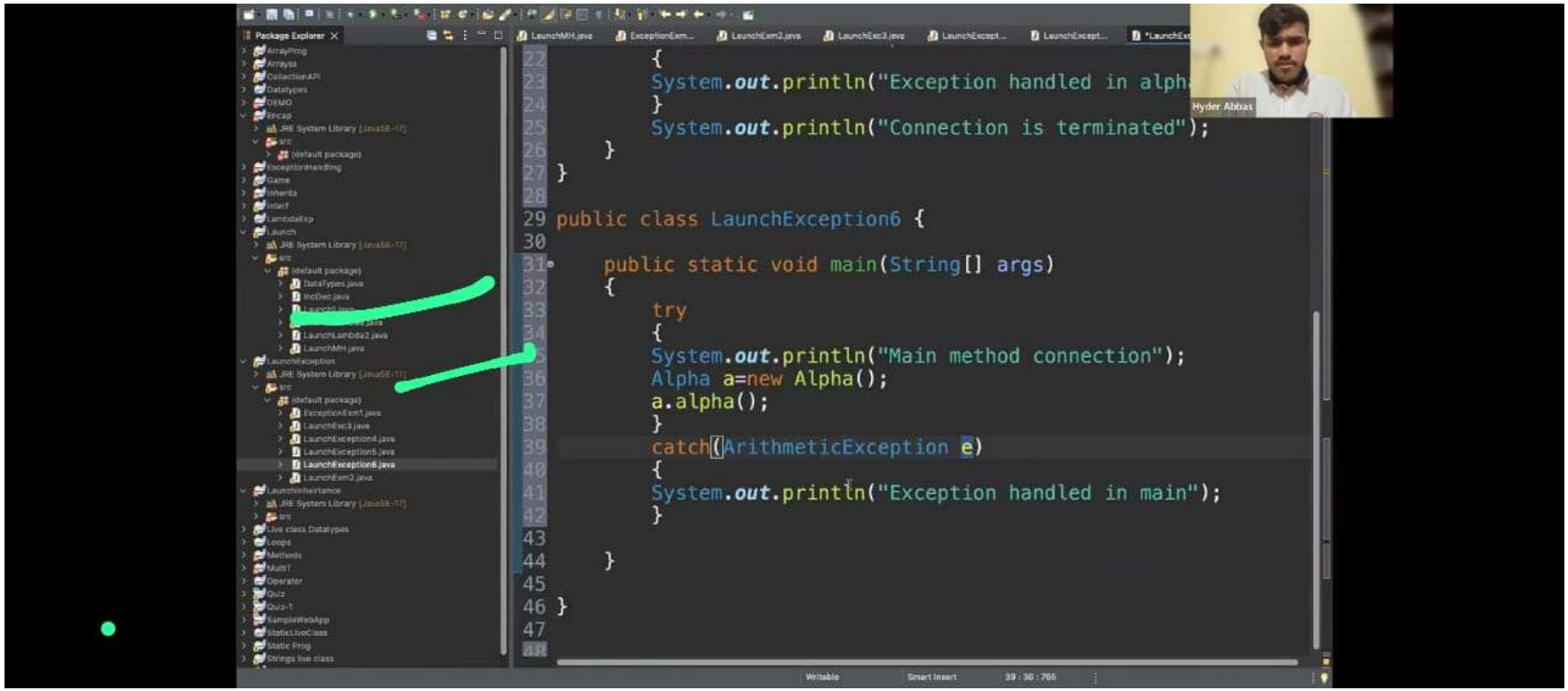

Package Explorer
LaunchLambde...
DataTypes.java
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
Hyder Abbas
21
22 class Beta
23 {
24 void beta()
25 {
26 Alpha a=new Alpha();
27 a.alpha();
28 }
29 }
30 public class LaunchException4 {
31
32 public static void main(String[] args)
33 {
34 try
35 {
36 Beta b=new Beta();
37 b.beta();
38 }
39 catch(ArithmeticException e)
40 {
41 System.out.println("Exception finally handled in ma
42 }
43
44 }
45
46 }
47
Writable
Smart Insert
35 : 10 : 606

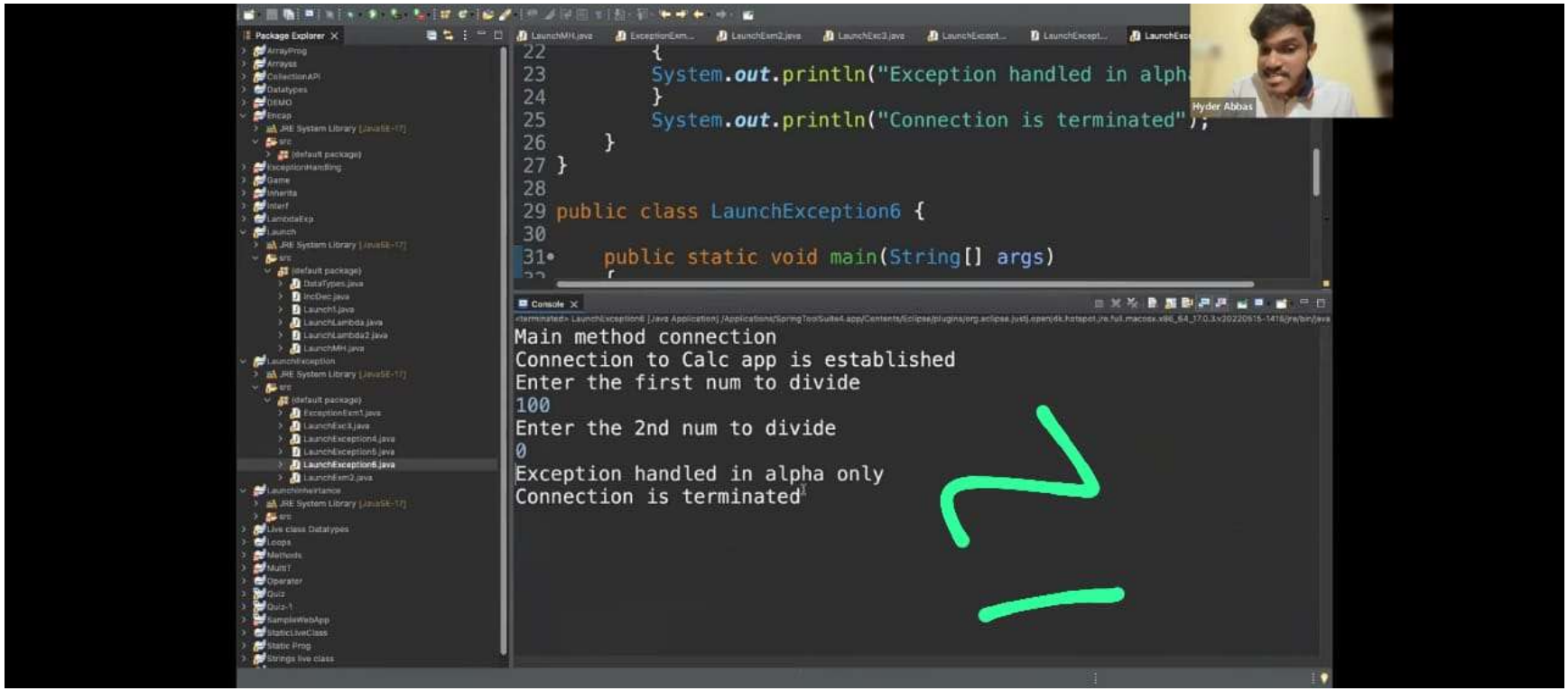

Package Explorer
LaunchLambda...
DataTypes.java
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExc
Hyder Abbas
21
22 class Beta
23 {
24• void beta()
25 {
26 Alpha a=new Alpha();
27 a.alpha();
28 }
29 }
30 public class LaunchException4 {
Console
Connection to Calc app is established
Enter the first num to divide
100
Enter the 2nd num to divide
0
Exception finally handled in main

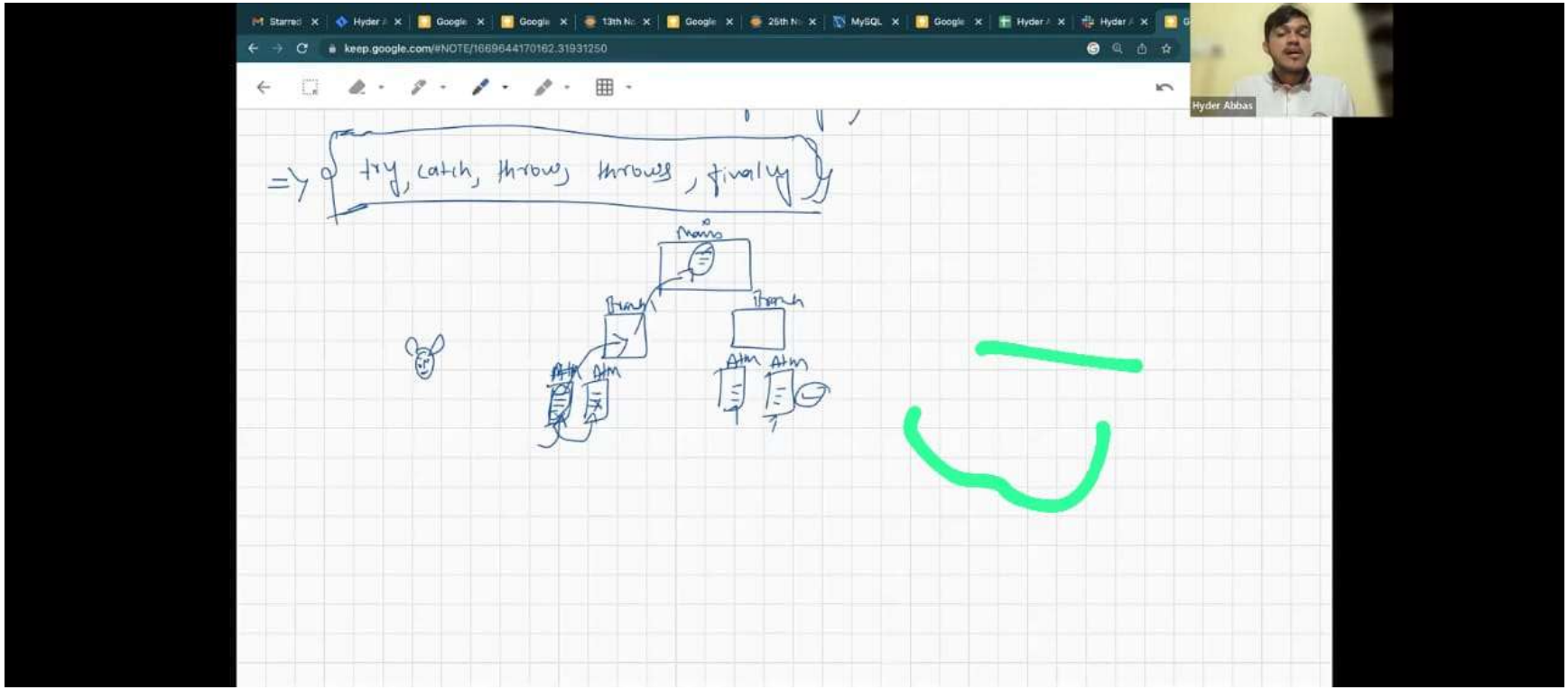

Package Explorer
LaunchLambde...
DataTypes.java
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
Hyder Abbas
1 import java.util.Scanner;
2
3 class Alpha
4 {
5 void alpha() throws ArithmeticException
6 {
7 System.out.println("Connection to Calc app is establish
8
9 Scanner scan=new Scanner(System.in);
10 System.out.println("Enter the first num to divide");
11 int num1=scan.nextInt();
12 System.out.println("Enter the 2nd num to divide");
13 int num2=scan.nextInt();
14
15 int res=num1/num2;
16
17 System.out.println("The res is "+ res);
18 System.out.println("Connection is terminated");
19 }
20 }
21
22 class Beta
23 {
24 void beta() throws ArithmeticException
25 {
26 Alpha a=new Alpha();
27 a.alpha();
Writable
Smart Insert
22 : 11 : 489


Package Explorer
DataTypes.java
LaunchMH.java
LaunchExm2.java
LaunchExc3.java
1 //UncheckedException --> Compiler will not force us t
2 //CheckedException--> it will be checked by compiler
3 public class LaunchException5 {
4
5 public static void main(String[] args) {
6 // TODO Auto-generated method stub
7
8 }
9
10 }
11
Hyder Abbas
Writable
Smart Insert
6 : 43 : 271


Package Explorer
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
*LaunchExc
Hyder Abbas
class Alpha
{
void alpha()
{
System.out.println("Connection to Calc app is establish
try
{
Scanner scan=new Scanner(System.in);
System.out.println("Enter the first num to divide");
int num1=scan.nextInt();
System.out.println("Enter the 2nd num to divide");
int num2=scan.nextInt();
int res=num1/num2;
System.out.println("The res is "+ res);
}
catch(ArithmeticException e)
{
System.out.println("Connection is terminated");
}
}
}
public class LaunchException6 {
Writable
Smart Insert
22 : 10 [383]


Package Explorer
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
Hyder Abbas
{
System.out.println("Exception handled in alph
}
System.out.println("Connection is terminated");
}
}
public class LaunchException6 {
public static void main(String[] args)
{
try
{
System.out.println("Main method connection");
Alpha a=new Alpha();
a.alpha();
}
catch(ArithmeticException e)
{
System.out.println("Exception handled in main");
}
}
}
Writable
Smart Insert
39 : 36 : 765


Package Explorer
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
LaunchExc
{
System.out.println("Exception handled in alpha
}
System.out.println("Connection is terminated");
}
}
public class LaunchException6 {
public static void main(String[] args)
Hyder Abbas
Console
Main method connection
Connection to Calc app is established
Enter the first num to divide
100
Enter the 2nd num to divide
0
Exception handled in alpha only
Connection is terminated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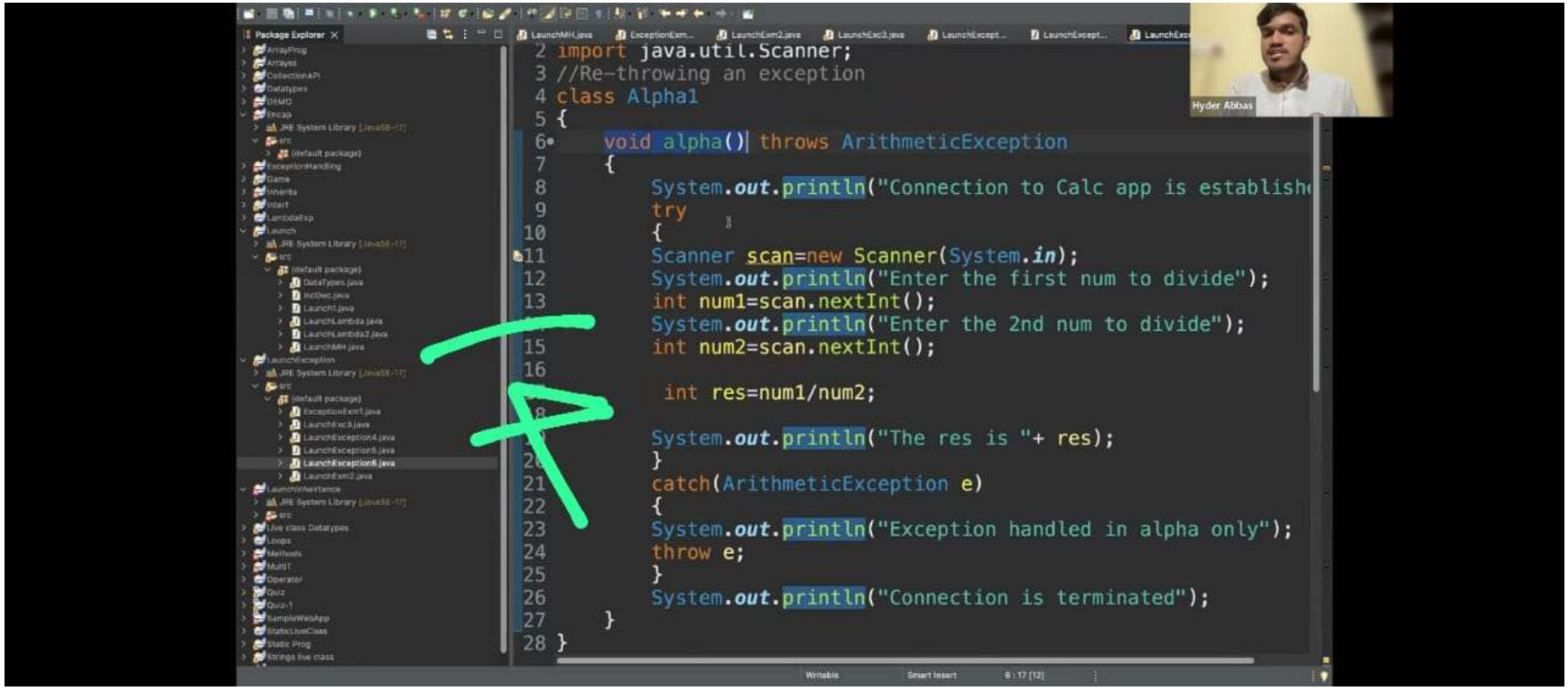
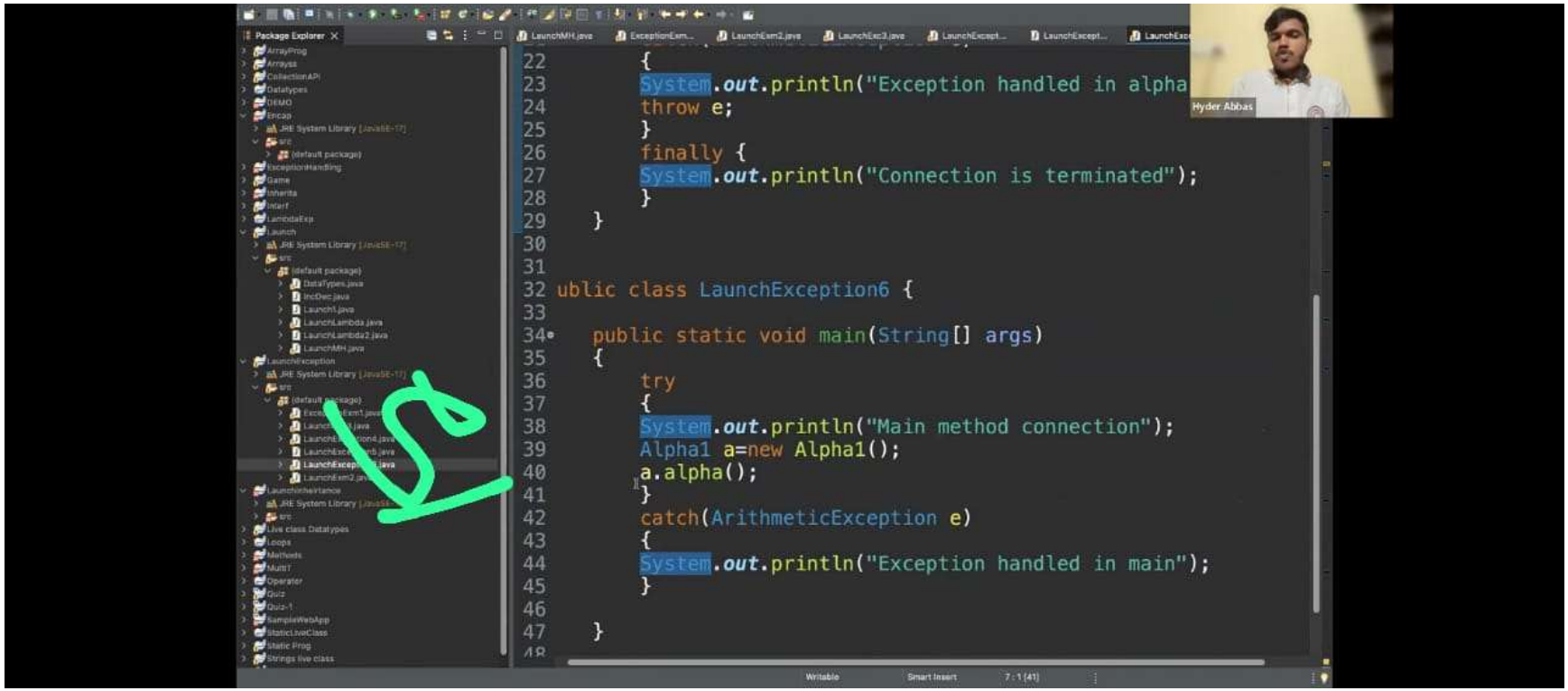
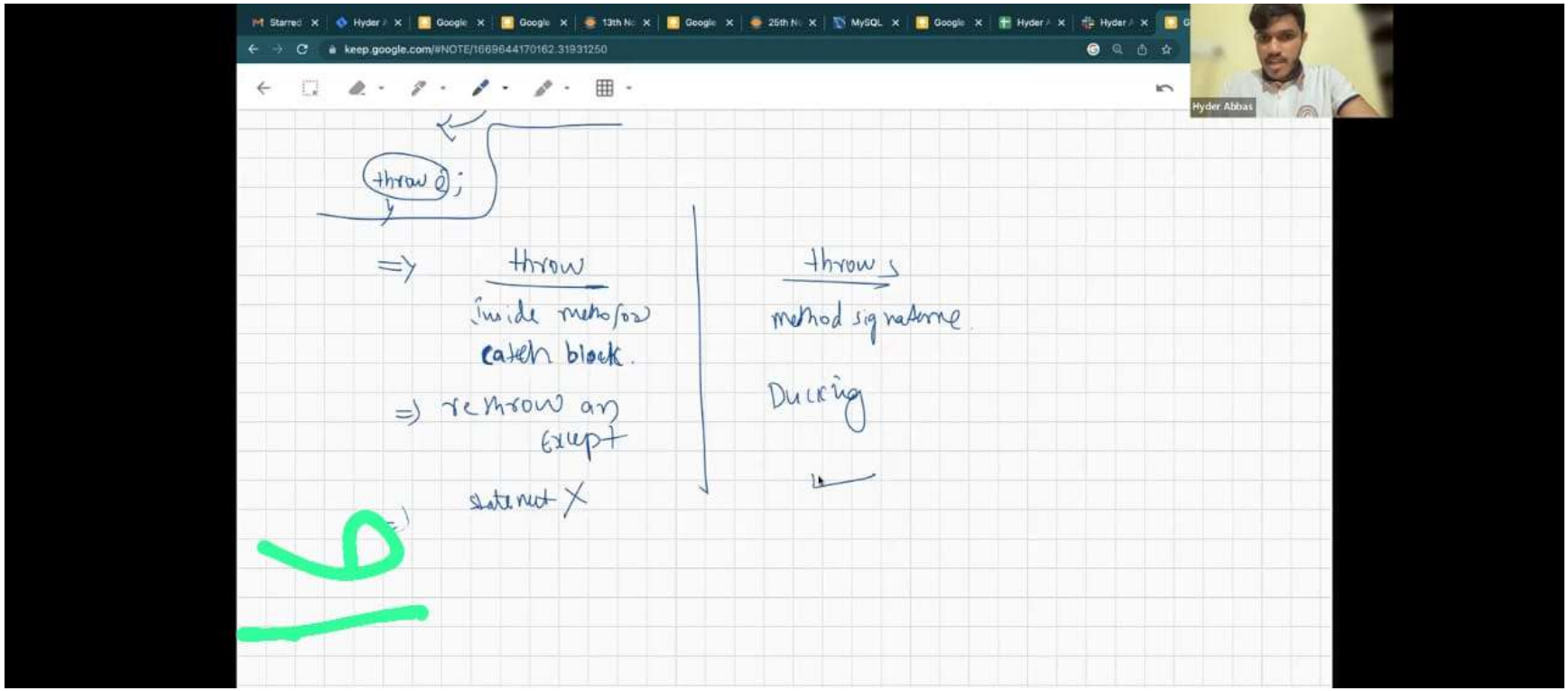
Hyder Abbas
=> try, catch, throw, throws, finally
main
Atm
Atm
Atm
Atm


Package Explorer
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
Hyder Abbas
import java.util.Scanner;
//Re-throwing an exception
class Alpha1
{
void alpha() throws ArithmeticException
{
System.out.println("Connection to Calc app is establish
try
{
Scanner scan=new Scanner(System.in);
System.out.println("Enter the first num to divide");
int num1=scan.nextInt();
System.out.println("Enter the 2nd num to divide");
int num2=scan.nextInt();
int res=num1/num2;
System.out.println("The res is "+ res);
}
catch(ArithmeticException e)
{
System.out.println("Exception handled in alpha only");
throw e;
}
System.out.println("Connection is terminated");
}
}
Writable
Smart Insert
6 : 17 [12]


Package Explorer
LaunchMH.java
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
LaunchExc
{
System.out.println("Exception handled in alpha
throw e;
}
finally {
System.out.println("Connection is terminated");
}
}
ublic class LaunchException6 {
public static void main(String[] args)
{
try
{
System.out.println("Main method connection");
Alpha1 a=new Alpha1();
a.alpha();
}
catch(ArithmeticException e)
{
System.out.println("Exception handled in main");
}
}
Hyder Abbas
Writable
Smart Insert
7 : 1 [41]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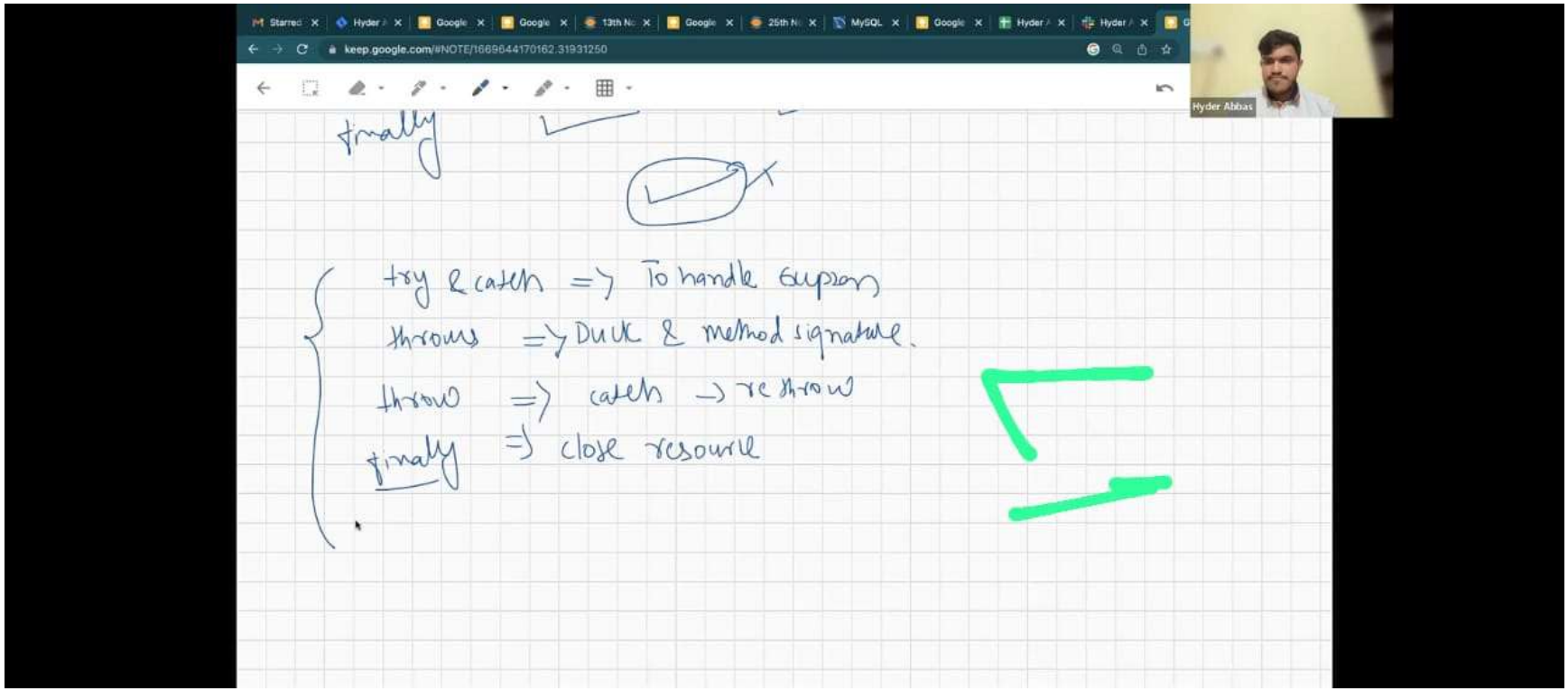
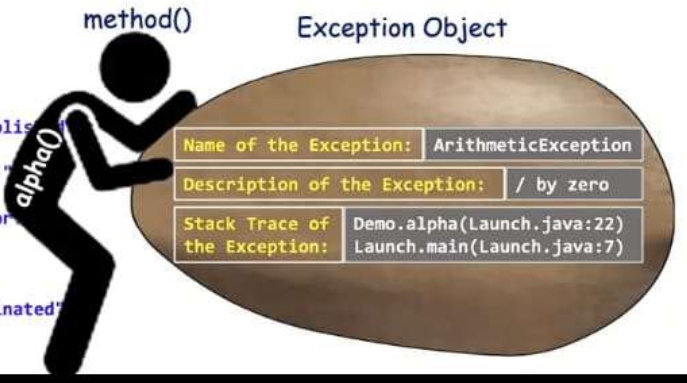
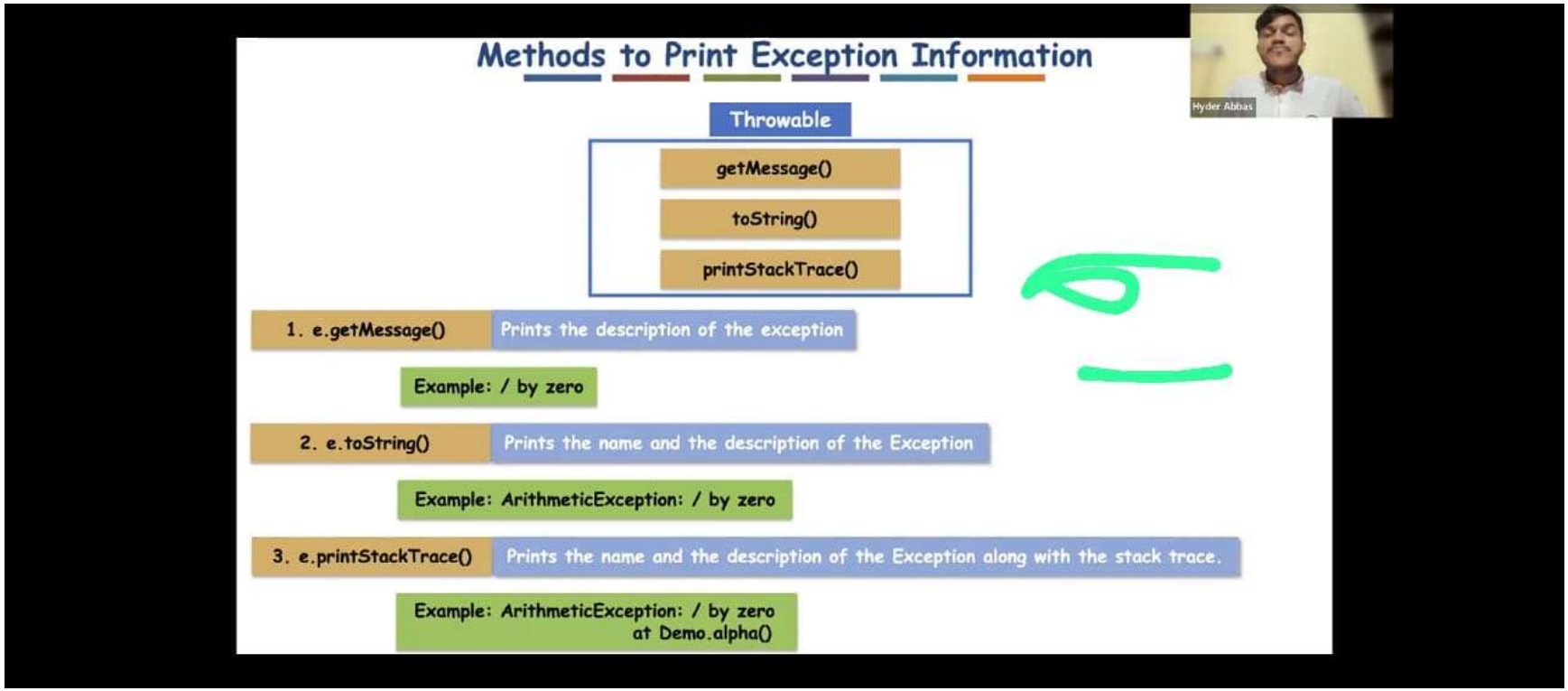
Hyder Abbas
throw e;
=> throw
Inside method
catch block.
=> rethrow any
Except
statement X
throw s
method signature
During

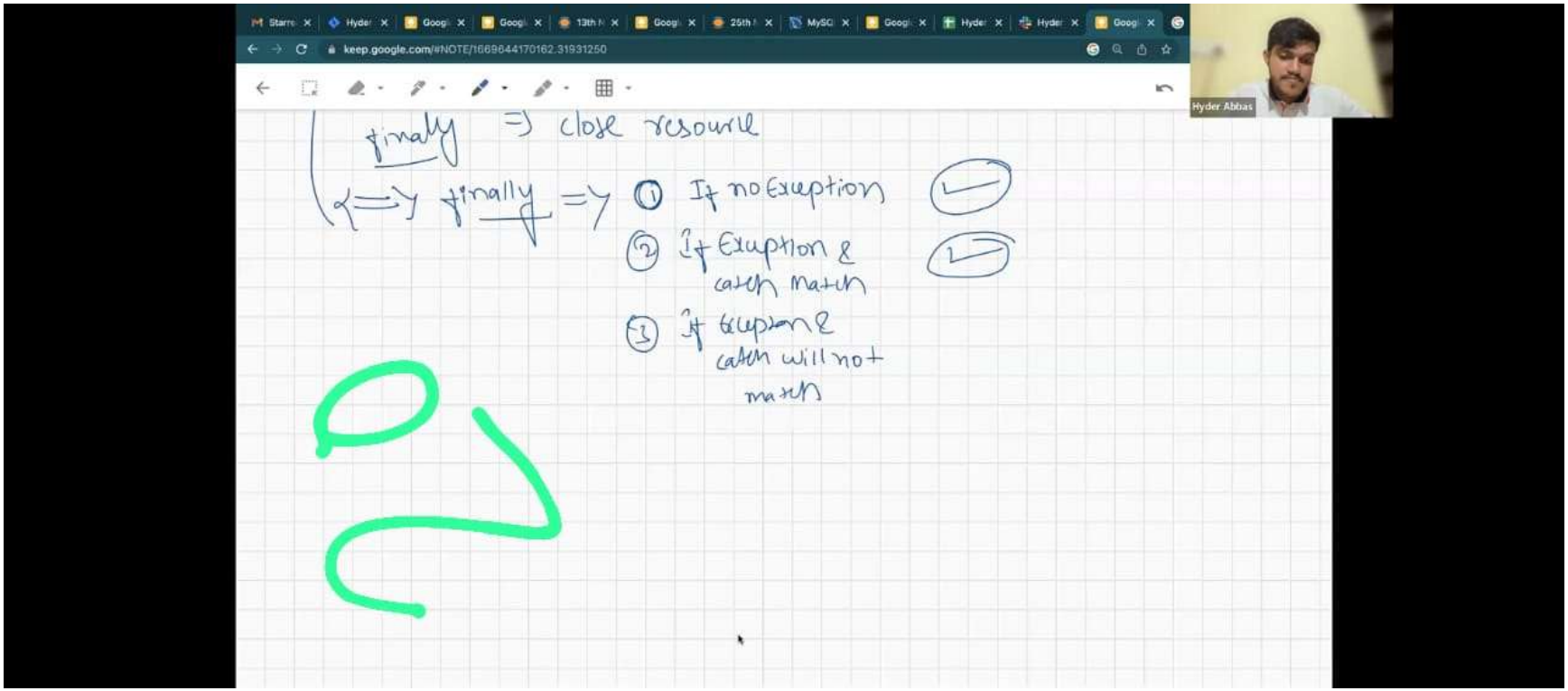

keep.google.com/#NOTE/1669644170162.31931250
finally
try & catch => To handle Exception
throws => Duck & method signature.
throw => catch -> re throw
finally => close resource
Hyder Abbas

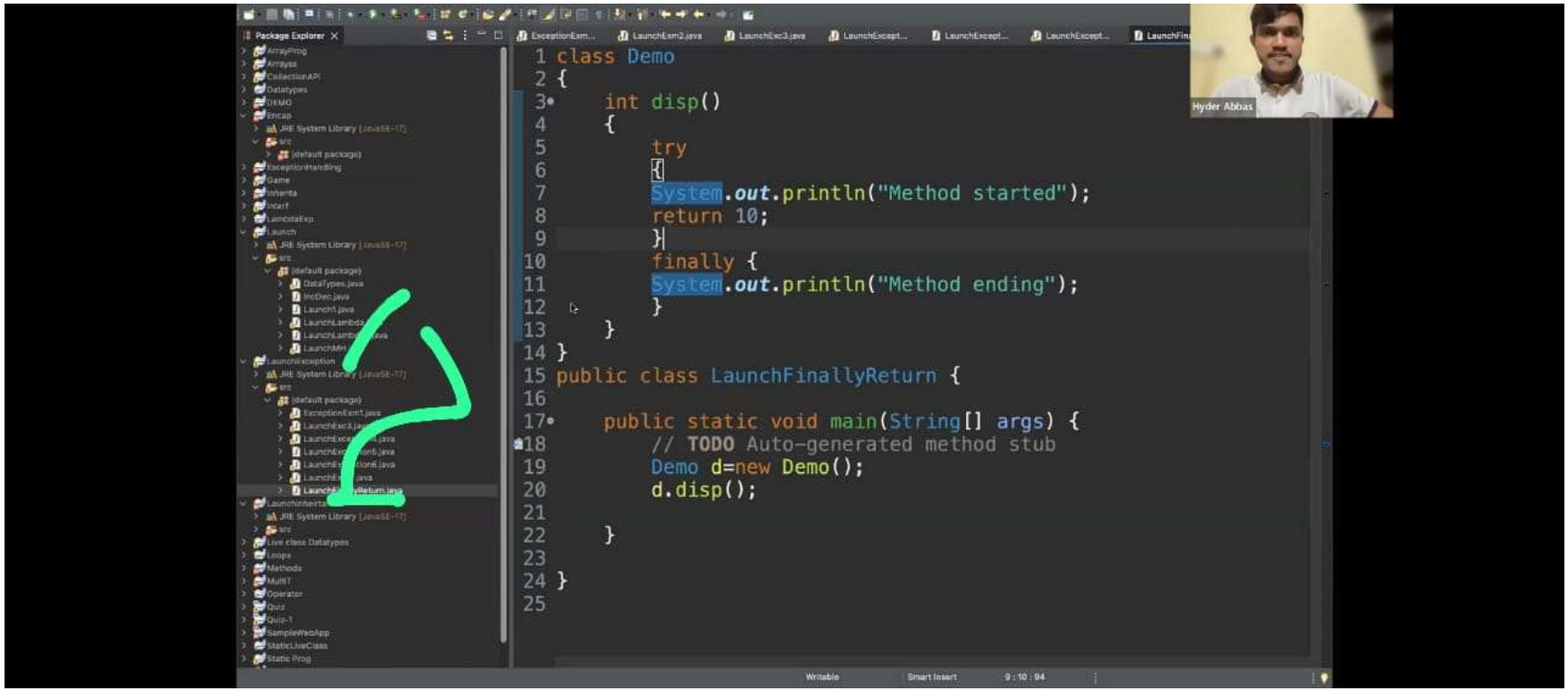
What does the Exception Object contain?

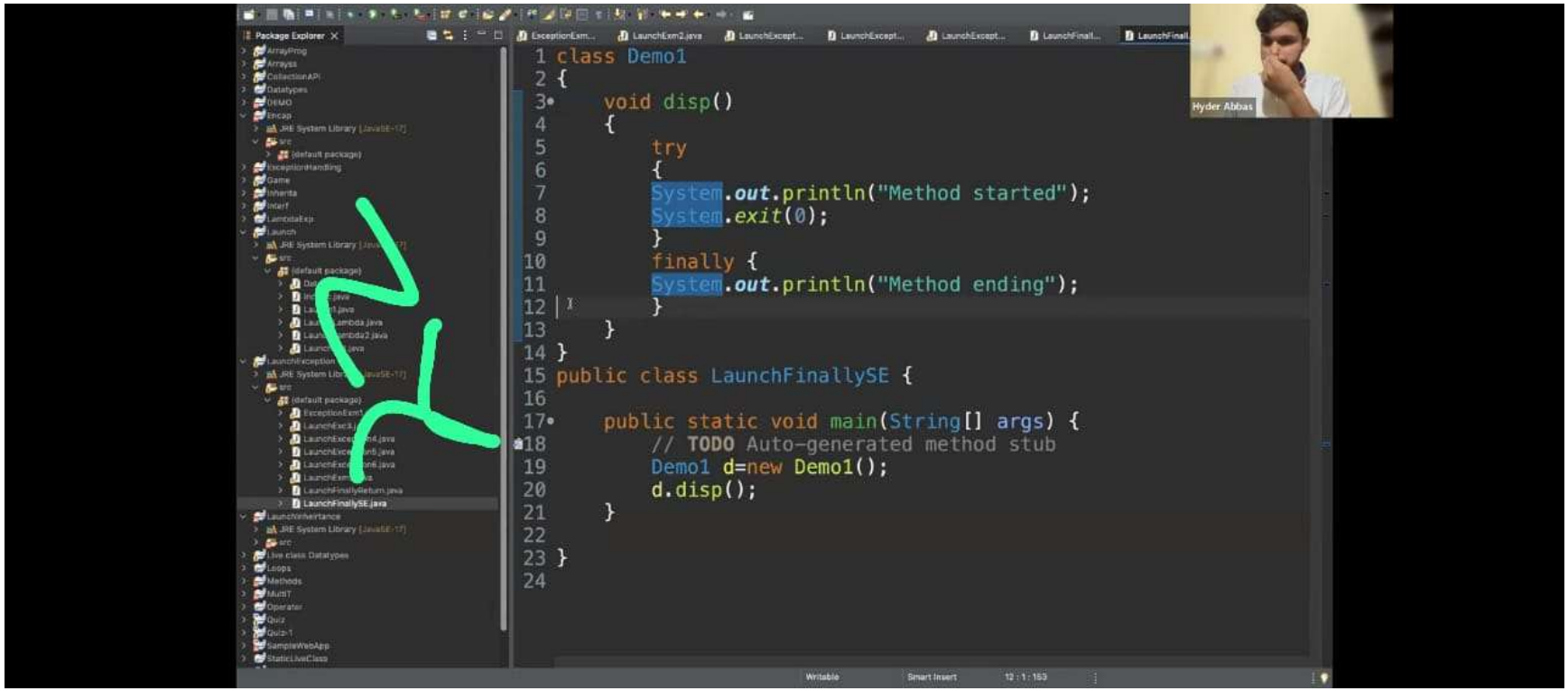

```
class Launch
{
    public static void main(String[] args)
    {
        System.out.println("Connection1 is established");
        Demo d1 = new Demo();
        d1.alpha();
        System.out.println("Connection1 is terminated");
    }
}

class Demo
{
    public void alpha()
    {
        System.out.println("Connection2 is establis
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter the numerator:
        int a = scan.nextInt();
        System.out.println("Enter the denominator
        int b = scan.nextInt();
        int c = a / b;
        System.out.println(c);
        System.out.println("Connection2 is terminated
    }
}
```

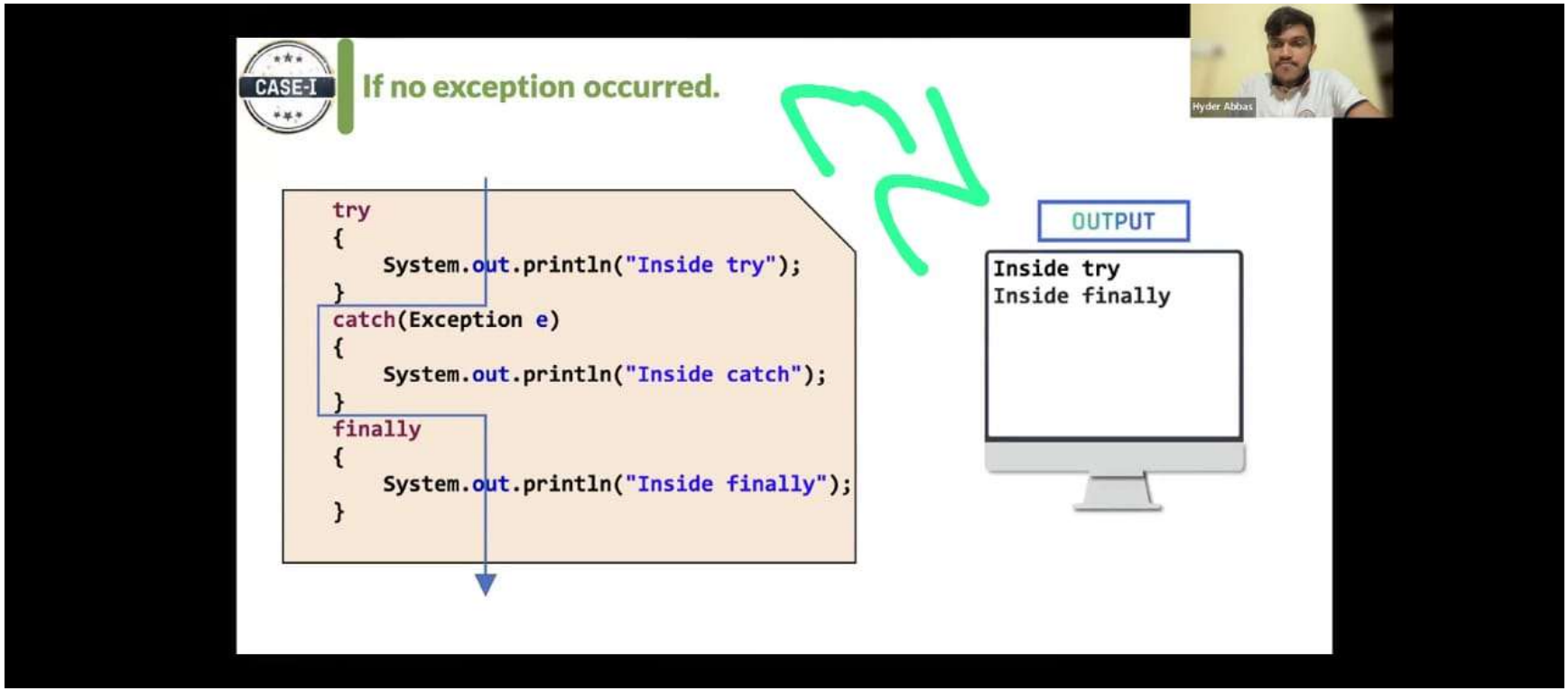


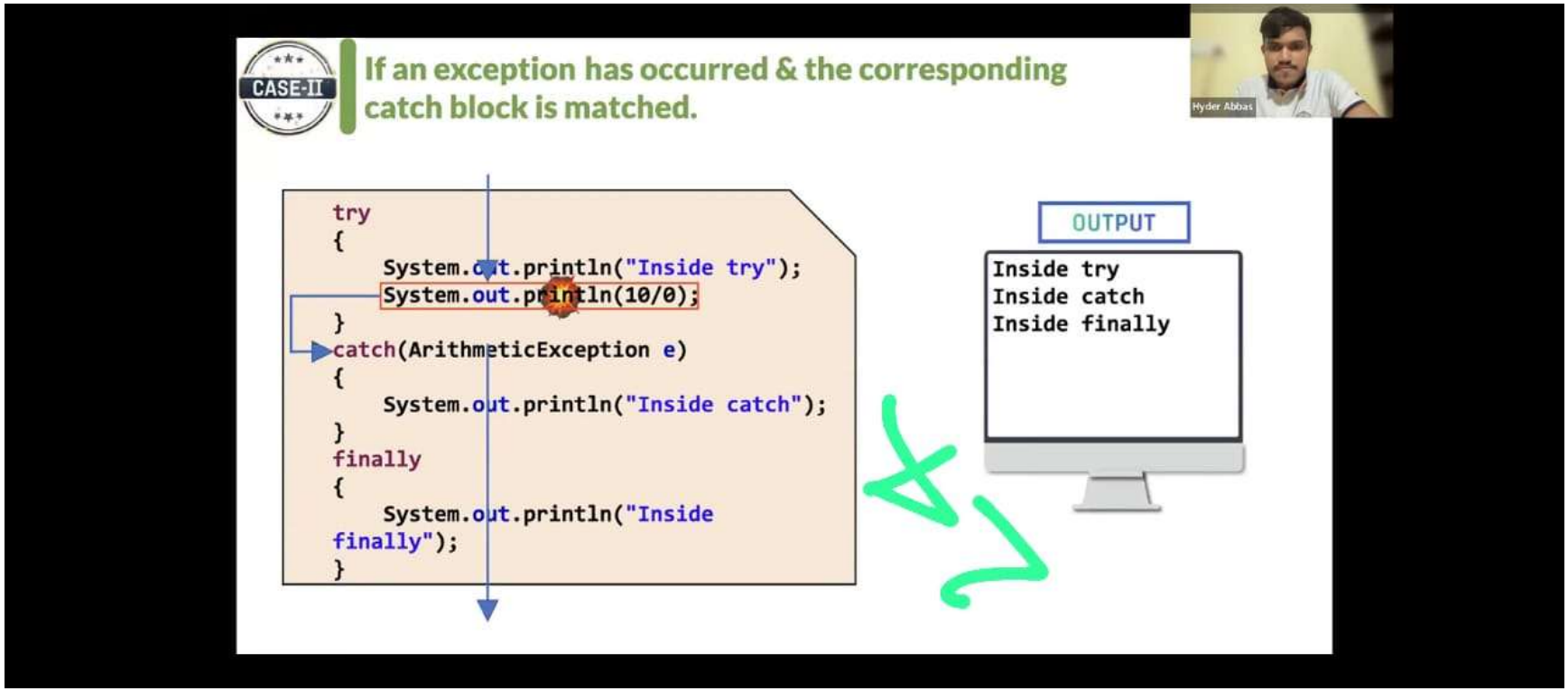

Methods to Print Exception Information
Hyder Abbas
Throwable
getMessage()
toString()
printStackTrace()
1. e.getMessage()
Prints the description of the exception
Example: / by zero
2. e.toString()
Prints the name and the description of the Exception
Example: ArithmeticException: / by zero
3. e.printStackTrace()
Prints the name and the description of the Exception along with the stack trace.
Example: ArithmeticException: / by zero
at Demo.alpha()

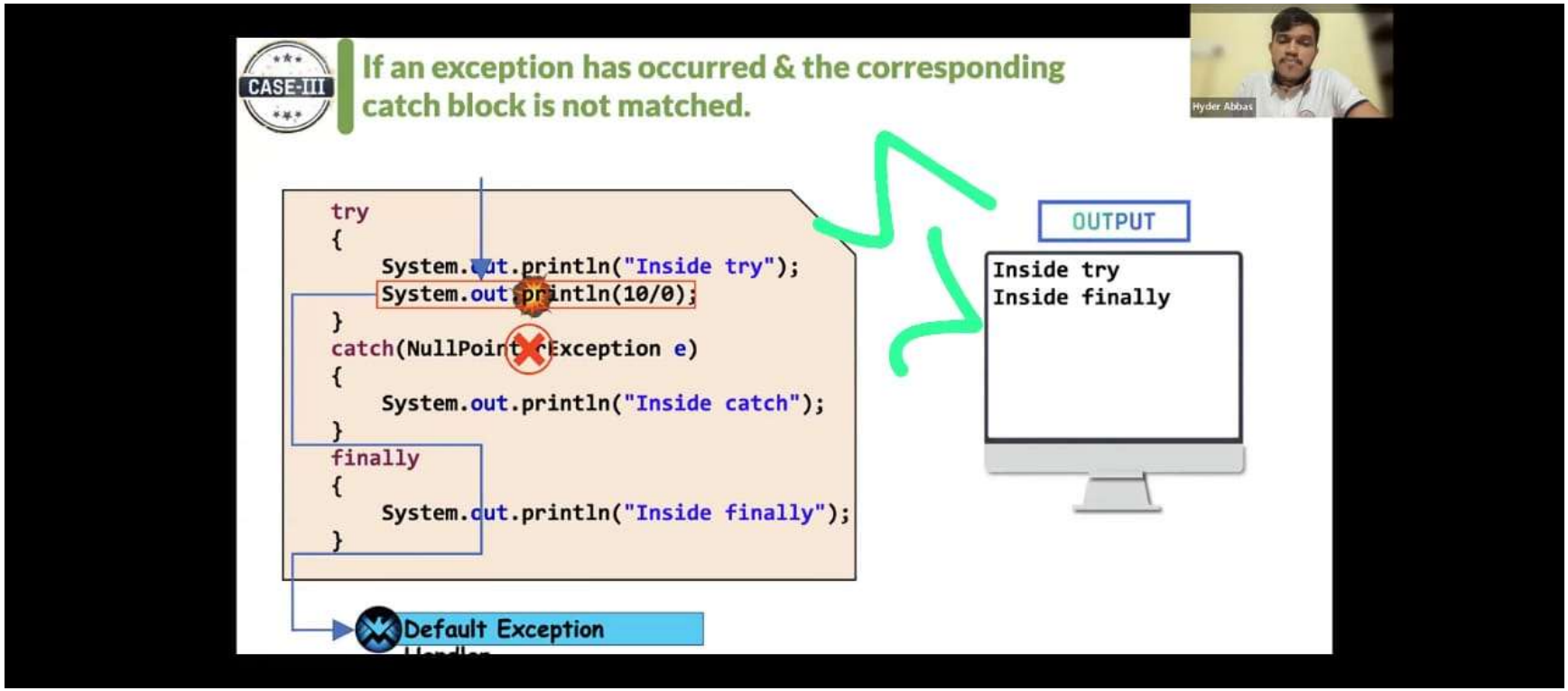

keep.google.com/#NOTE/16696441701623.31931250
finally => close resource
<=> finally => ① If no Exception
② If Exception & catch match
③ If Exception & catch will not match
Hyder Abbas


Package Explorer
ExceptionExm...
LaunchExm2.java
LaunchExc3.java
LaunchExcept...
LaunchExcept...
LaunchExcept...
LaunchFin
Hyder Abbas
1 class Demo
2 {
3 int disp()
4 {
5 try
6 {
7 System.out.println("Method started");
8 return 10;
9 }
10 finally {
11 System.out.println("Method ending");
12 }
13 }
14 }
15 public class LaunchFinallyReturn {
16
17 public static void main(String[] args) {
18 // TODO Auto-generated method stub
19 Demo d=new Demo();
20 d.disp();
21
22 }
23
24 }
25
Writable
Smart Insert
9 : 10 : 94

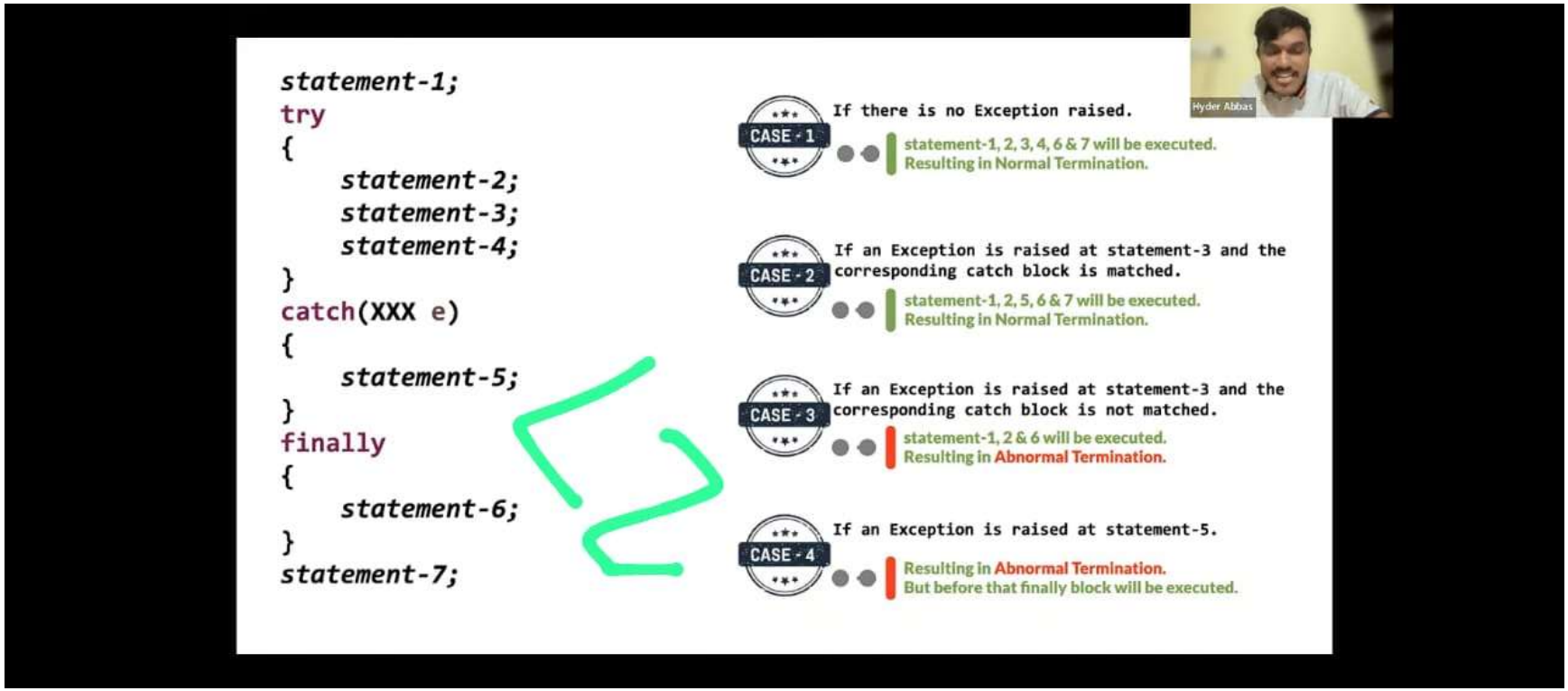

Package Explorer
LaunchFinallySE.java
class Demo1
{
void disp()
{
try
{
System.out.println("Method started");
System.exit(0);
}
finally {
System.out.println("Method ending");
}
}
}
public class LaunchFinallySE {
public static void main(String[] args) {
// TODO Auto-generated method stub
Demo1 d=new Demo1();
d.disp();
}
}
Hyder Abbas
Writable
Smart Insert
12 : 1 : 153

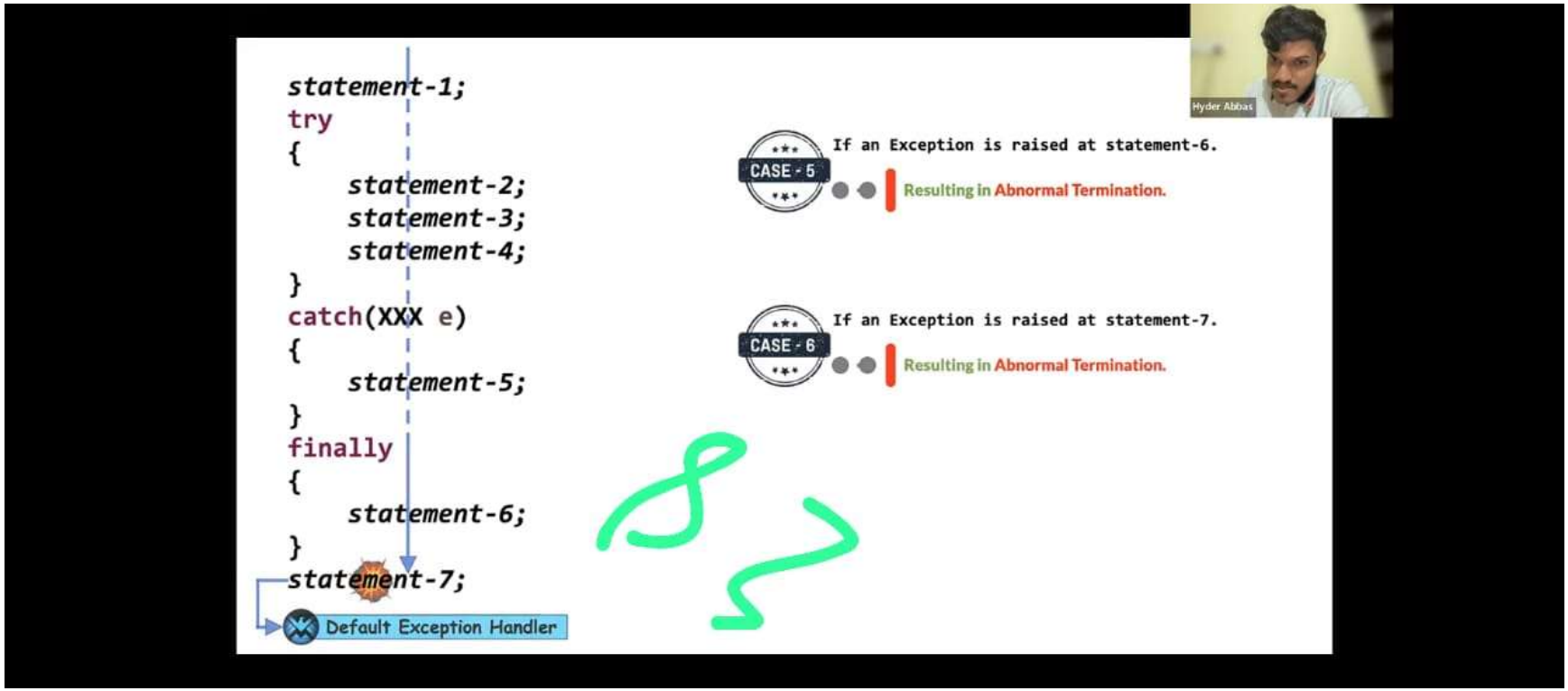

CASE-I
If no exception occurred.
Hyder Abbas
try
{
System.out.println("Inside try");
}
catch(Exception e)
{
System.out.println("Inside catch");
}
finally
{
System.out.println("Inside finally");
}
OUTPUT
Inside try
Inside finally

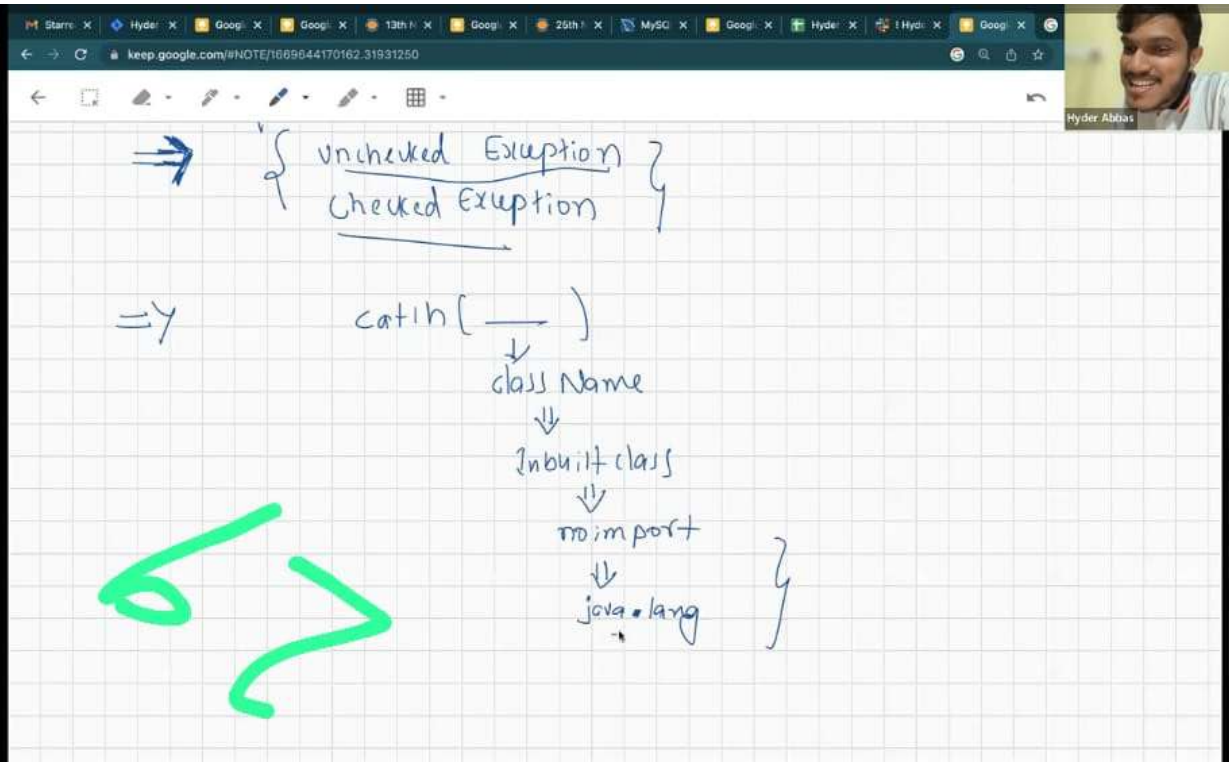

CASE-II
If an exception has occurred & the corresponding catch block is matched.
Hyder Abbas
try
{
System.out.println("Inside try");
System.out.println(10/0);
}
catch(ArithmeticException e)
{
System.out.println("Inside catch");
}
finally
{
System.out.println("Inside finally");
}
OUTPUT
Inside try
Inside catch
Inside finally

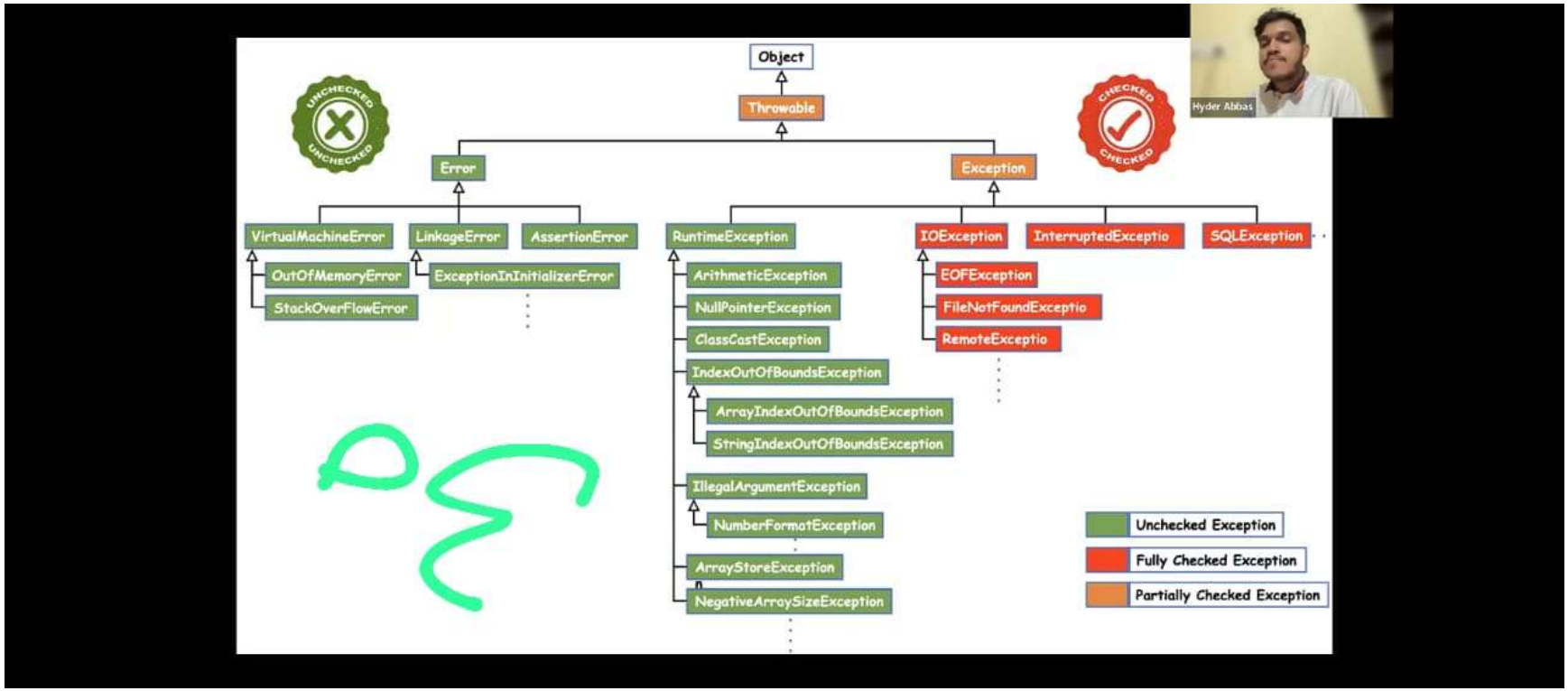

CASE-III
If an exception has occurred & the corresponding catch block is not matched.
Hyder Abbas
try
{
System.out.println("Inside try");
System.out.println(10/0);
}
catch(NullPointerException e)
{
System.out.println("Inside catch");
}
finally
{
System.out.println("Inside finally");
}
Default Exception
OUTPUT
Inside try
Inside finally

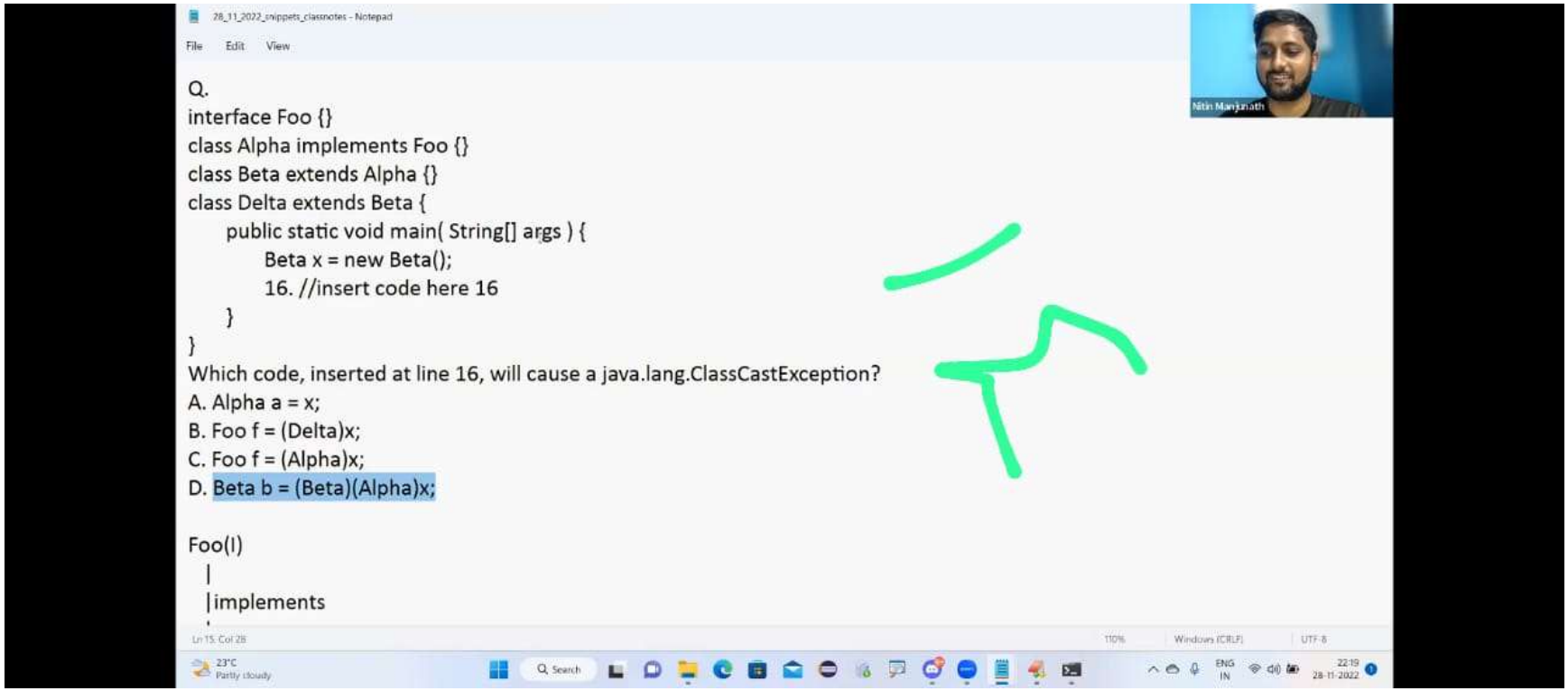
Exception Raised	Exception Handled	finally block Executed
NO	——	YES
YES	YES	YES
YES	NO	YES


statement-1;
try
{
statement-2;
statement-3;
statement-4;
}
catch(XXX e)
{
statement-5;
}
finally
{
statement-6;
}
statement-7;
CASE - 1
If there is no Exception raised.
statement-1, 2, 3, 4, 6 & 7 will be executed.
Resulting in Normal Termination.
CASE - 2
If an Exception is raised at statement-3 and the corresponding catch block is matched.
statement-1, 2, 5, 6 & 7 will be executed.
Resulting in Normal Termination.
CASE - 3
If an Exception is raised at statement-3 and the corresponding catch block is not matched.
statement-1, 2 & 6 will be executed.
Resulting in Abnormal Termination.
CASE - 4
If an Exception is raised at statement-5.
Resulting in Abnormal Termination.
But before that finally block will be executed.
Hyder Abbas


statement-1;
try
{
statement-2;
statement-3;
statement-4;
}
catch(XXX e)
{
statement-5;
}
finally
{
statement-6;
}
statement-7;
Default Exception Handler
CASE - 5
If an Exception is raised at statement-6.
Resulting in Abnormal Termination.
CASE - 6
If an Exception is raised at statement-7.
Resulting in Abnormal Termination.
Hyder Abbas


keep.google.com/#NOTE/1669644170162.31931250
Hyder Abbas
Unchecked Exception
Checked Exception
catch(——)
class Name
Inbuilt class
no import
java.lang


Object
Throwable
Error
Exception
VirtualMachineError
LinkageError
AssertionError
OutOfMemoryError
StackOverFlowError
ExceptionInInitializerError
RuntimeException
ArithmeticException
NullPointerException
ClassCastException
IndexOutOfBoundsException
ArrayIndexOutOfBoundsException
StringIndexOutOfBoundsException
IllegalArgumentException
NumberFormatException
ArrayStoreException
NegativeArraySizeException
IOException
InterruptedExceptio
SQLException
EOFException
FileNotFoundExceptio
RemoteExceptio
Unchecked Exception
Fully Checked Exception
Partially Checked Exception
Hyder Abbas


28_11_2022_snippets_classnotes - Notepad
File Edit View
Nitin Manjunath
Q.
interface Foo {}
class Alpha implements Foo {}
class Beta extends Alpha {}
class Delta extends Beta {
public static void main(String[] args) {
Beta x = new Beta();
16. //insert code here 16
}
}
Which code, inserted at line 16, will cause a java.lang.ClassCastException?
A. Alpha a = x;
B. Foo f = (Delta)x;
C. Foo f = (Alpha)x;
D. Beta b = (Beta)(Alpha)x;
Foo(I)
|
|implements
Ln 15, Col 28
110%
Windows (CRLF)
UTF-8
23°C
Partly cloudy
Search
ENG
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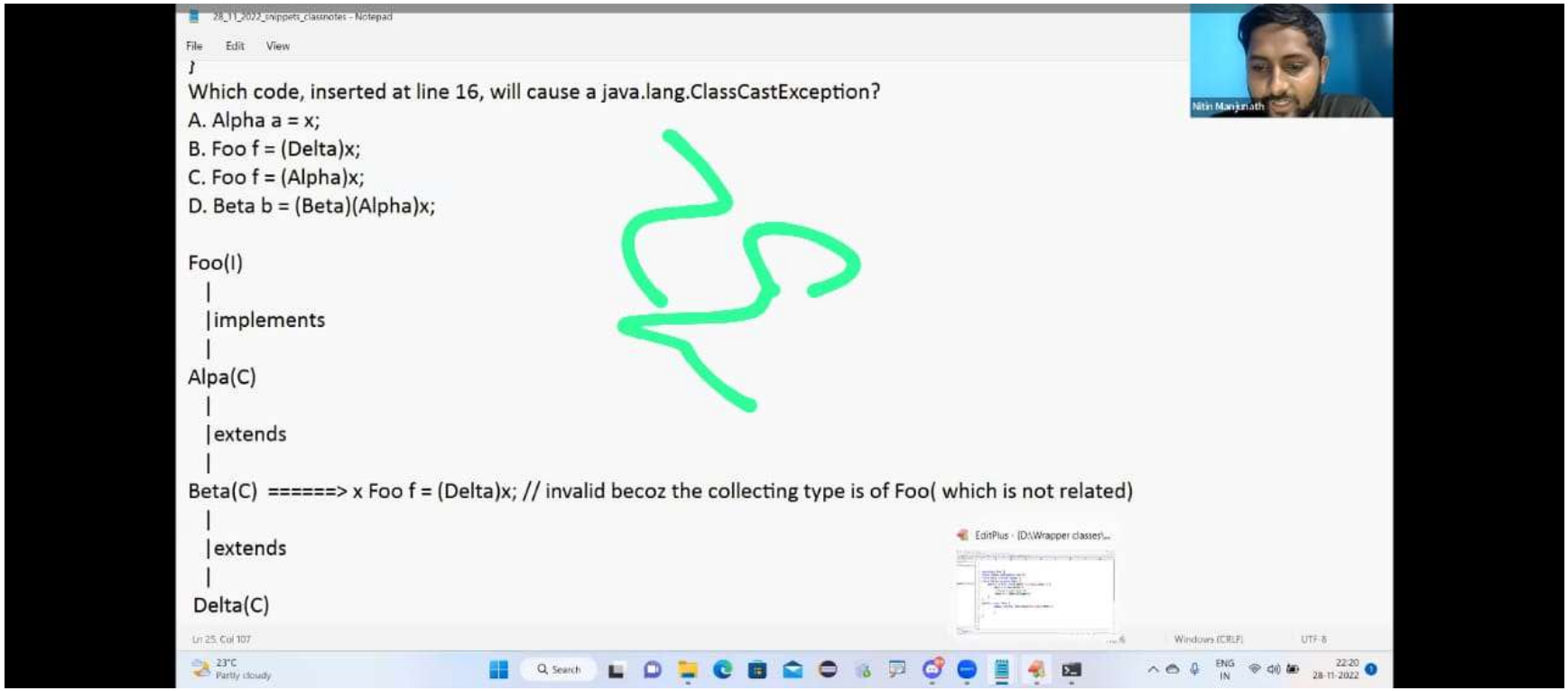
22:19
28-11-2022


28_11_2022_snippets_classnotes - Notepad
File Edit View
}
Which code, inserted at line 16, will cause a java.lang.ClassCastException?
A. Alpha a = x;
B. Foo f = (Delta)x;
C. Foo f = (Alpha)x;
D. Beta b = (Beta)(Alpha)x;
Foo(I)
|implements
Alpa(C)
|extends
Beta(C) ======> x Foo f = (Delta)x; // invalid becoz the collecting type is of Foo(which is not related)
|extends
Delta(C)
Nitin Manjunath
EditPlus - [D:\Wrapper classes\...
Ln 25, Col 107
Windows (CRLF)
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Search
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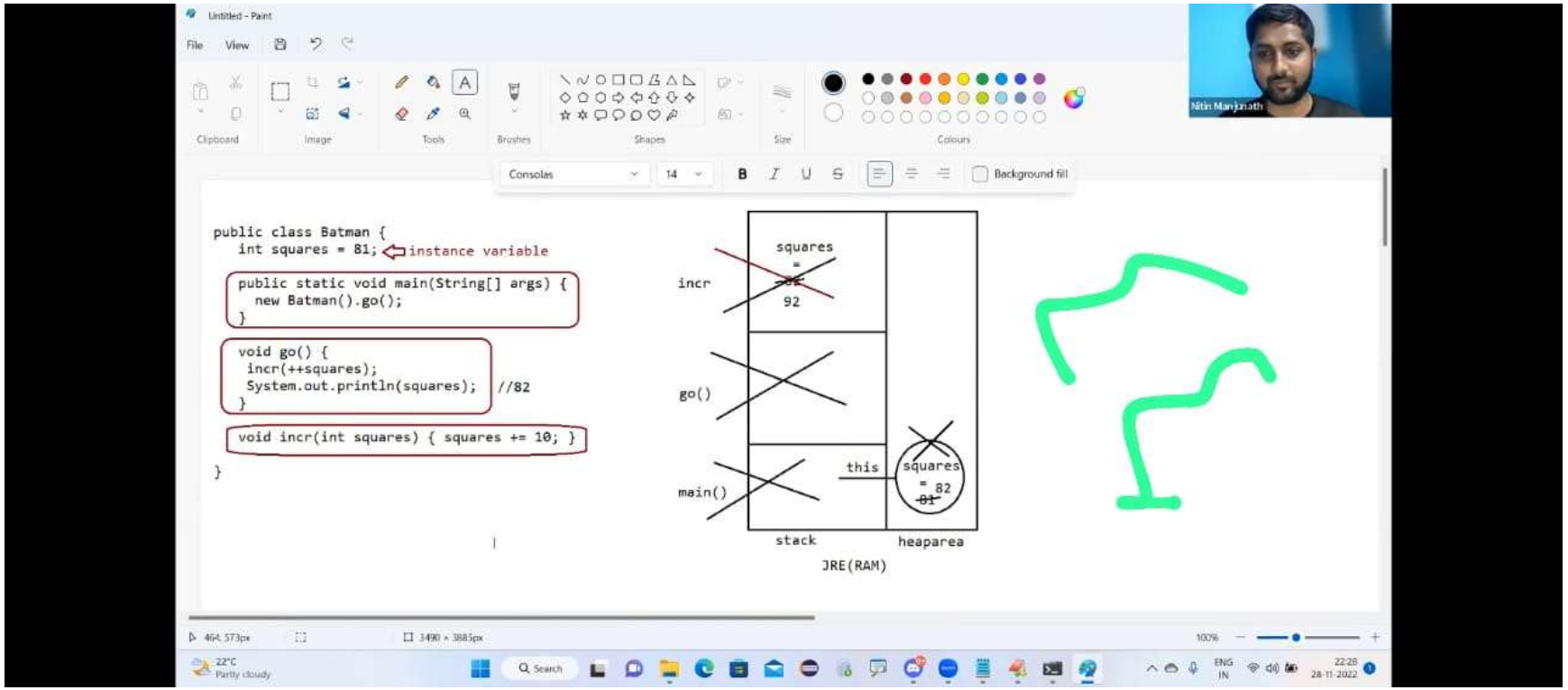
28-11-2022


Untitled - Paint
File
View
Clipboard
Image
Tools
Brushes
Shapes
Size
Colours
Nitin Manjunath
Consolas
14
Background fill
public class Batman {
int squares = 81; ⇦ instance variable
public static void main(String[] args) {
new Batman().go();
}
void go() {
incr(++squares);
System.out.println(squares); //82
}
void incr(int squares) { squares += 10; }
}
squares
=
92
incr
go()
this
squares
= 82
81
main()
stack
heaparea
JRE(RAM)
464, 573px
3490 × 3885px
100%
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Search
ENG
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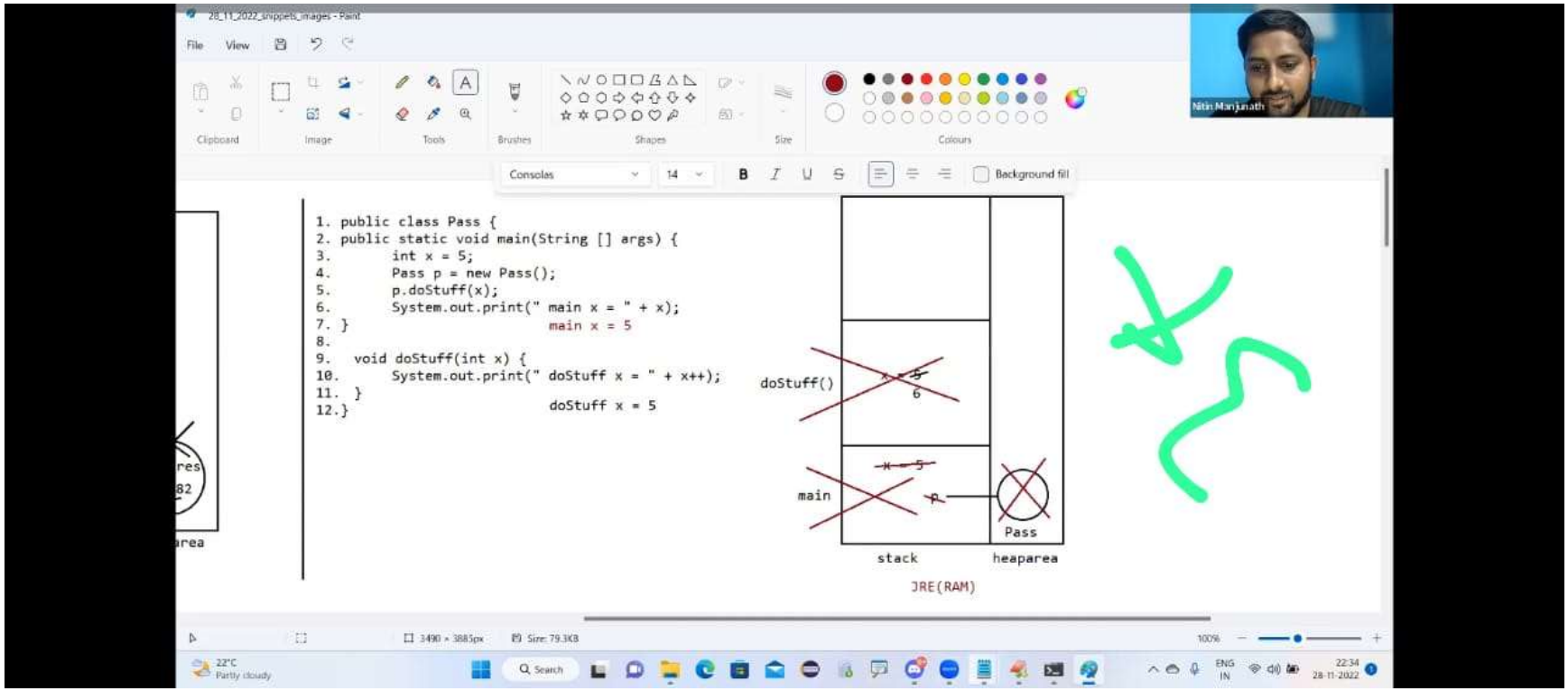
28-11-2022


28_11_2022_snippets_images - Paint
File
View
Clipboard
Image
Tools
Brushes
Shapes
Size
Colours
Nitin Manjunath
Consolas
14
Background fill
1. public class Pass {
2. public static void main(String [] args) {
3. int x = 5;
4. Pass p = new Pass();
5. p.doStuff(x);
6. System.out.print(" main x = " + x);
7. }
8.
9. void doStuff(int x) {
10. System.out.print(" doStuff x = " + x++);
11. }
12.}
main x = 5
doStuff x = 5
doStuff()
x = 5
6
x = 5
main
p
Pass
stack
heaparea
JRE(RAM)
3490 × 3885px
Size: 79.3KB
100%
22°C
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Search
ENG
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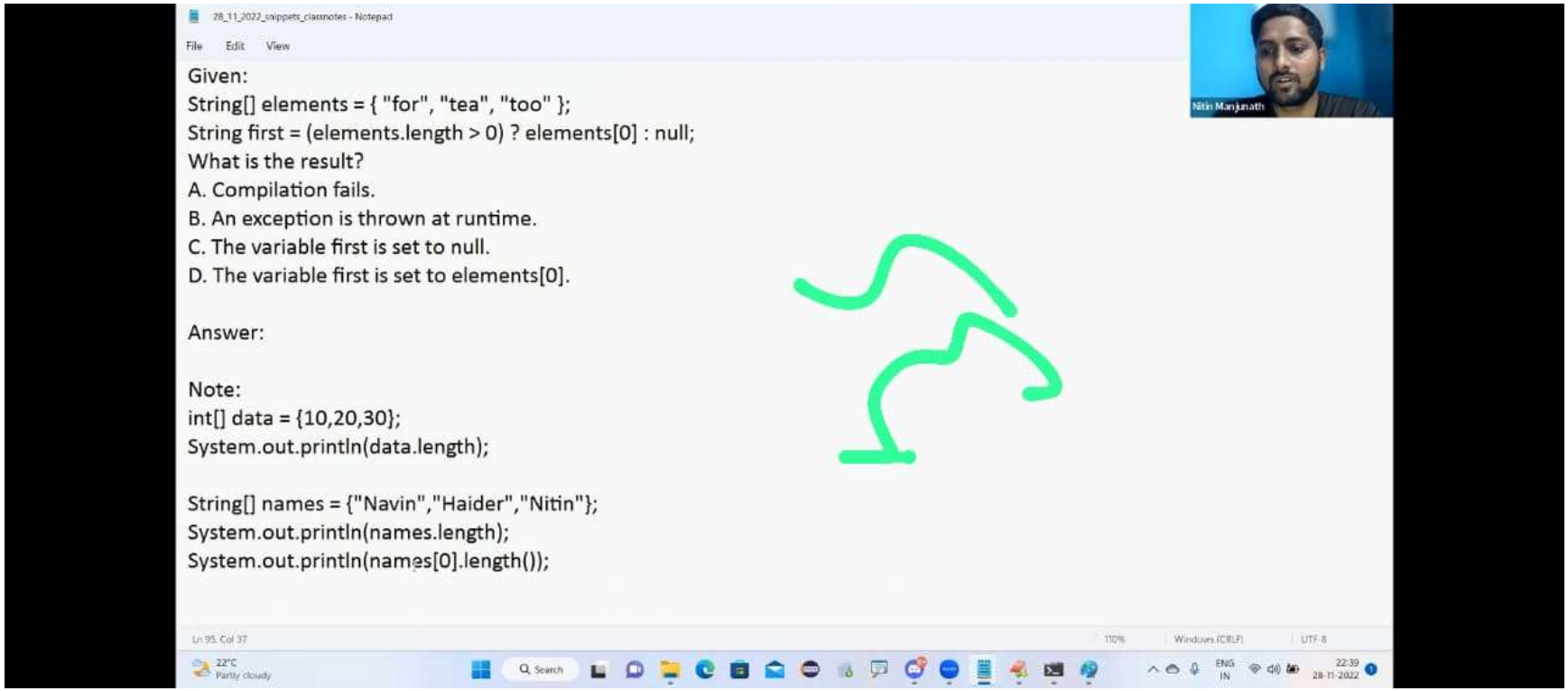
22:34
28-11-2022


28_11_2022_snippets_classnotes - Notepad
File Edit View
Given:
String[] elements = { "for", "tea", "too" };
String first = (elements.length > 0) ? elements[0] : null;
What is the result?
A. Compilation fails.
B. An exception is thrown at runtime.
C. The variable first is set to null.
D. The variable first is set to elements[0].
Answer:
Note:
int[] data = {10,20,30};
System.out.println(data.length);
String[] names = {"Navin","Haider","Nitin"};
System.out.println(names.length);
System.out.println(names[0].length());
Nitin Manjunath
Ln 95, Col 37
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Windows (CRLF)
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Search
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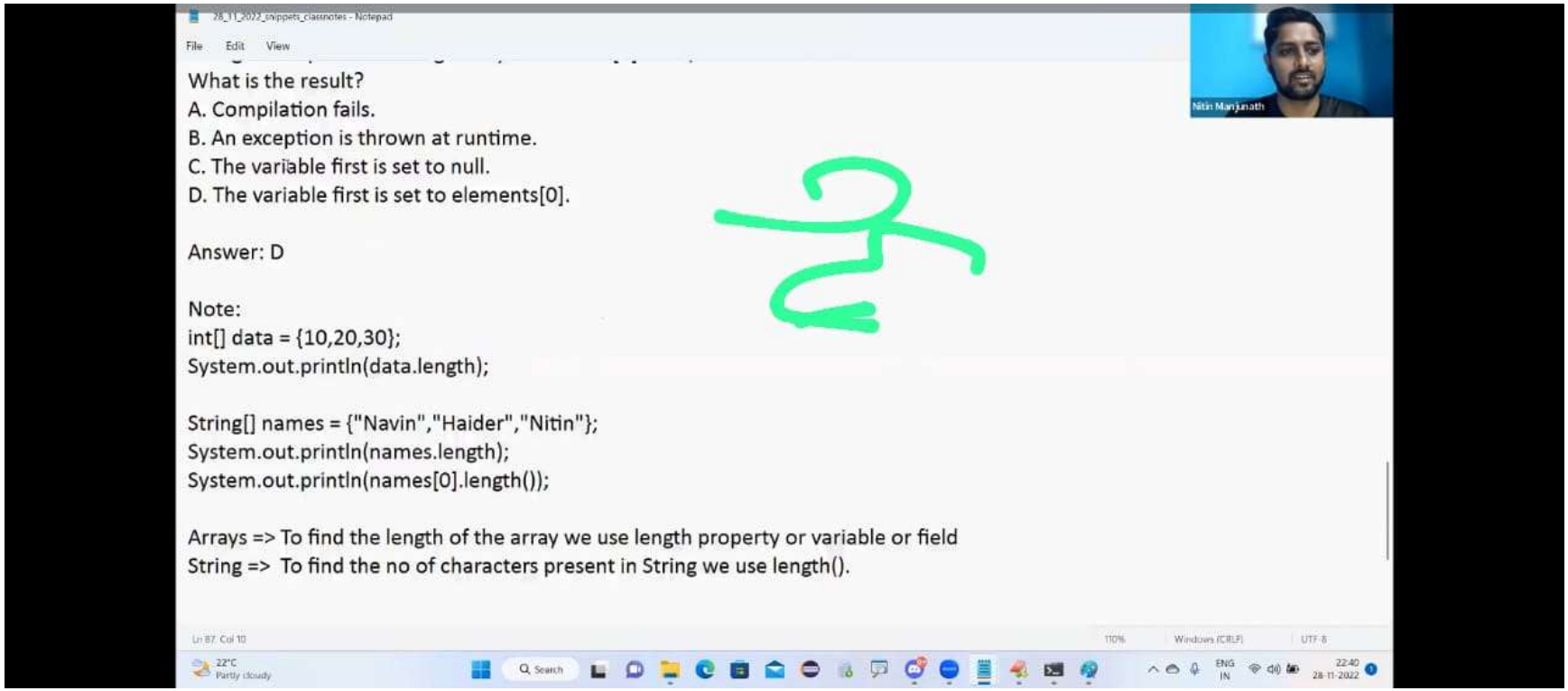
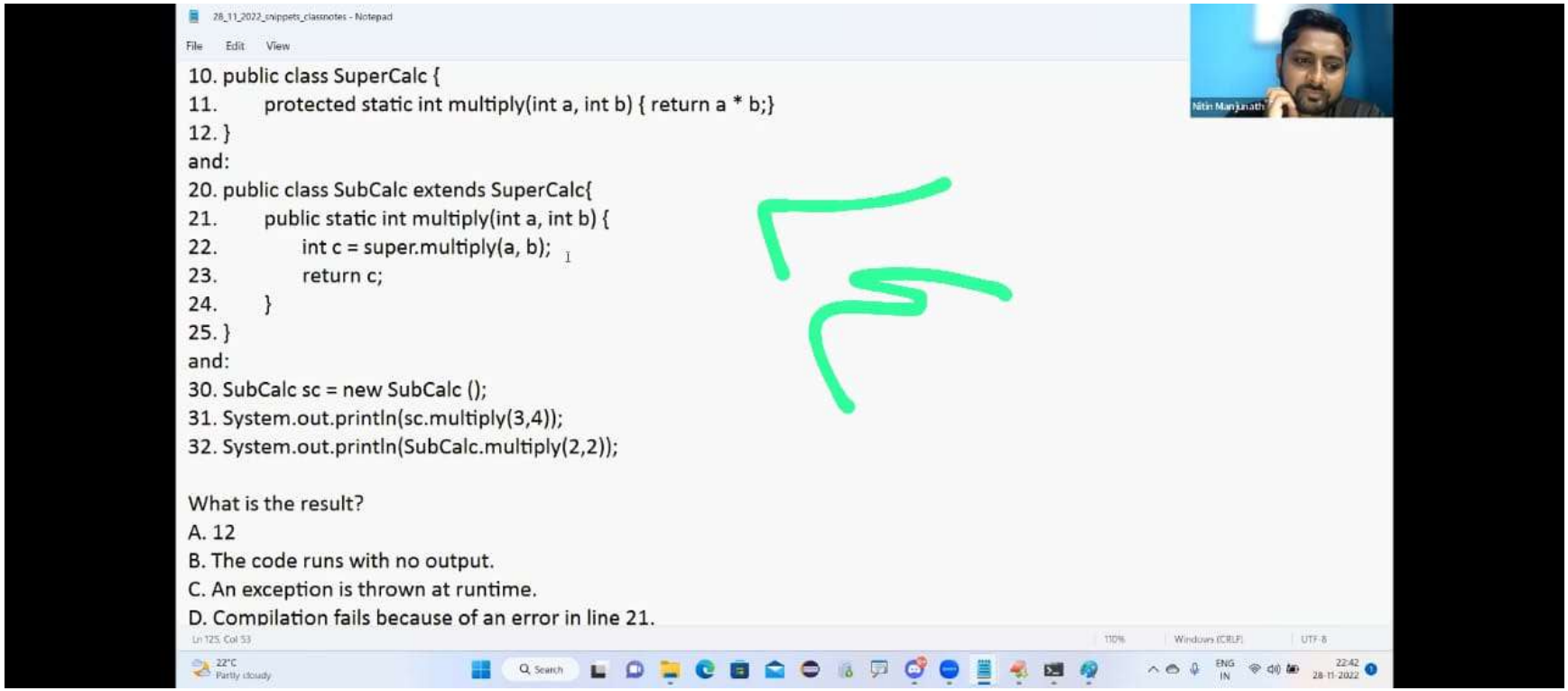
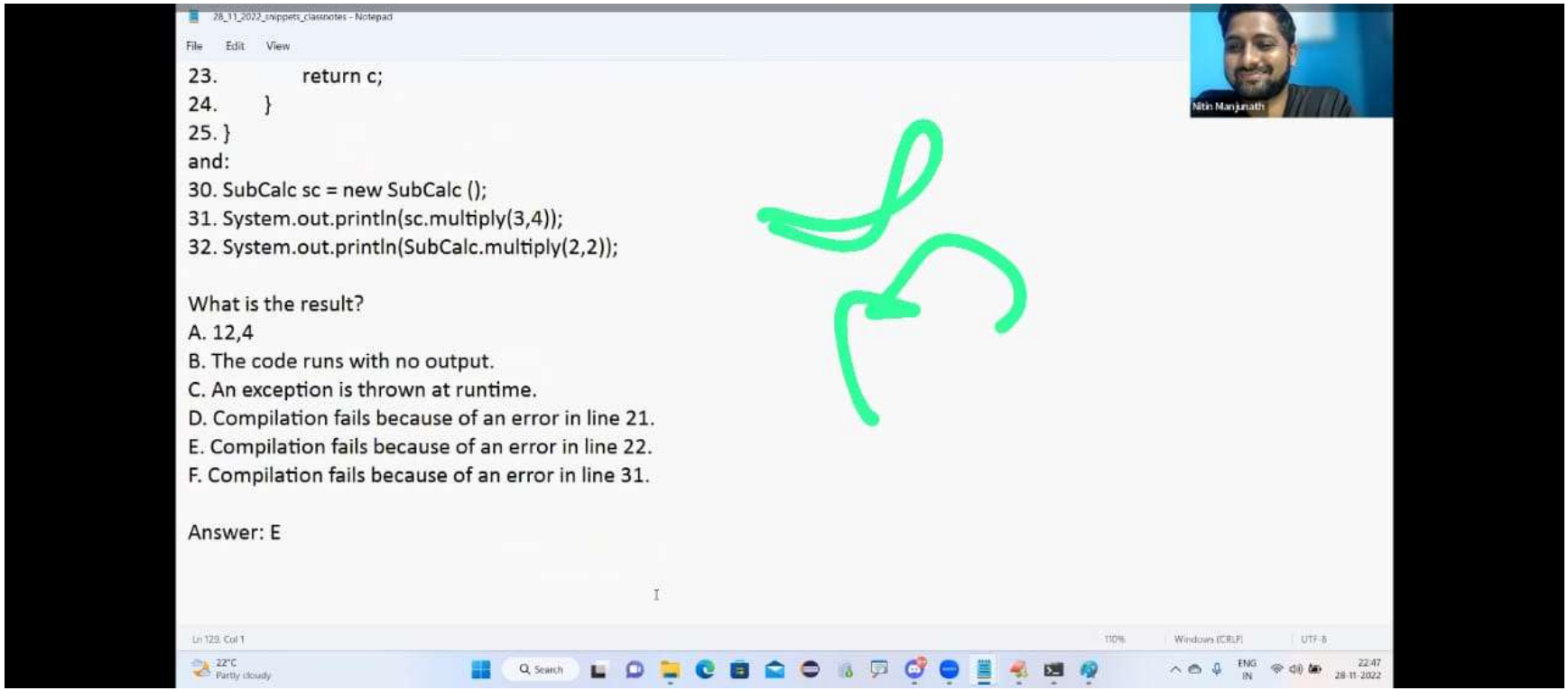
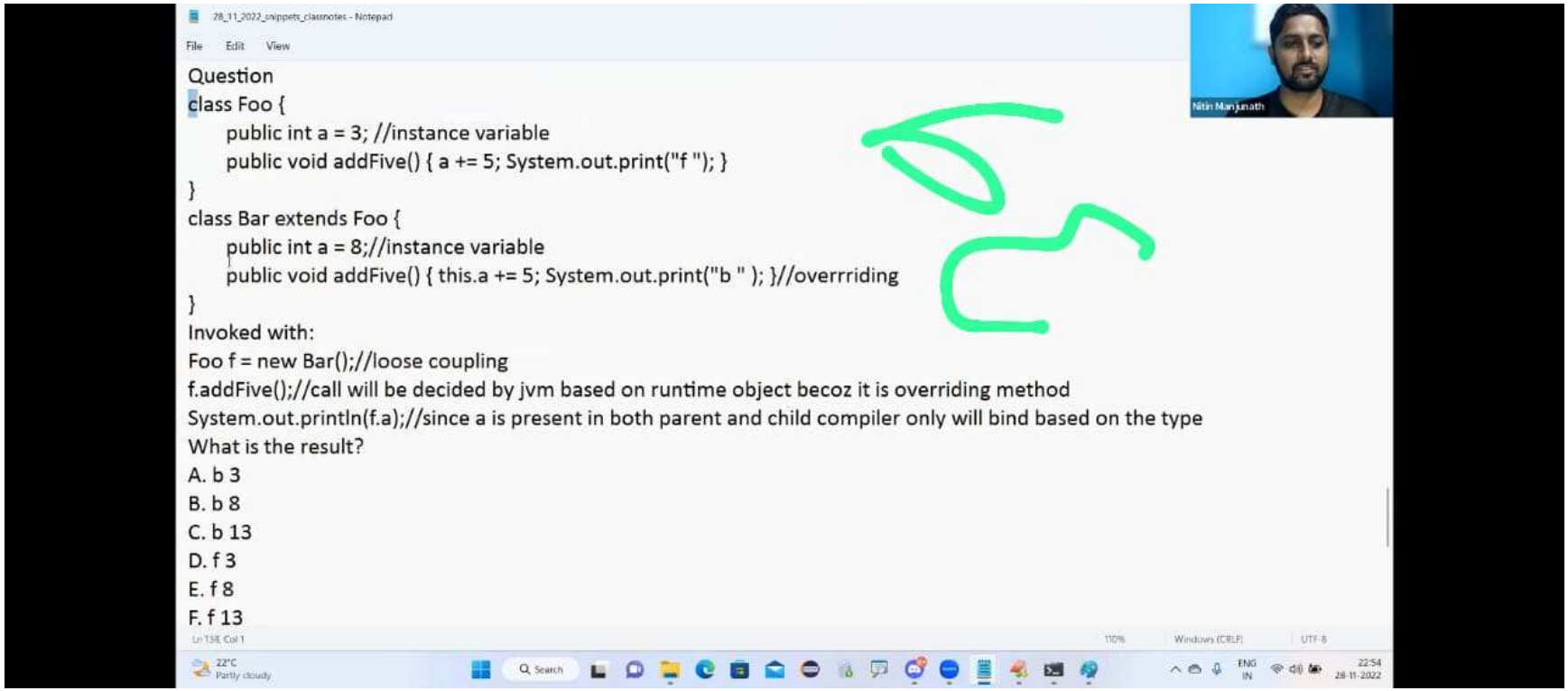
22:39
28-11-2022


28_11_2022_snippets_classnotes - Notepad
File Edit View
What is the result?
A. Compilation fails.
B. An exception is thrown at runtime.
C. The variable first is set to null.
D. The variable first is set to elements[0].
Answer: D
Note:
int[] data = {10,20,30};
System.out.println(data.length);
String[] names = {"Navin","Haider","Nitin"};
System.out.println(names.length);
System.out.println(names[0].length());
Arrays => To find the length of the array we use length property or variable or field
String => To find the no of characters present in String we use length().
Nitin Manjunath


28_11_2022_snippets_classnotes - Notepad
File Edit View
10. public class SuperCalc {
11. protected static int multiply(int a, int b) { return a * b;}
12. }
and:
20. public class SubCalc extends SuperCalc{
21. public static int multiply(int a, int b) {
22. int c = super.multiply(a, b);
23. return c;
24. }
25. }
and:
30. SubCalc sc = new SubCalc ();
31. System.out.println(sc.multiply(3,4));
32. System.out.println(SubCalc.multiply(2,2));
What is the result?
A. 12
B. The code runs with no output.
C. An exception is thrown at runtime.
D. Compilation fails because of an error in line 21.
Nitin Manjunath


28_11_2022_snippets_classnotes - Notepad
File Edit View
23. return c;
24. }
25. }
and:
30. SubCalc sc = new SubCalc ();
31. System.out.println(sc.multiply(3,4));
32. System.out.println(SubCalc.multiply(2,2));
What is the result?
A. 12,4
B. The code runs with no output.
C. An exception is thrown at runtime.
D. Compilation fails because of an error in line 21.
E. Compilation fails because of an error in line 22.
F. Compilation fails because of an error in line 31.
Answer: E
Nitin Manjunath


28_11_2022_snippets_classnotes - Notepad
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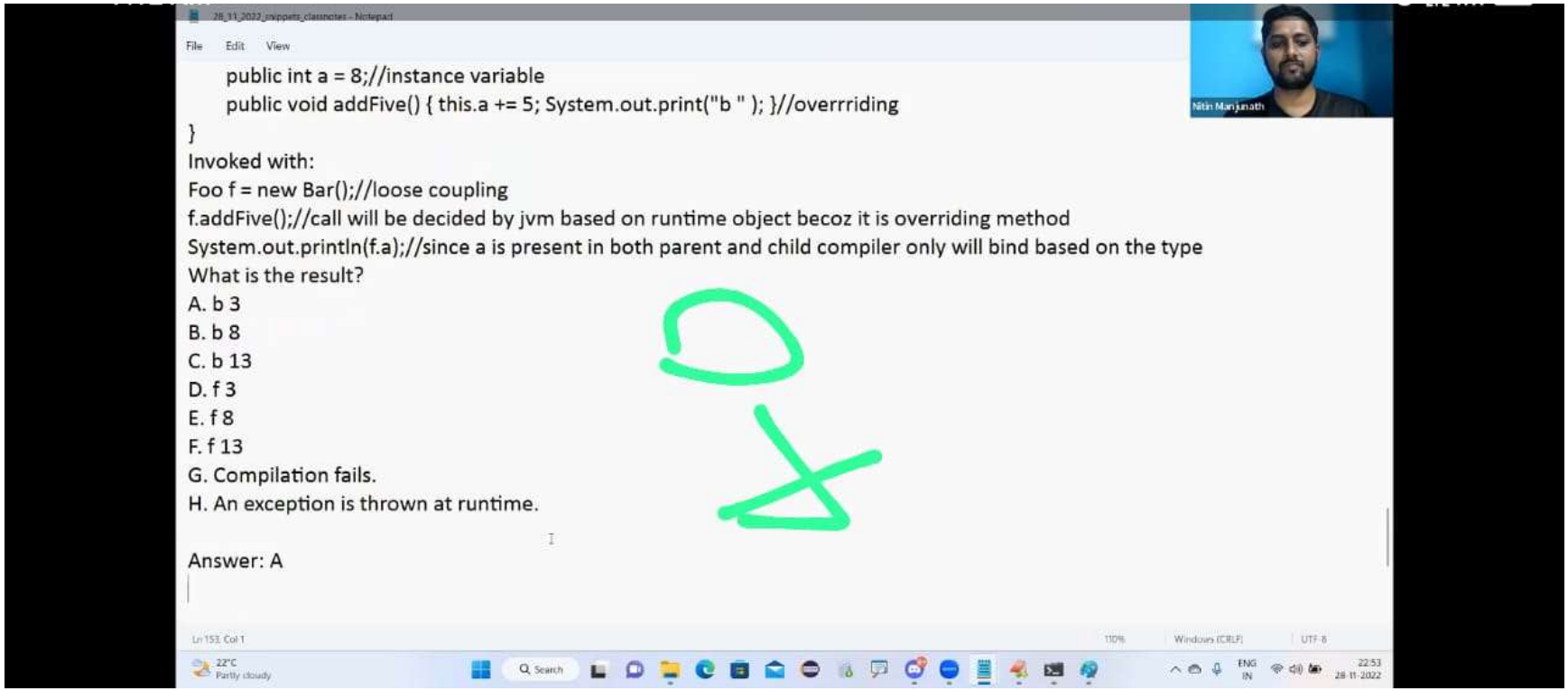
Question
class Foo {
public int a = 3; //instance variable
public void addFive() { a += 5; System.out.print("f "); }
}
class Bar extends Foo {
public int a = 8;//instance variable
public void addFive() { this.a += 5; System.out.print("b "); }//overrriding
}
Invoked with:
Foo f = new Bar();//loose coupling
f.addFive();//call will be decided by jvm based on runtime object becoz it is overriding method
System.out.println(f.a);//since a is present in both parent and child compiler only will bind based on the type
What is the result?
A. b 3
B. b 8
C. b 13
D. f 3
E. f 8
F. f 13
Nitin Manjunath


28_11_2022_snippets_classnotes - Notepad
File Edit View
public int a = 8;//instance variable
public void addFive() { this.a += 5; System.out.print("b "); }//overrriding
}
Invoked with:
Foo f = new Bar();//loose coupling
f.addFive();//call will be decided by jvm based on runtime object becoz it is overriding method
System.out.println(f.a);//since a is present in both parent and child compiler only will bind based on the type
What is the result?
A. b 3
B. b 8
C. b 13
D. f 3
E. f 8
F. f 13
G. Compilation fails.
H. An exception is thrown at runtime.
Answer: A
Nitin Manjunath
Ln 153, Col 1
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28-11-2022

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Examination:

HALL TICKET

Name of the Student:	MANTU KUMAR			**Registration No.:**	220101120004	
Father's Name:	PARAS CHOUHAN		**Mother's Name:**	DEVANTI DEVI		
School:	SCHOOL OF ENGINEERING & TECHNOLOGY, PARALAKHEMUNDI					
Program:	BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING					
Semester/Year:	SEM 6	**Exam Type:** 2024-25-EXTERNAL-BTECH2022E6R-PKD	**Date of Issue:**	09/04/2025		
Course Code	**Course Type**	**Course Name**		**Date Of Exam**	**Time Of Exam**	**Invigilator / External Sign**
CUTM1017	PP	INDUSTRIAL IOT AND AUTOMATION		28/04/2025	10:00AM-01:00PM	
CUTM1021	TUT	DESIGN THINKING			-	
CUTM1030	PP	ADVANCED WEB PROGRAMMING		16/04/2025	10:00AM-01:00PM	
CUTM1034	PP	DATABASE CLUSTER ADMINISTRATION AND SECURITY		23/04/2025	10:00AM-01:00PM	
CUTM1035	PP	DATA WAREHOUSING AND DATA MINING		03/05/2025	10:00AM-01:00PM	
CUTM1037	PP	MATHEMATICAL PROBLEM SOLVING		17/04/2025	10:00AM-01:00PM	
CUTM1034	TUT	DATABASE CLUSTER ADMINISTRATION AND SECURITY			-	
CUTM1016	PR	JOB READINESS			-	
CUTM1577	TUT	MINOR PROJECT II			-	
CUTM3156	PR	NURSERY MANAGEMENT			-	
CUTM3156	TUT	NURSERY MANAGEMENT			-	
CUTM3167	PR	JAVA PROGRAMMING			-	
CUTM3167	TUT	JAVA PROGRAMMING			-	
CUST1054	TUT	PRODUCT DEVELOPMENT			-	

--- END OF STATEMENT ---

Signature of the Candidate

Dean, Examinations