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Lab Assignment – 8 (JP)

* Aim:
Write a Java program to showcase use of multi-threading and Exception Handling in Java.

* Objective:
Understand different types of exceptions
Exception Handling using various Exception classes.

* Theory:

1. What is Exception handling.

Ans The Exception handling in Java is one the powerful mechanism to handle runtime errors so that normal flow of application can be maintained.

2. Exception Handling mechanism in Java.

In Java there are 2 types of exception in java i.e. checked and unchecked exceptions. In Java, there are class dedicated for exception handling. Java uses try-catch block for exception handling. Throwable class is superclass of exception class.

3. Types of Exception classes.
The Built In Exception classes are
i) Arithmetic Exception
ii) Array Index Out of Bounds Exception.
iii) Class Not Found Exception.
iv) IO Exception
v) File Not found Exception.
vi) Interrupted Exception.
vii) NO Such field Exception.
viii) NO Such Method Exception.
ix) NULL POINTER Exception.
x) Number format Exception.
xi) Runtime Exception.
xii) String Index Out of Bound Exception

* Platform:
Open source Java Programming tool like Eclipse Editor/ Netbeans.

* Conclusion:
Thus, studied exception handling concepts in Java.

* FAQ

1. What is the difference between error and exception?

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Error	Exception
→ Error are usually raised by environment in which application is running.	→ Exceptions are caused by code of application itself.
→ Its not possible to recover from an error.	→ The use of try – catch blocks can handle exception and recover application from them.
→ Errors occur at runtime and hence classified as "unchecked".	→ Exceptions can be "Checked" or "unchecked".

Q2 Write few examples for checked and unchecked exception?

Ans Checked Exceptions:
i) ClassNotFound Exception
ii) IOException
iii) SQL Exception

Unchecked Exception
i) Arithmetic Exception
ii) Array Store Exception
iii) ClassCast Exception

Q3 What are the different keywords in exception handling in Java?

Ans Exception handling in Java is managed by five keywords try, catch, throw, throws finally.

Q4 What is the difference between throws
keywords in Java?

Ans The throws keyword is used your a met
used to declare which exception can be t
a method. The throw keyword is used in a
to explicitly throw an exception within code.

Q5 Can we have try without catch block

Ans yes it is possible for try block with ca
it can also be followed by finally block.

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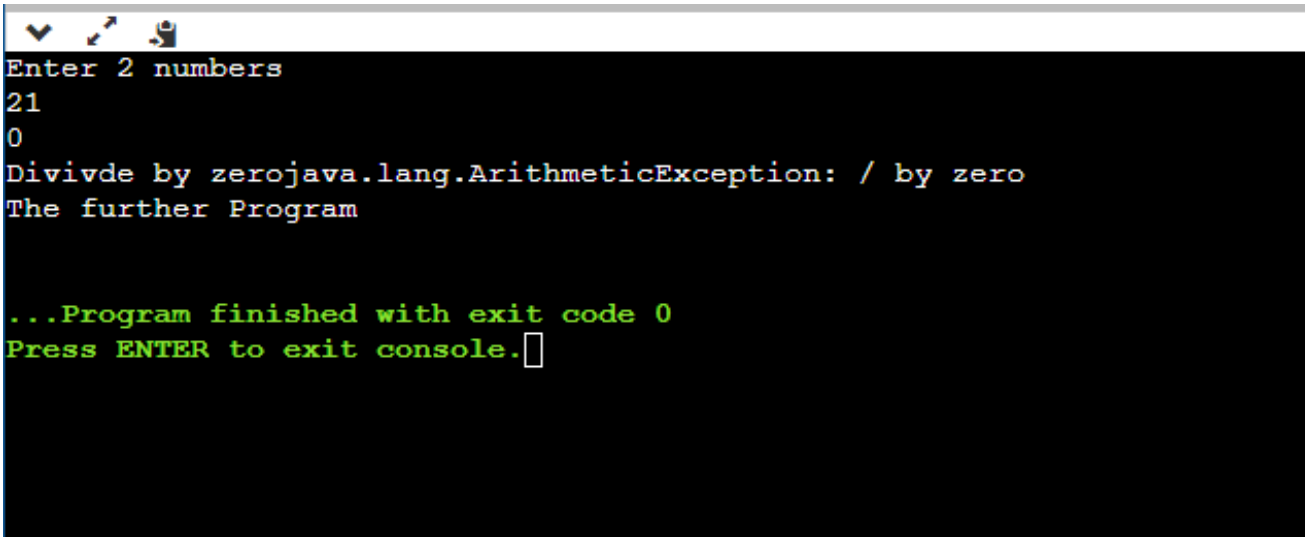
CODE:

```
import java.util.*;
public class javalab8{

public static void main(String[] args)
{
Scanner sc=new Scanner(System.in);

System.out.println("Enter 2 numbers");



try
{
int num1=sc.nextInt();
int num2=sc.nextInt();




System.out.println("Division is = "+(num1/num2));
throw new ArithmeticException();
}

/*catch(ArithmeticException e)
{
System.out.println("Divivde by zero"+e);
}
```

```
*/
catch(InputMismatchException e)
{
System.out.println("Enter a valid integer"+e);
}

catch(IndexOutOfBoundsException e)
{
System.out.println("Array out of bound"+e);

}

catch(Exception e)

{
System.out.println("Divide by zero"+e);

}

finally
{
System.out.println("The further Program");
}



}
}
```

Case 1:


Enter 2 numbers
21
0
Divivde by zerojava.lang.ArithmeticException: / by zero
The further Program
...Program finished with exit code 0
Press ENTER to exit console.