



SNS COLLEGE OF ENGINEERING

Coimbatore-107
An Autonomous Institution

COURSE NAME : 23CSB201 & Object Oriented Programming

II YEAR/ III SEMESTER

UNIT – III EXCEPTION HANDLING AND MULTITHREADING

Topic: Exception Handling basics

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Introduction

- abnormally terminate the execution of a program
- different approaches to handle exceptions in Java
 - try...catch block
 - finally block
 - throw and throws keyword



try...catch block

- try-catch block is used to handle exceptions
- Syntax

```
try
{
    // code
}
catch(Exception e)
{
    // code
}
```

- place the code that might generate an exception inside the try block
- Every try block is followed by a catch block
- catch block cannot be used without the try block



Example

```
class Main
{
    public static void main(String[] args)
    {
        try
        {
            // code that generate exception
            int divideByZero = 5 / 0;
            System.out.println("Rest of code in try block");
        }
        catch (ArithmeticException e)
        {
            System.out.println("ArithmeticException ");
        }
    }
}
```



finally block

- finally block is always executed no matter whether there is an exception or not
- finally block is optional
- If an exception occurs, the finally block is executed after the try...catch block
- Otherwise, it is executed after the try block. For each try block, there can be only one finally block



Syntax

finally block

```
try
{
    //code
}
catch (ExceptionType1 e1)
{
    // catch block
}
finally
{
    // finally block always executes
}
```



class Main

{

public static void main(String[] args)

{

try

{

// code that generates exception

int divideByZero = 5 / 0;

}

Example



Example

catch (ArithmeticException e)

{

System.out.println("ArithmeticException ");

}

finally

{

System.out.println("This is the finally block");

}

}

}



throw and throws keyword

- Used to explicitly throw a single exception
- When we throw an exception, the flow of the program moves from the try block to the catch block
- **throws** keyword is used to declare the type of exceptions that might **occur within the method**
- It is used in the method declaration



Example

```
import java.io.*;
class Main
{
    // declareing the type of exception
    public static void findFile() throws IOException
    {
        // code that may generate IOException
        File newFile = new File("test.txt");
        FileInputStream stream = new FileInputStream(newFile);
    }
}
```



Example

```
public static void main(String[] args)
{
    try
    {
        findFile();
    }
    catch (IOException e)
    {
        System.out.println(e);
    }
}
```

Output

java.io.FileNotFoundException: test.txt (The system cannot find the file specified)



References

- Java : the complete Reference (Eleventh Edition), Herbert Schildt, 2018.

