St Francis Institute of Technology, Mumbai-400 103

Class: SE-ITA/ITB Semester: III; A.Y. 2020-2021
Subject: Java Labs

Title-6: Java Program to implement Exception Handling (Inbuilt and User Defined Exceptions).

1. **Aim:**
   i.   Write a program to demonstrate checked Exception Handling using nested try, catch statements.
   ii. Write a Java Program to Create Account with 1000 Rs Minimum Balance, Deposit Amount, Withdraw Amount and Also Throws LessBalanceException. It has a Class Called LessBalanceException Which returns the Statement that Says WithDraw Amount(_Rs) is Not Valid. It has a Class Which Creates 2 Accounts, Both Account Deposite Money and One Account Tries to WithDraw more Money Which Generates a LessBalanceException. Take Appropriate Action for the Same.

2. **Prerequisite:** Knowledge of Exception Handling in Java.

3. **Requirements:** Personal Computer (PC), Windows Operating System, Net beans 8.0.

4. **Pre-Experiment Exercise:**
   Theory:

   a. **Exception Keyword:**
      i.   **Throw**- used to throw an exception explicitly. Only object of Throwable class or its sub classes can be thrown. Program execution stops on encountering **throw** statement, and the closest catch statement is checked for matching type of exception.
      ii. **Throws**- Any method that is capable of causing exceptions must list all the exceptions possible during its execution, so that anyone calling that method gets a prior knowledge about which exceptions are to be handled. A method can do so by using the **throws** keyword.
      iii. **Finally**- A finally keyword is used to create a block of code that follows a try block. A finally block of code is always executed whether an exception has occurred or not. Using a finally block, it lets you run any cleanup type statements that you want to execute, no matter what happens in the protected code. A finally block appears at the end of catch block.
      iv. **Try**- The try block contains set of statements where an exception can occur. A try block is always followed by a catch block, which handles the exception that occurs in associated try block. A try block must be followed by catch blocks or finally block or both.
      v.   **Catch**- A catch block is where you handle the exceptions; this block must follow the try block. A single try block can have several catch

blocks associated with it. You can catch different exceptions in different catch blocks.

5. Laboratory Exercise

A. Procedure

i. Open Net beans for Java.

ii. Open File and Create New Java Project.

iii. Inside the Java Project rename give name to your Java Class.

iv. Click on Finish.

v. Type the Java Code in the opened class.

vi. Save the code by pressing Ctrl+S.

vii. Run the code by pressing Shift+F6.

B. Program code with comments:

Write and execute your program code to achieve the given aim and attach it **with your own comments with neat indentation**.

6. Post-Experiments Exercise

A. Extended Theory:

1. Explain the hierarchy of Exception Handling Classes with the help of a diagram.
2. List and explain runtime errors.

B. Results/Observations/Program output:

Present the program input/output results and comment on the same.

C. Questions/Programs:

1. Write a Java Program to calculate the Result. Result should consist of name, seatno, date, centre number and marks of sem-2 examination. Create a user defined exception class MarksOutOfBoundsException, If Entered marks of any subject is greater than 100 or less than 0, and then program should create a user defined Exception of type MarksOutOfBoundsException and must have a provision to handle it.

D. Conclusion:

1. Write what was performed in the experiment/program.
2. What is the significance of experiment/program?
3. Mention few applications of what was studied.

E. References

1. Balguruswamy, "Programming with java A primer", Fifth edition, Tata McGraw Hill Publication.
2. Let Us Java-Yashwant Kanetkar.
3. Learn to Master JAVA, from Star EDU solutions , by ScriptDemics.
4. Java 8 Programming-Black Book,by-Dreamtech Publications.
5. www.programmingsimplified.com
6. www.javatpoint.com