**JAVA**

**Packages**

**Ankit Rupapara**

**Lab Exercise No:**29

**Exercise Objective(s):***Package*

**Exercise:***Create a package called shapes. Create some classes in the package representing some*

*common geometric shapes like Square, Triangle, Circle and so on. Create a class called*

*TestShapes and create objects for all the shapes and print corresponding messages.*

*Execute the TestShapes class.*

**Recommended duration:** *20 Mins*

**Solution Code:**

**package** pack.day4.shapes;

**public** **class** Solution29 {

**public** **static** **void** main(String[] args) {

Square square = **new** Square();

Triangle triangle = **new** Triangle();

Circle circle = **new** Circle();

// Object creation

circle.display();

triangle.display();

square.display();

}

}

**class** Square{

**public** **void** display(){

System.***out***.println(" Square Object");

}

}

**class** Circle{

**public** **void** display() {

System.***out***.println(" Circle Object");

}

}

**class** Triangle{

**public** **void** display() {

System.***out***.println(" Triangle Object");

}

}

**Lab Exercise No:**30

**Exercise Objective(s):***Jar*

**Exercise:**

1. *Create a new project in which create a package named org.animals. In that create various classes like Lion, Tiger, Deer, Monkey, Elephant and Giraffe. In each class create data members like color, weight,age etc. Create methods like isVegetarian, canClimb, sound etc*
2. *Create another project and in that create a package called zoo and create a class called VandalurZooand create objects for the animals that are existing in zoo and print the characteristic of each animal.*

**Solution Guidance (if applicable):***Export the jar and add it as an External Archive.*

**Solution Code:**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Lion.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** org.animals;

**public** **class** Lion { // animal 1 class

String color;

**int** weight,age;

**public** Lion(String color, **int** weight, **int** age) { **super**();

System.out.println("This is a lion");

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

}

**public** **void** getColor() {

System.out.println(**this**.color);

}

**public** **void** getWeight() {

System.out.println(**this**.weight + " kgs.");

}

**public** **void** getAge() {

System.out.println(**this**.age);

}

**public** **void** isVegetarian() {

System.out.println("Lion is carnivorous and thus, not vegetarian");

}

**public** **void** canClimb() {

System.out.println("Lions cannot climb trees");

}

**public** **void** sound() {

System.out.println("Lion roars");

}

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Tiger.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** com.hsbc.pack.animals;

**public** **class** Tiger {

String color;

**int** weight, age;

**public** Tiger(String color, **int** weight, **int** age) { **super**();

System.out.println("This is a tiger");

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

}

**public** **void** getColor() {

System.out.println(**this**.color);

}

**public** **void** getWeight() {

System.out.println(**this**.weight + " kgs.");

}

**public** **void** getAge() {

System.out.println(**this**.age);

}

**public** **void** isVegetarian() {

System.out.println("Tiger is carnivorous and thus, not vegetarian");

}

**public** **void** canClimb() {

System.out.println("Tiger can climb trees");

}

**public** **void** sound() {

System.out.println("Tigers growls/roars");

}

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Deer.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** com.hsbc.pack.animals;

**public** **class** Deer {

String color;

**int** weight, age;

**public** Deer(String color, **int** weight, **int** age) {

**super**();

System.***out***.println("This is a deer");

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

}

**public** **void** getColor() {

System.***out***.println(**this**.color);

}

**public** **void** getWeight() {

System.***out***.println(**this**.weight + " kgs.");

}

**public** **void** getAge() {

System.***out***.println(**this**.age);

}

**public** **void** isVegetarian() {

System.***out***.println("Deers are herbivores and thus, are vegetarians");

}

**public** **void** canClimb() {

System.***out***.println("Deers cannot climb trees");

}

**public** **void** sound() {

System.***out***.println("Deer grunts");

}

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*VandalurZoo.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Jar file set into build path

**package** com.zoo;

**import** com.hsbc.org.pack.Deer;

**import** com.hsbc.org.pack.Lion;

**import** com.hsbc.org.pack.Tiger;

**public** **static** **void** main(String[] args) {

Lion lion =**new** Lion("ABC",140,19);

System.out.print("Color Information : ");

lion.getColor();

System.out.print("Age Information : ");

lion.getAge();

System.out.print("Weight Information : ");

lion.getWeight();

System.out.print("Capability to climb : ");

lion.canClimb();

System.out.print("Vegetarian or not : ");

lion.isVegetarian();

System.out.print("Animal sound : ");

lion.sound();

Tiger tiger =**new** Tiger("Orange",130,18);

System.out.print("Color Information : ");

tiger.getColor();

System.out.print("Age Information : ");

tiger.getAge();

System.out.print("Weight Information : ");

tiger.getWeight();

System.out.print("Capability to climb : ");

tiger.canClimb();

System.out.print("Vegetarian or not : ");

tiger.isVegetarian();

System.out.print("Animal sound : ");

tiger.sound();

Deer deer =**new** Deer("Ochre",80,25);

System.out.print("Color Information : ");

deer.getColor();

System.out.print("Age Information : ");

deer.getAge();

System.out.print("Weight Information : ");

deer.getWeight();

System.out.print("Capability to climb : ");

deer.canClimb();

System.out.print("Vegetarian or not : ");

deer.isVegetarian();

System.out.print("Animal sound : ");

deer.sound();

}

}

**Lab Exercise No:**31

**Exercise Objective(s):***System class*

**Exercise:***Create a class which displays the following about the JVM.*

1. *Version of Java*
2. *Vendor for Java*
3. *Class Path*
4. *Installed home directory*
5. *OS name on which it is installed with version*

**Recommended duration:***10Mins*

**Solution Code:**

**package** pack.day4.com;

**public** **class** Solution31 {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

// Version of java

System.***out***.println(System.*getProperty*("java.runtime.version"));

// vendor of java

String vm\_vendor = **null**;

vm\_vendor = System.*getProperty*("java.vm.vendor");

System.***out***.println("Running Java vm vendor name is: " + vm\_vendor);

// User class path

System.***out***.println(System.*getProperty*("user.home"));

// installed home directory

System.***out***.println(System.*getProperty*("java.home"));

// OS name + version

System.***out***.println(System.*getProperty*("os.name"));

}

}

**Lab Exercise No:**32

**Exercise Objective(s):***Scanner class*

**Exercise:***Create a class called Student. Get the details like name, degree, age, total marks and*

*percentage from the user and display the same.*

**Recommended duration:** *20 Mins*

**Solution Code:**

**package** pack.day4.com;

**import** java.util.Scanner;

**public** **class** Student {

String name;

**int** age;

String degree;

**float** totalMarks;

**float** percentage;

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Student student=**new** Student();

Scanner sc=**new** Scanner(System.***in***); // Scanner initialized

System.***out***.println("Enter name");

student.name=sc.next(); // scans string from console input

System.***out***.println("Enter age");

student.age=sc.nextInt();

System.***out***.println("Enter degree");

student.degree=sc.next();

System.***out***.println("Enter total marks");

student.totalMarks=sc.nextFloat();

System.***out***.println("Enter percentage");

student.percentage=sc.nextFloat();

student=**new** Student(student.name, student.age, student.degree, student.totalMarks, student.percentage);

System.***out***.println(student);

}

**public** Student() {

**super**();

}

**public** Student(String name, **int** age, String degree, **float** totalMarks, **float** percentage) {

**super**();

**this**.name = name;

**this**.age = age;

**this**.degree = degree;

**this**.totalMarks = totalMarks;

**this**.percentage = percentage;

}

@Override

**public** String toString() {

**return** "Student [name=" + name + ", age=" + age + ", degree=" + degree + ", totalMarks=" + totalMarks

+ ", percentage=" + percentage + "]";

}

}

**Lab Exercise No:**33

**Exercise Objective(s):***Systemclass,usingstaticimport*

**Exercise:***Create a Package called house. Create 2 classes namely Hall and Kitchen.*

1. *In the Hall class print the message “This is the first room while entering the house” without using the class name System explicitly in the println statement.*
2. *In the Kitchen class create an array called appliances and initialize with values and print the same.*
3. *After printing copy that array into a different array.*
4. *Invoke garbage collector explicitly for the Kitchen class.*

**Recommended duration:***20Mins*

**Solution Code:**

**package** pack.day4.com;

**import** java.io.FileDescriptor;

**import** java.io.FileOutputStream;

**import** java.io.PrintStream;

**public** **class** House {

**public** **static** **void** main(String[] args) {

Hall hall = **new** Hall();

System.***out***.println(" ");

Kitchen kitchen = **new** Kitchen();

}

}

**class** Hall{

Hall(){

PrintStream myOp = **new** PrintStream(**new** FileOutputStream(FileDescriptor.***out***));

myOp.print("This is the first room while entering the house.");

}

}

**class** Kitchen{

String[] appliance = {"Oven","Refridgerator","WaterFilter"};

Kitchen(){

System.***out***.println("The appliances of kitchen are : ");

**for** (String appl : appliance) {

System.***out***.println(appl);

}

}

}

**JAVA**

**Exception Handling**

**Lab Exercise No:**50

**Exercise Objective(s):***syntax*

**Exercise:***In the Lab Exercise 14, change the code such that the numbers are taken as input from the*

*user. Handle the appropriate exceptions.*

**Recommended duration:** *20 Mins*

**Solution Guidance (if applicable):***InputMismatchException, Arithmetic Exception*

**Solution Code:**

**package** pack.day4.com;

**import** java.util.InputMismatchException;

**import** java.util.Scanner;

**public** **class** Solution50 {

**static** **int** *method* = 0;

**public** **void** add(**int** num1,**int** num2) //addition {

**int** num3 = num1 + num2;

System.***out***.println("Addition of 2 numbers is "+ num3);

}

**public** **void** sub(**int** num1,**int** num2) //subtraction

{

**int** num3 = num1 - num2;

System.***out***.println("Subtraction of 2 numbers is "+ num3);

}

**public** **void** mul(**int** num1,**int** num2) //multiplication {

**int** num3 = num1 \* num2;

System.***out***.println("Multiplication of 2 numbers is "+ num3);

}

**public** **void** div(**int** num1,**int** num2) //division {

**try** {

**int** num3 = num1 / num2;

System.***out***.println("Division of 2 numbers is "+ num3);

}

// if num2 is 0 then this will send an Arithmetic Exception

**catch** (ArithmeticException e) {

// **TODO**: handle exception

System.***out***.println("Arithmatic Exception : "+ e);

}

}

**public** **static** **void** main(String args[])

{

Solution50 calc=**new** Solution50(); //Object Created

System.***out***.println("Enter the number : "

+ "1. addition, 2. Substraction, 3.Multiplication, 4. Division ");

Scanner scnr = **new** Scanner(System.***in***);

*method* = scnr.nextInt();

System.***out***.println("Enter 2 integer numbers : ");

**switch** (*method*) {

**case** 1:

**try** {

calc.add(scnr.nextInt(),scnr.nextInt());

}

**catch** (InputMismatchException e) {

// **TODO**: handle exception

System.***out***.println("Input is Mismatched : "+ e);

}

**break**;

**case** 2:

**try** {

calc.sub(scnr.nextInt(),scnr.nextInt());

}

**catch** (InputMismatchException e) {

// **TODO**: handle exception

System.***out***.println("Input is Mismatched : "+ e);

}

**break**;

**case** 3:

**try** {

calc.mul(scnr.nextInt(),scnr.nextInt());

}

**catch** (InputMismatchException e) {

// **TODO**: handle exception

System.***out***.println("Input is Mismatched : "+ e);

}

**break**;

**case** 4:

**try** {

calc.div(scnr.nextInt(),scnr.nextInt());

}

**catch** (InputMismatchException e) {

// **TODO**: handle exception

System.***out***.println("Input is Mismatched : "+ e);

}

**break**;

**default**:

**break**;

}

scnr.close();

}

}

**Lab Exercise No:**51

**Exercise Objective(s):***syntax*

**Exercise:***In the Lab Exercise 17, handle the scenarios if the String variable is not initialized.*

**Recommended duration:** *20 Mins*

**Solution Guidance (if applicable):** *Null Pointer Exception*

**Solution Code:**

**package** pack.day4.com;

**public** **class** Solution51 {

**public** **static** **void** main(String[] args) {

**try** {

//if str = null then this will throw Null Pointer Exception

String str = "The quick brown fox jumps over the lazy dog";

System.***out***.println("12th index character is : "+ str.charAt(12)); // 1.Print the character at the 12th index.

System.***out***.println("Word \*is\* is present : "+ str.contains("is")); // 2.Check whether the String contains the word “is”.

str += " and killed it";

System.***out***.println("Appended string : "+ str); //3.Add the string “and killed it” to the existing string.

System.***out***.println("String ends with \*dogs\* : "+ str.endsWith("dogs")); // 4.Check whether the String ends with the word “dogs”.

String checkingString = "The quick brown Fox jumps over the lazy Dog";

String checkingString2 = "THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG";

System.***out***.println("String is equal with (The quick brown Fox jumps over the lazy Dog) : "+ (str==checkingString)); //5.Check whether the String is equal to “The quick brown Fox jumps over the lazy Dog”.

System.***out***.println("String is equal with (THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG) : "+ (str==checkingString2)); //6.Check whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”.

System.***out***.println("Index of char 'a' is : "+ str.indexOf("a")); //7.Find the index position of the character “a”.

System.***out***.println("Last index of char 'e' is : "+ str.lastIndexOf("e")); //8.Find the last index position of the character “e”.

System.***out***.println("Length of string is "+ str.length()); //9.Find the length of the String.

System.***out***.println("String is matches with (The quick brown Fox jumps over the lazy Dog) : "+ (str.matches(checkingString))); //10.Check whether the String matches to “The quick brown Fox jumps over the lazy Dog”.

System.***out***.println("After replacing word 'The' with 'A' : "+ str.replace("The", "A")); //11.Replace the word “The” with the word “A”.

System.***out***.println("Split string as 2 animal separates : 1st string is -- "+ str.substring(0, str.indexOf("dog")) + " -- and 2nd string is -- " + str.substring(str.indexOf("dog")) ); //12.Split the above string into two such that two animal names do not come together.

String brwn = "brown";

String dg = "dog";

System.***out***.println("Animal names only : " + str.substring(str.indexOf("fox"), str.indexOf("fox")+3 ) + " " + str.substring(str.indexOf("dog"), str.indexOf("dog")+3 ) ); //13.Print the animal names alone separately from the above string.

System.***out***.println("Lowercase : "+ str.toLowerCase()); //14.Print the above string in completely lower case.

System.***out***.println("Uppercase : "+ str.toUpperCase()); //15.Print the above string in completely upper case.

} **catch** (NullPointerException e) {

// **TODO**: handle exception

e.printStackTrace();

}

}

}

**Lab Exercise No:**52

**Exercise Objective(s):***syntax*

**Exercise:***Using Lab Exercise 17, catch and demonstratethe required exceptions.*

**Recommended duration:** *20 Mins*

**Solution Guidance (if applicable):***StringIndexOutOfBoundsException*

**Solution Code:**

**package** pack.day4.com;

**public** **class** Solution52 {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

**try** {

String str = "The quick brown fox jumps over the lazy dog";

System.***out***.println("12th index character is : "+ str.charAt(12)); // 1.Print the character at the 12th index.

System.***out***.println("Word \*is\* is present : "+ str.contains("is")); // 2.Check whether the String contains the word “is”.

str += " and killed it";

System.***out***.println("Appended string : "+ str); //3.Add the string “and killed it” to the existing string.

System.***out***.println("String ends with \*dogs\* : "+ str.endsWith("dogs")); // 4.Check whether the String ends with the word “dogs”.

String checkingString = "The quick brown Fox jumps over the lazy Dog";

String checkingString2 = "THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG";

System.***out***.println("String is equal with (The quick brown Fox jumps over the lazy Dog) : "+ (str==checkingString)); //5.Check whether the String is equal to “The quick brown Fox jumps over the lazy Dog”.

System.***out***.println("String is equal with (THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG) : "+ (str==checkingString2)); //6.Check whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”.

System.***out***.println("Index of char 'a' is : "+ str.indexOf("a")); //7.Find the index position of the character “a”.

System.***out***.println("Last index of char 'e' is : "+ str.lastIndexOf("e")); //8.Find the last index position of the character “e”.

System.***out***.println("Length of string is "+ str.length()); //9.Find the length of the String.

System.***out***.println("String is matches with (The quick brown Fox jumps over the lazy Dog) : "+ (str.matches(checkingString))); //10.Check whether the String matches to “The quick brown Fox jumps over the lazy Dog”.

System.***out***.println("After replacing word 'The' with 'A' : "+ str.replace("The", "A")); //11.Replace the word “The” with the word “A”.

System.***out***.println("Split string as 2 animal separates : 1st string is -- "+ str.substring(0, str.indexOf("dog")) + " -- and 2nd string is -- " + str.substring(str.indexOf("dog")) ); //12.Split the above string into two such that two animal names do not come together.

String brwn = "brown";

String dg = "dog";

System.***out***.println("Animal names only : " + str.substring(str.indexOf("fox"), str.indexOf("fox")+3 ) + " " + str.substring(str.indexOf("dog"), str.indexOf("dog")+3 ) ); //13.Print the animal names alone separately from the above string.

System.***out***.println("Lowercase : "+ str.toLowerCase()); //14.Print the above string in completely lower case.

System.***out***.println("Uppercase : "+ str.toUpperCase()); //15.Print the above string in completely upper case.

} **catch** (NullPointerException e) {

// **TODO**: if string is empty

e.printStackTrace();

}

**catch**(ArrayIndexOutOfBoundsException e) {

// if accessed character of string is out of bound

e.printStackTrace();

}

**catch**(Exception e) {

e.printStackTrace();

}

}

}

**Lab Exercise No:**53

**Exercise Objective(s):***syntax*

**Exercise:***Using Lab Exercise 22, catch and demonstrate the required exceptions.*

**Recommended duration:** *20 Mins*

**Solution Guidance (if applicable):***ArrayIndexOutOfBoundsException*

**Solution Code:**

**package** pack.day4.com;

**import** java.util.Scanner;

**public** **class** Solution53 {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

**int** row, column;

Scanner scnr = **new** Scanner(System.***in***);

System.***out***.println("Enter the no. of rows and cols of matrix");

row = scnr.nextInt();

column = scnr.nextInt();

**try** {

**int** first[][] = **new** **int**[row][column]; //matrix

System.***out***.println("Enter the elements of first matrix"); //values of fields in matrix

**for** (**int** i = 0; i < row; i++)

{

**for** (**int** j = 0; j < column; j++)

{

first[i][10] = scnr.nextInt();

}

}

System.***out***.println("Square of each element in the matrix:");

**for** (**int** i = 0; i < row; i++)

{

**for** (**int** j = 0; j < column; j++)

{

System.***out***.println((first[i][j]\* first[i][j]) + " "); //multiplication of itself will give square

}

System.***out***.println("\n");

}

}

**catch**(ArrayIndexOutOfBoundsException e){

System.***out***.println("Array Index Out Of Bounds Exception");

e.printStackTrace();

}

**catch**(Exception e) {

e.printStackTrace();

}

}

}

**Lab Exercise No:**54

**Exercise Objective(s):***Exception class methods*

**Exercise:***By using multiple catch blocks, write a class to demonstrate the order of the execution of the*

*catch blocks usingNegativeArraySizeException,ArrayIndexOutOfBoundsException,*

*StringIndexOutOfBoundsException, IndexOutOfBoundsException, NullPointerException,*

*ArithmeticException and print the stack trace for each exception.*

**Recommended duration:** *20 Mins*

**Solution Code:**

**package** pack.day4.com;

**import** java.util.Scanner;

**public** **class** Solution54 {

**public** **static** **void** main(String[] args) {

Scanner scnr = **new** Scanner(System.***in***);

System.***out***.println("Enter array length");

**int** size = scnr.nextInt();

**try** {

**int**[] array = **new** **int**[size]; // NegativeArraySizeException

**for**(**int** arr : array) {

arr = scnr.nextInt();

}

System.***out***.println(array[size-1]);

String name = "Ankit";

System.***out***.println(name.charAt(0));

String str = "string";

str.toString();

**int** n1 = 0;

**int** n2 = 13;

**int** div = n2/n1;

}

**catch**(NegativeArraySizeException e) { //NegativeArraySizeException

e.printStackTrace();

}

**catch**(ArrayIndexOutOfBoundsException e) { //IndexOutOfBoundsException

e.printStackTrace();

}

**catch**(StringIndexOutOfBoundsException e) { //String out of bounds exception

e.printStackTrace();

}

**catch**(NullPointerException e) { // null pointer exception

e.printStackTrace();

}

**catch**(ArithmeticException e) { // arithmetic exception

e.printStackTrace();

}

}

}

**Lab Exercise No:**55

**Exercise Objective(s):***User-defined exceptions*

**Exercise:***In the Lab Exercise 46, handle the expected exceptions by writing custom defined exceptions.*

**Recommended duration:** *20 Mins*

**Solution Code:**

**-----------------------------------------------------------------------------------------------**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***package bank START\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**MyException.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** bank;

// customized exception

**public** **class** MyException **extends** Exception {

**public** **void** nameException() {

System.***out***.println("Name should be of minimun 2 characters..");

}

**public** **void** withdrawalException() {

System.***out***.println("Withdrawal Amount is greater than Available Balance in Account");

}

**public** **void** getBalanceException() {

System.***out***.println("Account number NOT FOUND");

}

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**IAccountM.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** bank;

**public** **interface** IAccountM {

String ***accountSavings*** = "Savings";

String ***accountFixed*** = "Fixed";

String ***accountPersonalLoan*** = "Personal Loan";

String ***accountHousingLoan*** = "Housing Loan";

**void** createAcc(String accName); // if name is less then 3 character then it will throw an exception and my customized exception will handle it

}

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**IDepositAccM.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***package** bank;

**public** **interface** IDepositAccM **extends** IAccountM {

**void** withdraw(**double** amt); // if withdrawal amount is greater than available balance then it will throw an exception

**void** deposit(**double** amt);

**double** getBalance();

}

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**

*------------------------------------package bank END--------------------------------------*

*------------------------------------package bankImpl START------------------------------*

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**SavingsAccM.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**package** bankImpl;

**import** bank.IDepositAccM;

**import** bank.MyException;

**public** **class** SavingsAccM **implements** IDepositAccM {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

}

@Override

**public** **void** createAcc(String name) {

// **TODO** Auto-generated method stub

System.***out***.println("Savings Account -> Create Account");

**if**(name.length() < 3) {

**try** {

**throw** **new** MyException(); // NameException();

} **catch** (MyException me) {

// **TODO**: handle exception

me.nameException();

}

}

}

@Override

**public** **void** withdraw(**double** amt) {

// **TODO** Auto-generated method stub

**if**(amt > getBalance())

{

**try** {

**throw** **new** MyException();

}

**catch** (MyException me) {

me.withdrawalException();

}

}

}

@Override

**public** **void** deposit(**double** amt) {

// **TODO** Auto-generated method stub

}

@Override

**public** **double** getBalance() {

// **TODO** Auto-generated method stub

**return** 13130;

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**------------------------------------------**package bankIml END--------------------------------------

**-----------------------------------------**package pack.day3.com-------------------------------------

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Solution55.java\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
  
**package** pack.day3.com;

**import** java.util.Scanner;

**import** bankImpl.SavingsAccM;

**public** **class** Solution55 {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

SavingsAccM savingsAccM = **new** SavingsAccM();

System.***out***.println("Enter name for Account : ");

Scanner scnr = **new** Scanner(System.***in***);

savingsAccM.createAcc(scnr.next());

savingsAccM.withdraw(14000);

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Solution55.java END\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Lab Exercise No:**56

**Exercise Objective(s):***finally keyword*

**Exercise:***Create a class such that it resets the value of the objects it used to null after its usage in all*

*cases.*

**Solution Guidance (if applicable):** *Use finally block*

**Solution Code:**

**package** pack.day4.com;

**public** **class** Solution56 {

String s1 = "Ankit";

**int** number = 13;

@Override

**public** String toString() {

**return** "Solution56 [s1=" + s1 + ", number=" + number + "]"; }

**public** **static** **void** main(String[] args) {

Solution56 obj = **new** Solution56();

**try** {

obj.number = 12 / 0;

}

**catch**(Exception e){

e.printStackTrace();

}

// will be executed if try raised any exception or not

**finally** {

System.***out***.println(obj);

obj = **null**;

System.***out***.println(obj);

}

}

}

**Lab Exercise No:**57

**Exercise Objective(s):***finally keyword*

**Exercise:***Create a class such that a method uses the try catch block with the return type of String.*

**Recommended duration:** *20 Mins*

**Solution Guidance (if applicable):** *Use finally block*

**Solution Code:**

**package** pack.day4.com;

**public** **class** Solution57 {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

System.***out***.println(*method1*(**null**));

}

**static** String method1(String str) {

**try** {

str.charAt(0);

} **catch** (NullPointerException e) {

// **TODO**: handle exception

System.***out***.println("Null Pointer Exception : "+ e);

str = "Ankit";

}

**finally** {

**return** str+" returned";

}

}

}

**Lab Exercise No:**58

**Exercise Objective(s):***User-defined exceptions*

**Exercise:***Createa class called Employee which asks the user to input the name and the age of a*

*employee. Raise a custom defined exception when the user enters an employee name*

*that has been already entered and raise another exception if the age is negative or less*

*than 18 or greater than 60.*

**Recommended duration:** *20 Mins*

**Solution Code:**

**package** pack.day4.com;

**import** java.util.ArrayList;

// customized exception

**class** AnkitException **extends** Exception{

**public** **void** excptn1()

{

System.***out***.println("Age limit is of 18 to 60 years only.");

}

**public** **void** excptn2()

{

System.***out***.println("This Employee name is already entered.");

}

}

**public** **class** Solution58 {

String empName;

**int** empAge;

**private** **static** ArrayList <String> *empList*=**new** ArrayList<String>();

**public** Solution58(**int** Age, String Name) {

**super**();

**if**( (!*empList*.contains(Name)) && (Age>=18 && Age<=60)) {

**this**.empAge = Age;

**this**.empName = Name;

*empList*.add(Name);

System.***out***.println("Employee Name : " + Age + "\t" + "Employee Age : " + Name);

}

**else**{

**if**((Age<18||Age>60))

{

**try** {

**throw** **new** AnkitException();

}

**catch**(AnkitException ae){

ae.excptn1();

}

}

**if**(*empList*.contains(Name)) {

**try** {

**throw** **new** AnkitException();

}

**catch**(AnkitException ex){

ex.excptn2();

}

}

}

}

**public** **static** **void** main(String[] args) {

**new** Solution58(13,"Ankit");

**new** Solution58(78,"Ankit");

**new** Solution58(21,"Ankit");

**new** Solution58(58,"Ankit");

**new** Solution58(21,"AnkitRupapara");

}

}