**Day - 4 Solutions**

**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.*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.shapes;

/\*\*

\* @author Jayesh

\* Assignment No. 29

\* 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.

\*/

class Square {

public Square() {

System.out.println("This is a square object");

}

}

class Triangle {

public Triangle() {

System.out.println("This is a triangle object");

}

}

class Circle {

public Circle() {

System.out.println("This is a circle object");

}

}

public class TestShapes {

/\*\*

\*

\*/

public TestShapes() {

// TODO Auto-generated constructor stub

super();

}

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

Square s = new Square();

Triangle t = new Triangle();

Circle c = new Circle();

}

}

**Lab Exercise No:**30

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

**Exercise:**

1. *Create a new project in which create a package named org.animals. It creates 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 VandalurZoo and create objects for the animals that are existing in the zoo and print the characteristics of each animal.*

**Solution:**

**File 1 : Lion.java**

package com.hsbc.org.animals;

public class Lion {

String color;

int weight,age;

/\*\*

\* @param color

\* @param weight

\* @param 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");

}

}

**File 2 : Tiger.java**

package com.hsbc.org.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");

}

}

**File 3 : Deer.java**

package com.hsbc.org.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");

}

}

**File 4 : VandalurZoo.java**

package com.hsbc.zoo;

import com.hsbc.org.animals.Deer;

import com.hsbc.org.animals.Lion;

import com.hsbc.org.animals.Tiger;

/\*\*

\* @author Jayesh

\* Assignment No. 30

\*/

public class VandalurZoo {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

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

Lion l =new Lion("Ochre",120,25);

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

l.getColor();

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

l.getAge();

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

l.getWeight();

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

l.canClimb();

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

l.isVegetarian();

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

l.sound();

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

Tiger t =new Tiger("Orange",130,18);

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

t.getColor();

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

t.getAge();

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

t.getWeight();

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

t.canClimb();

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

t.isVegetarian();

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

t.sound();

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

Deer d =new Deer("Ochre",80,25);

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

d.getColor();

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

d.getAge();

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

d.getWeight();

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

d.canClimb();

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

d.isVegetarian();

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

d.sound();

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

}

}

**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*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.pack;

/\*\*

\* @author Jayesh

\* Assignment No. 31

\* 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

\*/

public class Solution31 {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

System.out.println("Version of java : " + System.getProperty("java.version"));

System.out.println("Java Vendor : "+System.getProperty("java.vendor"));

System.out.println("Java Class Path : "+System.getProperty("java.class.path"));

System.out.println("Java Home Directory : "+System.getProperty("java.home"));

System.out.println("Operating System : "+System.getProperty("os.name") + "\n" + "OS Version : " + System.getProperty("os.version"));

}

}

**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.*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.pkg;

import java.util.Scanner;

/\*\*

\* @author Jayesh

\* Assigment No. 32

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

percentage from the user and display the same.

\*/

public class Student {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc = new Scanner(System.in);

System.out.println("Please enter your details : ");

System.out.print("Student Name : ");

String sName = sc.next();

System.out.println();

System.out.print("Student Degree : ");

String sDegree = sc.next();

System.out.println();

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

int sAge = sc.nextInt();

System.out.println();

System.out.print("Student Total Marks (out of 600) : ");

int sTotMarks = sc.nextInt();

System.out.println();

System.out.print("Student Percentage : ");

float sPerc = sc.nextFloat();

System.out.println();

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

System.out.println("The student details have been accepted and listed as follows: ");

System.out.println("Student Name : " + sName);

System.out.println("Student Degree : " + sDegree);

System.out.println("Student Age : " + sAge);

System.out.println("Student Total Marks (out of 600) : " + sTotMarks);

System.out.println("Student Percentage : " + sPerc);

sc.close();

}

}

**Lab Exercise No:**33

**Exercise Objective(s):***System class,using static import*

**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.*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.house;

import java.io.IOException;

import java.io.OutputStreamWriter;

/\*\*

\* @author Jayesh

\* Assignment No. 33

\*

\*/

public class House {

public static void main(String[] args) {

// TODO Auto-generated method stub

Hall h1 = new Hall();

System.out.println();

Kitchen k1 = new Kitchen();

}

}

class Hall{

public Hall() {

try {

OutputStreamWriter osw = new OutputStreamWriter(System.out);

osw.write("This is the first room while entering the house");

osw.close();

}

catch(IOException e) {

e.printStackTrace();

}

}

}

class Kitchen{

String[] appliances = {"Fridge","Oven","Toaster","Cooker","Grinder"};

Kitchen(){

System.out.println("The appliances found the kitchen are as follows : ");

for (int i=0;i<appliances.length;i++) {

System.out.println(appliances[i]);

}

String[] copy = appliances;

System.gc();

}

}

**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.*

**Solution:**

/\*\*

\* @author Jayesh

\* Assignment No. 50

\* In the Lab Exercise 14, change the code such that the numbers are taken as input from the user. Handle the appropriate exceptions.

\*/

package com.hsbc.pkg;

import java.util.InputMismatchException;

import java.util.Scanner;

class Calculator {

public void add(int a, int b) {

System.out.println("The sum of a and b is " + (a+b));

}

public void diff(int a, int b) {

System.out.println("The difference of a and b is " + (a-b));

}

public void mul(int a, int b) {

System.out.println("The product of a and b is " + (a\*b));

}

public void div(int a, int b) {

try {

float c = (float)a/b;

System.out.println("The division of a and b is " + c);

}

catch(ArithmeticException e) {

System.out.println("Message: " + e);

}

}

public static void main(String[] args) {

Calculator c = new Calculator();

Scanner sc = new Scanner(System.in);

try {

int a = sc.nextInt();

int b = sc.nextInt();

c.add(a, b);

}

catch(InputMismatchException e) {

e.printStackTrace();

}

try {

}

catch(InputMismatchException e) {

e.printStackTrace();

}

sc.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.*

**Solution:**

package com.hsbc.pkg;

/\*\*

\* @author Jayesh

\* Assignment No. 51

\* Using Lab Exercise 17, catch and demonstrate the required exceptions.

\*/

public class Solution51 {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

try {

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

System.out.println("The character at 12th place is " + s.charAt(11));

System.out.println("'is' exists in the string 's' : " + s.contains("is"));

s = s + " and killed it";

System.out.println("The new string is :" + s);

System.out.println("The string ends with 'dogs' :" + s.endsWith("dogs"));

String s1 = "The quick brown Fox jumps over the lazy Dog";

if(s1.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

String s2 = "THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG";

if(s2.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

System.out.println("The index position of first occurence of 'a' is: " + s.indexOf("a"));

System.out.println("The index position of last occurence of 'e' is: " + s.lastIndexOf("e"));

System.out.println("Length of string 's' is: " + s.length());

String s3 = "The quick brown Fox jumps over the lazy Dog";

if(s3.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

s = s.replaceAll("The","A");

System.out.println("The new string is: " + s);

String sp1 = s.substring(0, 28);

String sp2 = s.substring(28);

System.out.println(sp1 + " | " + sp2);

String[] sl = s.split(" ");

System.out.println("The animal names are : " + sl[3] + " and " + sl[8]);

System.out.println(s.toLowerCase());

System.out.println(s.toUpperCase());

}

catch(NullPointerException e) {

e.printStackTrace();

}

}

}

}

**Lab Exercise No:**52

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

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

**Solution:**

package com.hsbc.pkg;

/\*\*

\* @author Jayesh

\* Assignment No. 52

\* Using Lab Exercise 17, catch and demonstrate the required exceptions.

\*/

public class Solution52 {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

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

try {

System.out.println("The character at 12th place is " + s.charAt(11));

System.out.println("'is' exists in the string 's' : " + s.contains("is"));

s = s + " and killed it";

System.out.println("The new string is :" + s);

System.out.println("The string ends with 'dogs' :" + s.endsWith("dogs"));

String s1 = "The quick brown Fox jumps over the lazy Dog";

if(s1.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

String s2 = "THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG";

if(s2.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

System.out.println("The index position of first occurence of 'a' is: " + s.indexOf("a"));

System.out.println("The index position of last occurence of 'e' is: " + s.lastIndexOf("e"));

System.out.println("Length of string 's' is: " + s.length());

String s3 = "The quick brown Fox jumps over the lazy Dog";

if(s3.equals(s))

System.out.println("The strings are equal");

else

System.out.println("The strings are not equal");

s = s.replaceAll("The","A");

System.out.println("The new string is: " + s);

String sp1 = s.substring(0, 28);

String sp2 = s.substring(28);

System.out.println(sp1 + " | " + sp2);

String[] sl = s.split(" ");

System.out.println("The animal names are : " + sl[3] + " and " + sl[8]);

System.out.println(s.toLowerCase());

System.out.println(s.toUpperCase());

}

catch(StringIndexOutOfBoundsException e) {

e.printStackTrace();

}

}

}

**Lab Exercise No:**53

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

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

**Solution:**

/\*\*

\*

\*/

package com.hsbc.pkg;

/\*\*

\* @author Jayesh

\* Assignment No. 53

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

\*/

public class Solution53 {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

try {

int[][] mat = {{1,2,3},{4,5,6},{7,8,9}};

int[][] sqmat = new int[3][3];

System.out.println("Matrix : ");

for(int i=0;i<3;i++) {

for(int j=0;j<3;j++){

System.out.print(mat[i][j] + " ");

}

System.out.println();

}

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

sqmat[i][j] = mat[i][j]\*mat[i][j];

System.out.println("Squared Matrix : ");

for(int i=0;i<3;i++) {

for(int j=0;j<3;j++){

System.out.print(sqmat[i][j] + " ");

}

System.out.println();

}

}

catch(ArrayIndexOutOfBoundsException 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 theexecutionofthecatchblocksusingNegativeArraySizeException,ArrayIndexOutOfBoundsException,StringIndexOutOfBoundsException,IndexOutOfBoundsException,NullPointerException,ArithmeticException and print the stack trace for each exception.*

**Solution:**

package com.hsbc.pkg;

import java.util.Scanner;

/\*\*

\* @author Jayesh

\* Assignment No. 54

\* 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.

\*/

public class Solution54 {

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

try {

Scanner sc = new Scanner(System.in);

int l = sc.nextInt();

int[] arr = new int[l];

for(int i=0;i<l;i++) {

arr[i] = sc.nextInt();

}

System.out.println(arr[l]);

String n = "Hello World!";

System.out.println(n.charAt(16));

String s = null;

s.toString();

int a = 7,b =0;

int c = a/b;

System.out.println(c);

}

catch(NegativeArraySizeException e) {

e.printStackTrace();

}

catch(ArrayIndexOutOfBoundsException e) {

e.printStackTrace();

}

catch(StringIndexOutOfBoundsException e) {

e.printStackTrace();

}

//IndexOutOfBoundsException is a parent class for the above Array and String related exception classes

//Commented due to the above reason if required uncomment and use

// catch(IndexOutOfBoundsException e) {

// e.printStackTrace();

// }

catch(NullPointerException e) {

e.printStackTrace();

}

catch(ArithmeticException e) {

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.*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.bankimpl;

/\*\*

\* @author Jayesh

\*

\*/

class SavingsAcc implements DepositAcc, CreditInterest {

@Override

public void addMonthlyInt() {

// TODO Auto-generated method stub

System.out.println("Monthly Interest added for " + this.savIR + "% is $20000");

}

@Override

public void addHalfYrlyInt() {

// TODO Auto-generated method stub

System.out.println("Half Yearly Interest added for " + this.savIR + "% is $120000");

}

@Override

public void addAnnualInt() {

// TODO Auto-generated method stub

System.out.println("Annually Interest added for " + this.savIR + "% is $240000");

}

@Override

public void withdraw(int amount) {

// TODO Auto-generated method stub

System.out.println(amount + " is withdrawn");

}

@Override

public void deposit(int amount) {

// TODO Auto-generated method stub

System.out.println(amount + " is deposited");

}

@Override

public void getBalance() {

// TODO Auto-generated method stub

System.out.println("The balance of employee is $281000");

}

@Override

public void calcInt() {

// TODO Auto-generated method stub

System.out.println("The interest for " + this.savIR + "% is $350000");

}

@Override

public void createAcc(String name, int id, int bal) {

// TODO Auto-generated method stub

System.out.println("Employee Name : " + name);

System.out.println("Employee ID : " + id);

System.out.println("Employee Balance : " + bal);

System.out.println("Account created successfully");

}

}

class FDAcc implements DepositAcc, CreditInterest {

@Override

public void addMonthlyInt() {

// TODO Auto-generated method stub

System.out.println("Monthly Interest added for " + this.fdIR + "% is $300000");

}

@Override

public void addHalfYrlyInt() {

// TODO Auto-generated method stub

System.out.println("Half Yearly Interest added for " + this.fdIR + "% is $180000");

}

@Override

public void addAnnualInt() {

// TODO Auto-generated method stub

System.out.println("Annually Interest added for " + this.fdIR + "% is $350000");

}

@Override

public void withdraw(int amount) {

// TODO Auto-generated method stub

System.out.println(amount + " is withdrawn");

}

@Override

public void deposit(int amount) {

// TODO Auto-generated method stub

System.out.println(amount + " is deposited");

}

@Override

public void getBalance() {

// TODO Auto-generated method stub

System.out.println("The balance of employee is $303000");

}

@Override

public void calcInt() {

// TODO Auto-generated method stub

System.out.println("The interest for " + this.fdIR + "% is $350000");

}

@Override

public void createAcc(String name, int id, int bal) {

// TODO Auto-generated method stub

System.out.println("Employee Name : " + name);

System.out.println("Employee ID : " + id);

System.out.println("Employee Balance : " + bal);

System.out.println("Account created successfully");

}

}

class PersonalLoanAcc implements LoanAcc, DebitInterest {

@Override

public void createAcc(String name, int id, int bal) {

// TODO Auto-generated method stub

System.out.println("Employee Name : " + name);

System.out.println("Employee ID : " + id);

System.out.println("Employee Balance : " + bal);

System.out.println("Account created successfully");

}

@Override

public void calcInt() {

// TODO Auto-generated method stub

System.out.println("The interest for " + this.perIR + "% is $120000");

}

@Override

public void deductMonthlyInt() {

// TODO Auto-generated method stub

System.out.println("Monthly Interest over " + this.perIR + "% is $10000");

}

@Override

public void deductHalfYrlyInt() {

// TODO Auto-generated method stub

System.out.println("Half Yearly Interest over " + this.perIR + "% is $60000");

}

@Override

public void deductAnnualInt() {

// TODO Auto-generated method stub

System.out.println("Annual Interest over " + this.perIR + "% is $120000");

}

@Override

public void repayPrincipal() {

// TODO Auto-generated method stub

System.out.println("Principla amount is paid");

}

@Override

public void payInterest() {

// TODO Auto-generated method stub

System.out.println("Interest based on " + this.perIR + "% is $120000");

}

@Override

public void payPartialPrincipal() {

// TODO Auto-generated method stub

System.out.println("Partial Principal amount is paid");

}

}

class HousingLoanAcc implements LoanAcc, DebitInterest {

@Override

public void createAcc(String name, int id, int bal) {

// TODO Auto-generated method stub

System.out.println("Employee Name : " + name);

System.out.println("Employee ID : " + id);

System.out.println("Employee Balance : " + bal);

System.out.println("Account created successfully");

}

@Override

public void calcInt() {

// TODO Auto-generated method stub

System.out.println("The interest for " + this.homeIR + "% is $2800000");

}

@Override

public void deductMonthlyInt() {

// TODO Auto-generated method stub

System.out.println("Monthly Interest over " + this.homeIR + "% is $120000");

}

@Override

public void deductHalfYrlyInt() {

// TODO Auto-generated method stub

System.out.println("Half Yearly Interest over " + this.homeIR + "% is $1400000");

}

@Override

public void deductAnnualInt() {

// TODO Auto-generated method stub

System.out.println("Annual Interest over " + this.homeIR + "% is $2800000");

}

@Override

public void repayPrincipal() {

// TODO Auto-generated method stub

System.out.println("Principla amount is paid");

}

@Override

public void payInterest() {

// TODO Auto-generated method stub

System.out.println("Interest based on " + this.homeIR + "% is $2800000");

}

@Override

public void payPartialPrincipal() {

// TODO Auto-generated method stub

System.out.println("Partial Principal amount is paid");

}

}

public class MyAccount {

/\*\*

\*

\*/

public MyAccount() {

// TODO Auto-generated constructor stub

super();

}

/\*\*

\* @param args

\*/

public static void main(String[] args) throws ZeroBalanceException, ExistingUserException {

// TODO Auto-generated method stub

SavingsAcc sa = new SavingsAcc();

sa.createAcc("Jayesh", 1, 280000);

sa.deposit(25000);

sa.withdraw(24000);

sa.getBalance();

sa.addAnnualInt();

sa.addHalfYrlyInt();

sa.addMonthlyInt();

sa.calcInt();

FDAcc fa = new FDAcc();

fa.createAcc("Ashish", 2, 3000000);

fa.deposit(27000);

fa.withdraw(24000);

fa.getBalance();

fa.addAnnualInt();

fa.addHalfYrlyInt();

fa.addMonthlyInt();

fa.calcInt();

PersonalLoanAcc pla = new PersonalLoanAcc();

pla.createAcc("Mayuresh", 3, 4500000);

pla.deductAnnualInt();

pla.deductHalfYrlyInt();

pla.deductMonthlyInt();

pla.calcInt();

pla.payInterest();

pla.payPartialPrincipal();

pla.repayPrincipal();

HousingLoanAcc hla = new HousingLoanAcc();

hla.createAcc("Saurabh", 4, 520000);

hla.deductAnnualInt();

hla.deductHalfYrlyInt();

hla.deductMonthlyInt();

hla.calcInt();

hla.payInterest();

hla.payPartialPrincipal();

hla.repayPrincipal();

}

}

**ZeroBalanceException.java :**

/\*\*

\*

\*/

package com.hsbc.bankimpl;

/\*\*

\* @author Jayesh

\*

\*/

public class ZeroBalanceException extends Exception {

/\*\*

\*

\*/

public ZeroBalanceException() {

// TODO Auto-generated constructor stub

System.out.println("The balance is low so withdrawal is not possible");

}

}

**ExistingUserException.java:**

/\*\*

\*

\*/

package com.hsbc.bankimpl;

/\*\*

\* @author Jayesh

\*

\*/

public class ExistingUserException extends Exception {

/\*\*

\*

\*/

public ExistingUserException() {

// TODO Auto-generated constructor stub

System.out.println("This user exists in the list");

}

}

**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:**

/\*\*

\*

\*/

package com.hsbc.pkg;

import java.util.Scanner;

/\*\*

\* @author Jayesh

\*

\*/

public class Solution56 {

int a,b;

public Solution56(int a,int b) {

this.a = a;

this.b = b;

}

/\*\*

\* @param args

\*/

public void div(int a,int b) {

System.out.println("Division of 2 numbers is " + (a/b));

// try {

// System.out.println("Division of 2 numbers is " + (a/b));

// }

// catch(ArithmeticException e) {

// e.printStackTrace();

// }

}

@SuppressWarnings("null")

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc = new Scanner(System.in);

int a = sc.nextInt();

int b = sc.nextInt();

Solution56 s = new Solution56(a,b);

try {

s.div(a,b);

}

catch(ArithmeticException e) {

// e.printStackTrace();

System.out.println("Exception raised");

}

finally {

s = null;

System.out.println(s);

}

sc.close();

}

}

**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.*

**Solution:**

/\*\*

\*

\*/

package com.hsbc.pkg;

/\*\*

\* @author Jayesh

\* Assignment No. 57

\*

\*/

public class Solution57 {

/\*\*

\*

\*/

public Solution57() {

// TODO Auto-generated constructor stub

super();

}

public void retVal()

{

String s = null;

try

{

System.out.println(s);

}

catch (NullPointerException e)

{

s = s + "Adding something";

System.out.println(s);

}

finally

{

s = s + " return value from finally block";

System.out.println(s);

}

}

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

Solution57 s = new Solution57();

s.retVal();

}

}

**Lab Exercise No:**58

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

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

**Solution:**

/\*\*

\*

\*/

package com.hsbc.pkg;

import java.util.ArrayList;

import java.util.Scanner;

/\*\*

\* @author Jayesh

\* Assignment No. 58

\* Create a 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.

\*/

public class Employee {

static Scanner sc = new Scanner(System.in);

static ArrayList<String> names = new ArrayList<String>();

public Employee() {

super();

}

public void getName() throws ExistingUserException {

System.out.print("Enter your name : ");

String name = sc.next();

if(names.contains(name))

throw new ExistingUserException();

else {

System.out.println("Welcome " + name + "!!");

names.add(name);

}

}

public void getAge() throws AgeLimitException, NegativeAgeException {

System.out.print("Enter your age : ");

int age = sc.nextInt();

if(age<0)

throw new NegativeAgeException();

else if(age<18 && age>60)

throw new AgeLimitException();

else

System.out.println("Your age fits the criterias.Welcome!!");

}

/\*\*

\* @param args

\*/

public static void main(String[] args) {

// TODO Auto-generated method stub

Employee e = new Employee();

try {

e.getName();

} catch (ExistingUserException e1) {

e1.printStackTrace();

}

try {

e.getAge();

} catch (AgeLimitException | NegativeAgeException e1) {

// TODO Auto-generated catch block

e1.printStackTrace();

}

}

}