**JAVA**

**Packages**

**Lab Exercise 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\*/

**package** shapes;

**public** **class** Square {

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

System.***out***.println("This is Square Class");

}

}

**package** shapes;

**public** **class** Triangle {

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

System.***out***.println("This is Triangle Class");

}

}

**package** shapes;

**public** **class** Circle {

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

System.***out***.println("This is Circle Class");

}

}

**package** shapes;

**public** **class** TestShapes {

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

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

Square obj1=**new** Square();

obj1.display();

Triangle obj2=**new** Triangle();

obj2.display();

Circle obj3=**new** Circle();

obj3.display();

}

}

**Lab Exercise No:**30

/\*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.

\*/

**package** zoo;

**import** org.animals.\*;

**public** **class** VandalurZoo {

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

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

Lion obj=**new** Lion("Ocre",45.5,23); //calling Lion class

obj.isVegetarian();

obj.canClimb();

obj.sound();

Tiger obj1=**new** Tiger("Orange and black",39.8,25);

obj1.isVegetarian();

obj1.canClimb();

obj1.sound();

Deer obj2=**new** Deer("Peach",20,30);

obj2.isVegetarian();

obj2.canClimb();

obj2.sound();

Monkey obj3=**new** Monkey("Brown",18,23);

obj3.isVegetarian();

obj3.canClimb();

obj3.sound();

Elephant obj4=**new** Elephant("Grey",100,98);

obj4.isVegetarian();

obj4.canClimb();

obj4.sound();

Giraffe obj5=**new** Giraffe("Yellow",97,54);

obj5.isVegetarian();

obj5.canClimb();

obj5.sound();

}

}

**package** org.animals;

**public** **class** Lion {

String color;

**double** weight;

**int** age;

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

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

}

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

{

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

}

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

{

System.***out***.println("No");

}

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

{

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

}

}

**package** org.animals;

**public class** Tiger{

String color;

**double** weight;

**int** age;

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

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

System.***out***.println("Color "+color);

System.***out***.println("Weight "+weight);

System.***out***.println("Age "+age);

}

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

{

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

}

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

{

System.***out***.println("No");

}

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

{

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

}

}

**package** org.animals;

**public class** Deer {

String color;

**double** weight;

**int** age;

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

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

System.***out***.println("Color "+color);

System.***out***.println("Weight "+weight);

System.***out***.println("Age "+age);

}

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

{

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

}

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

{

System.***out***.println("No");

}

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

{

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

}

}

**package** org.animals;

**public class** Monkey {

String color;

**double** weight;

**int** age;

**public** Monkey(String color, **double** weight, **int** age) {

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

System.***out***.println("Color "+color);

System.***out***.println("Weight "+weight);

System.***out***.println("Age "+age);

}

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

{

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

}

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

{

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

}

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

{

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

}

}

**package** org.animals;

**public class** Elephant {

String color;

**double** weight;

**int** age;

**public** Elephant(String color, **double** weight, **int** age) {

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

System.***out***.println("Color "+color);

System.***out***.println("Weight "+weight);

System.***out***.println("Age "+age);

}

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

{

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

}

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

{

System.***out***.println("No");

}

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

{

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

}

}

**package** org.animals;

**public class** Giraffe{

String color;

**double** weight;

**int** age;

**public** Giraffe(String color, **double** weight, **int** age) {

**this**.color = color;

**this**.weight = weight;

**this**.age = age;

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

System.***out***.println("Color "+color);

System.***out***.println("Weight "+weight);

System.***out***.println("Age "+age);

}

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

{

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

}

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

{

System.***out***.println("No");

}

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

{

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

}

}

**Lab Exercise 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

\*/

**import** java.util.Properties;

**public** **class** JVMDet {

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

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

Properties p=System.*getProperties*();

p.list(System.***out***);

}

}

**Lab Exercise 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\*/

**import** java.io.\*;

**public** **class** Solution32 {

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

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

InputStreamReader read=**new** InputStreamReader(System.***in***);

BufferedReader buf=**new** BufferedReader(read);

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

String n=buf.readLine();

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

String d=buf.readLine();

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

**int** a=Integer.*parseInt*(buf.readLine());

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

**double** m=Double.*parseDouble*(buf.readLine());

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

**double** p=Double.*parseDouble*(buf.readLine());

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

System.***out***.println("Name "+n);

System.***out***.println("Age "+a);

System.***out***.println("Degree "+d);

System.***out***.println("Total Marks "+m);

System.***out***.println("Percentage "+p);

}

}

**Lab Exercise No:**33

/\*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.

\*/

**package** house;

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

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

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

Hall obj=**new** Hall();

Kitchen obj2=**new** Kitchen();

}

}

**class** Hall

{

**static**

{

System.***out***.println("This is the first room while entering the house");

}

}

**class** Kitchen{

String appliances[]= {"AC","TV","Microwave","Fridge","Washing Machine"};

Kitchen()

{

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

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

{

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

}

String arr[]=appliances;

System.*gc*();

}

}

**JAVA**

**Exception Handling**

**Lab Exercise No:**50

/\*Create a class called Calculator which has 4 different methods add, diff, mul and div which

accepts two numbers as parameters. Create an object to access these methods and invoke

these methods with two numbers and display the result in the corresponding methods taking input from user. Handle the appropriate exceptions\*/

**import** java.io.\*;

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

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

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

InputStreamReader read=**new** InputStreamReader(System.***in***);

BufferedReader buf=**new** BufferedReader(read);

**double** x;

**double** y;

**try**

{

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

x=Double.*parseDouble*(buf.readLine());

y=Double.*parseDouble*(buf.readLine());

Solution50 obj=**new** Solution50(); //creation of object

obj.add(x,y);

obj.sub(x,y);

obj.mul(x,y);

obj.div(x,y);

}

**catch**(IOException e)

{

System.***out***.println("Enter only numbers");

}

}

**public** **void** add(**double** a, **double** b)

{

**double** c=a+b;

System.***out***.println("Sum "+c);

}

**public** **void** sub(**double** a, **double** b)

{

**double** c=a-b;

System.***out***.println("Difference "+c);

}

**public** **void** mul(**double** a, **double** b)

{

**double** c=a\*b;

System.***out***.println("Product "+c);

}

**public** **void** div(**double** a, **double** b)

{

**double** c=a/b;

System.***out***.println("Division "+c);

}

}

**Lab Exercise No:**51

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

/\*Write class that declares the following String.

“The quick brown fox jumps over the lazy dog”.

Perform the following modifications to the above string using appropriate methods.

1. Print the character at the 12th index.

2. Check whether the String contains the word “is”.

3. Add the string “and killed it” to the existing string.

4. Check whether the String ends with the word “dogs”.

5. Check whether the String is equal to “The quick brown Fox jumps over the lazy Dog”.

6. Check whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”.

7. Find the index position of the character “a”.

8. Find the last index position of the character “e”.

9. Find the length of the String.

10. Check whether the String matches to “The quick brown Fox jumps over the lazy Dog”.

11. Replace the word “The” with the word “A”.

12. Split the above string into two such that two animal names do not come together.

13. Print the animal names alone separately from the above string.

14. Print the above string in completely lower case.

15. Print the above string in completely upper case\*/

package hsbc.day4;

public class Solution51 {

public static void main()

{

//InputStreamReader read=new InputStreamReader(System.in);

//BufferedReader buf=new BufferedReader(read);

String s;

try

{

s=null;

System.out.println(s);

}

catch(NullPointerException e)

{

System.out.println("Null string being accessed.");

e.printStackTrace();

}

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

System.out.println("Character at 12th index "+ s.charAt(11));

//checking if string contains 'is'

String word="";

boolean flag=false;

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

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("is"))

{

System.out.println("Contains 'is'");

flag=true;

break;

}

else

{

word="";

}

}

}

if (flag==false)

System.out.println("Doesn not contain 'is'");

//adding 'and killed it' to existing string

String a=s+" and killed it";

System.out.println("After appending: "+a);

//checking if string ends with dogs

word="";

for(int i=s.length()-1;i<s.length();i--)

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=ch+word;

}

else

{

if(word.equals("dog"))

{

System.out.println("Ends with 'dog'");

break;

}

else

{

System.out.println("Does not end with 'dog'");

}

}

}

// Checking whether the String is equal to “The quick brown Fox jumps over the lazy Dog”

if(s.compareTo("The quick brown Fox jumps over the lazy Dog")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Checking whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”

if(s.compareTo("THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Finding the index position of the character a

System.out.println(s.indexOf("a"));

//Finding the last index position of the character “e”

System.out.println(s.lastIndexOf("e"));

//Finding the length of the String.

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

//Checking whether the String matches to “The quick brown Fox jumps over the lazy Dog”

if(s.compareTo("The quick brown Fox jumps over the lazy Dog")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Replacing the word “The” with the word “A”

word="";

String t="";

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

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("The")||word.equals("the"))

{

t=t+" A";

word="";

}

else

{

t=t+" "+word;

word="";

}

}

}

System.out.println("After replacing "+ t);

//Splitting the above string into two such that two animal names do not come together

String d[]=s.split(" ",s.length()/2);

System.out.println("After splitting");

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

{

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

}

//Printing the animal names alone separately from the above string

t=s+" ";

word="";

System.out.println("Animal Names");

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

{

char ch=t.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("fox")||word.equals("dog"))

{

System.out.println(word);

word="";

}

else

{

word="";

}

}

}

//Printing the above string in completely lower case

System.out.println("String in lowercase: "+s.toLowerCase());

//Printing the above string in completely upper case

System.out.println("String in uppercase: "+s.toUpperCase());

}

}

**Lab Exercise No:**52

/\*Write class that declares the following String.

“The quick brown fox jumps over the lazy dog”.

Perform the following modifications to the above string using appropriate methods.

1. Print the character at the 12th index.

2. Check whether the String contains the word “is”.

3. Add the string “and killed it” to the existing string.

4. Check whether the String ends with the word “dogs”.

5. Check whether the String is equal to “The quick brown Fox jumps over the lazy Dog”.

6. Check whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”.

7. Find the index position of the character “a”.

8. Find the last index position of the character “e”.

9. Find the length of the String.

10. Check whether the String matches to “The quick brown Fox jumps over the lazy Dog”.

11. Replace the word “The” with the word “A”.

12. Split the above string into two such that two animal names do not come together.

13. Print the animal names alone separately from the above string.

14. Print the above string in completely lower case.

15. Print the above string in completely upper case\*/

import java.io.\*;

public class Solution51

{

public static void main()throws IOException

{

InputStreamReader read=new InputStreamReader(System.in);

BufferedReader buf=new BufferedReader(read);

String s="";

try

{

System.out.println("Enter string");

//s=buf.readLine();

System.out.println("Character at 12th index "+ s.charAt(11));

}

catch(StringIndexOutOfBoundsException e)

{

System.out.println("String index out of bounds");

}

//System.out.println("Character at 12th index "+ s.charAt(11));

//checking if string contains 'is'

String word="";

boolean flag=false;

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

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("is"))

{

System.out.println("Contains 'is'");

flag=true;

break;

}

else

{

word="";

}

}

}

if (flag==false)

System.out.println("Doesn not contain 'is'");

//adding 'and killed it' to existing string

String a=s+" and killed it";

System.out.println("After appending: "+a);

//checking if string ends with dogs

word="";

for(int i=s.length()-1;i<s.length();i--)

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=ch+word;

}

else

{

if(word.equals("dog"))

{

System.out.println("Ends with 'dog'");

break;

}

else

{

System.out.println("Does not end with 'dog'");

}

}

}

// Checking whether the String is equal to “The quick brown Fox jumps over the lazy Dog”

if(s.compareTo("The quick brown Fox jumps over the lazy Dog")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Checking whether the String is equal to “THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG”

if(s.compareTo("THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Finding the index position of the character a

System.out.println(s.indexOf("a"));

//Finding the last index position of the character “e”

System.out.println(s.lastIndexOf("e"));

//Finding the length of the String.

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

//Checking whether the String matches to “The quick brown Fox jumps over the lazy Dog”

if(s.compareTo("The quick brown Fox jumps over the lazy Dog")==0)

System.out.println("Equal");

else

System.out.println("Not Equal");

//Replacing the word “The” with the word “A”

word="";

String t="";

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

{

char ch=s.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("The")||word.equals("the"))

{

t=t+" A";

word="";

}

else

{

t=t+" "+word;

word="";

}

}

}

System.out.println("After replacing "+ t);

//Splitting the above string into two such that two animal names do not come together

String d[]=s.split(" ",s.length()/2);

System.out.println("After splitting");

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

{

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

}

//Printing the animal names alone separately from the above string

t=s+" ";

word="";

System.out.println("Animal Names");

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

{

char ch=t.charAt(i);

if(Character.isLetter(ch))

{

word=word+ch;

}

else

{

if(word.equals("fox")||word.equals("dog"))

{

System.out.println(word);

word="";

}

else

{

word="";

}

}

}

//Printing the above string in completely lower case

System.out.println("String in lowercase: "+s.toLowerCase());

//Printing the above string in completely upper case

System.out.println("String in uppercase: "+s.toUpperCase());

}

**}**

**Lab Exercise No:**53

/\*Write a program to display the square of the elements of a two dimensional array.\*/

**package** hsbc.com.soln;

**import** java.io.\*;

**public** **class** Square {

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

InputStreamReader read=**new** InputStreamReader(System.***in***);

BufferedReader buf=**new** BufferedReader(read);

System.***out***.println("Enter n value");

**int** n=Integer.*parseInt*(buf.readLine());

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

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

**int** arr[][]=**new** **int**[n][n];

**for**(**int** i=0;i<arr.length;i++)

{

**for**(**int** j=0;j<arr.length;j++)

{

arr[i][j]=Integer.*parseInt*(buf.readLine());

}

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

}

**try**

{

**for**(**int** i=0;i<arr.length;i++)

{

//here since we have kept i<arr.length, it will show us arrayindexoutofbounds because j will access indexes greater than arr.length

**for**(**int** j=0;i<arr.length;j++) {

arr[i][j]=arr[i][j]\*arr[i][j];

}

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

}

}

**catch**(ArrayIndexOutOfBoundsException e)

{

System.***out***.println("Array index out of bounds");

}

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

**for**(**int** i=0;i<arr.length;i++)

{

**for**(**int** j=0;j<arr.length;j++)

{

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

}

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

}

}

}

**Lab Exercise 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.

\*/

**package** hsbc.day4;

**import** java.io.\*;

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

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

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

InputStreamReader read=**new** InputStreamReader(System.***in***);

BufferedReader buf=**new** BufferedReader(read);

**boolean** flag =**true**;

**while**(flag==**true**)

{

**try**

{

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

**int** n=Integer.*parseInt*(buf.readLine());

**int** arr[]=**new** **int**[n];

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

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

{

arr[i]=Integer.*parseInt*(buf.readLine());

}

System.***out***.println("Enter a string");

String s=buf.readLine();

System.***out***.println("Accessing 8th character");

**char** ch=s.charAt(8);

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

System.***out***.println("Enter a divisor");

**int** d=Integer.*parseInt*(buf.readLine());

**int** w=8/d;

arr=**null**;

System.***out***.println(arr[2]);

}

**catch**(NegativeArraySizeException e)

{

System.***out***.println("Negative array length not allowed");

e.printStackTrace();

System.***out***.println("Enter 1 to see more exceptions else enter 0");

**int** c=Integer.*parseInt*(buf.readLine());

**if**(c==1)

flag=**true**;

**else**

flag=**false**;

}

**catch**(ArrayIndexOutOfBoundsException e)

{

System.***out***.println("Cannot access index greater than length of array");

e.printStackTrace();

System.***out***.println("Enter 1 to see more exceptions else enter 0");

**int** c=Integer.*parseInt*(buf.readLine());

**if**(c==1)

flag=**true**;

**else**

flag=**false**;

}

**catch**(StringIndexOutOfBoundsException e)

{

System.***out***.println("Cannot access index greater than length of string");

e.printStackTrace();

System.***out***.println("Enter 1 to see more exceptions else enter 0");

**int** c=Integer.*parseInt*(buf.readLine());

**if**(c==1)

flag=**true**;

**else**

flag=**false**;

}

**catch**(NullPointerException e)

{

System.***out***.println("Pointing to null value");

e.printStackTrace();

System.***out***.println("Enter 1 to see more exceptions else enter 0");

**int** c=Integer.*parseInt*(buf.readLine());

**if**(c==1)

flag=**true**;

**else**

flag=**false**;

}

**catch**(ArithmeticException e)

{

System.***out***.println("Cannot divide number by 0");

e.printStackTrace();

System.***out***.println("Enter 1 to see more exceptions else enter 0");

**int** c=Integer.*parseInt*(buf.readLine());

**if**(c==1)

flag=**true**;

**else**

flag=**false**;

}

}

}

}

**Lab Exercise No:**55

**package** bank;

**public** **interface** account {

String ***savings***="Savings";

String ***fixed***="Fixed Deposit";

String ***personalLoan***="Personal Loan";

String ***housingLoan***="Housing Loan";

**public** **void** createAcc();

}

**interface** depositAcc **extends** account{

**public** **void** withdraw();

**public** **void** deposit();

**public** **void** getBalance();

}

**interface** LoanAcc **extends** account{

**public** **void** repayPrincipal();

**public** **void** payInterest();

**public** **void** payPartialPrincipal();

}

**interface** interest{

**double** ***interestSaving***=4.0;

**double** ***interestDeposit***=6.0;

**double** ***personalLoan***=11.4;

**double** ***housingLoan***=5.3;

**public** **void** calcInt();

}

**interface** creditInterest **extends** interest{

**public** **void** addMonthlyInt();

**public** **void** addHalfYrlyInt();

**public** **void** addAnnualInt();

}

**interface** debitInterest **extends** interest{

**public** **void** deductMonthlyInt();

**public** **void** deductHalfYrlyInt();

**public** **void** deductAnnualInt();

}

**package** bankImpl;

**import** bank.\*;

**public** **class** fdAcc **implements** depositAcc,creditInterest{

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

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

}

**public** **void** createAcc()

{

System.***out***.println("Open FD account");

}

**public** **void** calcInt()

{

System.***out***.println("FD account interest calculation");

}

**public** **void** addAnnualInt()

{

System.***out***.println("FD account- add annual interest");

}

**public** **void** addMonthlyInt()

{

System.***out***.println("FD account-add monhtly interest");

}

**public** **void** addHalfYrlyInt()

{

System.***out***.println("FD account- add half yearly interest");

}

**public** **void** withdraw()

{

System.***out***.println("FD account-withdraw");

}

**public** **void** deposit()

{

System.***out***.println("FD account-deposit");

}

**public** **void** getBalance()

{

System.***out***.println("FD account-Get Balance");

}

}

**package** bankImpl;

**import** bank.\*;

**public** **class** housingLoanAcc **implements** LoanAcc,debitInterest{

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

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

}

**public** **void** createAcc()

{

System.***out***.println("Open Housing Loan account");

}

**public** **void** repayPrincipal()

{

System.***out***.println("Housing Loan account-repay pprincipal");

}

**public** **void** payInterest()

{

System.***out***.println("Housing Loan account-payInterest");

}

**public** **void** payPartialPrincipal()

{

System.***out***.println("Housing Loan account-pay partial principal");

}

**public** **void** deductMonthlyInt(){

System.***out***.println("Housing Loan account-deduct monthly interest");

}

**public** **void** deductHalfYrlyInt()

{

System.***out***.println("Housing Loan account-deduct half yearly interest");

}

**public** **void** deductAnnualInt()

{

System.***out***.println("Housing Loan account-deduct annual interest");

}

}

**package** bankImpl;

**import** bank.\*;

**public** **class** personalLoanAcc **implements** LoanAcc,debitInterest{

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

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

}

**public** **void** createAcc()

{

System.***out***.println("Open Personal Loan account");

}

**public** **void** repayPrincipal()

{

System.***out***.println("Personal Loan account-repay pprincipal");

}

**public** **void** payInterest()

{

System.***out***.println("Personal Loan account-payInterest");

}

**public** **void** payPartialPrincipal()

{

System.***out***.println("Personal Loan account-pay partial principal");

}

**public** **void** deductMonthlyInt(){

System.***out***.println("Personal Loan account-deduct monthly interest");

}

**public** **void** deductHalfYrlyInt()

{

System.***out***.println("Personal Loan account-deduct half yearly interest");

}

**public** **void** deductAnnualInt()

{

System.***out***.println("Personal Loan account-deduct annual interest");

}

}

**package** bankImpl;

**import** bank.\*;

**public** **class** savingAcc **implements** depositAcc,creditInterest {

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

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

}

**public** **void** createAcc()

{

System.***out***.println("Open Savings account");

}

**public** **void** calcInt()

{

System.***out***.println("Saving account interest calculation");

}

**public** **void** addAnnualInt()

{

System.***out***.println("Saving account- add annual interest");

}

**public** **void** addMonthlyInt()

{

System.***out***.println("Saving account-add monhtly interest");

}

**public** **void** addHalfYrlyInt()

{

System.***out***.println("Saving account- add half yearly interest");

}

**public** **void** withdraw()

{

System.***out***.println("Saving account-withdraw");

}

**public** **void** deposit()

{

System.***out***.println("Saving account-deposit");

}

**public** **void** getBalance()

{

System.***out***.println("Saving account-Get Balance");

}

}

**package** bankImpl;

**import** bank.account;

**public** **class** myAccount {

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

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

savingAcc s=**new** savingAcc();

fdAcc f=**new** fdAcc();

personalLoanAcc p=**new** personalLoanAcc();

housingLoanAcc h=**new** housingLoanAcc();

s.createAcc();

s.deposit();

s.getBalance();

f.createAcc();

f.addHalfYrlyInt();

f.addAnnualInt();

p.createAcc();

p.deductMonthlyInt();

p.calcInt();

h.createAcc();

h.calcInt();

h.deductAnnualInt();

}

}

**Lab Exercise No:**56

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

cases\*/

**package** hsbc.day4;

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

**int** n;

**int** m;

**public** Solution56() {

**super**();

}

**public** Solution56(**int** n, **int** m) {

**super**();

**this**.n = n;

**this**.m = m;

}

@Override

**public** String toString() {

**return** "Solution56 [Number 1: " + n + ", Number 2=" + m + "]";

}

**void** div(**int** n,**int** m)

{

**int** a;

**try**

{

a=n/m;

System.***out***.println("Result: "+a );

}

**catch**(ArithmeticException e)

{

System.***out***.println("Cannot divide by 0");

}

}

**void** add(**int** n,**int** m)

{

**int** a;

a=n+m;

System.***out***.println("Result: "+a );

}

**void** sub(**int** n,**int** m)

{

**int** a;

a=n-m;

System.***out***.println("Result: "+a );

}

**void** mult(**int** n,**int** m)

{

**int** a;

a=n\*m;

System.***out***.println("Result: "+a );

}

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

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

**try**

{

obj.add(10,67);

obj.sub(199,64);

obj.mult(170,15);

obj.div(1000,10);

}

**catch**(ArithmeticException e)

{

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

}

**finally**

{

System.***out***.println("Setting object to null after use");

obj=**null**;

//obj.toString();

}

}

}

**Lab Exercise No:**57

/\*Create a class such that a method uses the try catch block with the return type of String\*/

**package** hsbc.day4;

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

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

String name;

**double** marks;

**public** Solution57() {

**super**();

}

**public** Solution57(String name, **double** marks) {

**super**();

**this**.name = name;

**this**.marks = marks;

}

**public** String grade()

{

**if**(marks>=90)

{

**return** "S";

}

**else** **if**(marks>=80 && marks<90)

**return** "A";

**else** **if**(marks>=70 && marks<80)

**return** "B";

**else** **if**(marks>=60 && marks<70)

**return** "C";

**else** **if**(marks>=50 && marks<60)

**return** "D";

**else** **if**(marks>=40 && marks<50)

**return** "E";

**else**

**return** "F";

}

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

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

InputStreamReader read=**new** InputStreamReader(System.***in***);

BufferedReader buf=**new** BufferedReader(read);

String n;

**double** m;

String a;

**try**

{

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

n=buf.readLine();

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

m=Double.*parseDouble*(buf.readLine());

Solution57 ob=**new** Solution57(n,m);

a=ob.grade();

System.***out***.println("Grade: "+a);

}

**catch**(IOException e)

{

System.***out***.println("Enter correct values");

e.printStackTrace();

}

**finally**

{

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

}

}

}

**Lab Exercise No:**58

/\*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\*/

package hsbc.day4;

import java.io.\*;

import java.util.ArrayList;

public class Employee {

ArrayList<String> arr=new ArrayList<String>();

ArrayList<Integer> brr=new ArrayList<Integer>();

public Employee(String name, int age) {

try

{

for(int i=0;i<arr.size();i++)

{

String s=arr.get(i);

if(s.equals(name))

{

throw new Exception();

}

else

{

arr.add(name);

}

}

for(int i=0;i<arr.size();i++)

System.out.println(arr.get(i));

}

catch(Exception e)

{

System.out.println("Exception thrown. Name already entered.");

}

try

{

if(age<0 || age<18 || age>60)

{

throw new Exception();

}

else

brr.add(age);

}

catch(Exception e)

{

System.out.println("Exception thrown. Age cannot be negative, less than 18 or greater than 60.");

}

}

public static void main(String[] args)throws IOException {

// TODO Auto-generated method stub

InputStreamReader read=new InputStreamReader(System.in);

BufferedReader buf=new BufferedReader(read);

boolean flag=true;

while(flag==true)

{

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

String n=buf.readLine();

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

int a=Integer.parseInt(buf.readLine());

Employee ob=new Employee(n,a);

System.out.println("Do you wish to continue? Yes-1, No-0");

int c=Integer.parseInt(buf.readLine());

if(c==0)

flag=false;

}

}

}