**Lab Exercise No:** 1

**Exercise Objective(s):** *Simple java program*

**Exercise:** *Write a program with a class name “Welcome” and display a message as follows: “Welcome*

*to the world of Java”*

package com.hsbc.pack;  
/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definition

public class Welcome {

//This is the main function of the class Welcome

public static void main(String[] args) {

//The following method displays a message i.e. "Welcome  
 to the world of Java"

System.out.println('"' + "Welcome" + "\n" + "to the world of Java" + '"');

}

}

**Lab Exercise No:** 2

**Exercise Objective(s):** *Compilation and execution from command line, Concept of object and class*

**Exercise:** *Write a program that takes a console input (Input given by the user while executing the*

*program in command line) and prints the same.*/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definitionpublic class CommentsDemo{

//This is the main method that will display the message!  
 public static void main(String args[]){

System.out.println("Hello! May I know your name please?!!");

System.out.println("Message: Hi "+args [0]);

}

}

**Lab Exercise No:** 3

**Exercise Objective(s):** *Comments in java programs and java documentation.*

**Exercise:** *Write a program with all the type of comments and execute it. User nested comments also.*package com.hsbc.pack;

//This is a program to define various types of comments in Java.

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definition

public class CommentsDemo {

/\*This is the main method which will print a greeting message.

@param args Unused

@return Nothing.

\*/

public static void main(String[] args) {

System.out.println("Hi Rupali! We learned different types of comments today!");

}

}

**Lab Exercise No:** 4

**Exercise Objective(s):** *Primitive data types and their range, Variables, Constants and literals,*

*Conventions*

**Exercise:** *Write a program which declares variables of int, float, double data types and a constant of*

*long data type and displays all with an appropriate message. Follow the naming conventions*

*for all the variables and literals.*package com.hsbc.pack;  
/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definition  
 public class DataTypesDemo {

public static int sampleIntegerVariable=-6;

public static float sampleFloatVariable=6.61998f;

public static double sampleDoubleVariable=66.1998;

public static final long sampleLongVariable = 0x7fff\_ffff\_ffff\_ffffL;  
  
 //Main method starts here  
  
 public static void main(String[] args) {

System.out.println(sampleIntegerVariable + " I am an Integer Variable.");

System.out.println(sampleFloatVariable + " I am a float Variable.");

System.out.println(sampleDoubleVariable + " I am a double Variable.");

System.out.println(sampleLongVariable + " I am a constant type Long   
 Variable");

}

}

***Lab Exercise No:*** *5*

***Exercise Objective(s):*** *Simple operators*

***Exercise:*** *Write a program to get two numbers as input through command line and swap the values of*

*two numbers without using a temporary variable and display the same.*/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//class Definition  
public class DemoSimpleOperatorsSwapping{

public static void main(String args[]){

int sampleVariableOne=Integer.parseInt(args[0]);

int sampleVariableTwo=Integer.parseInt(args[1]);  
  
 //VALUES BEFORE SWAP

System.out.println("The values of the two variables after the execution are:"  
 + "\n" + "Value of 1st variable=" + sampleVariableOne + "\n" +   
 "Value of 2nd variable=" + sampleVariableTwo );

sampleVariableOne = sampleVariableOne + sampleVariableTwo;

sampleVariableTwo = sampleVariableOne - sampleVariableTwo;

sampleVariableOne = sampleVariableOne - sampleVariableTwo;

//VALUES AFTER SWAP

System.out.println("The values of the two variables after the execution are:"   
 + "\n" + "Value of 1st variable=" + sampleVariableOne + "\n" +   
 "Value of 2nd variable=" + sampleVariableTwo );

}

}

**Lab Exercise No:** 6

**Exercise Objective(s):** *Conditional statements*

**Exercise:** *Write a program to determine whether the given year is leap year or not(Get the input*

*through command line).*/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definitionpublic class LeapYear{

//Main method  
 public static void main(String args[]){

int year=Integer.parseInt(args[0]);

System.out.println(checkYear(year)? "Leap Year" : "Not a Leap Year" );

}  
   
 //Boolean type returning function that will take the year as a parameter and will return true if   
 the year is leap year else it will return false

static boolean checkYear(int year){

// Return true if year is a multiple

// of 4 and not multiple of 100.

// OR year is multiple of 400.

return (((year % 4 == 0) && (year % 100 != 0)) ||(year % 400 == 0));

}

}

***Lab Exercise No:*** *7*

***Exercise Objective(s):*** *Conditional statements*

***Exercise:*** *Write a program to determine the largest of three numbers.*

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

public class LargestOf3Numbers{

public static void main(String args[]{

int sampleVariableOne= Integer.parseInt(args[0]);

int sampleVariableTwo= Integer.parseInt(args[1]);

int sampleVariableThree= Integer.parseInt(args[2]);

int max;

// Largest among sampleVariableOne, sampleVariableTwo and sampleVariableThree

max = (sampleVariableOne > sampleVariableTwo) ?

(sampleVariableOne > sampleVariableThree ? sampleVariableOne : sampleVariableThree) :

(sampleVariableTwo > sampleVariableThree ? sampleVariableTwo : sampleVariableThree);

// Print the largest number

System.out.println("Largest number among " + sampleVariableOne +

", " + sampleVariableTwo + " and " + sampleVariableThree +

" is " + max + ". " );

}

}

***Lab Exercise No:*** *8*

***Exercise Objective(s):*** *Loops*

***Exercise:*** *Write a program to determine whether a number is a palindrome or not.*/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

public class Palindrome{

public static void main(String[] args) {

int number, remainder,sum=0,temporary;

number=Integer.parseInt(args[0]);

temporary=number;

while(number>0)

{

remainder=number%10;

sum=(sum\*10)+remainder;

number=number/10;

}

if(temporary==sum)

System.out.println("palindrome number ");

else

System.out.println("not palindrome");

}

}

***Lab Exercise No:*** *9*

***Exercise Objective(s):*** *Loops*

***Exercise:*** *Write a program to display the Fibonacci series starting from 0 till 200.*

package com.hsbc.pack;

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

public class Fibonacci {

public static void main(String[] args) {

int variable1=0,variable2=1,variable3,i,count=200;

System.out.print( variable1+" "+variable2);

for(i=2;i<100;++i){

variable3=variable1+variable2;

if(variable3>=count)

break;

System.out.print(" "+variable3);

variable1=variable2;

variable2=variable3;

}

}

}

***Lab Exercise No:*** *10*

***Exercise Objective(s):*** *Constants and literals, Loops*

***Exercise:*** *Write a program to declare a set of 5 words and reverse each word and arrange the resulting*

*words in alphabetical order and display the same.*package com.hsbc.pack;

import java.util.Arrays;

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

public class ReverseArray {

public static void main(String[] args) {

String stringArray[]=new String[]{"Rupali","feels","elated","when","learning"};

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

StringBuilder sb= new StringBuilder(stringArray[i]);

stringArray[i]=sb.reverse().toString(); //stringArray is reversed array  
 }

Arrays.sort(stringArray);

for(String string: stringArray)

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

System.out.println();

}

}

***Lab Exercise No:*** *11*

***Exercise Objective(s):*** *Constants and literals, Loops*

***Exercise:*** *Write a program to arrange an array of elements in ascending order using selection sort*

*Algorithm.*package com.hsbc.pack;  
/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

public class SelectionSortExample {

public static void selectionSort(int[] arr){

for (int i = 0; i < arr.length - 1; i++)

{

int index = i;

for (int j = i + 1; j < arr.length; j++){

if (arr[j] < arr[index]){

index = j;//searching for lowest index

}

}

int smallerNumber = arr[index];

arr[index] = arr[i];

arr[i] = smallerNumber;

}

}

public static void main(String a[]){

int[] arr1 = {291,164,37,245,64,170,68,226};

System.out.println("Before Selection Sort");

for(int i:arr1){

System.out.print(i+" ");

}

System.out.println();

selectionSort(arr1);//sorting array using selection sort

System.out.println("After Selection Sort");

for(int i:arr1){

System.out.print(i+" ");

}

}

}

***Lab Exercise No:*** *12*

***Exercise Objective(s):*** *Conditional statements, Loops*

***Exercise:*** *A shopkeeper sells three products whose retail prices are as follows:*

*Product 1 - 22.50*

*Product 2 - 44.50*

*Product 3 - 9.98*

*Write an application that reads a series of pairs of numbers as follows:*

*a) Product number*

*b) Quantity sold*

*The application should use a switch statement to determine the retail price for each product. It*

*should calculate and display the total retail value of all products sold.*package com.hsbc.pack;

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class Definition

public class TotalRetailValue {

//Main Method

public static void main(String[] args) {

int[][] arr={{1,2},{3,4},{2,5}};

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

switch(arr[i][0]){

case 1:System.out.println("Retail Price: 22.50");

System.out.println(" The total retail value is "+(arr[i][1])\*22.50);

break;

case 2:System.out.println("Retail Price: 44.50");

System.out.println("The total retail value is "+(arr[i][1])\*44.50);

break;

case 3:System.out.println("Retail Price: 9.98");

System.out.println("The total retail value is"+(arr[i][1])\*9.98);

break;

}

}   
 }}

***Lab Exercise No:*** *13*

***Exercise Objective(s):*** *Simple operators, Conditional statements, Loops*

***Exercise:*** *Consider user has N eggs. Then display the no of eggs in gross (144 eggs make one gross) and no of eggs in dozen (12 eggs make one dozen) and the no of eggs that is left out remaining.*

*The total no of eggs can be got as input through command line. The program should display*

*how many gross, how many dozen, and how many left over eggs the user has.*

/\*\*

\* @version 1.0

\* @author RUPALI TRIPATHI

\* @since 2020-09-15

\*

\*/

//Class definition  
public class EggShop {

//Main method starts here  
 public static void main(String[] args) {

int N= Integer.parseInt(args[0])   
 int grossValue = N/144;  
 int leftoverAfterGrossValue = N%144;  
 int dozenValue =leftoverAfterGrossValue/12;  
 int leftValueLast = leftoverAfterGrossValue%12;  
 System.out.println("The number of eggs user has is "+grossValue+" gross,   
 "+dozenValue+" dozen, and "+ leftValueLast + "are   
 left");  
   
 }

}