**DAY 1 ASSIGNMENT**

**JAVA**

**Introduction to Java**

**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”*

**Input:** *No input*

**Output: *“****Welcome*

*to the world of Java”*

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

//Class Definition

**public** **class** Welcome {

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

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

//Printing "Welcome to the world of Java" in two separate print statements

System.***out***.println('"' + "Welcome ");

System.***out***.println("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.*

**Input:** *3*

**Output:** *Message: 3*

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

//Class Defintion

public class Solution2

{

public static void main(String[] args){

System.out.println("Message" +args[0]); //printing the first element of args array

}

}

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**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.*

**Input:** No input

**Output:** Example of nested comment

Example of multiline comment

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

//single line comment

**public** **class** Welcome {

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

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

//nested comment

System.***out***.println("Example of nested comment");

/\* Example of

multiline comment \*/

System.***out***.println("Example of multiline comment ");

}

}

**JAVA**

**Basic elements of Java**

**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.*

**Input:** No input

**Output:** - -6 I am integer variable

6.61998 I am float variable

66.1998 I am double variable

9223372036854775807 I am constant type Long Variable.

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

    public static int sampleIntegerVariable=-6;

    public static float sampleFloatVariable=6.61998f;

    public static double sampleDoubleVariable=66.1998;

    public static final long sampleLeLongVariable=0x7fff\_ffff\_ffff\_ffff;

    public static void main(String args[]) {

      System.out.println(sampleIntegerVariable +" I am integer variable" );

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

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

          System.out.println(sampleLeLongVariable +" I am long variable" );

    }

}

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**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.*

**Input:** 10 12

**Output:** Before Swapping

value of x: 10

value of y:12

After Swapping

value of x: 12

value of y:10

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

      public static void main(String ar[])

      {

            int x,y;

  x=Integer.parseInt(ar[0]); //first command line argumengt

            y=Integer.parseInt(ar[1]); //second command line argument

            System.out.println("Before Swapping");

           System.out.println("value of x:" + x);

           System.out.println("value of y:" + y);

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

           x = x + y;

           y = x - y;

*x = x - y;*

*System.out.println("value of x:" + x);*

*System.out.println("value of y:" + y);*

*}*

*}*

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**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).*

**Input:** 2000

**Output:** 2000 is a leap year

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

      public static void main(String ar[])

      {

            int year;

            boolean leap = false;

            year=Integer.parseInt(ar[0]);

             if(year % 4 == 0)

            {

                if( year % 100 == 0)

                {

                    // year is divisible by 400, hence the year is a leap year

                    if ( year % 400 == 0)

                        leap = true;

                    else

                        leap = false;

                }

                else

                    leap = true;

            }

            else

                leap = false;

            if(leap)

                System.out.println(year + " is a leap year.");

            else

                System.out.println(year + " is not a leap year.");

      }

}

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**Lab Exercise No:** 7

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

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

**Input:** No input

**Output:** 7 is the largest Number

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

      public static void main(String ar[])

      {

            int num1, num2 , num3;

            num1=5;

            num2=7;

            num3=2;

      if( num1 >= num2 && num1 >= num3)

          System.out.println(num1+" is the largest Number");

      else if (num2 >= num1 && num2 >= num3)

          System.out.println(num2+" is the largest Number");

      else

          System.out.println(num3+" is the largest Number");

  }

}

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**Lab Exercise No:** 8

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

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

**Input:** No input

**Output:** palindrome number

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

*public class MyClass {*

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

*{*

*int num, rem,sum=0,temp;*

num=454; //num is the number whose reverse is to be calculated

*temp=num;*

*while(num>0)*

*{*

*rem=num%10;  //getting remainder*

*sum=(sum\*10)+rem;    //sum will store the reverse of the variable num*

*num=num/10;     //*

*}*

*if(temp==sum)*

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

*else*

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

*}*

*}*

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**Lab Exercise No:** 9

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

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

**Input:** No input

**Output:** 0 1 2 3 5 8 13 21 34 55 89 144

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

    public static void main(String args[]) {

      int n1=0,n2=1,n3,i,count=200;

      System.out.println( n1+" "+n2);

      for(i=2;i<100;++i)

      {

          n3=n1+n2;

          if(n3>=200)

           break;

          System.out.print(" "+n3);

          n1=n2;

          n2=n3;

      }

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**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.*

**Input:** No input

**Output:**

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class MyClass {

public static void main(String[] args){

String stringArray[]=new String[]{"java","cpp","python","nodejs","golang"};//original array

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();

}

}

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**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.*

**Input:** No input

**Output:** Before Selection sort

9,14,3,2,43,11,58,22

After Selection sort

2,3,9,11,14,22,43,58

**Solution:**

public class MyClass {

    public static void selectionSort(int[] arr) //arr is the parameter passed from main method

{

        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 ar[])

      {

            int[] arr1 = {9,14,3,2,43,11,58,22};

         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.*

**Input:** No input

**Output:** Retail Price: 22.50

Total Retail Value: 45.0

Retail Price: 9.98

Total Retail Value: 39.92

Retail Price: 44.50

Total Retail Value: 222.5

**Solution:**

public class MyClass {

    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("total retail value"+(arr[i][1])\*22.50);

               break;

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

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

               break;

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

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

               break;

          }

      }

    }

}

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**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.*

**Input:** 1342

**Output:**  Your number of eggs is 9 gross,3 dozens , and 10 are left

**Solution:**

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*Author: Aiman Khan\*\*\*\*\*\*\*\*\*

public class Problem13 {

public static void main(String[] args) {

int x = 1342; //x is number of eggs

int y = x/144;

int z = x%144;

int d = z/12;

int e = z%12;

System.out.println("Your number of eggs is "+y+" gross, "+d+" dozen, and "+e +”are left”);

}

}

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