**Aniket Wattamwar**

**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”*

**Recommended duration:** *10Mins*

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

**package** com.hsbc.pack;

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

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

//A welcome message using print statement in Java

System.***out***.print("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.*

**Recommended duration:** *10Mins*

**Solution Guidance (if applicable):** *The input can be printed as follows.*

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

**Solution**

**package** com.hsbc.pack;

**public** **class** LabExerciseTwo {

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

System.***out***.println("Message: " + 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.*

**Recommended duration:** *10Mins*

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

**Solution**

**package** com.hsbc.pack;

/\*

\* Know about Java Comments

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\* Created by Aniket Wattamwar

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**public** **class** JavaComments {

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

//this is a sinlgle line comment

/\*

this is

a multi

line

comment

\*/

System.***out***.println("Comments in Java");

System.***out***.println(" // double slash makes a single line comment ");

System.***out***.println(" /\* \*/ Anything written in between asterisk is a multi line 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.*

**Recommended duration:** *10Mins*

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

**Solution**

**package** com.hsbc.pack;

**public** **class** DataTypes {

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

**int** smallNumber = 150;

**float** mySalary = 12345.56f;

**long** veryBigNumber = 34423554L;

**double** randomNumber = 3240d;

**short** num = 1234;

**char** c = 'a';

**boolean** bool = **true**;

**byte** smallerThanInteger = 123;

System.***out***.println("DataTypes in Java \n");

System.***out***.println("Integer type: " + smallNumber);

System.***out***.println("Float type: " + mySalary );

System.***out***.println("Long type: " + veryBigNumber );

System.***out***.println("Double type: " + randomNumber );

System.***out***.println("short type: " + num);

System.***out***.println("char type: " + c );

System.***out***.println("Boolean type: " + bool );

System.***out***.println("Byte type: " + smallerThanInteger );

}

}

**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.*

**Recommended duration:** *20Mins*

**Solution Guidance (if applicable):** *a = a + b*

*b = a – b*

*b = a - b*

**Solution**

**package** com.hsbc.pack;

/\*

\* A program to swap two numbers without using a temporary number

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\*/

**public** **class** SwapNumbers {

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

**int** x,y;

//taking input from user

x = Integer.*parseInt*(args[0]);

y = Integer.*parseInt*(args[1]);

//print the numbers before swapping

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

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

//swapping the numbers

x = x + y;

y = x - y;

x = x - y;

//print the numbers after swapping

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

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

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

}

}

**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).*

**Recommended duration:** *20Mins*

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

**Solution**

**package** com.hsbc.pack;

/\*

\* A program to find the leap year

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\* Created by Aniket Wattamwar

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\*/

**public** **class** LeapYearFinder {

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

**int** year;

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

**boolean** isLeap= **false**;

**if**(year % 4 == 0) //check whether divisible by 4 or not

{

**if**( year % 100 == 0)//check whether divisible by 4 or not

{

// check whether year is divisible by 400 or not

**if** ( year % 400 == 0)

isLeap = **true**;

**else**

isLeap = **false**;

}

**else**

isLeap = **true**;

}

**else**

isLeap = **false**;

**if**(isLeap)

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

**else**

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

}

}

**Lab Exercise No:** 7

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

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

**Recommended duration:** *20Mins*

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

**Solution**

**package** com.hsbc.pack;

/\*

\* A program to find the number which is largest among the 3 numbers given

\*

\* Created by Aniket Wattamwar

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\*/

**public** **class** LargestOfAll {

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

**int** x = 30,y=40,z=4;

**if** (x > y && x > z) //check x with y and z

System.***out***.println("x is the largest.");

**else** **if** (y > x && y > z) //check y with x and z

System.***out***.println("y is the largest.");

**else** **if** (z > x && z > y) //check z with x and y

System.***out***.println("z is the largest.");

**else** //if the numbers are equal

System.***out***.println("Atleast two of the numbers are same. Enter different numbers. ");

}

}

**Lab Exercise No:** 8

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

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

**Recommended duration:** *20Mins*

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

**Solution**

**package** com.hsbc.pack;

/\*

\* A program to find whether the number is a palindrome or not

\*

\* Created by Aniket Wattamwar

\*

\*/

**public** **class** NumberPalindrome {

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

**int** number = 111;

**int** reverse=0,remainder;

**int** originalNumber = number;

**while**( number != 0 )

{

remainder = number % 10;

reverse = reverse \* 10 + remainder;

number /= 10;

}

//palindrome if reverse is same as original number

**if**(originalNumber == reverse)

System.***out***.println("Yes ! The number is a palindrome ! ");

**else**

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

}

}

**Lab Exercise No:** 9

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

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

**Recommended duration:** *20Mins*

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

**Solution:**

**package** com.hsbc.pack;

/\*

\* A program to print the fibonacci series till 200

\*

\* Created by Aniket Wattamwar

\*

\*/

**public** **class** FibonacciSeries {

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

**long** first=0, second=1, third;

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

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

**for**(**long** i =2;i<200;++i) {

third = first + second;

**if**(third > 200)

**break**;

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

first = second;

second = third;

}

}

}

**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.*

**Recommended duration:** *20Mins*

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

**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.*

**Recommended duration:** *20Mins*

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

**Solution**

**package** com.hsbc.pack;

/\*

\* A program to sort the numbers in ascending order

\*

\* Created by Aniket Wattamwar

\*

\*/

**public** **class** SelectionSort {

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

**int**[] arr = { 3,123,657,75,45,8}; //creating an array

**for** (**int** i = 0; i < arr.length - 1; i++) //looping through the array

{

**int** k = i;

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

**if** (arr[j] < arr[k]){

k = j;//searching for lowest index

}

}

//swapping

**int** smallerNumber = arr[k];

arr[k] = arr[i];

arr[i] = smallerNumber;

}

//printing the result

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

System.***out***.print(arr[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.*

**Recommended duration:** *20Mins*

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

**Solution:**

**package** com.hsbc.pack;

/\*

\* A program to calculate the Retail Value of Products

\*

\* Created by Aniket Wattamwar

\*

\*/

**public** **class** CalculatePrice {

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

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

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

**float** priceProduct1 = 22.50f;

**float** priceProduct2 = 44.50f;

**float** priceProduct3 = 9.98f;

**float** totalRetailValue=0f;

**switch**(productNumber) {

**case** 1:

totalRetailValue = priceProduct1\*qtySold;

System.***out***.println("Total Retail Value: "+ totalRetailValue );

**break**;

**case** 2:

totalRetailValue = priceProduct2\*qtySold;

System.***out***.println("Total Retail Value: "+ totalRetailValue );

**break**;

**case** 3:

totalRetailValue = priceProduct3\*qtySold;

System.***out***.println("Total Retail Value: "+ totalRetailValue );

**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.*

**Recommended duration:** *20Mins*

**Solution Guidance (if applicable):** *For example, if the input is 1342 eggs, then the program should respond with*

*Your number of eggs is 9 gross, 3 dozen, and 10*

**Solution**

**package** com.hsbc.pack;

**public** **class** CalculateGross {

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

**int** num = 1342;

**int** dozen=0;

**int** gross = num / 144;

**int** leftOver = num % 144;

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

dozen = leftOver /12;

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

**int** finalLeftOver = leftOver%12;

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

System.***out***.println("Total Eggs are " + gross + " gross " + dozen + " dozens" + " and " + finalLeftOver + " in all");

}

}