American University of Science & Technology

Department of Computer Science

**CSI 311L – Java Programming Lab**

**Spring 2011/2012**

**Lab Work 8**

**Problem1:**

Trace the following java applications:

 import java.util.Scanner;

public class Lab8

{

 public static void main( String a[] )

 {

 Scanner s = new Scanner( System.in );

 double g[][] = new double[20][3];

 for( int i = 0; i < 20; i++ )

 {

 System.out.println( "Student # " +(i+1) + " Grades" );

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

 {

 System.out.print( "Enter grade: " );

 g[i][j] = s.nextDouble();

 }

 }

 int choice;

 System.out.println(

 "\nEnter:\n1 to calculate the average of each student\n" +

 "2 to calculate the average of each exam: " );

 choice = s.nextInt();

 if( choice == 1 )

 avgStd( g );

 else if( choice == 2 )

 avgExam( g );

 }

 public static void avgStd( double g[][] )

 {

 double sum = 0.0, average;

 for( int i = 0; i < 20; i++ )

 {

 sum = 0.0;

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

 sum += g[i][j];

 average = sum / 3;

 System.out.println( "Average of student # " +(i+1) + " = " +average );

 }

 }

 public static void avgExam( double g[][] )

 {

 double sum = 0.0, average;

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

 {

 sum = 0.0;

 for( int i = 0; i < 20; i++ )

 sum += g[i][j];

 average = sum / 20;

 System.out.println( "Average of exam # " +(j+1) + " = " +average );

 }

 }

}

**Problem 2:**

Write the **Location** class defined as follow:

* + A Location is defined by block, floor.
	+ Provide a default constructor and all arguments constructor.
	+ Provide set and get methods.
	+ toString method

Write a driver program to test the class functionality.

Write the **coordinator** class defined as follow:

* + A coordinator is defined by id, Fname, and Lname.
	+ Provide a default constructor and all arguments constructor.
	+ Provide set and get methods.
	+ toString method

 Write the **Department** class defined as follows:

* A Department is defined to have a number, a name, a **location** and a **coordinator**.
* *Dept\_count* keeps track of the number of departments.
* Provide constructor.
* Provide set and get methods.
* toString.
* finalizer.

Write a driver program to input data about N Departments and prompt the use to choose from the following menu:

* + 1. List all departments’ locations.
		2. List the coordinator data for a specific department.
		3. Change a specific department location.
		4. Exit