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