**CSE 110: Programming Language 1**

**Spring 2008**

**Practice Problems from Lecture 6-7 (Arrary and Class)**

1. **Consider the following code:**

|  |
| --- |
| **public class ArrayTraceA** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 3;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = myArray[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output?**

2. **Consider the following code:**

|  |
| --- |
| **public class ArrayTraceB** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 4;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = myArray[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output?**

7.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5a** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 2;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

8.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5b** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 4;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

|  |
| --- |
| **public class ArrayTraceA** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 3;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = myArray[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output?**

11.

**Consider the following code:**

|  |
| --- |
| **public class ArrayTraceB** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 4;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = myArray[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output?**

12.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5a** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 1;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index2 - 1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index2]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

13.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5b** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 3;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index2 - 1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index2]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

14.

16.

|  |
| --- |
| **public class Quiz8a{** |
| **public static void main(String [] args){** |
| **int I = 0;** |
| **int j = 1;** |
| **String [ ][ ] twoD1 = new String [3][3];** |
| **int [ ][ ] twoD2 = new int [3][3];** |
| **twoD1[0][0] = "b";** |
| **twoD1[0][1] = "c";** |
| **twoD1[0][2] = "d";** |
| **twoD1[1][0] = "e";** |
| **twoD1[1][1] = "p";** |
| **twoD1[1][2] = "x";** |
| **twoD1[2][0] = "y";** |
| **twoD1[2][1] = "g";** |
| **twoD1[2][2] = "h";** |
| **twoD2[0][0] = 11;** |
| **twoD2[0][1] = 12;** |
| **twoD2[0][2] = 32;** |
| **twoD2[1][0] = 23;** |
| **twoD2[1][1] = 12;** |
| **twoD2[1][2] = 9;** |
| **twoD2[2][0] = 26;** |
| **twoD2[2][1] = 32;** |
| **twoD2[2][2] = 44;** |
| **While (i < 3){** |
| **j = 2;** |
| **while (j >= 0){** |
| **System.out.println(twoD1[i][j] + twoD2[j][i]);** |
| **j--;** |
| **}** |
| **++i;** |
| **}** |
| **}** |
| **}** |

**Write the output:**

17.

|  |
| --- |
| **public class Quiz8b{** |
| **public static void main(String [] args){** |
| **int I = 0;** |
| **int j = 1;** |
| **String [ ][ ] twoD1 = new String [3][3];** |
| **int [ ][ ] twoD2 = new int [3][3];** |
| **twoD1[0][0] = "s";** |
| **twoD1[0][1] = "d";** |
| **twoD1[0][2] = "x";** |
| **twoD1[1][0] = "s";** |
| **twoD1[1][1] = "b";** |
| **twoD1[1][2] = "m";** |
| **twoD1[2][0] = "z";** |
| **twoD1[2][1] = "q";** |
| **twoD1[2][2] = "t";** |
| **twoD2[0][0] = 12;** |
| **twoD2[0][1] = 52;** |
| **twoD2[0][2] = 39;** |
| **twoD2[1][0] = 11;** |
| **twoD2[1][1] = 10;** |
| **twoD2[1][2] = 90;** |
| **twoD2[2][0] = 21;** |
| **twoD2[2][1] = 2;** |
| **twoD2[2][2] = 4;** |
| **While (i < 3){** |
| **j = 2;** |
| **while (j >= 0){** |
| **System.out.println(twoD1[i][j] + twoD2[j][i]);** |
| **j--;** |
| **}** |
| **++i;** |
| **}** |
| **}** |
| **}** |

**Write the output:**

18.

|  |
| --- |
| **public class Quiz7a{** |
| **public static void main(String [] args){** |
| **int i = 0;** |
| **int j = 1;** |
| **String [ ][ ] twoD1 = new String [3][3];** |
| **int [ ][ ] twoD2 = new int [3][3];** |
| **twoD1[0][0] = "x";** |
| **twoD1[0][1] = "c";** |
| **twoD1[0][2] = "f";** |
| **twoD1[1][0] = "k";** |
| **twoD1[1][1] = "u";** |
| **twoD1[1][2] = "w";** |
| **twoD1[2][0] = "z";** |
| **twoD1[2][1] = "g";** |
| **twoD1[2][2] = "h";** |
| **twoD2[0][0] = 15;** |
| **twoD2[0][1] = 7;** |
| **twoD2[0][2] = 20;** |
| **twoD2[1][0] = 30;** |
| **twoD2[1][1] = 11;** |
| **twoD2[1][2] = 18;** |
| **twoD2[2][0] = 22;** |
| **twoD2[2][1] = 16;** |
| **twoD2[2][2] = 5;** |
| **while (i < 3){** |
| **j = 2;** |
| **while (j >= 0){** |
| **System.out.println(twoD1[i][j] + twoD2[j][i]);** |
| **j--;** |
| **}** |
| **++i;** |
| **}** |
| **}** |
| **}** |

Write the output:

19.

|  |
| --- |
| **public class Quiz7a{** |
| **public static void main(String [] args){** |
| **int i = 0;** |
| **int j = 1;** |
| **String [ ][ ] twoD1 = new String [3][3];** |
| **int [ ][ ] twoD2 = new int [3][3];** |
| **twoD1[0][0] = "k";** |
| **twoD1[0][1] = "f";** |
| **twoD1[0][2] = "c";** |
| **twoD1[1][0] = "x";** |
| **twoD1[1][1] = "g";** |
| **twoD1[1][2] = "h";** |
| **twoD1[2][0] = "w";** |
| **twoD1[2][1] = "m";** |
| **twoD1[2][2] = "s";** |
| **twoD2[0][0] = 22;** |
| **twoD2[0][1] = 5;** |
| **twoD2[0][2] = 12;** |
| **twoD2[1][0] = 17;** |
| **twoD2[1][1] = 10;** |
| **twoD2[1][2] = 23;** |
| **twoD2[2][0] = 9;** |
| **twoD2[2][1] = 8;** |
| **twoD2[2][2] = 3;** |
| **while (i < 3){** |
| **j = 2;** |
| **while (j >= 0){** |
| **System.out.println(twoD1[i][j] + twoD2[j][i]);** |
| **j--;** |
| **}** |
| **++i;** |
| **}** |
| **}** |
| **}** |

Write the output:

20.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5a** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 2;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

21.

**Consider the following code:**

|  |
| --- |
| **public class Quiz5b** |
| **{** |
| **public static void main(String args[])** |
| **{** |
| **int [] myArray = new int[10];** |
| **int [] b;** |
| **int index1 = 0, index2 =0;** |
| **index1 = 1;** |
| **b = myArray;** |
| **while (index1 < 10){** |
| **myArray[index1] = index1 + 4;** |
| **index2 = 1;** |
| **while (index2 < index1 ){** |
| **myArray[index1] = b[index1] + myArray[index2] - index1;** |
| **index2 = index2 + 1;** |
| **}** |
| **System.out.println(myArray[index1]);** |
| **index1 = index1 + 1;** |
| **}** |
| **}** |
| **}** |

**What is the output of the program?**

22.

24.

|  |
| --- |
| **public class Quiz8a{** |
| **public static void main(String[] args){** |
| **// Create matrices** |
| **double[][] matrixA = new double[2][3];** |
| **double[][] matrixB = new double[3][2];** |
| **double[][] matrixC = new double[2][2];** |
|  |
| **// Fill Matrices** |
| **matrixA[0][0] = 3.0;** |
| **matrixA[0][1] = 2.0;** |
| **matrixA[0][2] = -1.0;** |
| **matrixA[1][0] = 0.0;** |
| **matrixA[1][1] = 4.0;** |
| **matrixA[1][2] = 6.0;** |
| **matrixB[0][0] = 1.0;** |
| **matrixB[0][1] = 0.0;** |
| **matrixB[1][0] = 5.0;** |
| **matrixB[1][1] = 3.0;** |
| **matrixB[2][0] = 6.0;** |
| **matrixB[2][1] = 4.0;** |
|  |
| **// Multiplication C =A.B** |
| **for(int i=0; i<2; i++){** |
| **for(int j=0; j<2; j++){** |
| **for(int k=0; k<3; k++){** |
| **matrixC[i][j] += matrixA[i][k]\*matrixB[k][j];** |
| **System.out.println(matrixC[i][j]);** |
| **}** |
| **}** |
| **}** |
| **}** |
| **}** |

**Write the output:**

25.

|  |
| --- |
| **public class Quiz8b{** |
| **public static void main(String[] args){** |
| **// Create matrices** |
| **double[][] matrixA = new double[2][3];** |
| **double[][] matrixB = new double[3][2];** |
| **double[][] matrixC = new double[2][2];** |
|  |
| **// Fill Matrices** |
| **matrixA[0][0] = 2.0;** |
| **matrixA[0][1] = 3.0;** |
| **matrixA[0][2] = -2.0;** |
| **matrixA[1][0] = 1.0;** |
| **matrixA[1][1] = 2.0;** |
| **matrixA[1][2] = 3.0;** |
| **matrixB[0][0] = -1.0;** |
| **matrixB[0][1] = 2.0;** |
| **matrixB[1][0] = 3.0;** |
| **matrixB[1][1] = 2.0;** |
| **matrixB[2][0] = 5.0;** |
| **matrixB[2][1] = 6.0;** |
|  |
| **// Multiplication C =A.B** |
| **for(int i=0; i<2; i++){** |
| **for(int j=0; j<2; j++){** |
| **for(int k=0; k<3; k++){** |
| **matrixC[i][j] += matrixA[i][k]\*matrixB[k][j];** |
| **System.out.println(matrixC[i][j]);** |
| **}** |
| **}** |
| **}** |
| **}** |
| **}** |

**Write the output:**