JAVA Language Programming (CSE3040-01/AIE3052-01)

Homework 1 (Fall 2024)

Due : September 20th, Friday 11:59 PM

Late Policy

- Deadline date for this assignment is September 20th 11:59 PM.
  If you are late, 20% of the score will be deducted for each day.

Submission Rule

- One java program (.java) for each problem.
- Each name is including the problem number.
  (ex) problem1.java, problem2.java, etc)
- You should make .zip file including java file for submission.
  (In .zip file, there will be problem1.java, problem2.java, etc)
- The name of .zip file is your "StudentID_name.zip" (ex. 120230249_Emily.zip)

1. Problem 1 (25 points)

   Using a **while** loop and the **Math.random()** method, write a code that simulates rolling two dice and prints the result in the form (die1, die2). If the sum of the dice is not 7, continue rolling the dice. If the sum of the dice is 7, stop the execution. The cases where the sum of the dice equals 7 are (1,6), (2,5), (3,4), (5,2), and (6,1). (You need to print the result of the dice rolls each time.)
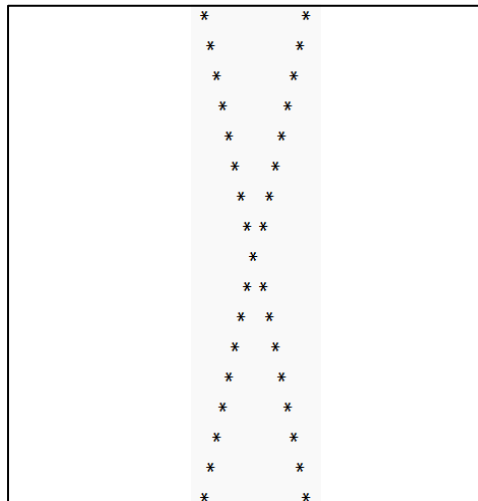   ex)
   Output:
   (1,2) (3,5) (5,2)

2. Problem 2 (25points)

Write a Java program that draws a large X shape using only two permitted characters: * (asterisk) and (blank).

The expected output should be an X shape as shown in the example below:

```
 *            *
   *        *
     *    *
       *  *
         *  *
           * *
             * *
               **
                 *
               **
             * *
           * *
         *  *
       *  *
     *    *
   *        *
 *            *
```

3. Problem 3 (25 points)

Write a java program to print the multiplication table for n. Given an integer n, write a program to print the multiplication table for n. The multiplication table should be printed in the following format, where each line shows the result of n×i.

Input

- An integer n (1 ≤ n ≤ 9)

Output

- Print the multiplication table for n.

Ex)

Input

```
3
```

Output

```
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
```

4. Problem 4 (25 points)

Write a Java program to reverse a string.

Ex)

Input data: The quick brown fox

Expected Output: xof nworb kciuq ehT