CME1212 Algorithms and Programming II
Homework 3

Upload your source code files from *DEUZEM SAKAI* until **25 April 2021, 23:55.**

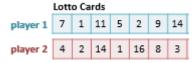Write a Java program for a simple version of the **Lotto** game.

Two people play this game with:
- cards
- bags

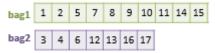Each card consists of 7 numbers. The numbers are ranged from 1 to 17.
At the beginning of the game, each card (queue) should be randomly filled with <u>distinct</u> values. So, the numbers in one queue should be different from each other.

Example:

There is a *bag1* (queue) that initially includes all integers from 1 to 17. The program selects a number from this bag randomly and removes it from *bag1*. Each player deletes that number from his/her queue. Selected numbers are added to another bag (queue), named *bag2*, so the next number is selected from the remaining numbers.

Example:

When a player deletes 4 numbers, he/she gets the award $10. ("birinci çinko")
When a player deletes all numbers from his/her queue, he/she wins the game and gets $30.
If both players delete their last numbers at the same time, the game is over without any winner (tie) and they share the money.

The program must display all steps until the game is over.

At the end of the game, the winner(s) should be displayed.
The money that each player gets should also be printed.

Don't take any input from the user !!!

This homework will be graded by Res.Asst.Dr. Göksu TÜYSÜZOĞLU.
You can ask your questions her from the "**FORUM → Homework 3 - Questions**" part of the *DEUZEM SAKAI* software.

Sample output:
```
Player1: 7 1 11 5 2 9 14            Bag1  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Player2: 4 2 14 1 16 8 3            Bag2

Randomly selected number: 1

Player1: 7 11 5 2 9 14              Bag1  2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Player2: 4 2 14 16 8 3              Bag2  1

selected number: 5

Player1: 7 11 2 9 14                Bag1  2 3 4 6 7 8 9 10 11 12 13 14 15 16 17
Player2: 4 2 14 16 8 3              Bag2  1 5

selected number: 17

Player1: 7 11 2 9 14                Bag1  2 3 4 6 7 8 9 10 11 12 13 14 15 16
Player2: 4 2 14 16 8 3              Bag2  1 5 17

selected number: 14

Player1: 7 11 2 9                   Bag1  2 3 4 6 7 8 9 10 11 12 13 15 16
Player2: 4 2 16 8 3                 Bag2  1 5 17 14

Player1 gets $10 (Birinci Çinko)

selected number: 11

Player1: 7 2 9                      Bag1  2 3 4 6 7 8 9 10 12 13 15 16
Player2: 4 2 16 8 3                 Bag2  1 5 17 14 11

selected number: 7

Player1: 2 9                        Bag1  2 3 4 6 8 9 10 12 13 15 16
Player2: 4 2 16 8 3                 Bag2  1 5 17 14 11 7
```

```
selected number: 2
Player1: 9                              Bag1  2 3 4 6 7 8 9 10 12 13 15 16
Player2: 4 16 8 3                       Bag2  1 5 17 14 11 7 2

selected number: 8
Player1: 9                              Bag1  2 3 4 6 7 9 10 12 13 15 16
Player2: 4 16 3                         Bag2  1 5 17 14 11 7 2 8

selected number: 9
Player1:                                Bag1  2 3 4 6 7 10 12 13 15 16
Player2: 4 16 3                         Bag2  1 5 17 14 11 7 2 8 9

Player1 is the winner !!!

Player1 gets $40
Player2 gets $0
```

Notes

1- In your program, you can use the queue data structure as you want, but you must use <u>only</u> queue.
Don't use other data structures such as an array, arraylist or stack.
Don't use STRING data type in the main solution, instead of a queue.

2- The queue class has only the following methods: enqueue, dequeue, peek, isFull, isEmpty, and size.
Don't add a new method into the queue class.

For example, don't write a *display* method in the Queue class.
For example, don't write a *search* method in the Queue class.

All other methods <u>must</u> be written in the ***main*** program.

3- Upload format
Step1: Create a new folder, named by your student number and name (without any space)
For example: 2015510012_Ali_Tas

Step2: Copy all java files into this folder

Step3: Compress the folder   **2015510012_Ali_Tas.zip**

Step4: Upload the file   **2015510012_Ali_Tas.zip**   from *DEUZEM SAKAI*

4- Don't use **ENIGMA** or any other extra library.

5- If you are late, your grade will be decreased by 10 points for each day. After five days, your assignment will not be accepted.

6- Assignment must be your <u>individual work</u>.
   Cheating is strictly prohibited.
   All source codes will be automatically compared with each other by using a program.
   If any cheating occurs, your assignment will be graded with **zero (0)**.

7- Your program must work correctly under all conditions. Try to control all possible errors.

8- You should use meaningful variable names, appropriate comments, and good prompting messages.