Lebanese University	I3340 English	Duration: **1h30**
Faculty of Sciences I	Parallel Computing	
Dr. Kamal Beydoun	Final 2020-2021 S2	22 sep. 2021
	OPEN BOOK EXAM	

Instructions for Exam:

1. After **downloading** the exam folder, write your ID_FIRSTNAME_LASTNAME as comment in the provided file GeneratorReaderEn.java.
2. When you finish your exam, you should upload the **only provided file** GeneratorReaderEn.java after modifying and saving it (URL will be given at the end of the exam).
3. Don not change the name of the file, otherwise a penalty will be applied.
4. You are responsible of saving your data.
5. Correction will be by execution of the program. If any syntax error → ZERO .
6. Internet and USB are not allowed at all.
7. If you do not respect the instructions → -15.

Question I

Complete the Java program given in the file GeneratorReaderEn.java in order to parallelize and synchronize the defined threads :

- The first thread called **Generator** must generate a number between 1 and 20.
- The second thread called **ReaderEvenNumbers** should **display** the generated number **only and only if it is even**.
- The third thread called **ReaderOddNumbers** should **display** the generated number **if and only if it is odd**.
- The thread Generator should re-generate a new number **only and only if the last generated number is read by one of the reader threads (ReaderOddNumbers** or **ReaderEvenNumbers).**

Use Locks and Conditions librairies to solve this problem.

Chunk of an output of an example:

```
The number 0 is generated by Generator Thread.

The number 0 is read by ReadEvenNumbers Thread

The number 13 is generated by Generator Thread.

Thread ReaderEvenNumbers is NOT concerned by number: 13

Thread ReaderEvenNumbers is NOT concerned by number: 13

Thread ReaderEvenNumbers is NOT concerned by number: 13

The number 13 is read by ReadOddNumbers Thread.

The number 5 is generated by Generator Thread.

The number 5 is read by ReadOddNumbers Thread.

The number 19 is generated by Generator Thread.

The number 19 is read by ReadOddNumbers Thread.
```