Quiz 5

Subject: Data Structure
Due Date: 28.05.2020 23:59

Problem1: Display octal equivalents of decimal numbers

Write a main program that takes decimal numbers(between 1000-200000) from an input file (decimal.txt) as an argument and put them into any data structure, then finds and displays their octal equivalents by using a stack (octal.txt), i.e convert the number with base value 10 to base value 8.

Create a Stack class with:

- One constructor
- Push
- Pop
- Top
- isFull()
- isEmpty()
- Size

You must use ONLY stack(s) for decimal-to-octal operation, don't use other data structures such as normal array, string etc.

Algorithm:

- Store the remainder when the number is divided by 8 into a stack.
- Divide the number by 8 now
- Repeat the above two steps until the number is not equal to 0.
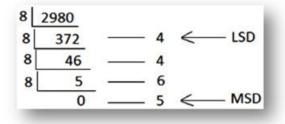- Print the content now.

Figure 1: Representation of decimal-to-octal

1 Grading Policy

- Your work will be graded over a maximum of 100 points.

- Your total score will be partial according to the grading policy stated below.

Compiled	10p
Taking input files as arguments from command line and correct output	90p

2 Execution and Test

- Upload your java files to your server account (dev.cs.hacettepe.edu.tr)

- Compile your code (javac *.java)

- Run your program (java Main decimal.txt)

- Control your output

```
4321
2980
180192
123456
8000
140240
6500
```

Figure 2: Example of input file(decimal.txt)

```
10341
5644
537740
361100
17500
421720
14544
```

Figure 3: Example of output file (octal.txt)

Notes

- You MUST implement your own stack class.

- The name of input file is decimal.txt; the name of output file is octal.txt. Do not change the name of the files.

- Do not miss the submission deadline.

- Save all your work until the quiz is graded.

- You can ask your questions via Piazza and you are supposed to be aware of everything discussed on Piazza.

- You must submit your work with the file hierarchy as stated below:

  - $\langle studentid \rangle.zip$
  - $(Main.java)$
  - $(Stack.java)$
  - $(*.java)$