Laboratory in1278LR Introduction to Programming with Java
Delft University of Technology, Faculty EWI, Software Engineering Research Group.
Group = 2; Remainder = 1

Assignment 7

Create a new directory with the name Assignment7.
Use this directory to save all programs that you will create as part of this assignment.
Please read the text of the exercises fully before embarking upon them.

Part 1 Exceptions

We want to have a very secure method for drawing cards. You have already programmed a program to draw cards in assignment 4, Part 3. In that exercise you did draw a card number and a color. Here we are interested in the number only. You are to write a method class DrawCard containing the method *main*(). The method *main*() will call a method *getCard*() requesting a card number from the random generator. For the particular game to be played now, we only want cards 7, 8, 9, 10, Jack , Queen, King and Ace. When the card drawn is one of those mentioned, the numeric value of the card will be returned to *main*(). Deliver two versions of your program:

- In the first version, an exception handler is used within *getCard*(). Should the data returned from the random generator be outside the given cards numbers, an exception of your own make should be thrown; the random generator will be requested again and again until valid data is returned, after which the method *getCard*() should return normally[1].
- In the second version, an exception handler will be located in *main*(). Should invalid data be detected within *getCard*(), an exception will be thrown. This exception will not be handled within *getCard*() but in *main*(). The method *main*() will call *getCard*() repeatedly until valid data has been found.

Part 2 Two-dimensional array

We will record running times in minutes about marathons over various marathons. We would like to display these results as well as some data derived from it. An example is:

Runner	New York	Rotterdam	Honolulu	Amsterdam	Portland	Columbus
Sammy Korir	209	212	317	300	256	222
Felix Limo	302	255	278	0	300	311
Monica Pont	288	0	219	245	320	245
…	…	…	…	…	…	…

The data is given in the file marathons.txt. To simplify the assignment, the file does not contain the names of the runners and the column headers.
You are requested to write a program which reads in the file (using known techniques or using the ReadFile class given on BB) into a two-dimensional array. The data given in the file contains the finish time in minutes. A zero in a position means that the runner did not take part in that race.
Your program should calculate and print:

- For each runner, the average of all marathons in which the runner has taken part,
- The average of all entries for each of the marathons. Again zero-values are not taken into consideration.
- The smallest (except for zero values) and the largest value in the array along with their indexes should be printed.

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[1] This use of exception handling is not to be recommended. Usually one would change the code translating the value from the random generator into a card number.