Wrocław, 02.12.2021

Structured and Object Oriented programming
Laboratory
Assignments #9 and #10 Simple Regular Expressions

The file ecdc_covid19_cases.csv contains data about the Covid19 pandemic.

The data is in the following format:
dateRep,year_week,cases_weekly,deaths_weekly,countriesAndTerritories,geoId,countryterritoryCode,popData2019,continentExp,notification_rate_per_100000_population_14-days

Example:
25/01/2021,2021-03,1763,27,Algeria,DZ,DZA,43053054,Africa,8.02
18/01/2021,2021-02,1689,29,Algeria,DZ,DZA,43053054,Africa,7.96
11/01/2021,2021-01,1736,35,Algeria,DZ,DZA,43053054,Africa,8.16

Remark.
Test carefully the code you develop for the Laboratories.
The classes will be used in the next assignment.

Task 1

Implement the class WeeklyData that has the following attributes:

```
private Integer year;
private Integer week;
private    Integer    cases;
private Integer deaths;
private    String country;
private String continent;
private Double  rate;
```

The constructor:

```
public WeeklyData(String line) throws Exception {
```

Proper lines are shown in the above example. The exception should be thrown if a line has not a proper format. The exception must contain the cause of the error the incorrect data.

The class must also implement:

- the getters for all attributes
- toString method
- equals method (all attributes must have the same values)

Task 2

Complete the implementation of the following class:

```
public class FileFormatException extends Exception {
	private static final long serialVersionUID = 1L;
	protected int lineNumber;
	protected String info;  \\ error desc. and not proper data
	protected String fileName;

	public FileFormatException(String fileName, int lineNo, String
info) {
		// insert your code here
		// accept all parameters without checking
	}
	public int getLineNo( ) {
		return lineNumber;
	}
	public String getInfo() {
		return info;
	}
	public String getFileName() {
		return fileName;
	}
}
```

Task 3

Complete the implementation of the following class:

```
public class CovidData {
	protected ArrayList<WeeklyData> allWeeks= new
ArrayList<WeeklyData>();
	public void readFromFile(String fileName) throws
FileFormatException {
		// insert your code here
		// the lines with errors should be rejected and suitable
message should appear on standard error
	}
	// for all countries and all weeks
	public int getTotalCases() {
		// enter your code here
		return 0;
	}
	// total number of cases for all countries in a continent all
weeks
	public int getTotalCases(String continent) {
		// enter your code here
```

```
            return 0;
      }
      // total number of cases for all countries in the week
      public int getTotalCases(int week) {
            // enter your code here
            return 0;
      }
      // total number of cases for all countries in a continent in
the week
      public int getTotalCases(String continent, int week) {
            // enter your code here
            return 0;
      }

      // total number of deaths for all countries and all weeks
      public int getTotalDeaths() {
            // enter your code here
            return 0;
      }

      // total number of deaths for all countries in a continent all
weeks
      public int getTotalDeaths(String continent) {
            // enter your code here
            return 0;
      }

      // total number of deaths for all countries in the week
      public int getTotalDeaths (int week) {
            // enter your code here
            return 0;
      }

      // total number of deaths for all countries in a continent in
the week
      public int getTotalDeaths(String continent, int week) {
            // enter your code here
            return 0;
      }
}
```

Task 4

1. Find all the not proper lines in the file ecdc_covid19_cases.csv
2. What were reasons for the errors?

Implement a program to identify the not proper lines. To read the file you may extend the following code:

```
		Scanner fileScan=null;
		try {
			fileScan= new Scanner(new
File("ecdc_covid19_cases.csv"));
			while (fileScan.hasNextLine()) {
				String oneLine=fileScan.nextLine();
				// process the line here
			}
		} catch (FileNotFoundException e) {
			// TODO Auto-generated catch block
			// handle the exception here
		}
		if (fileScan!=null)
			fileScan.close();
```

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