# Advanced Java – Fall 2021

Assignment 1

January 17, 2022

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## 0.1 Introduction

To read the live covid dataset of the world and so some basic statistics over this data.

This will be a command-line based application where the values for which the statistics needs to be shown will be passed via command line arguments.

The CSV file contains a header line, followed by (as of now) 151K lines of data.

# 0.2 Overview of Implementation

#### 0.2.1 Classes

- Controller The Main Class which does the processing, reading and creating entities.
- Row The entity class which holds the structure of the data to be stored from the dataset file.
- Pair A Pair class of String, double. Used while creating the Heap.

### 0.2.2 Dataset Reading

- Read each line of the dataset after skipping the header using File Stream.
- Split each line using my custom split function. mySplit()
- For each line created an instance of required attributes needed for the statistics.

#### 0.2.3 Statistics

- Created a Map based on which display parameter is required i.e COUNTRY, DATE, CONTINENT
- Aggregated values for each unique entry of the above based on the by value passed via command line. NC, ND, TD, NCS, NDS ....
- Created a function getNewValue() which calculates the updated aggregate based on which by value has been passed.

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## 0.2.4 Data Structure + Results

- Created a Priority Queue with a custom Comparator.
- Either Min Heap or Max Heap based on command line argument stat min / max
- Inserted the aggregated map values into the created Heap.
- Extracted top/bottom limit values to display the result.

```
-file owid-covid-data.csv -stat max -limit 5 -by NCS -display DATE 

© CLI arguments to your application. Alt+R
```

Figure 1: Command Line Arguments

```
CLI: {stat=max, file=owid-covid-data.csv, by=NCS, display=DATE, limit=5}
Top 5 DATE by NCS
Pair{key='2022-01-15', value=1.2483909991000004E7}
Pair{key='2022-01-14', value=1.2456276566999998E7}
Pair{key='2022-01-16', value=1.2442771856E7}
Pair{key='2022-01-13', value=1.2137499000000002E7}
Pair{key='2022-01-12', value=1.1993922140000004E7}
Process finished with exit code 0
```

Figure 2: Sample Results