Code Challenge

We would like to have a restful API for our statistics. The main usecase for our API is to calculate realtime statistic from the last 60 seconds. There will be two APIs, one of them is called everytime a transaction is made. It is also the sole input of this rest API. The other one returns the statistic based of the transactions of the last 60 seconds.

Specs

`POST /transactions`

Everytime a new transaction happened, this endpoint will be called.

Body:

```
{
    "amount": 12.3,
    "timestamp": 1478192204000
}
```

Returns: Empty body with either 201 or 204.

where:

- `amount` is a double specifying the amount
- `time` is a long specifiying unix timeformat in milleseconds

`GET /statistics`

This is the main endpoint of this task, this endpoint have to execute in constant time and memory (O(1)). It returns the statistic, which related to the transactions which happened in the last 60 seconds.

Returns:

```
{
    "sum": 1000,
    "avg": 100,
    "max": 200,
    "min": 50,
    "count": 10
}
```

where:

- `sum` is a double specifiying the total sum of transaction value in the last 60 seconds
- `avg` is a double specifiying the average amount of transaction value in the last 60 seconds

- `max` is a double specifiying single highest transaction value in the last 60 seconds
- `min` is a double specifiying single lowest transaction value in the last 60 seconds
- `count` is a long specifiying the total number of transactions happened in the last 60 seconds

Requirements

For the rest api, there biggest and maybe hardest requirement is to make the `GET /statistics` execute in constant time and space.

Other requirements, which are obvious, but also listed here for explicity:

- The API have to be threadsafe with concurrent requests
- The API have to function properly, with proper result
- It should be able to be built and tests should also complete succesfully (e.g. is maven is used, then `mvn clean install` should be successful)
- The API should be able to deal with time discrepency, which means, at any point of time, we could receive a transaction which have a timestamp of the past