

# Error Log Monitoring

## Problem Statement

In an error log monitoring platform, each log entry comprises three properties:

1. **Timestamp** : A 64-bit integer representing the time when the error occurred.
2. **Log Type** : A string with a maximum length of 100 characters describing the type or category of the error.
3. **Log Severity** : A floating-point value indicating the severity level of the error.

A sample log entry is formatted as follows: `TIMESTAMP;LOG_TYPE;SEVERITY`

For example `1715744138011;INTERNAL_SERVER_ERROR;23.72`

Write a program that can perform the following operations:

1. `1 timestamp;log_type;severity` : Submit a new log entry to the platform. The program should store the log entry in a data structure.
2. `2 log_type` : Compute the min, max, and mean severity of the log entry associated with the specified log type.
3. `3 BEFORE timestamp` : Compute the min, max, and mean severity of all log entries occurring before the specified timestamp.
4. `3 AFTER timestamp` : Compute the min, max, and mean severity of all log entries occurring after the specified timestamp.
5. `4 BEFORE log_type timestamp` : Compute the min, max, and mean severity of all log entries occurring before the specified timestamp and associated with the specified log type.
6. `4 AFTER log_type timestamp` : Compute the min, max, and mean severity of all log entries occurring after the specified timestamp and associated with the specified log type.

The timestamp is exclusive, meaning that the log entry at the given timestamp should not be included in the calculation.

# Sample Input

```
1 1715744138011;INTERNAL_SERVER_ERROR;23.72
1 1715744138012;INTERNAL_SERVER_ERROR;10.17
2 INTERNAL_SERVER_ERROR
1 1715744138012;BAD_REQUEST;15.22
1 1715744138013;INTERNAL_SERVER_ERROR;23.72
3 BEFORE 1715744138011
3 AFTER 1715744138010
2 BAD_REQUEST
4 BEFORE INTERNAL_SERVER_ERROR 1715744138011
4 AFTER INTERNAL_SERVER_ERROR 1715744138010
```

# Sample Output

```
No output
No output
Min: 10.17, Max: 23.72, Mean: 16.945
No output
No output
Min: 0.0, Max: 0.0, Mean: 0.0
Min: 10.17, Max: 23.72, Mean: 18.2075
Min: 15.22, Max: 15.22, Mean: 15.22
Min: 0.0, Max: 0.0, Mean: 0.0
Min: 10.17, Max: 23.72, Mean: 19.203333
```

# Assumptions

1. Timestamp will come in an ascending sorted way.
2. Log Type can be any utf-8 supported string with a maximum length of 100.
3. Severity will be positive non zero floating-point number with no limit.

# Expectations

1. Program need to be fast enough to handle all functionalities.
2. Severity results must need to be calculated with a precision of 10E-6.
3. Only use the standard libraries your programming language provides.

# Additional Tasks

1. Generate the test input files and test your solution with them.
2. Dockerize your solution to make it deployable in any environment.

# Submissions Guidelines

1. Create a github repository with your source codes.
2. Read the inputs from a file `input.txt` and write the outputs to a file `output.txt` .
3. Write the documentation and running instructions in the `README.md` file.