Phase 3

1 Part 1 : Two Phase Merge sort

For this Part, you have to implement the **SORT** command using the Two-Phase Merge Sort algorithm. You may assume that the data that is provided to you is within the algorithmic constraints. Note that the data can contain duplicates.

Syntax

The following syntax has been implemented in the codebase for you

```
<new_table_name> <- SORT <table_name> BY <column_name> IN ASC | DESC
```

Here <table_name> represents the table that has to be sorted and is the column in the table that the sort order is based on. ASC or DESC are used to denote ascending or descending orders.

First, we want you to overload the syntax with the following additional BUFFER option

```
<new_table_name> <- SORT <table_name> BY <column_name> IN ASC | DESC
BUFFER <buffer_size>
```

Here, the optional parameter <buffer_size> denotes the number of main memory buffer blocks you are allowed to use to carry out the sorting operation. You can assume the buffer size is at atleast 3.If no buffer option is provided, you have to assume the default buffer size is 10.

The following are examples of valid sort commands invoked on table A(B, C, D, E)

```
A1 <- SORT A BY B IN ASC //uses 10 buffer blocks to sort
A2 <- SORT A BY C IN DSC //uses 10 buffer blocks to sort
A3 <- SORT A BY B IN ASC BUFFER 4 //uses 4 buffer blocks to sort
A4 <- SORT A BY B IN DSC BUFFER 3 //uses 3 buffer blocks to sort
```

2 part 2 :

For this Part, you have to handle Multiple **READS** and **WRITES** simultaneously.

It is up to you on how you can implement this, you can do anything as long as you are maintaining the **ACID** properties of the DataBase.

For this Part, you have to submit a video documentation.

Submission Guidelines

- All your code should be pushed to your GitHub repository. At the deadline, your codebase will be automatically downloaded.
- For Part2, you have to submit a report titled *report_part2.md* containing the following information
    - Implementation of the code
    - Any results or outputs that you want to include
    - Link for the video documentation

For any doubts please use the moodle forum. If you need to interact with a TA drop an email to any of us and we will find and respond with an appropriate time slot.

This course is intolerant to plagiarism. Any plagiarism will lead to an F in the course

NOTE: We will be checking plagiarism with senior batches too