
CS246: Database Management Systems Lab

Lab # 02 (1 Questions, 100 Marks)

Lab session: AL1

Held on: 18-Jan-2024 (Mon)

Lab Timings: 14:00 to 17:00 Hours Pages: 3

Submission time: 16:45 Hrs, 18-Jan-2024

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Question 1: (100 points)

Implement in C Programming Language the following problem. Use of any programming language other than C is not allowed and will lead to awarding 0 marks.

File description The file `week01.csv` contains 12 columns. First column is the product number. Columns 2 to 11 contains steps 1 to 10 and at date on which the step should be executed. Column 12 contains region from where product was sold. For example, the second row contains the following information:

Product #	P0001
Step #	Date of installation
Step 1	22-Mar-2024
Step 2	24-Mar-2024
Step 3	31-Mar-2024
Step 4	22-Mar-2024
Step 5	23-Mar-2024
Step 6	23-Mar-2024
Step 7	22-Mar-2024
Step 8	22-Mar-2024
Step 9	25-Mar-2024
Step 10	28-Mar-2024
Region	West

For each product, the installation procedure should be done as per the given criteria:

1. If the product is from **North** region, all installation steps should be in ascending order of the date. If not, you should bring order to the installation steps.
2. If the product is from **South** region, all installation steps should be in descending order of the date. If not, you should bring order to the installation steps.
3. For East & West regions, first sort all the 10 installation dates and then perform the given condition as specified.
4. If the product is from **East** region, after sorting the installation dates, the first five installation steps should be in ascending order. Second five installation steps should be in descending order. If not, you should bring order to the installation steps. In case of equal number of dates at the border, adjust all the equal dates in the first half of installation process.

5. If the product is from **West** region, after sorting the installation dates, the first five installation steps should be in descending order. Second five installation steps should be in ascending order. If not, you should bring order to the installation steps. In case of equal number of dates at the border, adjust all the equal dates in the first half of installation process.

Definition of ascending order:

1. 1st step must be executed on or before 2nd step
2. 2nd step must be executed on or before 3rd step
3. 3rd step must be executed on or before 4th step
4. 4th step must be executed on or before 5th step
5. 5th step must be executed on or before 6th step
6. 6th step must be executed on or before 7th step
7. 7th step must be executed on or before 8th step
8. 8th step must be executed on or before 9th step
9. 9th step must be executed on or before 10th step

Definition of descending order:

1. 10th step must be executed on or before 9th step
2. 9th step must be executed on or before 8th step
3. 8th step must be executed on or before 7rd step
4. 7th step must be executed on or before 6th step
5. 6th step must be executed on or before 5th step
6. 5th step must be executed on or before 4th step
7. 4th step must be executed on or before 3rd step
8. 3rd step must be executed on or before 2nd step
9. 2nd step must be executed on or before 1st step

For the product P0001 which belong to **West** region, the correct installation procedure is as follows

Product #	P0001	
Step #	DoI	Corrected DoI
Step 1	22-Mar-2024	31-Mar-2024
Step 2	24-Mar-2024	28-Mar-2024
Step 3	31-Mar-2024	25-Mar-2024
Step 4	22-Mar-2024	24-Mar-2024
Step 5	23-Mar-2024	23-Mar-2024
Step 6	23-Mar-2024	23-Mar-2024
Step 7	22-Mar-2024	22-Mar-2024
Step 8	22-Mar-2024	22-Mar-2024
Step 9	25-Mar-2024	22-Mar-2024
Step 10	28-Mar-2024	22-Mar-2024
Region	West	West

Task 01 (10 marks) Read the given input file into appropriate data structure.

Task 02 For each product, check the installation procedure is satisfied as per the region. If not, perform the corrective steps.

1. North region: 20 marks
2. South region: 20 marks
3. East region: 20 marks
4. West region: 20 marks

Task 03 (5 marks) Print the output in a file.

Task 04 (5 marks) Till the input is "quit", take as input product number from the terminal and print the output of the product installation date before **task 02** and after **task 02**