Weather Report

In the country, several cities regularly send weather telegrams at intervals. The telegram is a short text message that contains the main weather information. We have all the telegrams for a given day from the country's territory.

The text file tavirathu13.txt contains weather data for the 13th day of a specific month. The data for a telegram is located on a single line, separated by spaces. Each line contains 4 pieces of data in the following format.

Location	text(2 characters)	The two-lettered code of the location
Time	text(hhmm format)	Time of measurement
Wind direction and strength	text(5 characters) wind direction (3 characters) -strength (2 characters)	Wind direction in degrees or text and its speed is given in knots
Temperature	int (2 characters)	Measured temperature (not negative)

The maximum number of rows is 500. The data is sorted by time.

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BP      0300        32007       21
PA      0315        35010       19
PR      0315        32009       19
SM      0315        01015       20
DC      0315        VRB01       21
SN      0315        00000       21
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In the example, at 03:15, in the PR locality, there was a wind blowing from the direction of 320 degrees at a speed of 9 knots. The temperature was 19 °C. At the same time, in the DC locality, there was a variable (VRB) wind direction at a speed of 1 knot, and the temperature was 21 °C.

Create a program that uses the data from the tavirathu13.txt file to answer the following questions! Save the source code of the program as 'metreport'. (When writing the program, you do not need to check the correctness or validity of the data provided by the user; you can assume that the available data conforms to the description.)

1. Read and store the data from the tavirathu13.txt file.
2. Request the city code from the user! Provide the time of the last measurement data from that particular city! Display the time in the format hh:mm in the output.
3. Determine when the lowest and highest temperatures were recorded during the day! Display the name of the locality associated with the measurement, the timestamp, and the temperature! If there are multiple highest or lowest values, it is sufficient to display one of them.
4. Determine the localities and timestamps where and when there was calm wind (calm wind is indicated in the telegram with the code 00000). If there were no such occurrences, then display the text 'There was no calm wind during the measurements.' When displaying, show the city code and the timestamp.
5. Determine the daily average temperature data and temperature variation for the localities! When displaying, include the city code at the beginning of the line as in the sample! Only display the text and values relevant to the solved part of the task.
a. The average temperature is the average of the temperature data when the hour value associated with the measurement is 1, 7, 13, or 19. If there was no measurement at any of these hours in a locality, then display the word 'NA' in the output. Calculate the average

temperature as the average of all data associated with these specified hours, giving equal weight to each value. Display the average temperature rounded to the nearest integer.
b. To calculate temperature variation, you should calculate the difference between the daily highest and lowest temperatures for that specific locality! (You can assume that there were at least two measurement data points for each locality.)
6.Create a text file for each locality, where the first line contains the city code. In the following lines, display the measurement timestamps and the corresponding wind speeds. Represent the wind speed using a number of double crosses (#) corresponding to the numerical value, as shown in the sample. Separate the timestamps and the double crosses representing wind speed with spaces. Name the file X.txt, where X represents the city code.