Homework #12

Due date: 21:30, January 5th, Tuesday, 2016

Problem statement

1. PM2.5 is now a very serious issue. Attachment is a csv file named PM2.5.csv from open data. Please write a program to read the file and sort the *site name* from A to Z. You should access the data in struct format, or you can't get any point.

   (1) Output the csv file named *outcomeSingle.csv*(50%).

   (2) Output the file named *outcomeBinary.bin* in binary format (30%)

	A	B	C	D	E	F
1	Site Name	MonitorMate	Concentration	Item Unit		
2	Makung	2015/12 / 5	15	μg / m3		
3	Kinmen	2015/12 / 5	29	μg / m3		
4	Matsu	2015/12 / 5	17	μg / m3		
5	Yilan	2015/12 / 5	11	μg / m3		
6	Yangming	2015/12 / 5	4	μg / m3		
7	Hualien	2015/12 / 5	11	μg / m3		
8	Taitung	2015/12 / 5	7	μg / m3		
9	Hengchun	2015/12/5	6	μg / m3		
10	Pingtung	2015/12 / 5	54	μg / m3		
11	Before gold	2015/12 / 5	45	μg / m3		
12	Mino	2015/12 / 5	47	μg / m3		
13	Tainan	2015/12 / 5	39	μg / m3		
14	New Camp	2015/12 / 5	43	μg / m3		
15	Chiayi	2015/12 / 5	51	μg / m3		
16	Putz	2015/12 / 5	37	μg / m3		
17		2015/12 / 5	51	μg / m3		

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	A	B	C	D	E	F	G
1	Site Name	MonitorMate	Concentration	Item Unit			
2	Bamboo Dong	2015/12 / 5	16	μg / m3			
3	Bamboo Dong	2015/12 / 2	17	μg / m3			
4	Bamboo Dong	2015/11 / 29	19	μg / m3			
5	Bamboo Dong	2015/11 / 26	12	μg / m3			
6	Bamboo Dong	2015/11 / 23	10	μg / m3			
7	Bamboo Dong	2015/11 / 20	10	μg / m3			
8	Bamboo Dong	2015/11 / 17	27	μg / m3			
9	Bamboo Dong	2015/11 / 14	18	μg / m3			

2. Read the data from the binary file *outcomeBinary.bin* in question 1, and sort *Concentration* from the max to the min when the condition in question 1 still exists.

(1) Output the file names *outcomePair.csv*. (20%)

	A	B	C	D	E	F
1	Site Name	MonitorMate	Concentration	Item Unit		
2	Bamboo Dong	2015/11 / 5	38	μ g / m3		
3	Bamboo Dong	2015/9 / 21	38	μ g / m3		
4	Bamboo Dong	2015/11 / 8	36	μ g / m3		
5	Bamboo Dong	2015/10 / 27	34	μ g / m3		
6	Bamboo Dong	2015/11 / 17	27	μ g / m3		
7	Bamboo Dong	2015/10 / 3	23	μ g / m3		
8	Bamboo Dong	2015/10 / 12	22	μ g / m3		
9	Bamboo Dong	2015/10 / 30	21	μ g / m3		
10	Bamboo Dong	2015/9 / 24	21	μ g / m3		
11	Bamboo Dong	2015/11 / 29	19	μ g / m3		
12	Bamboo Dong	2015/9 / 18	19	μ g / m3		
13	Bamboo Dong	2015/11 / 14	18	μ g / m3		

Requirements

1. Write a C program that is capable of handling input.
2. You should access the data in struct format, or you can't get any point.
3. In question 2, you only can read the input information from the binary file in question1, and construct the struct again.

Submission

Be sure to upload your source code to E3 by the due date and name your file as "**HW12_xxxxxxx.zip**", where **xxxxxxx** is your student ID.
The zip file contains five files,
(1) HW12_xxxxxxx.c
(2) PM2.5.csv
(3) *outcomeSingle.csv*
(4) *outcomeBinary.bin*
(5) *outcomePair.csv*

Hint

You can use linked-list to implement the code.