Program development methodology: English first, then Python

1. **Define the problem**
    A. Write an English description of the input and output. (Do not give details about *how you will compute* the output.)
    B. Create test cases
        - Input *and* expected output
2. **Decide upon an algorithm**
    A. Implement it in English
        - Write the recipe or step-by-step instructions
    B. Test it using paper and pencil
        - Use small but not trivial test cases
        - Play computer, animating the algorithm
        - Be introspective
            1. Notice what you really do
            2. May be more or less than what you wrote down
            3. Make the algorithm more precise
3. **Translate it into code**
    A. Implement it in Python
        - Decompose it into logical units (functions)
        - For each function:
            – Name it (important and difficult!)
            – Write its documentation string (its specification)
            – Write tests
            – Write its code
            – Test it
    B. Run the system test

Problem

You are given a csv file containing information about delay of all flights, at all major airports in the USA for one particular month.

For a given list of airports, for each airport, considering all flights that originate at that airport, calculate the average delay per day of the month. Print this information to a .txt file and also plot all airports on one graph.

Hint: We will plot things using a method that works like this: plot(x_values, y_values)

Sample Input in a csv file for November 2012:

YEAR	MONTH	DAY_OF_MONTH	CARRIER	TAIL_NUM	FL_NUM	ORIGIN	DEST	DELAY
2012	11	1	AA	N324AA	1	JFK	LAX	2
2012	11	2	AA	N338AA	1	JFK	LAX	0
2012	11	3	AA	N323AA	1	JFK	LAX	5
2012	11	4	AA	N335AA	1	JFK	LAX	0
2012	11	5	AA	N335AA	1	JFK	LAX	0
2012	11	6	AA	N335AA	1	JFK	LAX	0

Sample Output to a text file:

```
Average Delay in minutes:
Delay for SEA
Day   Avg Delay
1     11.74
2     4.41
3     3.19
4     7.38
…
25    17.62
26    6.66
27    5.7
…
```

Sample Plot: