

A Simple Program using Dynamic Arrays

Part I:

Write a program that uses a dynamic array to compute the information about temperatures over a set of days. The first line of your file has a number that specifies how many temperatures follow. The next number of lines contain the temperatures. For example, your data file might look as follows:

```
8
66
62
70
71
71
70
59
59
```

Your program should do the following:

- 1) Declare an `int` pointer `Temperature` which will be used for the dynamic array
- 2) Declare an `int` variable `numDays`
- 3) Read in the number of days for which temperatures will be computed
- 4) Dynamically allocate an array large enough to hold that many days
- 5) Read the temperatures for each day into the array (use pointer notation)
- 6) Calculate the average temperature (use pointer notation)
- 7) Print out the result

Part II:

Using the code from Part I, change it so that instead of using the first entry in the txt file to determine the size of the array, you first read through the file and count how many entries there are. Then you create your dynamic array to the appropriate size, close and reopen the file, and then read it into the dynamic array. This will allow for us to use this program for txt file with an unknown number of entries.

Part III:

Use the code for part 1 to make this work with any number of items in a text file. Create the Dynamic Array with a default size and then increase it if the array becomes full and needs to enlarge to accommodate the number of items in the file.