Home Exam 1 for PG3400 - Basic C Programming

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September 2015

1 Instructions

- You are encouraged to discuss about the problem and possible solutions, but your code is expected to be independent.
- Discussions on the forum might be particularly useful since I follow them too.
- The deadline is 27th of September and it is enforced by the system.
- Work alone or in pairs
- The style of the code will also be considered in grading.

2 Number input

In the course we saw how to input from the terminal using scanf(). But you can use the following snippet to read from the _le. Here FILENAME is a string containing the filename.

```
FILE* f = fopen (FILENAME, "r");
int i = 0;
fscanf (f, "%d", &i);
while (!feof (file))
{
      fscanf (f, "%d", &i);
}
fclose (f);
```

Write a program that takes a filename as input and reads the integers from the file until the end of file. This program should store the numbers in an array and also the count in a variable. The count could vary from 2 integers to 200000 integers.
Example: ./myprogram 1.txt
Execution of this must read all the integers in 1.txt
BONUS: For dynamic memory allocation

3 Sorting

Once the numbers are read into the memory, you should sort them and have them in the same array.
Recommended sort: Bubble sort
BONUS: Multiple sort algorithms, user choose.

4 Search

After the sorting of the integers is performed. The program will output the following message :
Please input an integer for search:
Then the output should be:

- if the integer is found, the position of the integer in the sorted array
- else, inform the user that the integer is not in the array
- if the input is 0 - quit the program

Recommended Search: Binary search
BONUS: If you can find the position of the searched integer in the original file. You might want to store the index somewhere when you sort!