## Assignment #4

In this assignment you will have to re-do Assignment #3 with techniques used in Chapter 7 and 8. Your code MUST use arrays in functions 1-6 and 8 of the program. Read below for the specifics of the program. Note that there is a new functionality added to the program, as option #8 (which was previous QUIT).

You are to develop a console application of a grade book with students' names and their grades. At the initial screen, your program shows the following options (main menu):

```
Display names and grades (1)
Display just names (2)
Calculate average (3)
Maximum (4)
Minimum (5)
Draw graph (6)
Add item (7)
Delete item (8)
Quit (9)
```

The user can choose one of the options by typing one of the numbers and pushing the return key. Each option should be implemented using a sub procedure. The following table explains what each option is supposed to do:

Option	Task
Display names and grades	Read the file "grade.txt" and display students'
	names and their grades
Display just names	Read the file "grade.txt" and display students'
	names.
Calculate average	Read the file "grade.txt", calculate the average
	of all the grades, and display the average.
Maximum	Read the file "grade.txt" and display the name
	of the student who got the maximum grade and
	his/her grade.
Minimum	Read the file "grade.txt" and display the name
	of the student who got the minimum grade and
	his/her grade.
Draw graph	Read the file "grade.txt", display students'
	names, and draw bar graphs proportional to
	their grades using "*".
Add item	Get a name and a grade from the user and
	append them to the file "grade.txt".
Delete Item	Get the name of the student, and then delete
	that student and grade from the input file.
Quit	Stop the program.

After the task of the chosen option is done, your program should show the main menu again for the user to choose the next option. The number of students in the file is arbitrary and your program should handle any number of students' names and their grades. An example of the file "grade.txt" can be:

Simon Crown 78 Jane Parker 94 Sarah Jenion 81 Tom Brown 56

The following example shows possible activities of the user:

>Welcome to the Gradebook program! Please choose one of the following options:		
Display names and grades (1)		
Display just names (2)		
Calculate average (3)		
Maximum (4)		
Minimum (5)		
Draw graph (6)		
Add item (7)		
Delete item (8)		
Quit (9)		
Your option: 8		
Enter Name: Simon Crown		
> Simon Crown Deleted.		
> Please choose one of the following options:		
Display names and grades (1)		
Display just names (2)		
Calculate average (3)		
Maximum (4)		
Minimum (5)		
Draw graph (6)		
Add item (7)		
Quit (8)		
Your option: 6		
Simon Crown: ******		
Jane Parker: *******		
Sarah Jenion: ******		
Tom Brown: *****		

For option 6, round each grade to a whole number and display an asterisk for each 10 points (ex. for 76 points, display 8 asterisks). For a better comparison, align all the first asterisks of the rows vertically (as shown above). For option 7, get a name and a grade from the user and append them in the next line right after the last item in the file (no blank line between them). For option 8, delete all entries in the file with the name of the student which was entered (delete all instances of the student).

Please apply the programming principles you learned in class (top-down/modular design and structured programming) to your program.

Marking Criteria:

- Use of the top-down design and structured programming: 10%
- Correct functionality: 50 %
- In-code documentation: 20%
- Pseudo-code: 20%