Solving simple problems using modular programming

Objectives

Using Python to solve simple problems

- Implement simple programs using Python
- Solve simple problems using read/write instructions, conditional, loops
- Implement functions, use test-driven development
- Use modular programming
- Implement file operations

Requirements

Write an application to manage a list of students. Implement functions to read data, process data and display output results. Write functions and test them using assertions.

Each student has a name (string) and a grade (int).

The application should provide a menu type interface.

Requirements:

1. Print all students.
2. Add a student.
3. Find a student by name.
4. Delete student by name.
5. Show students with grades greater than a given value.
6. Find a student with the maximal grade.
7. Split the application into modules .

8. Find all students with the name starting with a given letter or substring.
9. Remove all students with the grade smaller than 5.
10. Delete students for which the name is a palindrome.
11. Determine the frequency of a given name in student list.
12. Compute the average grade of all students having the grade higher than 5.
13. Sort students according to their grade (descending).
14. Find the top students according to their grade (example: top 3 students).
15. Write the list of students into a specified file.
16. Read the list of students from a specified file.