

Web Development with Python

Homework Assignments

Module: Sorting and Searching

Part 1

Task 1

Sort the first two-thirds of the list in ascending order if the arithmetic mean of all elements is greater than 0; otherwise, sort only the first third. The rest of the list is not sorted but arranged in reverse order.

Task 2

Create an app Progress. The user inputs 10 grades that the student has got. Grades range from 1 to 12. Implement a user menu:

- Output grades (output list contents);
- Retake exam (the user inputs an element number in the list and a new grade);
- Whether the student will get a scholarship (students receive a scholarship if their average grade is at least 10.7);
- Output a sorted list of grades: in ascending or descending order.

Task 3

Create an app that sorts a list using the advanced bubble sort. The improvement is to analyze the number of swaps at each step; if this number is equal to 0, there is no point in continuing sorting — the list has been sorted.