

Practice 01 Problems

Object-oriented programming and structs

1. Create a struct that stores a complex number.
2. Create a function that adds two complex numbers together.
3. Write a function that prints a complex number correctly.
4. Create a struct Distance that has two members - inches and feet.
Write a function that prints a distance in the format <feet>'<inches>".
Example: 5 foot and 10 inches should be printed as 5'10".
5. Write a function that adds two distances together (1 foot = 12 inches).
Example: 4'9" + 2'7" = 7'4"
6. Create a struct TimePeriod (hours, minutes, seconds).
Write a function that prints a time period in the format hh:mm:ss.
Write a function that calculates the difference between two time periods.
Example: The difference between 2:30:15 and 3:15:45 is 0:45:30
7. Create a struct Student that has two data members - single name and faculty number. Write functions to input/output a Student.
8. Store and print information of 5 students.
9. Store and print information of n students.
10. Create a struct Grade that has two data members - subject and grade.
Write functions to input/output a Grade.
Add an array of 3 Grades as a data member to the struct Student and modify the input/output function for Student to accommodate the Grades array.
11. Write a function that accepts an array of Students and a grade. For each Student the function should either print all the subjects with higher than the given grade or "No such subjects" otherwise.
Example input:
`arr = [{Georgi, [{LA, 5}, {AA, 4}, {OOP, 6}]}, {Petar, [{LA, 3}, {AA, 2}, {OOP, 4}]}]`
`grade = 4`
Example output:
`Georgi -> LA, OOP`
`Petar -> No such subjects`
12. Read from the console and store information for n students and sort them by average grades, highest to lowest. Print the sorted students.