

Programming Challenges

From Beginning with C++, Early Objects; Gaddis, et al.

8. Star Search

A particular talent competition has 5 judges, each of whom awards a score between 0 and 10 to each performer. Fractional scores, such as 8.3, are allowed. A performer's final score is determined by dropping the highest and lowest score received, then averaging the 3 remaining scores. Write a program that uses these rules to calculate and display a contestant's score. It should include the following functions:

- void getJudgeData() should ask the user for a judge's score, store it in a reference parameter variable, and validate it. This function should be called by main once for each of the 5 judges.
- double calcScore() should calculate and return the average of the 3 scores that remain after dropping the highest and lowest scores the performer received. This function should be called just once by main, and should be passed the 5 scores.

The last two functions, described below, should be called by calcScore, which uses the returned information to determine which of the scores to drop.

- int findLowest() should find and return the lowest of the 5 scores passed to it.
- int findHighest() should find and return the highest of the 5 scores passed to it.

Input Validation: Do not accept judge scores lower than 0 or higher than 10.

14. Overloaded Hospital

Write a program that computes and displays the charges for a patient's hospital stay. First, the program should ask if the patient was admitted as an in- patient or an out- patient. If the patient was an in- patient the following data should be entered:

- The number of days spent in the hospital
- The daily rate
- Charges for hospital services (lab tests, etc.)
- Hospital medication charges.

If the patient was an out- patient the following data should be entered:

- Charges for hospital services (lab tests, etc.)
- Hospital medication charges.

The program should use two overloaded functions to calculate the total charges. One of the functions should accept arguments for the in- patient data, while the other function accepts arguments for out- patient data. Both functions should return the total charges.

Input Validation: Do not accept negative numbers for any information.