

Homework – Chapter 5 – Bowling Scores:

33. Write a complete C++ program to do the following: The main program reads in three bowling scores, score1, score2, and score3. It then calls a series of functions to process these scores.

The main program calls a function validgroup() to determine if this set of three values forms a valid group. The function validgroup() receives three parameters. For the group to be valid, each number must be in the range from 0 to 300 (the possible scores in a bowling game). If the group is valid, the function prints a message saying so. If one or more of the numbers is negative or greater than 300, the function prints an overall message that the group is invalid. In addition, for each invalid value, the function prints the score and a message.

If the group is not valid, the main program skips processing and simply goes on to the next group of three values.

If the group is valid, the main program calls a function onegamescore(), sending it one parameter, the value score1. This value is an integer from 0 to 300 (how can we be sure of this?). The function converts the score into a rating, using the following system: 250 to 300 is a professional game; 200 to 249 is an excellent game; 140 to 199 is a very good game; 100 to 139 is a good game; 50 to 99 is a poor game; below 50 is a horrible game. The function prints a message with the original score and the bowler's rating. Then the main program repeats this process for score2 and score3.

Next the main program calls a function avg3scores(), sending it three parameters: the three scores. The function avg3scores() finds the average (as an integer) of the three scores and send it back. The main program prints the average. Finally, the main program calls onegamescore() again, sending it the resulting average from the function avg3scores(). The main program then prints three blank lines.

Then the main program goes on to the next group of three values. When the main program runs out of groups (your program must determine this), it prints the final values of three counters it has been keeping track of: the total number of groups processed, the number of valid groups, and the number of invalid groups.