Template Design/Testing Document

Problem Statement: Write a C++ program that continues to ask the user for **n** test scores. These test scores should **range from 0 to 100**, and your program needs to check that the scores supplied are valid numbers before moving forward. This may include making sure the user doesn't enter a letter or string of letters.
- Ask the user for the number of test scores he/she wants to enter.
- Repeatedly, ask the user for that number of test scores.
  - For each test score received, check that the test score is a number and it is between 0-100.
  - Print an error message if the number is not in this range, and re-prompt the user for another number.
- After receiving good test scores, then calculate the average and output it to the screen.
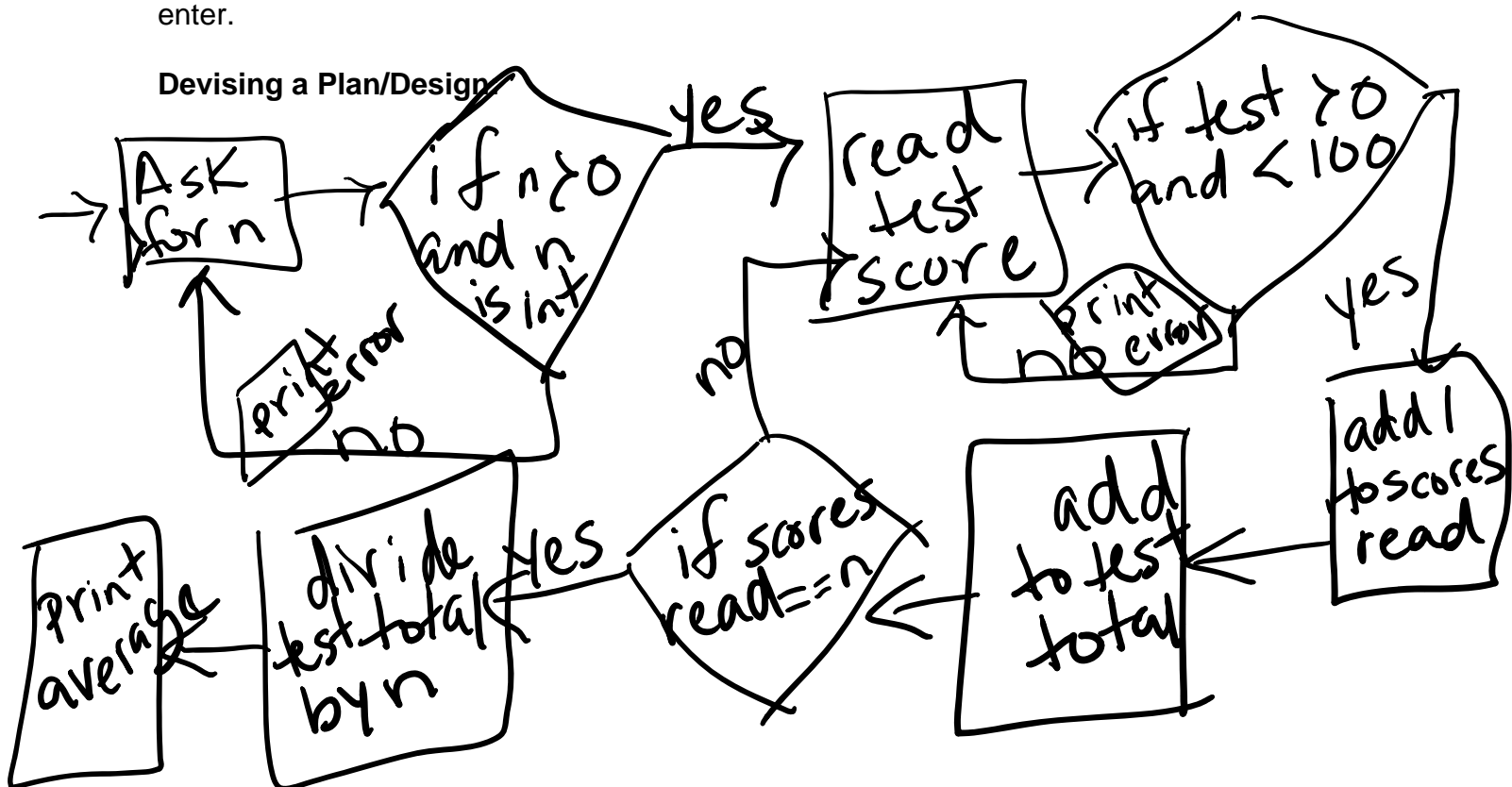
Understanding the Problem:
This problem is asking me to read an unsigned whole number value, n, from the user, and then read n unsigned real numbers, which represent test scores, from the user. These scores need to be between 0 and 100, as well as a valid real number. If the user doesn't enter a valid number or a number in the range, then an error message is printed, and the user is prompted to enter a new number without taking away from the n valid numbers the user is entering. After the user enters n valid real numbers in the range of 0-100, then the average is calculated and printed to the screen.

I am assuming the number of tests is an unsigned whole number.
I am assuming the test scores can be unsigned real numbers, instead of just integers.
I am assuming that errors in the user input does not count against the n numbers to enter.

Devising a Plan/Design:

Declare n
Prompt user for n
Read n from user
While (n < 0) or (n not an int)
    Print error mssg.
    Promt user for n
    Read n

For n test scores
    Prompt user for score
    Read score
    While (score > 100) or (score < 0)
        Print error mssg.
        Promt user for score
        Read score
    Add score to totalscores
    Increment test scores read

Calculate average by totalscores/n

Print test average

don't to want to divide by 0

Planned testing:
Based on if (n ≤ 0)

Testing:

Value	Expected	Actual meet expected
n = 0	Nothing, just exit	Yes
n = -1	Error message and re-prompt the user for a good n value	Yes

n = 1.5	Error message and re-prompt the user for a good n value	Yes
n = 1	Prompt user for 1 test score	yes
n = 5	Prompt user for 5 tests	yes
test score = -1	Error message and re-prompt the user for a good test value. This should not count as one of the n tests.	yes
test score = 100.5	Error message and re-prompt the user for a good test value. This should not count as one of the n tests.	Yes
test score = 0	Continue to prompt for another test score.	Yes
n = 1, test score = 100	Average should be 100	yes
n = 1, test score = 100.5, test score = 0	Error message for test score, re-prompt for a new test score, and only use valid n tests in average. Average should be 0	yes
n = 3, test score = 100, test score = 0, test score = 50	Average should be 50	yes