Heart Rate for Aerobic Exercise

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1 The Problem

To receive the maximum benefit from aerobic exercise, it is important to elevate the heart rate (measured in beats per minute) so that it lies in a certain target zone. The target zone is a function of a person’s age. To compute the target zone, perform the following computations.

1 Subtract the person’s age from the number 220. Call this number $n$.

2 The upper bound of the range is $0.85 \times n$.

3 The lower bound of the range is $0.65 \times n$.

The heart rate should be within the range $0.65 \times n$ to $0.85 \times n$. For example, for a person 18 years of age, $n = 220 - 18 = 202$. Therefore, $0.65 \times n = 131.3$ and $0.85 \times n = 171.7$, and so the target zone for an 18-year-old person is between 131.3 and 171.7.

2 The Program

Write a C++ program that will prompt the user for his or her age and then output the target range. The output should look something like the dialog below.

```
Input your age: 18
Target zone: 131.3 to 171.7
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The boldface “18” is what the user types on the keyboard.
3 Embellishment

Write the program so that it prints out the target zone for all ages between \texttt{minAge} and \texttt{maxAge} where \texttt{minAge} and \texttt{maxAge} are integer-valued variables whose values are selected by the user at the beginning of the program.