GE 1111

Lab #2

Tutorial for Learning C++

Temperature Conversion

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**Pseudocode**

include appropriate headers

f = input: float or int of temp in Fahrenheit

c = (f-32)\*9/5

k = c + 274.15

r = k \* 9/5

output: temp in fahrenheit

output: temp in celsius

output: temp in kelvin

output: temp in rankine

**Source Code**

#include <iostream>

#include <cmath>

using namespace std;

int main ()

{

//Declare variables

double fahren, celsius, kelvin, rankine;

//Take user input for a Fahrenheit temperature

cout << "Input the temperature in Fahrenheit: "; //prompt the user

cin >> fahren;

//Convert the input into Celsius, Kelvin, and Rankine

celsius = (5.0/9.0) \* (fahren - 32.0);

kelvin = celsius + 273.15;

rankine = (9.0/5.0) \* kelvin;

//print temperatures to the console

cout << "The temperature in Celsius is: " << celsius << " degrees C. \n\n";

cout << "The temperature in Kelvin is: " << kelvin << " K. \n\n";

cout << "The temperature in Rankine is: " << rankine << " rankine. \n\n";

return 0; //exit the program

}

**Issues**

The pair programming technique allowed us to catch most potential errors as we were writing the code. There were, however, two major problems that we did not catch until we tried to compile the code. First, we forgot to put the main section of the code in the main() function, which of course prevented the code from compiling. Second, we did not remember to cast the conversion factors to floats, so some of the conversions would always result in zero. We fixed this issue (e.g. changed 5/9 to 5.0/9.0) and the conversions worked as expected afterwards.

**Summary**