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/*
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Assignment: HW4.6

This program prompts the user for two units and then a number.
It then converts said number from the first unit provided to the
second.
*/

#include <iostream>
#include <string>
using namespace std;

int main()
{
  bool done = false;
  string unit1 = "";
  string unit2 = "";
  double factor1 = 0; // conversion factor from first unit to cm
  double factor2 = 0; // conversion factor from cm to second unit

  while (!done)
    {
      bool again = false; // true to repeat the same conversion
      cout << "From unit (in, cm, m, again, quit): " << endl;
      string command;
      cin >> command;
      if (command == "in")
            {
              factor1 = 2.54;
              unit1 = command;
            }
      else if (command == "cm")
            {
              factor1 = 1;
              unit1 = command;
            }
      else if (command == "m")
            {
              factor1 = 100;
              unit1 = command;
            }
      else if (command == "again")
            {
              again = true;
            }
      else if (command == "quit")
            {
              done = true;
            }
      else
            {
              cout << "Sorry, unknown unit." << endl;
            }

      if (factor1 != 0 && !again && !done)
            {
              cout << "To unit: " << endl;
              cin >> unit2;
              if (unit2 == "in")
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            {
              factor2 = 1.0 / 2.54;
            }
          else if (unit2 == "cm")
            {
              factor2 = 1;
            }
          else if (unit2 == "m")
            {
              factor2 = 1.0 / 100;
            }
          else
            {
              cout << "Sorry, unknown unit." << endl;
            }
        }

    if (factor1 != 0 && factor2 != 0 && !done)  {
        //cout << "Please input the number you want converted: ";
        double input = 0;
        cin >> input;
        double converted = 0;
        converted = input * factor1;
        converted *= factor2;
        cout << input << " " << unit1 << " = " << converted << " " << unit2 << endl;
    }
   }
  return 0;
}
```