```
/*
*******************************************************************************
FILENAME        ohmslaw.cpp

Encoding        UTF-8

DESCRIPTION     Calculate Voltage, Resistance, Current.

FUNCTIONS

NOTES           Menu language - English

Compiler        g++ 9.3.0 amd64 running @ Ubuntu 20.04 LTS

Lang dialect    ISO C++14 (g++ by default uses option '-std=gnu++14')

                Copyright L.Krüger 2020. All rights reserved.

AUTHOR          Leif Krüger, leif@leifkruger.se

CHANGES

REF NO  VERSION     DATE (YYMMDD)   WHO DETAIL
-------------------------------------------------------------------------------
        1           2020-11-04      LK  Start date
        2           2020-11-05      LK  Uses more general functions
*******************************************************************************
*/

#include <iostream>
using namespace std;

void checkInput(string quantity, double *uriVariable);
void showResultat(string quantity, double *uriVariable1, double *uriVariable2);

struct ohmsLaw {
    double voltage;
    double current;
    double resistance;
};

int main() {
    char chooseRunagain;
    do {
        char chooseCalculationUri;
        ohmsLaw uri;
        cout << "\nOhm's law" << endl;
        cout << "=========" << endl;
        cout << "Select the quantity to be calculated:" << endl;
        cout << "Voltage (u), Resistance (r), Current (i)? ";
        cin >> chooseCalculationUri;
        chooseCalculationUri = tolower(chooseCalculationUri);

        switch(chooseCalculationUri) {
            case 'u':
                checkInput("Current (A)", &uri.current);
                checkInput("Resistance (Ohm)", &uri.resistance);
                showResultat("Voltage", &uri.current, &uri.resistance);
                break;
            case 'r':
                checkInput("Voltage (V)", &uri.voltage);
                checkInput("Current (A)", &uri.current);
```

```
63                  showResultat("Resistance", &uri.voltage, &uri.current);
64                  break;
65              case 'i':
66                  checkInput("Voltage (V)", &uri.voltage);
67                  checkInput("Resistance (Ohm)", &uri.resistance);
68                  showResultat("Current", &uri.voltage, &uri.resistance);
69                  break;
70              default:
71                  cout << "\nSorry wrong menu selection!\n";
72          }
73
74          cout << "\nDo you want to do a new calculation, y/n? ";
75          cin >> chooseRunagain;
76          chooseRunagain = tolower(chooseRunagain);
77      } while (chooseRunagain != 'n');
78      return 0;
79  }
80
81  void checkInput(string quantity, double *uriVariable) {
82      do {
83          cin.clear(); // clear the input stream
84          cin.ignore(100, '\n'); // ignore remaining input
85          cout << quantity << "? ";
86          cin >> *uriVariable;
87      }
88      while (cin.fail());
89  }
90
91  void showResultat(string quantity, double *uriVariable1, double *uriVariable2) {
92      if (quantity == "Voltage") {
93          cout << "Result: " << quantity << " = " << *uriVariable1 * *uriVariable2
94           << " V" << endl;
95      }
96      else if (quantity == "Resistance") {
97          cout << "Result: " << quantity << " = " << *uriVariable1 / *uriVariable2
98           << " Ohm" << endl;
99      }
100     else if (quantity == "Current") {
101         cout << "Result: " << quantity << " = " << *uriVariable1 / *uriVariable2
102          << " A" << endl;
103     }
104 }
```