```cpp
1  /*
2  ******************************************************************************
3  FILENAME        ohmslaw_ver2.cpp
4
5  Encoding        UTF-8
6
7  DESCRIPTION     Calculate Voltage, Resistance, Current.
8
9  FUNCTIONS       Using cin.fail etc. Using switch-loop.
10
11 NOTES           Menu language - English
12
13 Compiler        g++ 9.3.0 amd64 running @ Ubuntu 20.04 LTS
14
15 Lang dialect    ISO C++14 (g++ by default uses option '-std=gnu++14')
16
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18
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20
21 CHANGES
22
23 REF NO   VERSION      DATE (YYMMDD)   WHO DETAIL
24 -----------------------------------------------------------------------------
25       1              2020-11-04       LK  Start date
26       2              2020-11-05       LK  Uses more general functions
27       3              2020-11-06       LK  Use of INT_MAX in function checkInput
28 ******************************************************************************
29 */
30
31 #include <iostream>
32 #include <climits>
33 using namespace std;
34
35 void checkInput(string quantity, double *uriVariable);
36 void showResultat(string quantity, double *uriVariable1, double *uriVariable2);
37
38 struct ohmsLaw {
39     double voltage;
40     double current;
41     double resistance;
42 };
43
44 int main() {
45     char chooseRunagain;
46     do {
47         char chooseCalculationUri;
48         ohmsLaw uri;
49         cout << "\nOhm's law" << endl;
50         cout << "=========" << endl;
51         cout << "Select the quantity to be calculated:" << endl;
52         cout << "Voltage (u), Resistance (r), Current (i)? ";
53         cin >> chooseCalculationUri;
54         chooseCalculationUri = tolower(chooseCalculationUri);
55
56         switch(chooseCalculationUri) {
57             case 'u':
58                 checkInput("Current (A)", &uri.current);
59                 checkInput("Resistance (Ohm)", &uri.resistance);
60                 showResultat("Voltage", &uri.current, &uri.resistance);
61                 break;
62             case 'r':
```

```cpp
63              checkInput("Voltage (V)", &uri.voltage);
64              checkInput("Current (A)", &uri.current);
65              showResultat("Resistance", &uri.voltage, &uri.current);
66              break;
67          case 'i':
68              checkInput("Voltage (V)", &uri.voltage);
69              checkInput("Resistance (Ohm)", &uri.resistance);
70              showResultat("Current", &uri.voltage, &uri.resistance);
71              break;
72          default:
73              cout << "\nSorry wrong menu selection!\n";
74          }
75
76      cout << "\nDo you want to do a new calculation, y/n? ";
77      cin >> chooseRunagain;
78      chooseRunagain = tolower(chooseRunagain);
79      } while (chooseRunagain != 'n');
80      return 0;
81 }
82
83 void checkInput(string quantity, double *uriVariable) {
84      do {
85          cin.clear(); // clear the input stream
86          cin.ignore(INT_MAX, '\n'); // ignore remaining input
87          cout << quantity << "? ";
88          cin >> *uriVariable;
89      }
90      while (cin.fail());
91 }
92
93 void showResultat(string quantity, double *uriVariable1, double *uriVariable2) {
94      if (quantity == "Voltage") {
95          cout << "Result: " << quantity << " = " << *uriVariable1 * *uriVariable2
96          << " V" << endl;
97      }
98      else if (quantity == "Resistance") {
99          cout << "Result: " << quantity << " = " << *uriVariable1 / *uriVariable2
100         << " Ohm" << endl;
101     }
102     else if (quantity == "Current") {
103         cout << "Result: " << quantity << " = " << *uriVariable1 / *uriVariable2
104         << " A" << endl;
105     }
106 }
```