```
Script started on 2023-09-25 12:36:04-05:00 [TERM="xterm" TTY="/dev/pts/6" COLUMNS=
a_vitale3@ares:~$ pwd
/home/students/a_vitale3
a_vitale3@ares:~$ cat resistance.info
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Class: CSC121



Activity: Resistance

Level: 4



Description:



Program that takes 2 reistances and calculates their series and parallel resistance

a_vitale3@ares:~$ show-code resistance.cpp


resistance.cpp:
```

```cpp
#include <iostream>
#include <limits>

using namespace std;

int main(void)
{
        double resistance1,
                resistance2,
                sresistance,
                presistance;
        constexpr streamsize INF_FLAG{numeric_limits<streamsize>::max()};
        char user = 'y';

        while(user == 'y')
        {
                cout << "Hello and welcome to the resistance calculating s
                "please enter your resistance values here.\n";

                cout << "First resistance: ";
                cin >> resistance1;
                cin.ignore(INF_FLAG, '\n');

                cout << "Second resistance: ";
                cin     >> resistance2;
                cin.ignore(INF_FLAG, '\n');

                cout << "The resistance values you enetered were "
                << resistance1 << " Ohms and " << resistance2 << " Ohms.\n'

                sresistance = resistance1 + resistance2;
                presistance = (1/((1/resistance1)+(1/resistance2)));

                cout << "Now calculating series resistance and parallel re
                cout << "Your series resistance is " << sresistance << " O
                << presistance << " Ohms.\n";

                cout << "Would you like to Calculate again?\n";
                cin >> user;
                cin.ignore(20, '\n');
        }
        return 0;
}
```

```
a_vitale3@ares:~$ CPP resistance
resistance.cpp***


a_vitale3@ares:~$ ./resistance.out
Hello and welcome to the resistance calculating software. please enter your resista
First resistance: 13
Second resistance: 76
The resistance values you enetered were 13 Ohms and 76 Ohms.
Now calculating series resistance and parallel resistance...
Your series resistance is 89 Ohms and your parallel resistance is 11.1011 Ohms.
Would you like to Calculate again?
y
Hello and welcome to the resistance calculating software. please enter your resista
First resistance: 93
Second resistance: 12
The resistance values you enetered were 93 Ohms and 12 Ohms.
Now calculating series resistance and parallel resistance...
Your series resistance is 105 Ohms and your parallel resistance is 10.6286 Ohms.
Would you like to Calculate again?
yes
Hello and welcome to the resistance calculating software. please enter your resista
First resistance: 92
Second resistance: 12
The resistance values you enetered were 92 Ohms and 12 Ohms.
Now calculating series resistance and parallel resistance...
Your series resistance is 104 Ohms and your parallel resistance is 10.6154 Ohms.
Would you like to Calculate again?
no
a_vitale3@ares:~$ cat prognamesistnactance
Q1:

How many cin statements do we needin this program?
```

A1:

There needs to be a minimum of 2 cin statements in this program.

Q2:

Does it matter what order the user types their two resistance values into your prog

A2:

No, it would not matter what order the 2 resistance values are entered in because t
2 fractions into 1 fraction.

Q3:

Should the "welcome" message and the "enter" prompt be printed from the same cout s

A3:

Most likely not, just so the formating is a bit easier to read.

Q4:

What happens if the user types their numbers on separate lines (instead of simply s

A4:

cin will still be able to find the 2 variables as it will always look for 2 inputs

Q5:

In the mathematical notation of the equivalent parallel resistance formula, the div
acts as a grouping symbol. How do you ensure that the sum in the denominator of thi
rational expression is treated as a single group when translating the formula into

A5:

To make sure the sum in the denominator of the expression is treated as a single gr
() to make sure the computer calculates the denominator completely first, then the

Q6:

i.

How many variables would seem reasonable to use for this program?

ii.

How many variables would be a bare minimum to use here?

iii.

How many variables would seem to be almost too many?

A6:

i.

4 variables are resonable.

ii.

the bare minimum useable variables would be 2.

iii.

using something like 10 vairiables would be unnecessary.

Q7:

Recall that domain restrictions can come from both the algebraic operations in an e

well as real-world concerns. What values are not allowed mathematically for R1 and

What values are not allowed from real-world considerations for R1 and R2?

Do RS and RP have any restrictions on them?

A7:

mathematically the values not allowed are negative.

real world resistance values that are not allowed are negative values and decimal v

restrictions for series and parallel resistance are they can't be negative.

Q8:

What would happen if the user typed in strange values for the resistance(s):

i.

negative values

ii.

zero values

A8:

i.

negative values (don't exist) but if they did it would still tell the user the "co

ii.

zero values would still tell the user the correct series and parallel reisistances

+Level 1 TPQ

Q1:

If the user's input is potentially followed by garbage, how can we throw it away?

A1:

to ignore everything after what we want, we use cin.ignore.

Q2:

Does this facility require anything other than our usual #include of iostream at th

A2:

to use cin.ignore, #include <limits> has to be included.

Q3:

Why don't we need/use the string data type in this situation?

A3:

String could remove the numbers we want to use to calulate series and parallel resi

a_vitale3@ares:~$ exit
exit

Script done on 2023-09-25 12:38:15-05:00 [COMMAND_EXIT_CODE="0"]