## How to create a menu for command prompt usage

A menu in a loop provides the programmer with a way to keep running a program that has a variety of options until the user has exhausted all of their tasks. As teachers / users we love them because they allow many runs of a program to test lots of data to ensure a program actually does what it is expected to do. You should love this feature too.

A sample menu in a `do-while` loop:

```cpp
char option;     // Declaring a char variable for menu input
int temp;
double celsius, fahrenheit;

do
{
    cout << "Temperature Converter by WeatherBug << endl;
    cout << "A. Fahrenheit to Celsius" << endl;
    cout << "B. Celsius to Fahrenheit " << endl;
    cout << "Q. Quit" << endl << endl;
    cout << "Please choose an option: ";
    cin >> option;
    cout << "Enter the temperature: ";
    cin >> temp;

    if (option == 'A')                      // if the user input the letter A
    {
       celsius = ((5.0 / 9.0) * (temp - 32));
       cout << "The temperature in degrees Celsius is " << celsius << endl;
    }
    else if (option == 'B')             // if the user input the letter B
    {
       fahrenheit = (temp * (9.0 / 5.0) + 32);
       cout << "The temperature in degrees Fahrenheit is " << fahrenheit << endl;
    }
    else if (option != 'Q' && option != 'A' && option != 'B')   //invalid input
        cout << "Please input a valid option.";

}while(option != 'Q');                   // repeat menu until the user
                                         // chooses to quit
```

The display on the screen looks like this:

```
Temperature Converter by WeatherBug

A. Fahrenheit to Celsius
B. Celsius to Fahrenheit
Q. Quit

Please choose an option: B

Enter the temperature: 23
The temperature in degrees Fahrenheit is: 73.4

A. Fahrenheit to Celsius
B. Celsius to Fahrenheit
Q. Quit

Please choose an option: D

Please input a valid option.

A. Fahrenheit to Celsius
B. Celsius to Fahrenheit
Q. Quit

Please choose an option: Q
GoodBye.
```

*Notes:*

- We do not declare `char` variables with names like A or B. Those are values the `char` variable might have. Names like `option, menu, choice, AorB,` etc. are all much better.

- Using a `do-while` loop is great for a menu because it will always execute at least once.

- When testing if a `char` variable has a certain value, the value must be in <u>single</u> quotes.

- We cannot check if `option != 'A' || option != 'B'` because one of those cases will always be true.