HW 2 – Soil Quality

ELEC 3150 – Object Oriented Programming (Fall 2023)

Nick Cebula

Question 1:

```
//multidemensional array
//4 row 3 column
int soil[4][3] = {
    {15,10,8},
    {5,13,3},
    {41,11,11},
    {10,5,4}
};
cout << "Soil quality at row 1 col2 is: " << soil[0][1] << endl;
//print array
//write a program to find coordinate in a land that has the best soil quality(max)
//and location that has the worst soil quality (min)
for (int i = 0;i < 4;i++) {
    for (int j = 0;j < 3;j++) {
        cout << soil[i][j] << "\t";
    }
    cout << endl;
}
int max=soil[0][0];
int min=soil[0][0];
int best_soili = 0;
int best_soilj = 0;
int worst_soili = 0;
int worst_soilj = 0;
float avg1 = 0;
float avg2 = 0;
float avg3 = 0;
float avg4 = 0;
```

```
    //j is column
    for (int j = 0;j < 3;j++) {
        if (soil[i][j] > max) {
            if (i == 0) {
                avg1 = avg1 + soil[i][j];
            }
            if (i == 1) {
                avg2 = avg2 + soil[i][j];
            }
            if (i == 2) {
                avg3 = avg3 + soil[i][j];
            }
            if (i == 3) {
                avg4 = avg4 + soil[i][j];
            }
            max = soil[i][j];
            best_soili = i;
            best_soilj = j;
        }
        if (soil[i][j] < min) {
            min = soil[i][j];
            worst_soili = i;
            worst_soilj = j;
        }
    }
}
```

```
cout << "location of best soil is row " << best_soili + 1 << " column " << best_soilj+1 << endl;
cout << "location of worst soil is row " << worst_soili +1 << " column " << worst_soilj +1 << endl;

cout << "Best soil quality: " << max << endl;
cout << "Worst soil quality: " << min << endl;
cout << "Average for row 1: " << avg1/3.0 << endl;
cout << "Average for row 2: " << avg2/3.0 << endl;
cout << "Average for row 3: " << avg3/3.0 << endl;
cout << "Average for row 4: " << avg4/3.0 << endl;
return 0;
```

Question 2:

```cpp
#include <iostream>
#include <cstdlib>
#include <ctime>
using std::cout;
using std::cin;
using std::endl;

int main() {
    cout << "Guess a number 1-100" << endl;
    int guess;
    cin >> guess;
    srand(time(0));
    int random = rand() % 101;       // range 0 to 100
    //cout << "rand num is: " << random;
    while ((guess < 101) && (guess > 0)) {
        if (random < guess) {
            cout << "The number is lower than your guess" << endl;
        }
        else if (random > guess) {
            cout << "The number is higher than your guess" << endl;
        }
        else if(random == guess) {
            cout << "You guessed correctly. NICE :D" << endl;
            return 0;
        }
        cout << "Guess again" << endl;
        cin >> guess;
    }
```

```
Guess a number 1-100
50
The number is higher than your guess
Guess again
60
The number is higher than your guess
Guess again
80
The number is higher than your guess
Guess again
90
The number is lower than your guess
Guess again
87
You guessed correctly. NICE :D
```