

```
Script started on 2023-09-25 15:38:20-05:00 [TERM="xterm" TTY="/dev/pts/2" COLUMNS=
ee43254@ares:~$ pwd
/home/students/ee43254
ee43254@ares:~$ cat dicestatproj.info
Name: Kyle Enkhzul
Class: CSC121-001
```

Activity: Dice, Dice, and More Dice!
 Level: 8, 4 (base program) + 4 (eight helper functions)

Description:

The user inputs the number of dice and sides of the dice in dice notation. The program then calculates the minimum, average, and maximum values that could be rolled. It then randomly generates a dice roll that could be rolled. It also utilizes several functions to help calculate and print out results.

```
ee43254@ares:~$ show-code dicestatproj.cpp
```

dicestatproj.cpp:

```
1  #include <iostream>
2  #include <limits>
3  #include <string>
4
5  using namespace std;
6
7  constexpr streamsize INF_FLAG{numeric_limits<streamsize>::max()};
8
9  void printWelcome() {
10     cout << "\t\n Welcome to the Dice Statistics Program!!! \t\n";
11     cout << "\n What is your dice roll? ";
12 }
13
14 void printClosing() {
15     cout << "\n Thank you for using the DSP!!\n";
16     cout << "\n Have a good day!\n";
17 }
18
19 void printDieRoll(short numDice, short numSide) {
20     cout << "\n When rolling " << numDice << "d" << numSide <<
21         "(" << numDice << " size-" << numSide
22         << " dice), your statistics will be: \n";
23 }
24
25 void printResults(short min, short max, double avg) {
26     cout << "\n\t Minimum: " << min << "\n";
27     cout << "\n\t Average: " << avg << "\n";
28     cout << "\n\t Maximum: " << max << "\n";
29 }
30
31 short calculateMax(short numSide, short numDice) {
```

```
32     short max = numSide * numDice;
33     return max;
34 }
35
36 short calculateMin(short numDice) {
37     short min = numDice;
38     return min;
39 }
40
41 double calculateAvg(short max, short min) {
42     return (max+min)/2.0;
43 }
44
45 short generateRand(short max, short min) {
46     return static_cast<short>(rand() % (max - min + 1) + min);
47 }
48
49
50 int main() {
51     srand(static_cast<unsigned>(time(nullptr)));
52     short number_of_dice, number_of_sides, random, minimum, maximum;
53     double average;
54
55     printWelcome();
56
57     if( isdigit(cin.peek())) {
58         cin >> number_of_dice;
59         cin.ignore();
60         if( isdigit(cin.peek())) {
61             cin >> number_of_sides;
62             cin.ignore(INF_FLAG, '\n');
63         }
64     }
65     else {
66         number_of_dice = 1;
67         cin.ignore();
68         if( isdigit(cin.peek())) {
69             cin >> number_of_sides;
70             cin.ignore(INF_FLAG, '\n');
71         }
72     }
73
74     cout << "\n Thank you!! Calculating... Done.\n";
75
76     minimum = calculateMin(number_of_dice);
77     maximum = calculateMax(number_of_sides, number_of_dice);
78     average = calculateAvg(maximum, minimum);
79
80     printDieRoll(number_of_dice, number_of_sides);
81
82     printResults(minimum, maximum, average);
83
84     random = generateRand(maximum, minimum);
85 }
```

```
86         cout << "\n A typical dice roll might result in " << random << ".\n";
87
88         printClosing();
89     }
ee43254@ares:~$ CPP dicestatproj
dicestatproj.cpp***

ee43254@ares:~$ ./dicestatproj.out

Welcome to the Dice Statistics Program!!!

What is your dice roll? 3d12

Thank you!! Calculating... Done.

When rolling 3d12(3 size-12 dice), your statistics will be:

    Minimum: 3

    Average: 19.5

    Maximum: 36

A typical dice roll might result in 10.

Thank you for using the DSP!!

Have a good day!
ee43254@ares:~$ ./dicestatproj.out

Welcome to the Dice Statistics Program!!!

What is your dice roll? d12

Thank you!! Calculating... Done.

When rolling 1d12(1 size-12 dice), your statistics will be:

    Minimum: 1

    Average: 6.5

    Maximum: 12

A typical dice roll might result in 4.

Thank you for using the DSP!!

Have a good day!
ee43254@ares:~$ ./dicestatproj.out

Welcome to the Dice Statistics Program!!!
```

```
What is your dice roll? 1d12

Thank you!! Calculating... Done.

When rolling 1d12(1 size-12 dice), your statistics will be:

    Minimum: 1

    Average: 6.5

    Maximum: 12

A typical dice roll might result in 7.

Thank you for using the DSP!!

Have a good day!
ee43254@ares:~$ cat dicestatproj.tpq
cat: dicestatproj.tpq: No such file or directory
ee43254@ares:~$ exit
exit

Script done on 2023-09-25 15:39:49-05:00 [COMMAND_EXIT_CODE="1"]
```