```
Script started on 2021-10-03 12:28:26-05:00 [TERM="xterm" TTY="/dev/pts/3" COLUMNS=
a_vitale7@ares:~$ pwd
/home/students/a_vitale7
a_vitale7@ares:~$ cat diceStatistics.info
/*************************************************************************
 *                                                                       *
 *  NAME:  Antonino Vitale                       CLASS:  CSC121-W02      *
 *                                                                       *
 *  Lab:  Dice Statistics Program                Level:  5               *
 *                                                                       *
 *  Description:                                                         *
 *                                                                       *
 *     This program takes a dice roll input and solves for maximum,      *
 *     minimum, and average then outputs the stats of the dice roll      *
 *     then asks the user if they would like to do another dice roll.    *
 *                                                                       *
 *************************************************************************/
a_vitale7@ares:~$ cat diceStatistics.cpp
#include <iostream>
#include <iomanip>
#include <limits>
#include <math.h>
#include <time.h>
#include <cstdlib>
#include <array>
#include <string>
#include <stdlib.h>

using namespace std;

int main(void)
{
        srand(int(time(nullptr)));
        int amountOfDice, sidesOfDice, modifier, min, max, exampleDiceRoll;
        double avg;
        string endStrings[] = { "y","yes","yea","yepperooni","yes, I do, I most cer
        bool end;
        string endTester;
        cout << "\n                Welcome to the Dice Statistics Program!!!\n";
        cout << "\ndice rolls are formated as such: ";
        cout << "\n 1d6+0 - one six sided dice with a modifier of 0.";
        cout << "\n 1d6+1 - one six sided dice with a modifier of +1.";
        cout << "\n 1d6-1 - one six sided dice with a modifier of -1.";
        cout << "\n 2d6+0 - two six sided dice with a modifier of 0.";
        cout << "\n1d20+0 - one twenty sided dice with a modifier of  0.\n";
        do {
                max = 2;
                cout << "\nWhat is your dice roll? ";
                cin >> amountOfDice;
                cin.ignore(1) >> sidesOfDice;
                if (cin.peek() == '+' || cin.peek() == '-') {
                        cin >> modifier;
                } else {
                        modifier = 0;
                }
                while (amountOfDice <= 0 || sidesOfDice < 2) {
                        cout << "Please input a valid amount of dice and a valid ar
                        cin.clear();
                        cin.ignore(numeric_limits<streamsize>::max(), '\n') >> amou
                        cin.ignore(1) >> sidesOfDice;
                        if (cin.peek() == '+' || cin.peek() == '-') {
                                cin >> modifier;
                        } else {
                                modifier = 0;
                        }
                }
                cout << "\nThank you! Calculating...  ";
                if (sidesOfDice == 10 || sidesOfDice == 100) {
                        min = 0; //ten sided dice has a minimum value of 0
                        max = sidesOfDice - 1; //ten sided dice has a maximum value
                }
                else {
                        min = 1;
                        max = sidesOfDice;
                }
                avg = 0;
                for (int i = 1; i < sidesOfDice + min; i++) {
                        avg += i;
                }
                avg = avg / double(sidesOfDice);
                exampleDiceRoll = 0;
                for (int i = 0; i < amountOfDice; i++) {
                        exampleDiceRoll += rand() % (max - min + 1) + min;
                }
                cout << "Done.\n";
                if (sidesOfDice == 10) {
                        cout << "\nDid you know? ten sided dice have a minimum of 0
                }
                if (sidesOfDice == 100) {
                        cout << "\nDid you know? percentile dice have a minimum of
                }
                cout << "\nWhen rolling " << amountOfDice << "d" << sidesOfDice;
        if (modifier != 0) {
                    cout << setw(int(floor(log10(modifier)))+2) << setfill('+') <<
        }
                cout << " (" << amountOfDice << " " << sidesOfDice << " sided dice'
        if (modifier != 0) {
            cout << " with a modifier of " << modifier;
        }
        cout << "), your statistics will be: \n";
                cout << "\n  Minimum: " << min * amountOfDice + modifier;
                cout << "\n  Average: " << avg * amountOfDice + modifier;
                cout << "\n  Maximum: " << max * amountOfDice + modifier << endl;
                cout << "\nA typical dice roll might result in " << exampleDiceRol
                cout << "\nThank you for using the DSP!!\n";
                cout << "\nEndeavor to have an extemporaneous day!\n";
                end = true;
                cout << "\nWould you like to roll another dice? ";
```

```
                cin.clear();
                cin.ignore(numeric_limits<streamsize>::max(), '\n') >> endTester;
                for (int exit = 0; exit < 11; exit++) {
                        if (endTester == endStrings[exit]){
                                end = false;
                        }
                }
        } while (end == false);
        return 0;
}
a_vitale7@ares:~$ caPP
diceStatistics.cpp***


a_vitale7@ares:~$ ./PP.out

                 Welcome to the Dice Statistics Program!!!

dice rolls are formated as such:
 1d6+0 - one six sided dice with a modifier of 0.
 1d6+1 - one six sided dice with a modifier of +1.
 1d6-1 - one six sided dice with a modifier of -1.
 2d6+0 - two six sided dice with a modifier of 0.
1d20+0 - one twenty sided dice with a modifier of  0.

What is your dice roll? 1d2

Thank you! Calculating...  Done.

When rolling 1d2 (1 2 sided dice), your statistics will be:

  Minimum: 1
  Average: 1.5
  Maximum: 2

A typical dice roll might result in 2.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d4

Thank you! Calculating...  Done.

When rolling 1d4 (1 4 sided dice), your statistics will be:

  Minimum: 1
  Average: 2.5
  Maximum: 4

A typical dice roll might result in 3.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d6

Thank you! Calculating...  Done.

When rolling 1d6 (1 6 sided dice), your statistics will be:

  Minimum: 1
  Average: 3.5
  Maximum: 6

A typical dice roll might result in 6.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d8

Thank you! Calculating...  Done.

When rolling 1d8 (1 8 sided dice), your statistics will be:

  Minimum: 1
  Average: 4.5
  Maximum: 8

A typical dice roll might result in 4.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? yes

What is your dice roll? 1d10

Thank you! Calculating...  Done.

Did you know? ten sided dice have a minimum of 0 and a maximum of 9.

When rolling 1d10 (1 10 sided dice), your statistics will be:

  Minimum: 0
  Average: 4.5
  Maximum: 9
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A typical dice roll might result in 9.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? yes

What is your dice roll? 1d12

Thank you! Calculating...  Done.

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

  Minimum: 1
  Average: 6.5
  Maximum: 12

A typical dice roll might result in 3.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d20

Thank you! Calculating...  Done.

When rolling 1d20 (1 20 sided dice), your statistics will be:

  Minimum: 1
  Average: 10.5
  Maximum: 20

A typical dice roll might result in 12.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d100

Thank you! Calculating...  Done.

Did you know? percentile dice have a minimum of 0 and a maximum of 99.

When rolling 1d100 (1 100 sided dice), your statistics will be:

  Minimum: 0
  Average: 49.5
  Maximum: 99

A typical dice roll might result in 35.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? n
a_vitale7@ares:~$ ./diceStatistics.out

                Welcome to the Dice Statistics Program!!!

dice rolls are formated as such:
 1d6+0 - one six sided dice with a modifier of 0.
 1d6+1 - one six sided dice with a modifier of +1.
 1d6-1 - one six sided dice with a modifier of -1.
 2d6+0 - two six sided dice with a modifier of 0.
1d20+0 - one twenty sided dice with a modifier of  0.

What is your dice roll? 1d2+1

Thank you! Calculating...  Done.

When rolling 1d2+1 (1 2 sided dice with a modifier of 1), your statistics will be:

  Minimum: 2
  Average: 2.5
  Maximum: 3

A typical dice roll might result in 3.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 1d2-1

Thank you! Calculating...  Done.

When rolling 1d2-1 (1 2 sided dice with a modifier of -1), your statistics will be

  Minimum: 0
  Average: 0.5
  Maximum: 1

A typical dice roll might result in 1.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!
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```
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 1d6-1 - one six sided dice with a modifier of -1.
 2d6+0 - two six sided dice with a modifier of 0.
1d20+0 - one twenty sided dice with a modifier of  0.

What is your dice roll? 1d20

Thank you! Calculating...  Done.

When rolling 1d20 (1 20 sided dice), your statistics will be:

  Minimum: 1
  Average: 10.5
  Maximum: 20

A typical dice roll might result in 9.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 2d20

Thank you! Calculating...  Done.

When rolling 2d20 (2 20 sided dice), your statistics will be:

  Minimum: 2
  Average: 21
  Maximum: 40

A typical dice roll might result in 24.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 3d20

Thank you! Calculating...  Done.

When rolling 3d20 (3 20 sided dice), your statistics will be:

  Minimum: 3
  Average: 31.5
  Maximum: 60

A typical dice roll might result in 19.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? y

What is your dice roll? 4d20

Thank you! Calculating...  Done.

When rolling 4d20 (4 20 sided dice), your statistics will be:

  Minimum: 4
  Average: 42
  Maximum: 80

A typical dice roll might result in 32.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? n
a_vitale7@ares:~$ ./diceStatistics.out

                Welcome to the Dice Statistics Program!!!

dice rolls are formated as such:
 1d6+0 - one six sided dice with a modifier of 0.
 1d6+1 - one six sided dice with a modifier of +1.
 1d6-1 - one six sided dice with a modifier of -1.
 2d6+0 - two six sided dice with a modifier of 0.
1d20+0 - one twenty sided dice with a modifier of  0.

What is your dice roll? 4d12+4

Thank you! Calculating...  Done.

When rolling 4d12+4 (4 12 sided dice with a modifier of 4), your statistics will be

  Minimum: 8
  Average: 30
  Maximum: 52

A typical dice roll might result in 40.

Thank you for using the DSP!!
```

```
Endeavor to have an extemporaneous day!

Would you like to roll another dice? n
a_vitale7@ares:~$ ./diceStatistics.out

                 Welcome to the Dice Statistics Program!!!

dice rolls are formated as such:
 1d6+0 - one six sided dice with a modifier of 0.
 1d6+1 - one six sided dice with a modifier of +1.
 1d6-1 - one six sided dice with a modifier of -1.
 2d6+0 - two six sided dice with a modifier of 0.
1d20+0 - one twenty sided dice with a modifier of  0.

What is your dice roll? 5d20+10

Thank you! Calculating...  Done.

When rolling 5d20+10 (5 20 sided dice with a modifier of 10), your statistics will

  Minimum: 15
  Average: 62.5
  Maximum: 110

A typical dice roll might result in 82.

Thank you for using the DSP!!

Endeavor to have an extemporaneous day!

Would you like to roll another dice? n
a_vitale7@ares:~$ exit
exit

Script done on 2021-10-03 12:31:11-05:00 [COMMAND_EXIT_CODE="0"]
```