

C++ Array Dice Roll Lab

```
Source.cpp | Source1.cpp | Header.h | (Global Scope) | Solution Explorer | Live Share
Array
25 for (j = 0; j < numDice; j++)
26 {
27     // RollDice() << endl;
28     sum = RollDice() + sum;
29     //cout << sum << endl;
30 }
31 arr[sum]++;
32 }
33
34
35
36 void print(int arr[], int dice)
37 {
38     ofstream outFile;
39     outFile.open("output.csv");
40
41     int j;
42
43     for (j = dice; j < 6 * dice + 1; j++)
44     {
45         cout << j << ", " << arr[j] << endl;
46         outFile << j << ", " << arr[j] << endl;
47     }
48
49     //cout << dice << endl;
50     //cout << sum << endl;
51 }
```

```
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Array
40 outFile.open("output.csv");
41
42 int j;
43
44 for (j = dice; j < 6 * dice + 1; j++)
45 {
46     cout << j << ", " << arr[j] << endl;
47     outFile << j << ", " << arr[j] << endl;
48 }
49
50 //cout << dice << endl;
51 //arr[sum] << dice;
52 //sum = RollDice() + sum;
53 //cout << sum << endl;
54
55
56 void runExps(const int numExps, const int numDice, int arr[])
57 {
58     int j;
59     int sum = 0;
60
61     for (j = 0; j < numExps; j++)
62     {
63         runEx(numDice, arr);
64     }
65 }
```

```
Source.cpp | Source1.cpp | Header.h | (Global Scope) | Solution Explorer | Live Share
Array
1 #include <random>
2 #include "Header.h"
3 #include <iostream>
4 #include <fstream>
5
6 using namespace std;
7
8 int RollDice()
9 {
10     static std::default_random_engine generator;
11     static std::uniform_int_distribution<int> distribution(1, 6);
12
13     return distribution(generator);
14 }
15
16 //Runs a single experiment
17 //Roll 'n' number of dice
18 //Sum the dice
19 //Update the array
20 void runEx(const int numDice, int arr[])
21 {
22     int j;
23     int sum = 0;
24
25     for (j = 0; j < numDice; j++)
26     {
27         // RollDice() << endl;
28     }
29 }
```

2nd Page

The screenshot shows the Visual Studio IDE with the 'Source1.cpp' file open. The code implements a main function that sets up a dice simulation. It includes necessary headers, uses the std namespace, and defines a main function. Inside main, it declares constants for the number of dice (10) and the number of experiments (1,000,000). It then creates an array to store results and calls functions to run experiments and print the results. The code is as follows:

```
1 #include <iostream>
2 #include "Header.h"
3
4 using namespace std;
5
6 int main()
7 {
8     const int numDice = 10;
9     const int numEx = 1000000;
10
11     int arr[numDice * 6 + 1] = { 0 };
12
13     //runEx(numDice, numEx);
14     runExps(numEx, numDice, arr);
15
16     //void print(int results[], int dice);
17     print(arr, numDice);
18
19
20     return 0;
21 }
22 //only thing that needs to be in here
23 //declare numDice
24 //declare numEx
25 //make arr
26 //runEx(
27 //print
```

3rd Page

The screenshot shows the Visual Studio IDE with the 'Header.h' file open. The header file contains function declarations for the dice simulation, including a roll function, a run function, a print function, and an experiment function. The code is as follows:

```
1 #pragma once
2 int RollDice();
3
4 void runEx(const int numDice, int arr[]);
5
6 void print(int arr[], int dice);
7
8 void runExps(const int numExps, const int numDice, int arr[]);
```