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/*



* File Name: Dice.cs
*
* Purpose: Using for loops with calculations to display two dice thrown 52,000 times.
*
* This file defines the entry point method for the Console application.
*
* Programmer: Christopher Singleton
* Assigned Homework Number: 8
*
* Revision Date Release Comment
* -------- ---------- -----------------------------------------------------
* 1.0 11/24/2015 Initial Release
*
* Programming 110 (Introduction to Programming)
*
* ---------------
* ***Dice***
*
*Time: 4.5 hours with research.
*****************************************************************//*
Description: Roll two dice 52,000 times. Then sum the two dice to be listed from 2 to 12,
        and display frequency of each total (two dice). Note that the number 7 is
        always the highest number.

Then two dice are rolled 52,000 times again with numbers 2 to 12 and displays on each number
according to how many times the dice are rolled.  On the second output, the numbers for how
many times, they came up are sorted from smallest to the largest with their sums.
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/*_____________________________ Using Arrays, Roll Two Dice Randomly _____________________________*/

using System;

namespace SingletonHW8
{
   class Dice
   {
      static void Main(string[] args)
      {
         /*====== Initializations ======*/
         //Set up an array with 0-13 indexes. Index 0 and 1 not used.
         int[] array = new int[13];
         int[] frequency = new int[13];
         int[] index = new int[13] { 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 };
         int sum = 0, dice1 = 0, dice2 = 0;
         const int ROLL_MAX = 52000;
         Random rand = new Random();
         Console.WindowWidth = 75;
         Console.WindowHeight = 45;

         //Clear the console.
         Console.Clear();

         //Roll dice.
         /*Populate random numbers for 6 sides of each die,
           add both together and place them in the array for display.*/
         for (int r = 1; r <= ROLL_MAX; ++r)
         {
            dice1 = rand.Next(1, 7);
            dice2 = rand.Next(1, 7);
            sum = dice1 + dice2;
            array[sum] += 1;
         }
```

```
Console.Write("Welcome to Quark's rationale for why one should play craps\n"+
   "(the rolling of two dice) for gaming purposes ---."+
   "\nThe house always wins!\n"+"Why do you ask? Good question and take a look"+
   " at the numbers below.\n\nThis program will randomly generate 52,000 rolls"+
   " of two dice. \nTake a look at which total numbers come up more often: \n\n"+
    "Sum\tCount\n" + "-------------\n");

//Display index (sum of two dice) and its frequency.
for (int i = 2; i < index.Length; ++i)
{
   Console.WriteLine("{0,2}\t{1,2:n0}", index[i], array[i]);
}

/*====== Reset the calculated variables to zero =====*/
sum = 0;
dice1 = 0;
dice2 = 0;
array[sum] = 0;

/*=======Display the second Array using the sort method======*/

Console.Write("\n\nSorted Ascending:" + "\n----------------" +
          "\nSum\tCount\n" + "-------------\n");
//Roll the dice
for (int r = 1; r <= ROLL_MAX; ++r)
{
   dice1 = rand.Next(1, 7);
   dice2 = rand.Next(1, 7);
   sum = dice1 + dice2;
   frequency[sum] += 1;
}

/*loop result of the sum of two dice showing frequency.
  Sort arrays ascending.*/
Array.Sort(frequency, index);
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        for (int i = 2; i < index.Length; ++i)
        {
           Console.WriteLine("{0,2}\t{1,2:n0}", index[i], frequency[i]);
        }

        Console.Write("\n\nThis is the end of the program. Application created by:CSingleton." +
                "  \nPlease press any key to exit this program => ");
        //Pause the screen.
        Console.ReadKey();
     }
  }
}
```