

INFO 1112: Project

School of Business
Kwantlen Polytechnic University, Canada
<https://courses.kpu.ca/course/view.php?id=6371>

Instructor: Ali Madooei
ali.madooei@kpu.ca

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It is due at 12:00 pm (noon) on Wednesday, August 3, 2016

1 What is this project about?

This project is about implementing a simple dice game. The main difference between this project and the assignments is that you are expected to do this on your own, with minimum supervision. You are given a description of the game and some screen shots. You must design and develop the application using these information.

2 The application

You will implement a simple one-player dice game (GUI shown in Fig.1). In this game, there are several numbered buttons, which the user tries to eliminate. The user rolls the dice, and then attempts to eliminate buttons that add up to the sum of the dice.

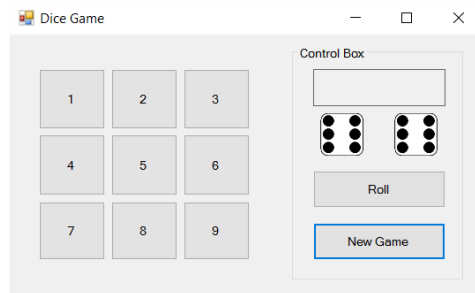


Figure 1: GUI for dice game.

Consider the game state shown below:

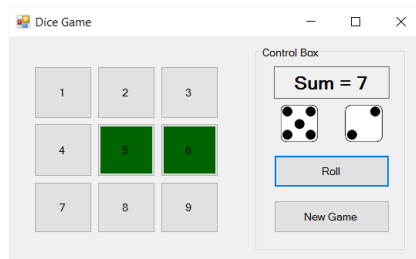


Figure 2: User has already eliminated 2 of the buttons: numbers 5 & 6

The user has already eliminated 2 of the buttons (shown in dark green colour), and has just rolled the dice, which add up to $5 + 2 = 7$. The user can eliminate any set of buttons that add up to 7. Here the user has three choices. They can eliminate buttons 3 and 4. Or they can eliminate buttons 1, 2, and 4. Or they can simply eliminate button 7 (see Fig.3).

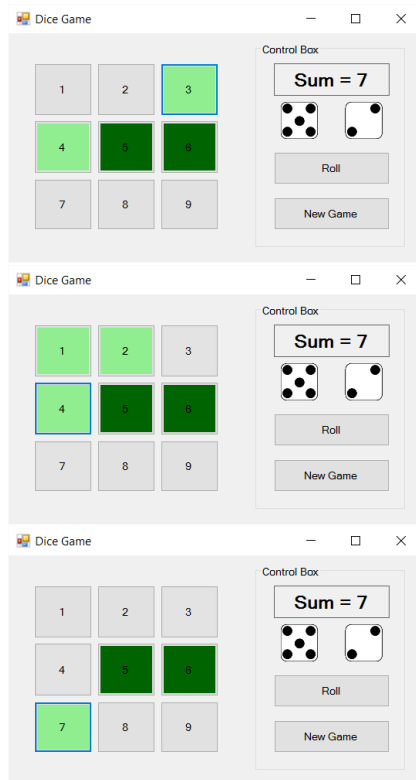


Figure 3: User's choices to eliminate buttons.

Once the user has eliminate boxes that add to 7, those boxes remain eliminated forever, and the user rolls the dice again. The user wins if all the buttons are eliminated.

More often, however, the user loses when they roll the dice and cannot match the total, as shown below.

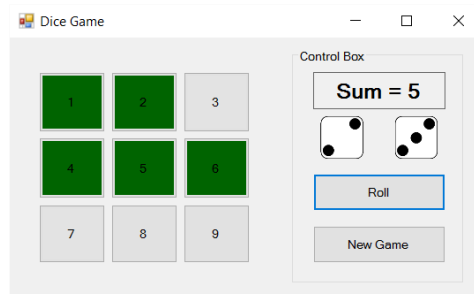


Figure 4: User loses when they roll the dice and cannot match the total.

3 The game

Here I describe how the user will play the game. Your game must behave exactly like this. Plan to keep coming back to this section and re-reading it. When the game first starts, the user clicks on Roll to roll the dice. The user then selects (clicks on) a numbered button to eliminate it. If the user changes their mind before rolling the dice, they can click on the button a second time to un-select it again. Clicking on a button that was already eliminated (before the most recent roll of the dice) will not do anything.

The buttons are colour coded: dark green means the button is eliminated. Light green is used to show user's selection and light grey (default button colour) means the button is not selected (and not eliminated yet).

During the game, when the user has selected all the buttons of their choice, they click on Roll. If the sum of the recently selected buttons does not match the sum of the dice, the selected buttons are unselected automatically and the dice are not rolled. If the sum does match, the selected buttons will be eliminated and the dice will be rolled. The new dice values will appear (which will occasionally be exactly the same as the old values). At any time, the user may click the new game button in the lower right corner, which will un-select all the buttons. User has to then roll the dice to begin a new round.

4 What is expected of you?

Your task is to divide this application into sub-problems (methods) and implement them. You want to get your final application as similar as possible to the description provided in this document (both in terms of GUI design and game play). You will be graded in part on your coding style. Your code should be easy to read, well organized, and concise. You should avoid duplicate code.

5 What to submit?

You will submit:

1. The completed project.
2. A short (1-2 page) report.

The report must contain a brief description of your problem-solving approach to this project. Discuss the idea of modular design, note how e.g. you divided the problem into sub-problems, what methods you have implemented, list the methods and draw a structure chart for your software solution, The report must not exceed two pages in length.

The report is as important to me as your implementation because it demonstrates your understating and take away from this course.

6 What to do?

To start, create a C# project **Game** in a Visual Studio solution called **Project**. Begin your work by developing the GUI. The GUI is very simple. You can refer to your work (or solution posted to Moodle) for Assignment-4 as there are many similarities between this project and that assignment. I advise you to think about the structure of your program before implementing it. Decide what methods you want to implement, what are their jobs, their inputs/output, and how they make up the structure of your program. Try to implement one method at a time and step by step built your application. Feel free to borrow ideas from previous assignments.

Don't forget to come to the lecture, next Tuesday, as I will be giving you a demo of the application and answering your questions.

Submission

Once you are done with the project, please include a header comment section with your name and student number in the C# source code. Your report must be converted to a PDF file and copied inside the project folder. Then, zip the project folder and upload it to Moodle.