Lab 1:
The Price is Wrong

Due date: January 29 at the end of lab.

Overview

In this lab, you will implement a famous (but simple) game called the "Monty Hall problem," from the television show *Let's Make a Deal*. The game involves the following situation: the game host shows the player three doors, numbered 1 through 3, and tells the player that behind *only one* of the doors lies a great prize; the other two doors have goats behind them. The player picks one door, and in response the host opens another door that he/she *knows* has a goat behind it. The host then asks the player if he/she would like to switch to the other unopened door. After this decision, the player opens their door and claims whatever lies behind it, be it goat or glorious prize.

Game Rules

1. A door is chosen in secret (1, 2, or 3) to be the "winning" door. Implicitly, the other doors have goats.
2. The user is asked to choose a door (1, 2, or 3). You do not need to verify their choice.
3. Another door is chosen to reveal to the player. The chosen door **must** have a goat behind it, and **must not** be the door that the player chose.
4. After revealing the door, the user is asked if they would like to switch to the only remaining other door. Their response will be a 'y' or 'n', inputted as a `char` variable.
5. Reveal whether the user won the game or not by comparing their final door choice to the secretly-chosen winning door.
   (a) If the user loses, give them a sad message.
   (b) If the user wins, randomly choose one of **five** glorious prizes of your design. Randomly pick one of the five prizes and output a description of the prize.

Requirements

Your lab must follow these code requirements:

- I **recommend** not using `string` variables, since they don't behave exactly the same as in Java and we haven't covered them yet. If you ignore this advice, at least make sure you `#include <string>`.
- You **must** generate random numbers using the `<random>` library's `default_random_engine` class, as shown in lecture. I don't care if your friend says you should do it another way.

Deliverables

Turn in the following when the lab is due:

1. A printed copy of your code, **printed from Visual Studio or your IDE when possible.** If you cannot print from your editor, copy your code into Notepad or another program with a fixed-width (monospace) font and print from there.
2. A printout of your program's output showing four different runs through the program:
   (a) a run where the user does not switch and wins;
   (b) a run where the user switches and wins;

(c) a run where the user does not switch and loses;

(d) a run where the user switches and loses.