Your name: Example Design                Date: 2/7/17

Problem: A2 MS 1

Problem description:

Monty Hall: car door is random,
user chooses initial door,
Monty reveals a goat (not door
user chose)
user may switch
determine whether user won

| Input name | Description | Data type |
|---|---|---|
| car-door | which door has car (1-3) | int |
| choice 1 | user's initial choice (1-3) | int |
| choice 2 | " second choice (1-3) | int |

[                                                                    ] *

* not user input — determined randomly

| Output data: | Output form: | Data type: |
|---|---|---|
| goat door | printed | int |
| win / loss message | printed | text (boolean) |
| car door | printed | int |

Strategy:

choose car door (randomly)

prompt for choice1

reveal goat *

prompt for choice 2

determine win / loss *

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Control flow sketch:

**Goat revelation**

```
if (choice1 has car) {
    goat door is one
    of the other doors,
    chosen randomly

} else { //choice1 does not
         // have car
    goat door is
    the remaining
    door
}
```

**Determine win / loss**

```
if (choice2 is car) {
    congrats, you win!

} else { //choice2 not car
    sorry, you lose

    reveal car door
}
```

Similar problems:

**Random numbers**

```
#include <stdlib.h>
#include <time.h>

// beginning of main
srand(time(0));

// generate rand #
//  1-3
(rand() % 3) + 1
```