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#include <iostream>
#include <stdlib.h>
using namespace std;

float doorRevealer(bool choice, float trials) {
    int stay = 0;
    int swit = 0;
    int cnt = 0;

    while (cnt < trials) { //to repeat process N times
        //randomly generate the doors
        int winner = rand()%3;
        int switchedDoor = rand()%3;
        int firstChoice = rand()%3;
        int revealedDoor = rand()%3;

        //these two loops ensure the same door isn't used twice
        while(firstChoice == revealedDoor || winner == revealedDoor) {
            revealedDoor = rand()%3;
        }
        while (firstChoice == switchedDoor || revealedDoor ==
            switchedDoor) {
            switchedDoor = rand()%3;
        }

        //increment
        if (choice) { //stay
            if (firstChoice == winner) {
                stay++;
            }
        }
        else { //switch
            if (switchedDoor == winner) {
                swit++;
            }
        }
        cnt++;
    }
}

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//return precentages
if (choice) {
    return (stay/trials)*100;
}
else {
    return (swit/trials)*100;
}

void print(float stay, float swit, int tot) { //print the stuff out obviously
    cout << "Out of " << tot << " trials:" << endl;
    cout << "The contestant won " << stay << "%" << " of the time by
        staying." << endl;
    cout << "The contestant won " << swit << "%" << " of the time by
        switching." << endl << endl;
}

int main() {
    //switch trials
    float Sw100 = doorRevealer(false,100);
    float Sw1000 = doorRevealer(false,1000);
    float Sw10000 = doorRevealer(false,10000);
    float Sw100000 = doorRevealer(false,100000);

    //stay trials
    float St100 = doorRevealer(true,100);
    float St1000 = doorRevealer(true,1000);
    float St10000 = doorRevealer(true,10000);
    float St100000 = doorRevealer(true,100000);

    //print
    print(St100,Sw100,100);
    print(St1000,Sw1000,1000);
    print(St10000,Sw10000,10000);
    print(St100000,Sw100000,100000);
    return 0;
}

```

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engr2-27-155-dhcp:CSCI2824 liamkolber$ ./sol
Out of 100 trials:
The contestant won 30% of the time by staying.
The contestant won 66% of the time by switching.

Out of 1000 trials:
The contestant won 32% of the time by staying.
The contestant won 68.2% of the time by switching.

Out of 10000 trials:
The contestant won 33.38% of the time by staying.
The contestant won 66.36% of the time by switching.

Out of 100000 trials:
The contestant won 33.376% of the time by staying.
The contestant won 66.787% of the time by switching.

engr2-27-155-dhcp:CSCI2824 liamkolber$ |

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