Monty Hall Problem Pseudocode

Author: Stefan Voicu

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//\*\* Step 1: Determine how many games the user wants to play \*\*//

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SEQUENCE hello(){

PRINT: Welcome to the Monty Hall Game!

PRINT: How many games do you want to play?

READ: Integer representing number of games.

}

SEQUENCE fire() {

PRINT: You want to play this many games : (user’s input)

}

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//\*\* Step 2: Play the game \*\*//

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//Determine how many games must be played

SEQUENCE howManyGames(){

FOR number of games inputed by user, start new game by calling following function

}

//Randomly choose winning door

SEQUENCE generateGoodDoor(){

CALCULATE a random number between 1 and 3

PRINT: The door with the car is: (randomly chosen number between 1 and 3)

}

//Create 3 doors per game

SEQUENCE createDoors(){

FOR 3 loops, create doors {

IF number is the door with the car THEN

assign it to this door

ELSE this door will not contain the car

}

//The user picks one of the three doors randomly

SEQUENCE chooseDoor(){

CALCULATE a random number between 1 and 3

PRINT The chosen door was: (randomly chosen number between 1 and 3)

}

//Open a door that is not the user’s choice and not the door with the car

SEQUENCE openDoorWithGoat(){

SET doors to 1

FOR 3 loops, define door to open with goat {

IF doors is not the one picked by the user and not the door with the car THEN

This door is the one to be opened with a goat

INCREMENT doors if it is not the right one and restart the loop

}

PRINT The opened door with goat was: (door defined above in loop)

}

//Decide if user switches doors or not

SEQUENCE switchOrNot(){

CALCULATE a random number between 1 and 2

IF the random number is equal to 1 THEN

The player did not switch

PRINT This player did not switch

ELSE the player switches

FOR 3 loops, define the door you are switching to {

IF iterator is equal to the opened door with a goat THEN

Remove from possible doors to switch

ELSE IF iterator is equal to the originally picked door THEN

Remove from possible doors to switch

}

PRINT This player switched.

INCREMENT variable to determine that player switched

}

//Show if user won or not

SEQUENCE revealResults(){

IF the final pick is equal to the door with the car THEN

PRINT You won!

INCREMENT variable that counts if player won

ELSE

PRINT You lost!

PRINT The final pick was: (final pick)

INCREMENT total number of games played for stats

CALL stats class for step 3

INIT reinitialize variable with remaining doors to determine if the user switched or not

INIT reinitialize variable to zero to determine if the user switched or not for stats

INIT reinitialize variable to zero to determine if the user won or not for stats

}

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//\*\* Step 3: Calculate Statistics \*\*//

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//Calculate statistics for percentage of games won without switching doors and

//percentage of games won when switching doors

SEQUENCE stats(){

IF determineIfWon variable is equal to 1 THEN

IF determineIfSwitched variable is equal to 1 THEN

INCREMENT gamesWithDoorChangeWon variable

ELSE

INCREMENT gamesWithSameDoorWon variable

ELSE (if lost)

IF determineIfSwitched is equal to 1 THEN

INCREMENT gamesWithDoorChangeLost variable

ELSE

INCREMENT gamesWithSameDoorLost variable

CALCULATE the percentage of games won with the same door

CALCULATE the percentage of games won when switched doors

PRINT (percentage of games were won when not switching door.)

PRINT (percentage of games were won when switching door.)

}