**Exercise 2: Intoxicated Person**

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//Class: CSCI 1106

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//Program: The program simulates a drunk lad that starts at n=2 blocks to n=7 blocks

//giving a simulation percentage of whether he would head to the pub or home with

//500 trials for each block.

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#include<iostream>

#include<iomanip>

#include<ctime>

#include<time.h>

using namespace std;

const int TRIALS = 500;

const int LOOPBREAK = 9;

int main() {

int block = 0;

int num = 0;

int sentinel = 0;

double sumBlocksWalked = 0;

double pubReached = 0;

double homeReached = 0;

double percentPub = 0;

double percentHome = 0;

double avgBlocksWalked = 0;

srand(time(NULL));

for (int j = 2; j <= 7; j++) {

for (int i = 0; i < TRIALS; i++) { //500 trials

block = j;

while (sentinel != LOOPBREAK) {

num = (rand() % 4) + 1; // Generate the number from 1-5

if (num >= 1 && num <= 3) {

block = block - 1;

}

else {

block = block + 1;

}

sumBlocksWalked++;

if (block == 1) {

pubReached++; //increase pub points

sentinel = 9; //whenever this assigment is reach it breaks the loop

}

else if (block == 8) {

homeReached++; //increase home point

sentinel = 9; //whenever this assigment is reach it breaks the loop

}

} //end while loop

sentinel = 0; //reset our loop breaker back to 0

}//end of for loop

//output the loop for n=2,n=3, etc.

avgBlocksWalked = sumBlocksWalked / 500;

percentHome = (homeReached / 500) \* 100;

percentPub = (pubReached / 500) \* 100;

cout << "Starting at block #" << j << endl;

cout << "Average blocks he walked: " << avgBlocksWalked << endl;

cout << "% of times he reached home: " << percentHome << endl;

cout << "% of times he reached pub: " << percentPub << endl;

cout << endl;

//reset the loop for n+1 block calculations

avgBlocksWalked = 0;

percentHome = 0;

percentPub = 0;

sumBlocksWalked = 0;

homeReached = 0;

pubReached = 0;

}

return 0;

}

 

