

Second Computing Assignment, to be handed in on the 19th of April.

The Gamblers dilemma

A gambler has a single pound to gamble, he plays a game in which he can only win or lose and the probability of winning is the same as losing. If he wins he gains a pound, if he loses he loses a pound. The only money he has when he starts is the single pound and if he runs out of money he has to stop. He has set himself a goal of winning £100 pounds, if he achieves this goal he will stop and will consider himself to have beaten the casino.

What is the probability of the gambler winning?

Assignment

- 1.) Write a Matlab script which to calculate the probability of the gambler winning £100.
- 2.) Calculate the probability of the gambler achieving his goal of £100.
- 3.) If the casino the gambler frequents is not so reputable and the probability of winning is now only 0.45, calculate the probability of the winning £100.

The assignment should be written up as a normal lab manuscript. You should explain the problem you are solving and how you solved it. Along with the lab script you should include all the code you write and document every line of the code so that someone of a similar computing ability could understand your code easily. You should comment on the values you get for both scenarios, i.e. for a fair and a bias game.

Notes

The function `rand()` returns a random number between 0 and 1.

The function `x = random('Binomial',A,B)` could be useful to you, where `A` is the number of trials and `B` is the possibility of success.

The solution we came up with uses a for loop and conditions.