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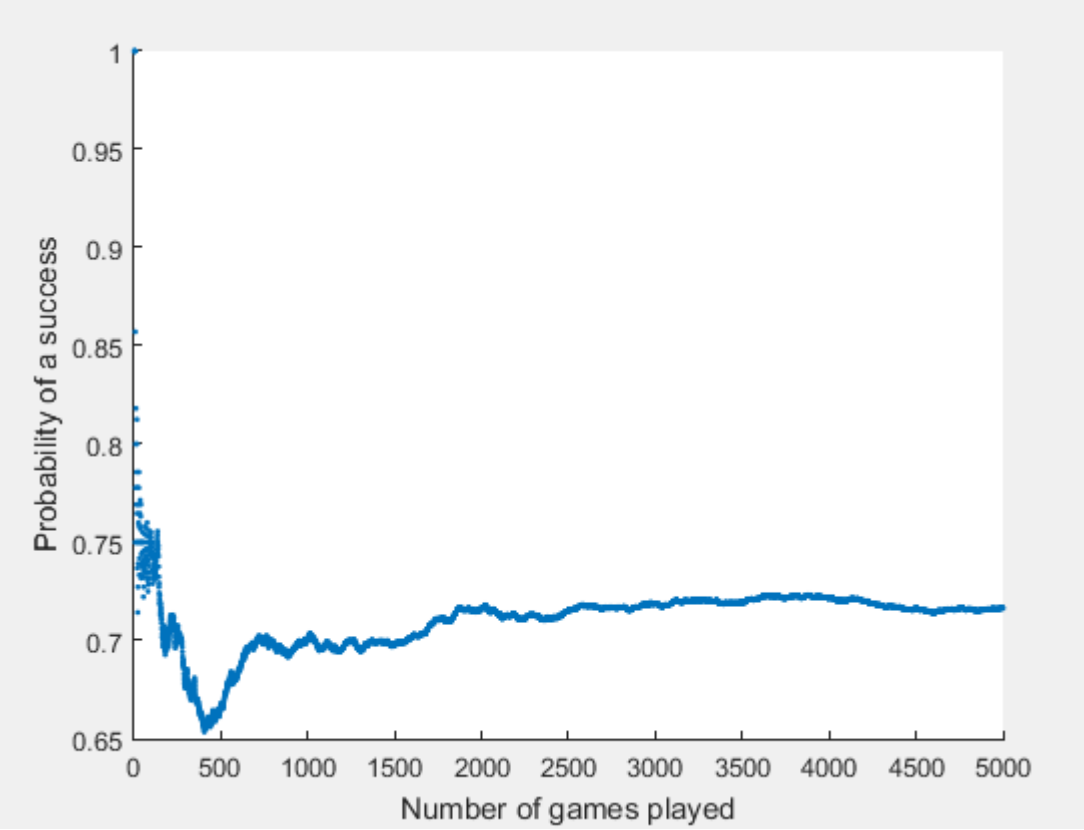
Probability

Birthday Problem

```
numOfSimulatedGames = 5000;
numGamesPlayed = 0;
successfulSwitch = 0;
count = 0;
same = false;
probabilityOfSuccess=zeros(1,numOfSimulatedGames);
people = zeros(1,30);
for numGamesPlayed = 1:numOfSimulatedGames
for i = 1:30
people(i) = ceil(365*rand());
for j = 1:i-1
if(people(i)==people(j))
same = true;
end
end
end
if same == true
count = count + 1;
end
same = false;
probabilityOfSuccess(numGamesPlayed)= count/numGamesPlayed;
end

xaxis = 1:numGamesPlayed;
scatter(xaxis,probabilityOfSuccess, '.')
xlabel('Number of games played')
ylabel('Probability of a success')
```


Probability of a success
1
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Number of games played