STA 4821 Homework 1 (Birthday Problem) 5 Points

Suppose that people are questioned one-at-a-time until for the first time there is a birthday match, that is, until two people are found who have the same birthday. If we assume that each person is equally likely to have been born on each of the 365 days in a year, how many people will be questioned until a match is obtained? More precisely, if this experiment is repeated many times under statistically identical conditions, how many people, on average, will be questioned each time the experiment is performed?

Adapt and run the following simulation. (It is written in BASIC, but you may use any language you like.) Fill in the table. Attach a printout of your code and output. Print out only the values indicated in the table.

```
100 J = 1
110 N = N + 1
120 IF RND > N/365 THEN 110
130 M = M + N + 1
140 PRINT J, N + 1, M/J
150 N = 0
160 J = J + 1
170 GOTO 110
```

Before running the simulation, estimate the long-run average here: _____

Experiment	Number Questioned in this Experiment	Average Number Questioned per Experiment
1		
2		
3		
4		
5		
10		
25		
50		
100		
1000		
10000		