

COMP 1771 – Fall 2008

Class #10: Lab Exercises

Instructor:

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```
java.util.Random.nextInt(int n)
```

Please look up the Javadoc for `java.util.Random`. This class contains a useful method: `public int nextInt(int n)`. This method returns an `int` uniformly distributed between 0 and n .

Birthday Problem

Adapted from Introduction to Programming in Java, Sedgewick and Wayne, Exercise 1.4.35

Suppose that people enter an empty room until a pair of people share a birthday. On average, how many people will have to enter until there is a match? Assume birthdays to be uniform random integers between 0 and 364.

Rumors

Adapted from Introduction to Programming in Java, Sedgewick and Wayne, Exercise 1.4.27

Alice is throwing a party for N (read using Scanner) other guests, including Bob. Bob starts a rumor about Alice by telling it to one of the other guests. A person hearing this rumor for the first time will immediately tell it to one other guest, chosen at random from all the people at the party except Alice and the person from whom they heard it. If a person (including Bob) hears the rumor for a second time they will not propagate it further.

Write a program to estimate:

1. The average number of people at the party who hear the rumor
2. The probability of all of the people at the party hearing the rumor

