CS917: Seminar 3

Many of the problems you will see in the real world don't have an obvious, clear cut, solution like the toy problems we look at in lectures do. Often, you have to really sit down and think about the problem at hand, and apply the knowledge you know and are comfortable with. Often it doesn't have to be an optimal solution, it can simply be good enough for the task at hand. With that in mind, have a look at the following problem and see what the best solution you can come up with is (and don't worry if it takes a bit of time, it's not easy but you will get there with some effort!):
You are given two eggs, and access to a 100-storey building (both eggs are identical). The aim is to find out the highest floor from which an egg will not break when dropped out of a window from that floor. If an egg is dropped and does not break, it is undamaged and can be dropped again. However, once an egg is broken, that's it for that egg. If an egg breaks when dropped from floor n, then it would also have broken from any floor above that. If an egg survives a fall, then it will survive any fall shorter than that.

- What's the minimum number of egg drops it takes to find the solution?.
- How does this change if I give you a third egg?
- Can we generalise for n eggs, and a k story building?

Try out your solutions in code and print out the number of drops you are performing!