DATA 605 - Assignment 7

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Part I

Let X1, X2, . . . , Xn be n mutually independent random variables, each of which is uniformly distributed on the integers from 1 to k. Let Y denote the minimum of the Xi's. Find the distribution of Y.

Number of options X can be is:

k^n

We have:

$1 = k^n - (k-1)^n$

Since k^n is the total number of possiblities and $(k-1)^n$ are the possibilites that aren't equal to 1. If we want Y to equl any number (Y=j) we get

$(k-j+1)^n - (j-k)^n$

So our distribution will be

$((k-j+1)^n - (j-k)^n)/k^n$