

CS203: Mathematics for Computer Science

Report: Assignment 1

Durgesh Agrawal(170262) and Shivam Kumar(170669)

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Language: C++

Number of iterations: 100000

Running time for n=1000 on a 3.1 GHz processor: 17.76 sec

Approach: For each iteration, shuffle a skills' array and calculate maximum of first k entries (kmax), and stop at the very next entry in the array greater than kmax. If it equals $n - 1$ (maximum skill value), increase the score corresponding to k by 1.

Alternate approach: Shuffle array for every iteration and for every k . But this took a lot of time (>5 minutes for 25k iterations).

Table 1: Values of k for n		
n	Optimum k	Accuracy
100	37	0.373
200	73	0.368
300	108	0.372
400	144	0.369
500	186	0.371
600	218	0.370
700	257	0.372
800	288	0.370
900	325	0.369
1000	375	0.368

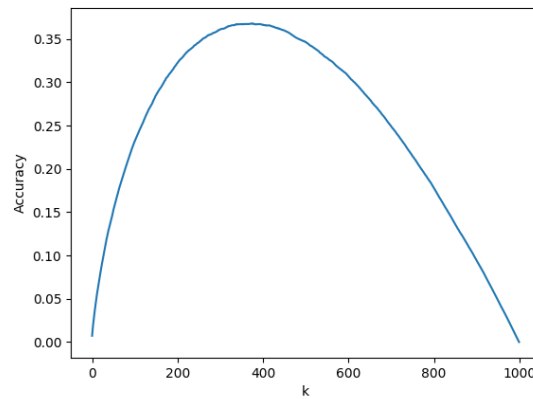


Figure 1: Accuracy vs k for n=1000 (Plotted on Matplotlib)