Progress

Course outline

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Week3: Moments and

Deviations

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Median Algorithm

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week 3

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Algorithms

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Markov and Chebychev's

Permutation Routing on a

Permutation Routing on a

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course work?

How does an NPTEL online

NPTEL » Randomized Algorithms

still be O(n)

protocol).

Score: 0

No, the answer is incorrect.

over the random choices made in the protocol).

Accepted Answers:

The protocol runs in O(n) parallel steps for all possible inputs.

The protocol runs in $O(n^2)$ parallel steps for all possible inputs.

The protocol runs in O(n) parallel steps on all possible inputs with high probability (The probability being

true?

Unit 5 - Week3: Moments and Deviations

Assignment 3 The due date for submitting this assignment has passed. Due on 2020-02-19, 23:59 IST. As per our records you have not submitted this assignment. Consider 201 independent tosses of an unbiased coin. Let X denote the number of occurrences of consecutive heads. By Markov inequality, 1 point Pr(X > 100) is less than 199 400 201 400 200 400 2 100 No, the answer is incorrect. Score: 0 Accepted Answers: 200 400 Consider 1000 independent tosses of an unbiased coin. Let X denote the number of occurrences of heads. By Chebyshev's inequality, 1 point $Pr(400 \le X \le 600)$ is greater than 10 50 $\frac{10}{20}$ 39 40 $\frac{1}{40}$ No, the answer is incorrect. Accepted Answers: Consider 1000 independent tosses of an unbiased coin. Let X denote the number of occurrences of heads. Which of the following statements are 1 point true? $Pr(X > 600) \le e^{-(\frac{20}{3})}$ $Pr(X > 600) > e^{-(\frac{20}{3})}$ $Pr(X < 400) \le e^{-(\frac{20}{2})}$ $Pr(X < 400) > e^{-(\frac{20}{3})}$ No, the answer is incorrect. Score: 0 Accepted Answers: $Pr(X > 600) \le e^{-(\frac{20}{3})}$ $Pr(X < 400) \le e^{-(\frac{20}{2})}$ 4) Consider 1000 independent tosses of an coin with bias 0.9, i.e., probability of head is 0.9. Let X denote the number of occurrences of tails. Which 1 point of the following statements are true? $Pr(X > 200) \le (\frac{3}{4})^{100}$ $Pr(X > 200) > (\frac{3}{4})^{100}$ $Pr(X > 200) \le (0.1)^{200} \times (0.9)^{800}$ $Pr(X > 200) \le 100^{100} \times (0.1)^{200} \times (0.9)^{800}$ No, the answer is incorrect. Score: 0 Accepted Answers: $Pr(X > 200) \le (\frac{3}{4})^{100}$ 5) Consider the randomized median find algorithm. Assume that the input consists of n distinct numbers and n > 1000. Which of the following 1 point statements are true? On all inputs, the algorithm can make an error with some non zero probability. On most but not all inputs, the algorithm gives the correct answer with high probability. On all inputs, The algorithm gives the correct answer with high probability. There are some inputs on which the algorithm never fails to give the correct answer. No, the answer is incorrect. Score: 0 Accepted Answers: On all inputs, the algorithm can make an error with some non zero probability. On all inputs, The algorithm gives the correct answer with high probability. Consider the bit fixing protocol for routing on a hypercube. Suppose a packet x is to be routed from the node 0011000 to the node 1100001, 1 point length of the packet used to route x will be ○ 3 **5** 06 No, the answer is incorrect. Score: 0 Accepted Answers: 7) Consider using the bit fixing protocol for permutation routing on an n dimensional hypercube. Which of the following statements are true? 1 point If all nodes expect one node finishes routing their packets in O(n), then the worst case running time will still be O(n)If all nodes expect 1% of nodes finishes routing their packets in O(n), then the worst case running time will still be O(n)All nodes following bit fixing protocol can route their packets in $O(n^2)$ No packet has a delay of more than O(n) at any intermediary node in the hypercube. No, the answer is incorrect. Score: 0 Accepted Answers: If all nodes expect one node finishes routing their packets in O(n), then the worst case running time will

Consider the two phase randomized bit fixing protocol for permutation routing on an n dimensional hypercube. Which of the following statements are 1 point

The protocol runs in O(n) parallel steps on all possible inputs with high probability (The probability being over the random choices made in the protocol).

The protocol runs in O(n) parallel steps on most but not all possible inputs with high probability (The probability being over the random choices made in the