

IE 613: Assignment 3

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Question 1:

code: ex1.py

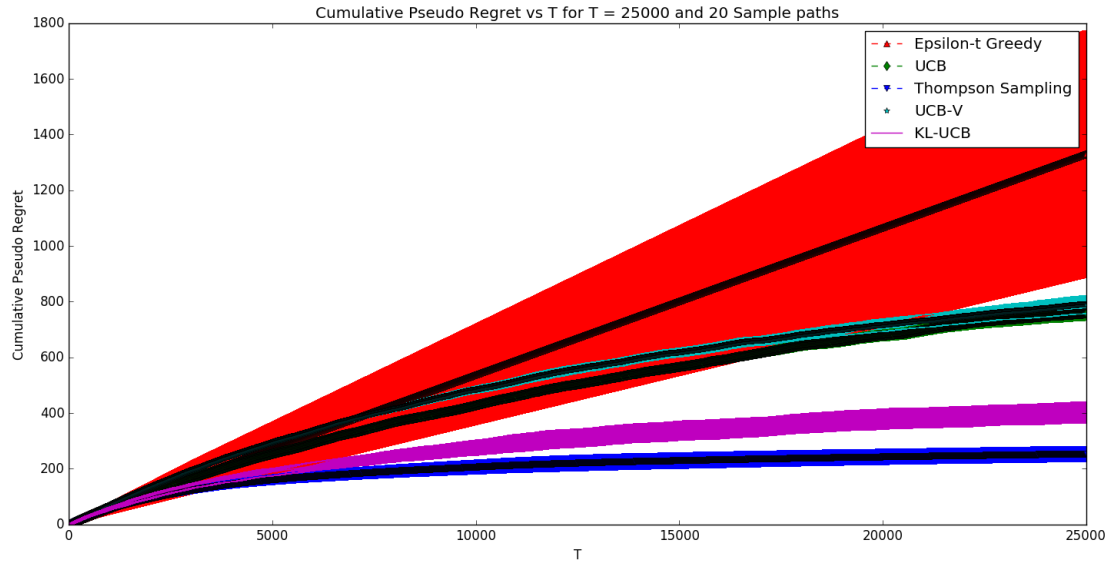


Figure 1: Plot of (pseudo) cumulative regret vs T for different algorithms for T=25000 and 20 sample paths and K=10

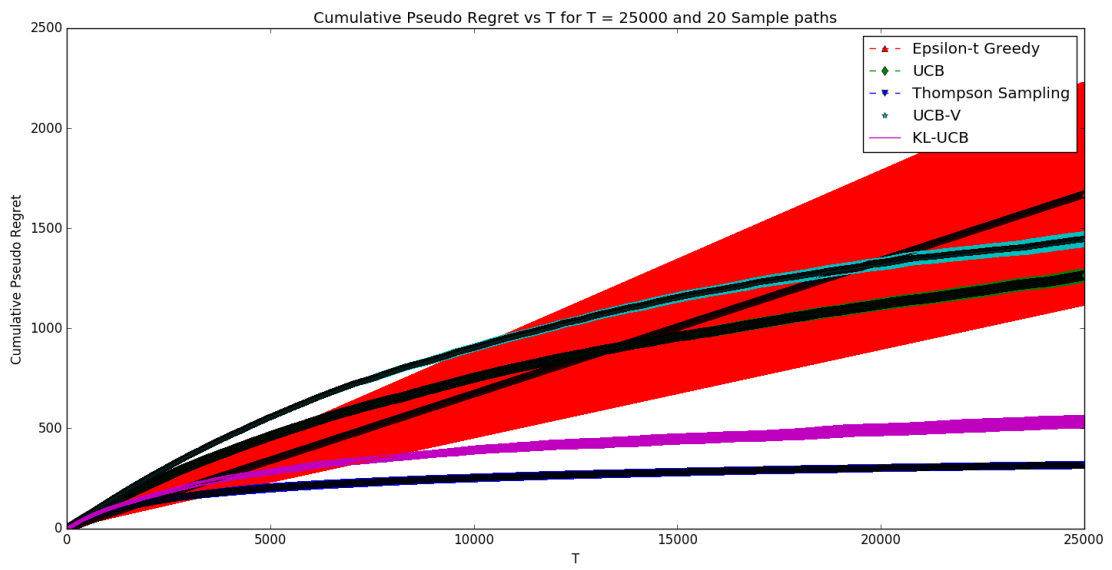


Figure 2: Plot of (pseudo) cumulative regret vs T for different algorithms for T=25000 and 20 sample paths and K=20

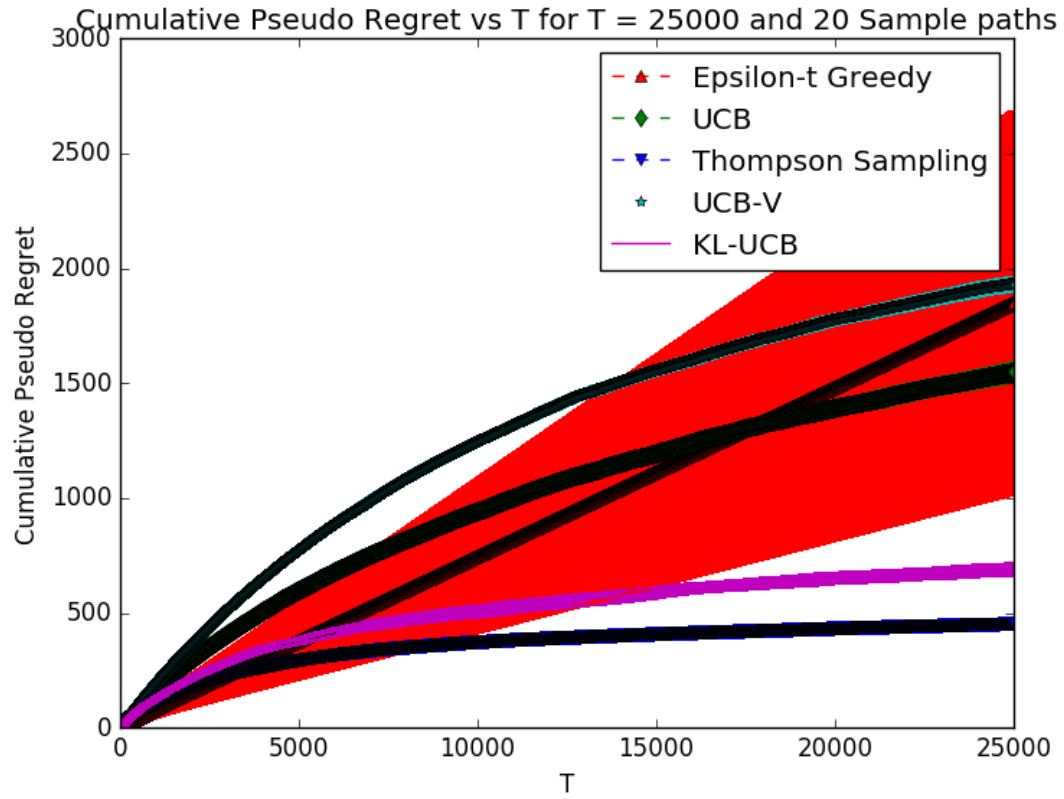


Figure 3: Plot of (pseudo) cumulative regret vs T for different algorithms for T=25000 and 20 sample paths and K=30

For each of the above 3 plots, we can observe that Thompson Sampling works best in terms of minimum Cumulative Pseudo Regret followed by KL-UCB. We also observe that epsilon-t Greedy works relatively better than UCB and UCB-V for small values of T .

Question 2:

Subpart A:

code: ex2a.py

Output will be updated as soon as possible. [Presently Running for K=25]

Subpart B:

code: ex2b.py

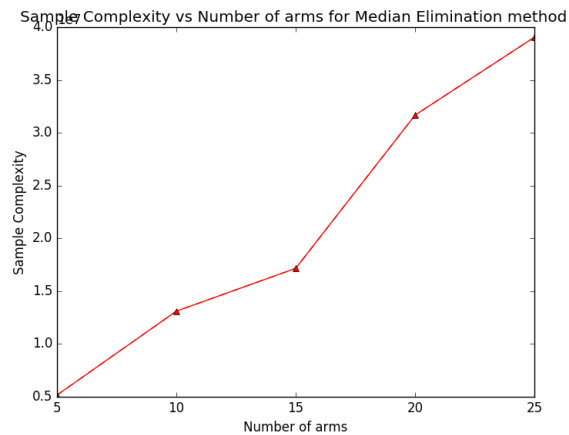


Figure 4: Plot of Sample Complexity vs No. of Arms for Median Elimination Method

We observe that sample complexity of Median Elimination Algorithm does not change since its a deterministic algorithm.

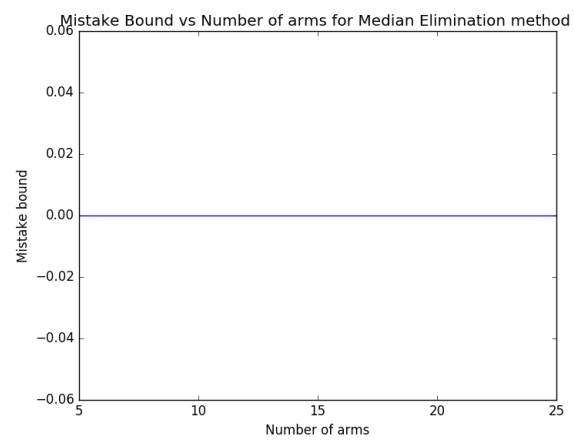


Figure 5: Plot of Mistake Bound vs No. of Arms for Median Elimination Method