CS244 PA2 Writeup

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Warmup exercise A

Warmup exercise B

AIMD performed well in terms of throughput but poorly for delay. We chose the following constants:
Timeout = 80ms, SSThresh = 13, Multiplicative decrease factor = 2.
Our best score was $\frac{3.81}{0.295} = 12.92$.

This makes sense because AIMD waits for a "timeout" to occur before cutting the window. Moreover, the multiplicative decrease gives us less granularity in our control over the window.

Warmup exercise C

This delay-triggered scheme doesn't work very well. Below are our various results from runs.

Linear increase, exponential decrease, thresh = 75: $\frac{1.55}{0.205} = 7.56$
Linear increase, linear decrease, thresh = 75: $\frac{2.46}{0.479} = 5.14$
Exponential increase, exponential decrease, thresh = 75: $\frac{2.46}{0.220} = 11.18$
Exponential increase, exponential decrease, thresh = 100: $\frac{2.90}{0.289} = 10.03$
Exponential increase, exponential decrease, thresh = 85: $\frac{2.58}{0.229} = 11.26$

Exponential increase and decrease with a threshold of 85ms worked the best. We believe this is because it allows the window to more rapidly adjust to changing network conditions compared to linear adjustments. Also, a threshold too low doesn't optimize for throughput, while a threshold too high adjusts too late.

Warmup exercise D