Sequential Request Experiments:

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| End to End Average Response Times (s) , 1000 Sequential Requests | | | |
|  | Buy | Lookup | Search |
| Item 1 (Stock 1500) | 0.09282 | 0.01219 |  |
| Item 2 (Stock 1200) | 0.09739 | 0.01228 |  |
| Item 3 (Stock 1000) | 0.10358 | 0.01226 |  |
| Item 4 (Stock 500) | 0.09811 | 0.01262 |  |
| Topic 1 |  |  | 0.012021 |
| Topic 2 |  |  | 0.012501 |

The above output is from running ./SequentialRequestExperiments.sh in the tests folder. Note that the initial stock for each item was varied, so that we could see if the average response time would change with more failed buy requests.

Observations - the average response time for buy requests is almost 10x higher. This could be attributed to the fact that buy requests go through more tiers (Frontend - Order - Catalog - Order - Frontend), whereas lookup are search go through less (Frontend - Catalog - Frontend). Average response time for lookup and search are extremely close, which makes sense since both methods are just routed from frontend to catalog directly.

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| --- | --- | --- | --- |
|  | Order - Catalog Query | Frontend - Order Buy | Frontend - Catalog Query |
| buy item 1 | 0.00767 | 0.00959 |  |
| lookup item 1 |  |  | 0.01110 |
| search topic 1 |  |  | 0.01114 |

The above output is from running ./PerTierExperiments.sh int the tests folder. Note that the per-tier average response times for lookup and search are the same as the end-to-end runtimes. This is because for both these cases, the entire end-to-end response is only travelling across one level of tiers.