Sequential Request Experiments:

End-to-end Response times

End to End Response Times , 1000 Sequential Requests			
	Buy	Lookup	Search
Item 1	0.04509	0.01110	
Item 2	0.04933	0.01083	
Item 3	0.05170	0.01096	
Item 4	0.04717	0.01087	
Topic 1			0.01114
Topic 2			0.01068

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 5x 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.

Per-tier Response Times

	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

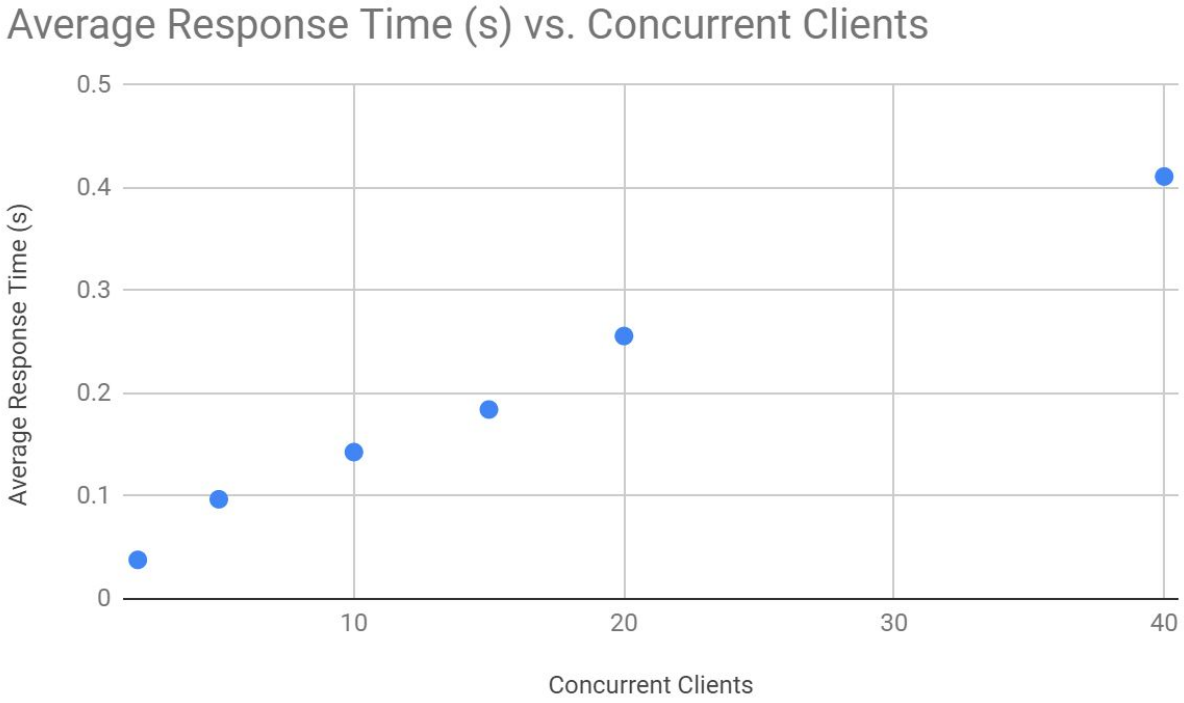
The above output is from running ./PerTierExperiments.sh int the tests folder. Note we only experimented on 1 item or topic, since the previous experiment seemed to indicate that performance does not vary across items.

Observations:

The the single-tier response time for

Concurrent Request Experiments:
This experiment can be replicated by going into /tests/concurrency_experiments and running all scripts in the folder.

The setup for this experiment is to deploy the system on 3 machines, then run shell scripts from a 4th machine that concurrently spawn multiple clients making continuous requests. All clients made 100 requests each.



Concurrent Clients	Average Response Time (s)
2	0.03797
5	0.09694
10	0.14286
15	0.18429
20	0.25583
40	0.41103

Observations: the end-to-end response time seems to increase linearly with the number of concurrent clients.