Performance Results

Query	Average response time before caching (ms)	Average response time after caching (ms)
Search (GET)	**11.70**	**1.20**
Make an order (POST / PUT)	**71.80**	No caching for POST

Before Caching:

- I computed the average of **10** requests per query type by using a middleware that records the starting time of a request and an ending time. It then adds it to an array and when the counter hits 10 it, computes the average and logs it.

```
front-end-service  | Average Response Time after 10 requests: 11.70 ms
front-end-service  | Average Response Time after 10 requests: 71.80 ms
```

After Caching:

- First, the cache will be empty so every access will be a miss, but after that the hit rate will start to increase.
- As shown in the next screenshot, the first 10 requests had 4 misses, which is why the A.R.T (average response time) was 6.80, but in the next 10 requests there was only 1 miss so the A.R.T was significantly decreased to 1.20.

- The screenshot is in the next page →

```
front-end-service    | Server is running on port 3002..
front-end-service    | Cache miss for topic :  distributed systems
front-end-service    | Cache hit for topic :  distributed systems
front-end-service    | Cache miss for topic :  undergraduate school
front-end-service    | Cache hit for topic :  undergraduate school
front-end-service    | Cache miss for book with id :  1
front-end-service    | Cache hit for book with id :  1
front-end-service    | Cache hit for topic :  undergraduate school
front-end-service    | Cache hit for book with id :  1
front-end-service    | Cache miss for book with id :  3
front-end-service    | Cache hit for book with id :  3
front-end-service    | Average Response Time after 10 requests: 6.80 ms
front-end-service    | Cache hit for topic :  undergraduate school
front-end-service    | Cache hit for topic :  distributed systems
front-end-service    | Cache hit for book with id :  3
front-end-service    | Cache hit for book with id :  1
front-end-service    | Cache miss for book with id :  2
front-end-service    | Cache hit for topic :  distributed systems
front-end-service    | Cache hit for book with id :  1
front-end-service    | Cache hit for book with id :  3
front-end-service    | Cache hit for topic :  undergraduate school
front-end-service    | Cache hit for book with id :  1
front-end-service    | Average Response Time after 10 requests: 1.20 ms
```