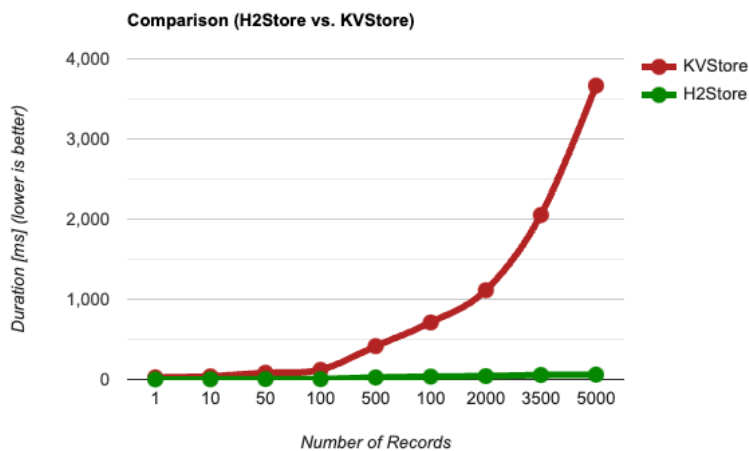


Overview

As the number of records inputted increases, so does the time difference between **KVStore** and **H2Store**.



Process

Firstly, we chose 10 customers to compare both implementations for a small number of elements, and **KVStore** already falls behind **H2Store**.

```
Testing KVStore Implementation...
Inserted 10 customers in 39 ms
Average time per insertion: 3.90 ms

Testing H2Store Implementation...
Inserted 10 customers in 2 ms
Average time per insertion: 0.20 ms

=== Performance Comparison Results ===
KVStore total time: 39 ms
H2Store total time: 2 ms
H2Store is 18.50x faster than KVStore
```

Then, we changed the number back to 2,000. The difference between KVStore and H2Store is still more than >20x. One thing to be noted here is that H2Store is completed in more consistent time durations (probably because it is faster).

```
Testing KVStore Implementation...
Inserted 2000 customers in 1113 ms
Average time per insertion: 0.56 ms

Testing H2Store Implementation...
Inserted 2000 customers in 42 ms
Average time per insertion: 0.02 ms

=== Performance Comparison Results ===
KVStore total time: 1113 ms
H2Store total time: 42 ms
H2Store is 25.50x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 2000 customers in 1869 ms
Average time per insertion: 0.93 ms

Testing H2Store Implementation...
Inserted 2000 customers in 49 ms
Average time per insertion: 0.02 ms

=== Performance Comparison Results ===
KVStore total time: 1869 ms
H2Store total time: 49 ms
H2Store is 37.14x faster than KVStore
```

Testing KVStore Implementation...

Inserted 2000 customers in 1226 ms

Average time per insertion: 0.61 ms

Testing H2Store Implementation...

Inserted 2000 customers in 43 ms

Average time per insertion: 0.02 ms

=== Performance Comparison Results ===

KVStore total time: 1226 ms

H2Store total time: 43 ms

H2Store is 27.51x faster than KVStore

Testing KVStore Implementation...

Inserted 2000 customers in 1767 ms

Average time per insertion: 0.88 ms

Testing H2Store Implementation...

Inserted 2000 customers in 40 ms

Average time per insertion: 0.02 ms

=== Performance Comparison Results ===

KVStore total time: 1767 ms

H2Store total time: 40 ms

H2Store is 43.18x faster than KVStore

```
Testing KVStore Implementation...
Inserted 2000 customers in 1223 ms
Average time per insertion: 0.61 ms
```

```
Testing H2Store Implementation...
Inserted 2000 customers in 40 ms
Average time per insertion: 0.02 ms
```

```
=== Performance Comparison Results ===
KVStore total time: 1223 ms
H2Store total time: 40 ms
H2Store is 29.58x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 2000 customers in 1331 ms
Average time per insertion: 0.67 ms
```

```
Testing H2Store Implementation...
Inserted 2000 customers in 41 ms
Average time per insertion: 0.02 ms
```

```
=== Performance Comparison Results ===
KVStore total time: 1331 ms
H2Store total time: 41 ms
H2Store is 31.46x faster than KVStore
```

Details of Other Tests

```
Testing KVStore Implementation...
Inserted 1 customers in 26 ms
Average time per insertion: 26.00 ms

Testing H2Store Implementation...
Inserted 1 customers in 1 ms
Average time per insertion: 1.00 ms

=== Performance Comparison Results ===
KVStore total time: 26 ms
H2Store total time: 1 ms
H2Store is 25.00x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 50 customers in 84 ms
Average time per insertion: 1.68 ms

Testing H2Store Implementation...
Inserted 50 customers in 4 ms
Average time per insertion: 0.08 ms

=== Performance Comparison Results ===
KVStore total time: 84 ms
H2Store total time: 4 ms
H2Store is 20.00x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 100 customers in 120 ms
Average time per insertion: 1.20 ms
```

```
Testing H2Store Implementation...
Inserted 100 customers in 5 ms
Average time per insertion: 0.05 ms
```

```
=== Performance Comparison Results ===
KVStore total time: 120 ms
H2Store total time: 5 ms
H2Store is 23.00x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 500 customers in 416 ms
Average time per insertion: 0.83 ms
```

```
Testing H2Store Implementation...
Inserted 500 customers in 25 ms
Average time per insertion: 0.05 ms
```

```
=== Performance Comparison Results ===
KVStore total time: 416 ms
H2Store total time: 25 ms
H2Store is 15.64x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 1000 customers in 711 ms
Average time per insertion: 0.71 ms

Testing H2Store Implementation...
Inserted 1000 customers in 36 ms
Average time per insertion: 0.04 ms

=== Performance Comparison Results ===
KVStore total time: 711 ms
H2Store total time: 36 ms
H2Store is 18.75x faster than KVStore
```

```
Testing KVStore Implementation...
Inserted 3500 customers in 2052 ms
Average time per insertion: 0.59 ms

Testing H2Store Implementation...
Inserted 3500 customers in 56 ms
Average time per insertion: 0.02 ms

=== Performance Comparison Results ===
KVStore total time: 2052 ms
H2Store total time: 56 ms
H2Store is 35.64x faster than KVStore
```

```
Testing KVStore Implementation...  
Inserted 5000 customers in 3666 ms  
Average time per insertion: 0.73 ms
```

```
Testing H2Store Implementation...  
Inserted 5000 customers in 60 ms  
Average time per insertion: 0.01 ms
```

```
=== Performance Comparison Results ===  
KVStore total time: 3666 ms  
H2Store total time: 60 ms  
H2Store is 60.10x faster than KVStore
```