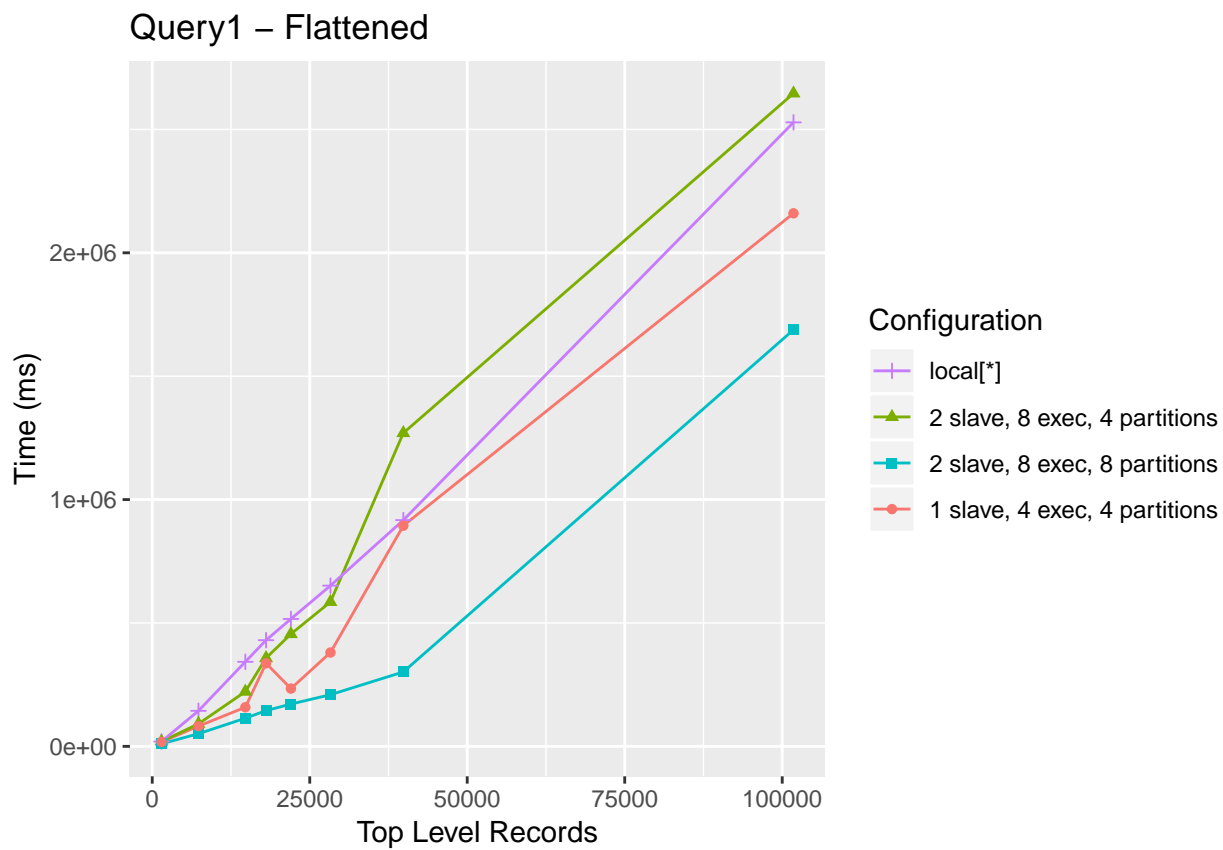
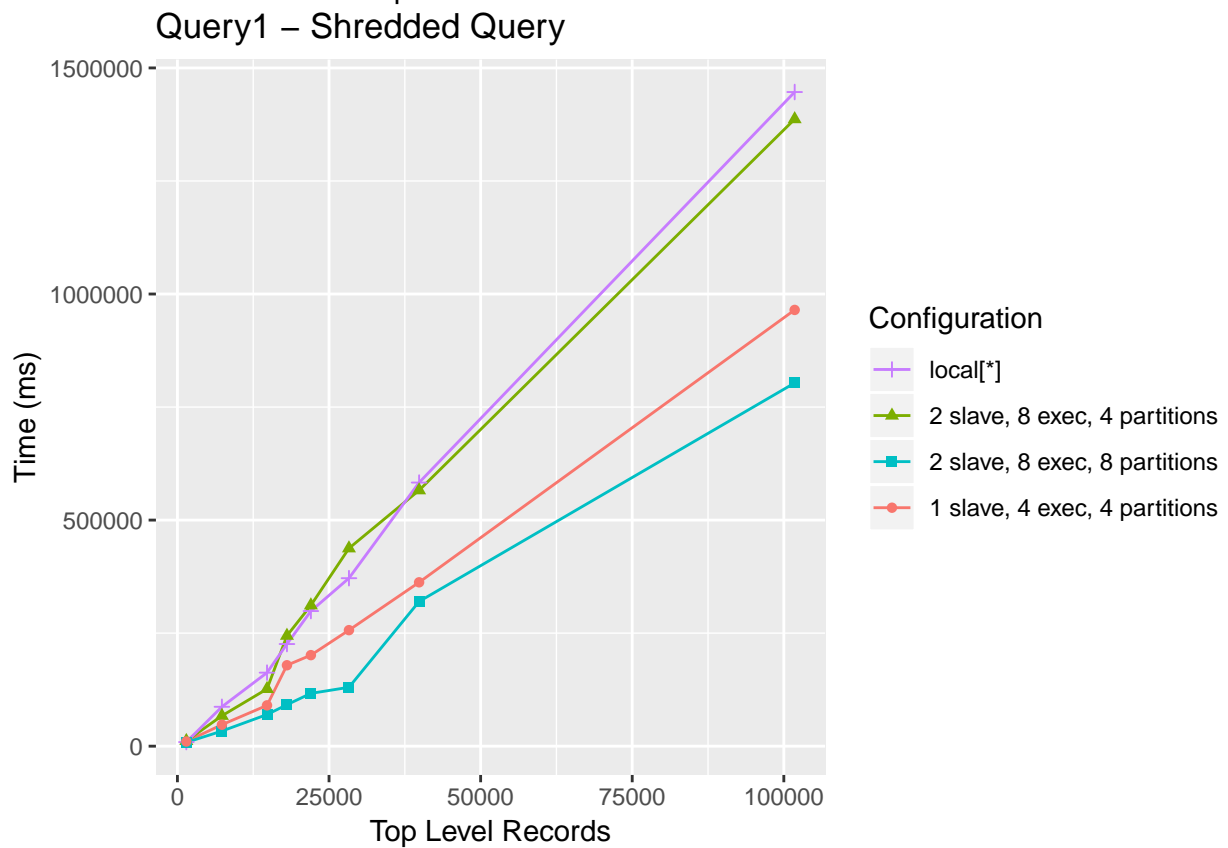
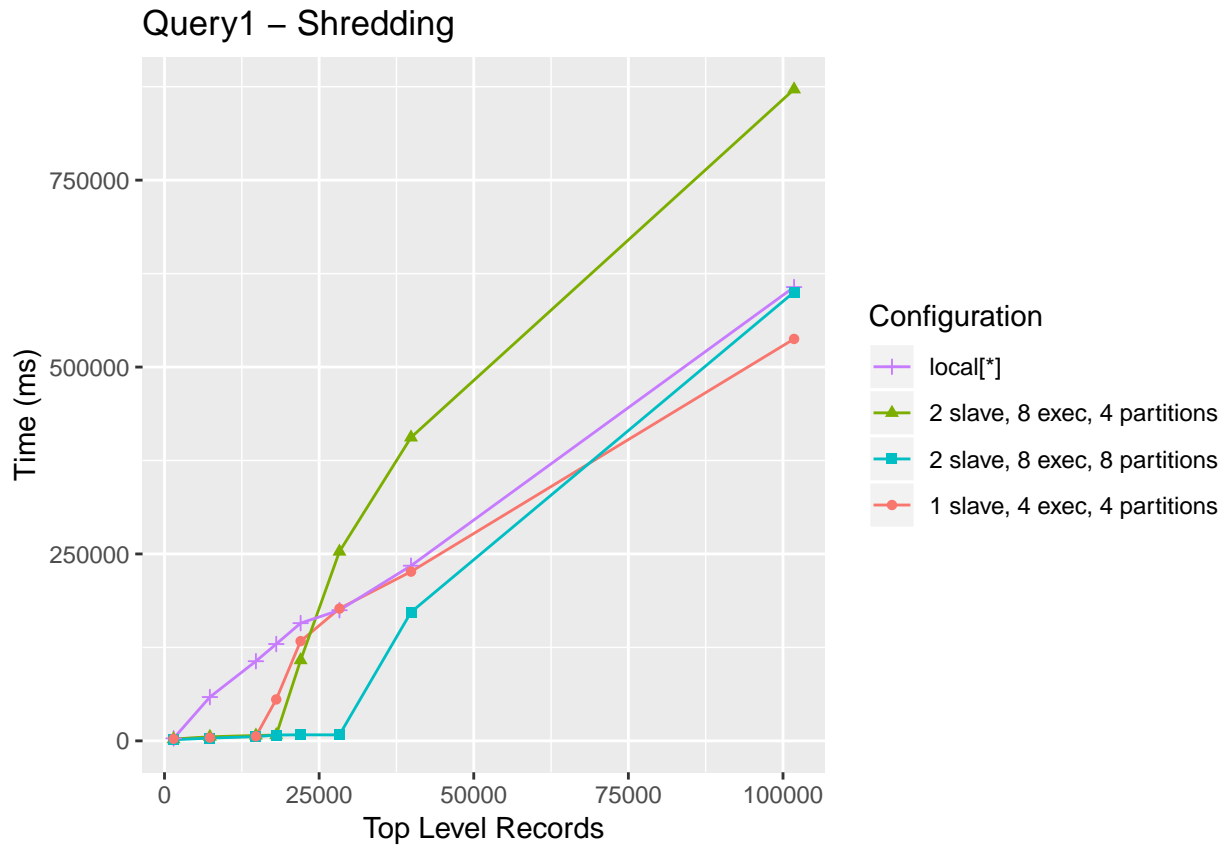


cluster configurations

These tests were run on the Converge data (across 10640 samples) on the ODA cluster.

Query 1 Results

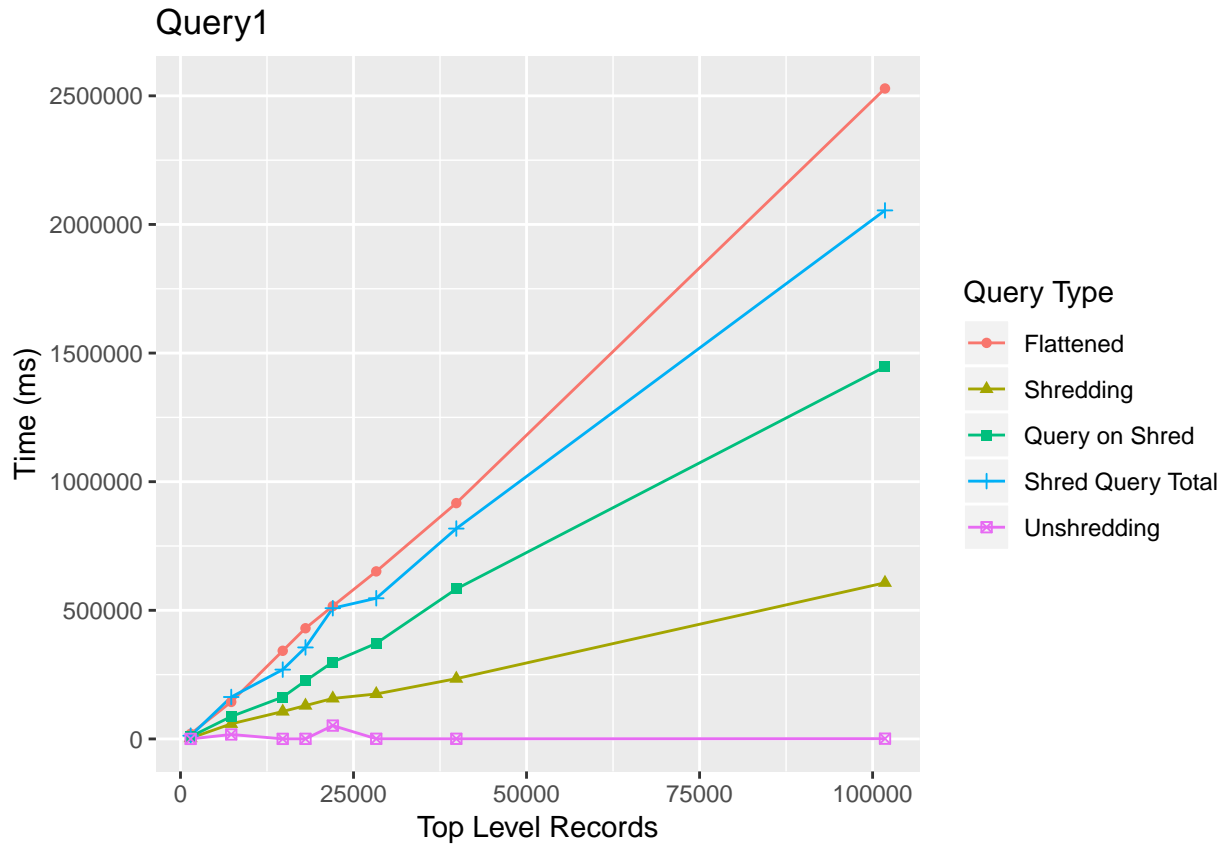




Local mode, Spark 2.1.1, Scala 2.11.8, 48 cores, 32G Driver, materializing shredded query stages

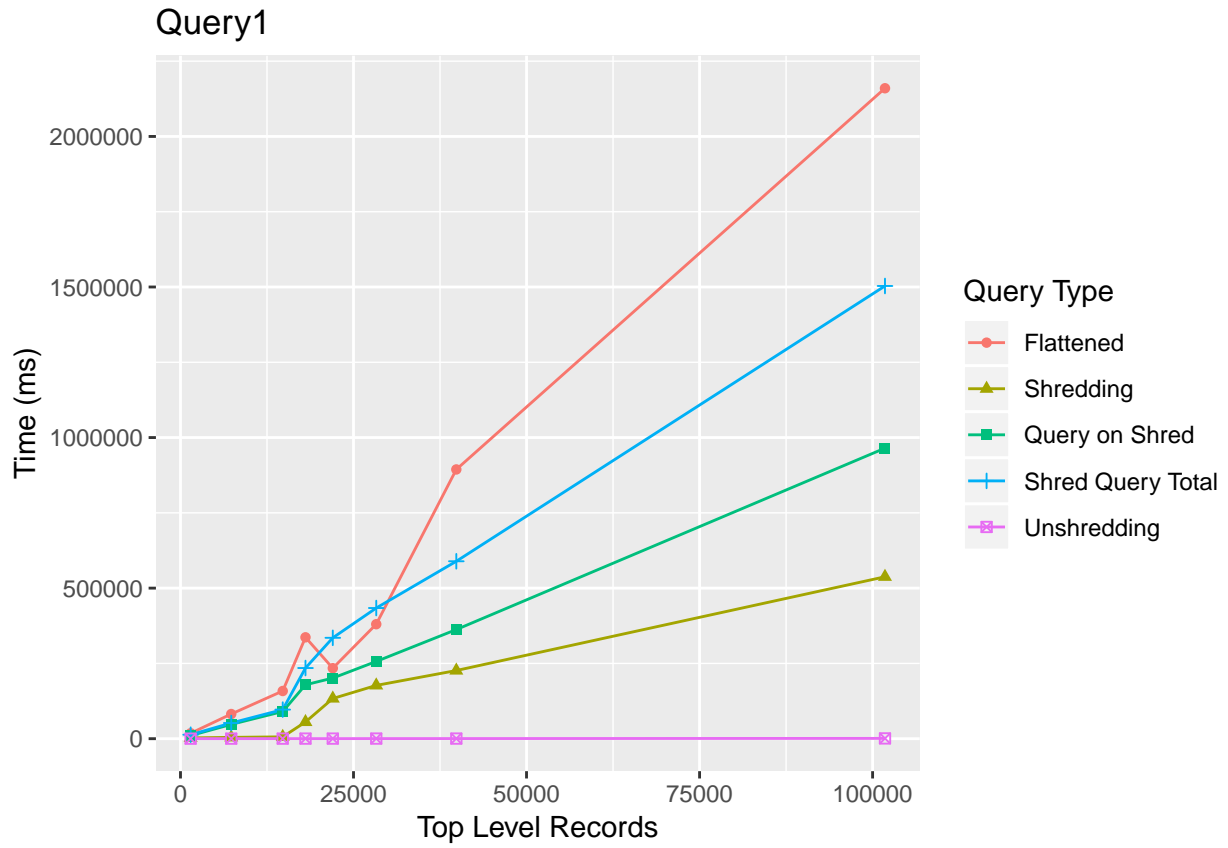
```
--master local[*] \  
--executor-memory 24G \  
--driver-memory 32G \  

```



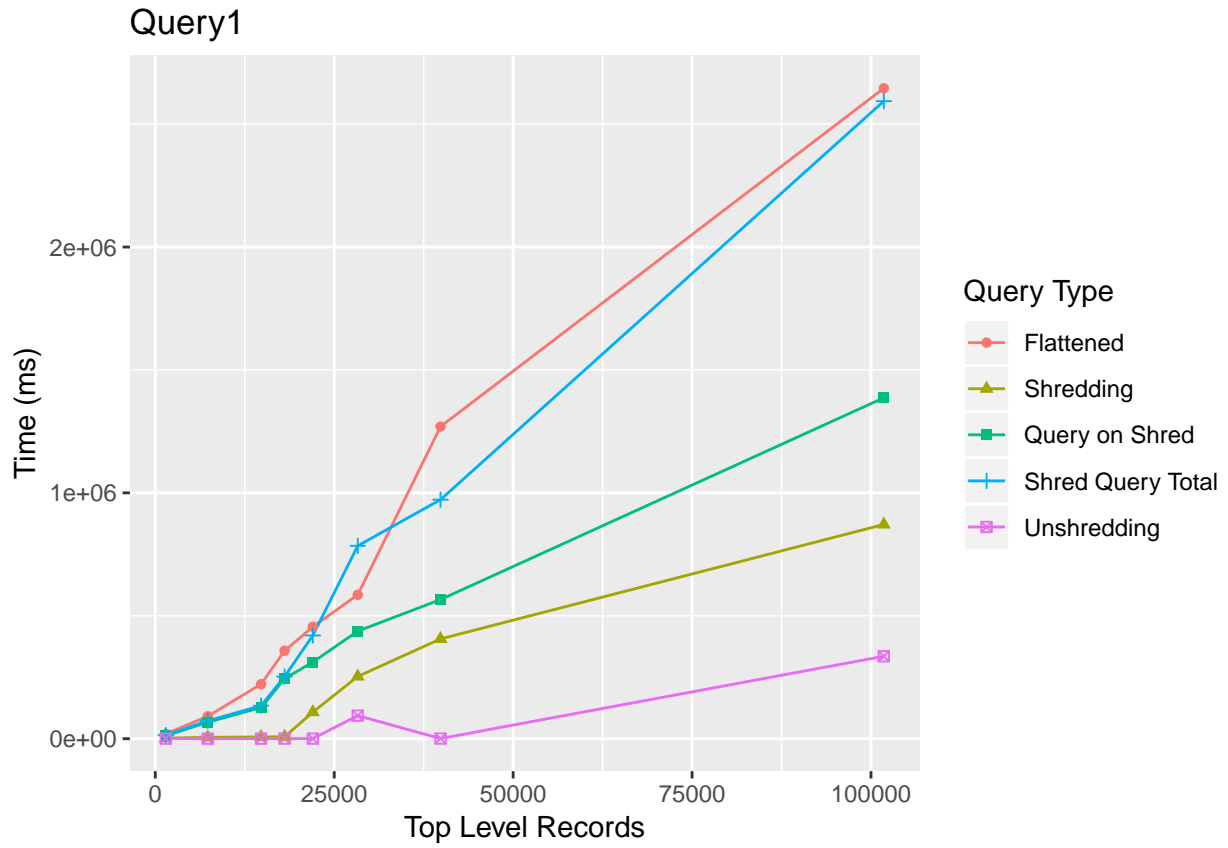
Converge, 1 slave, Spark 2.1.1, Scala 2.11.8, 4 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 4 \  
--executor-memory 24G \  
--driver-memory 32G \
```



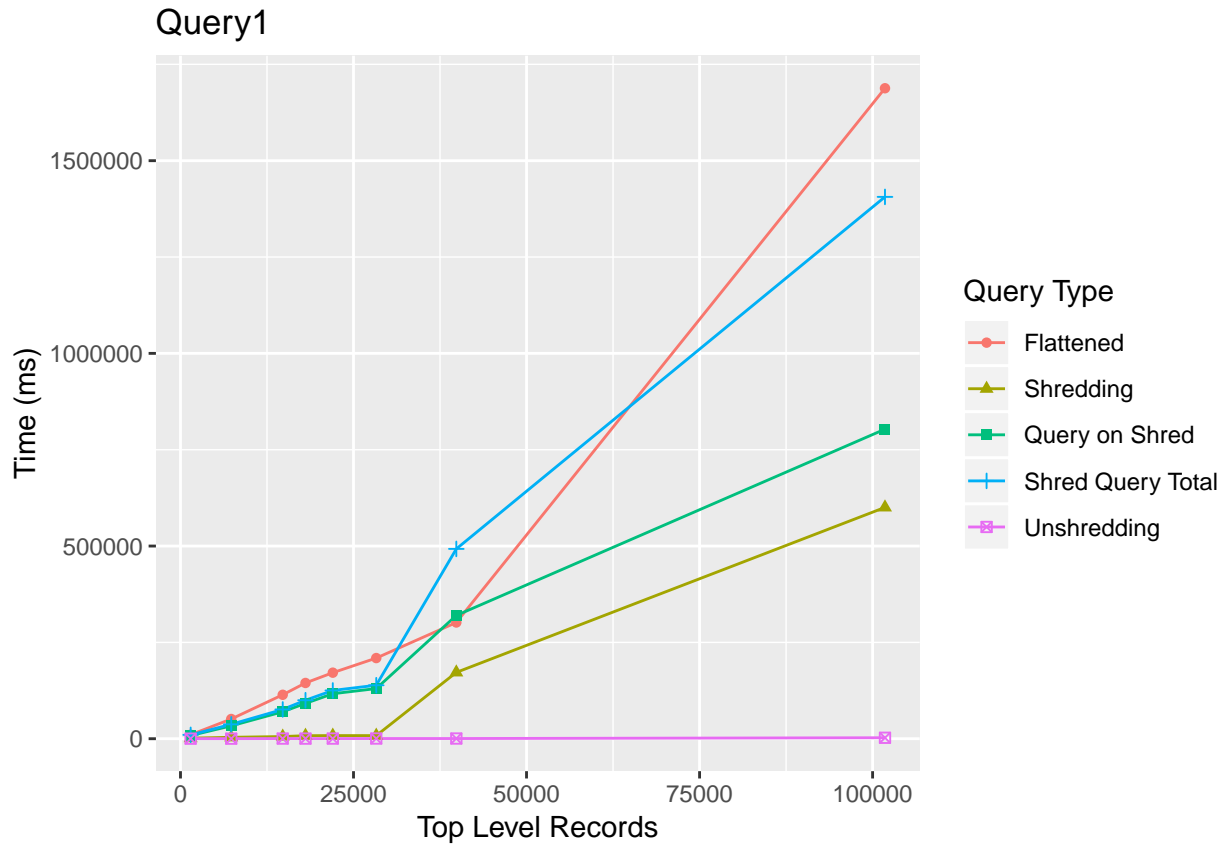
Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 4 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```



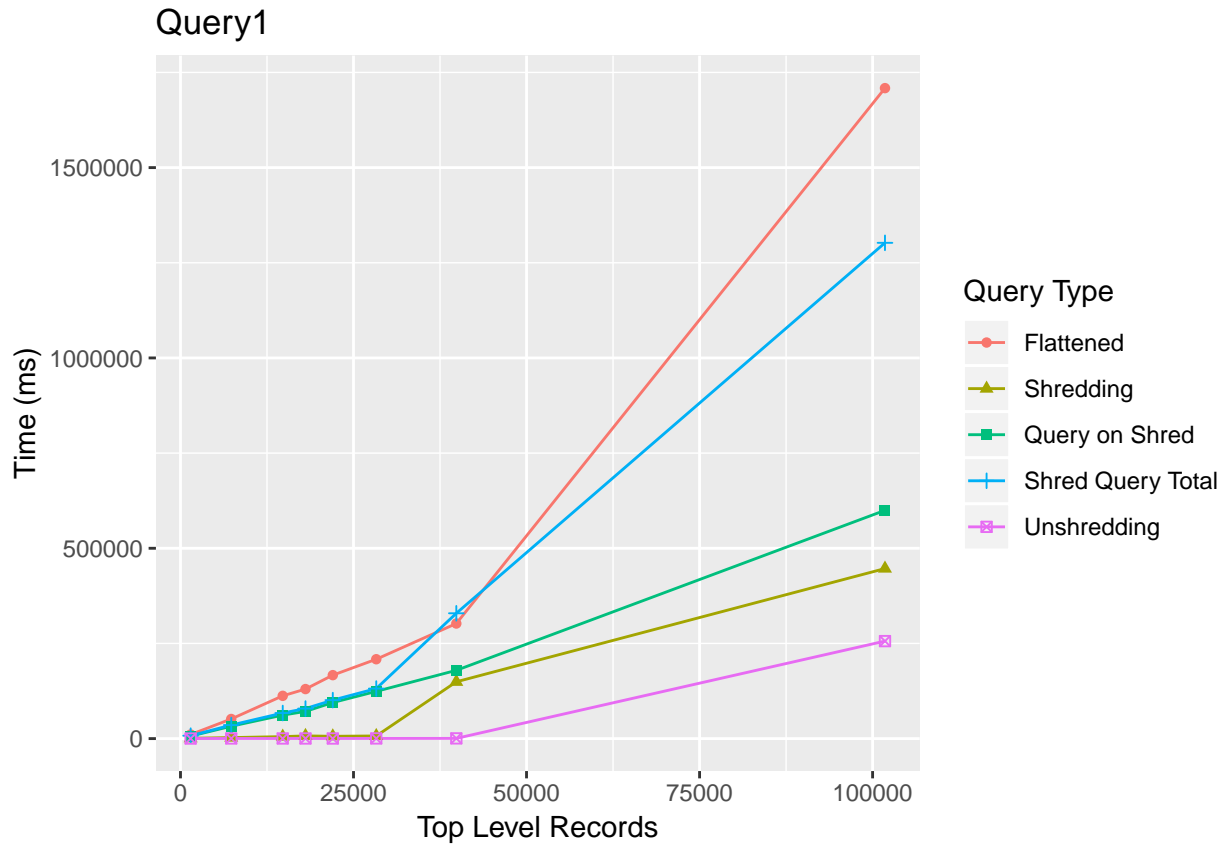
Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```

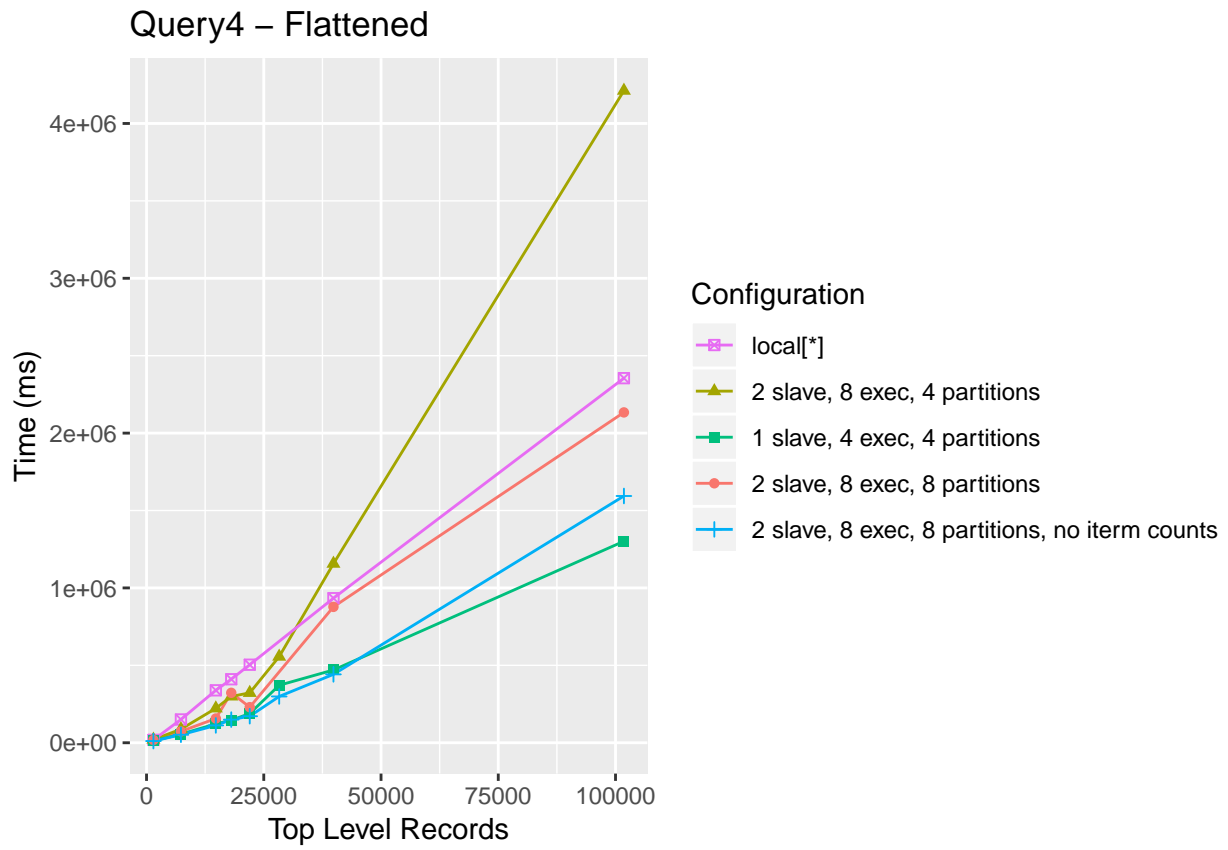


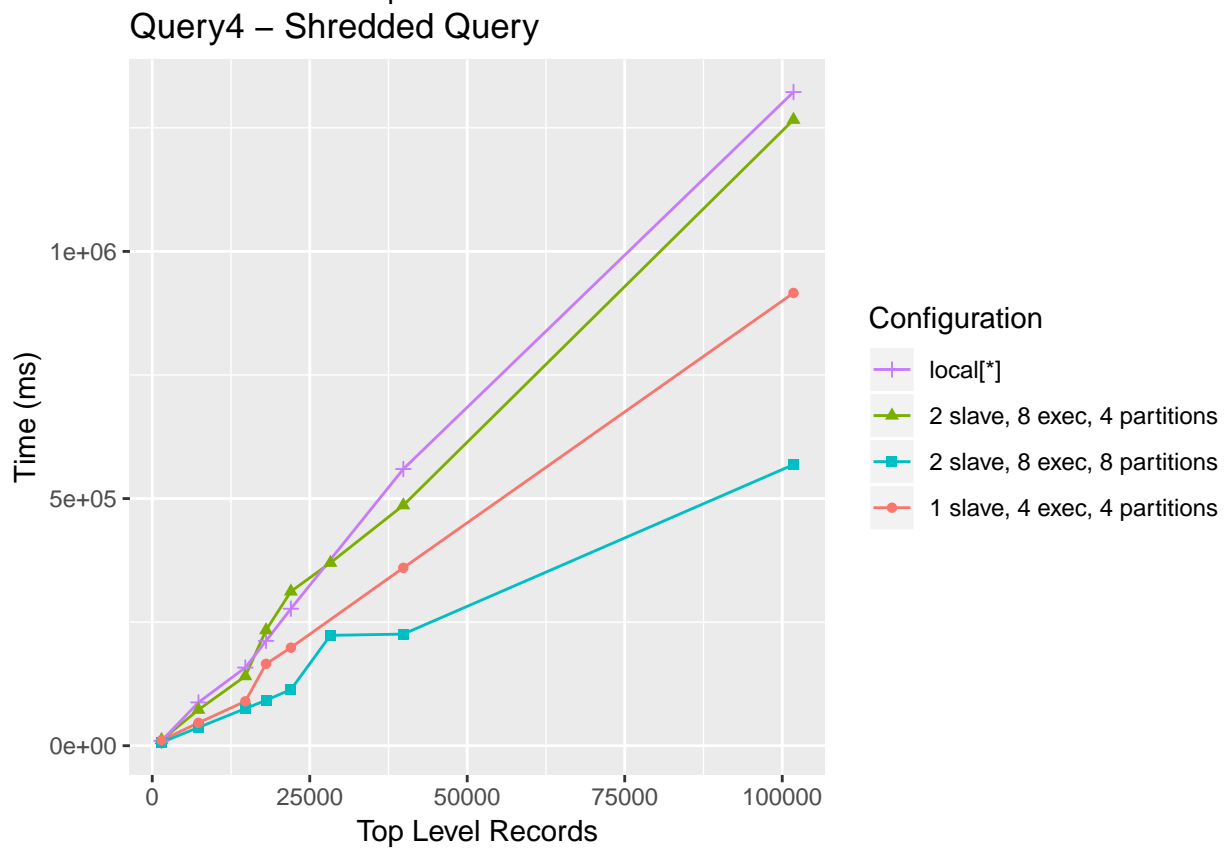
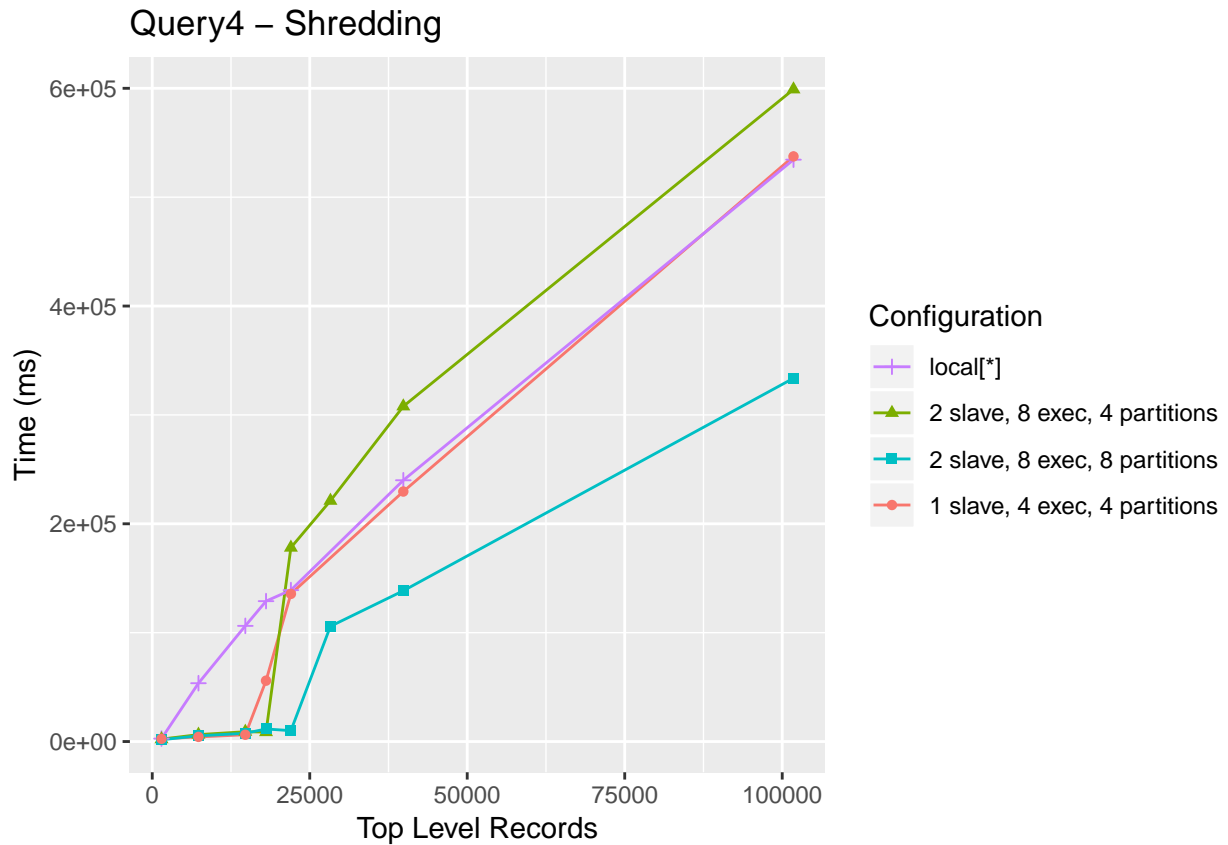
Optimizations to query1: Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```

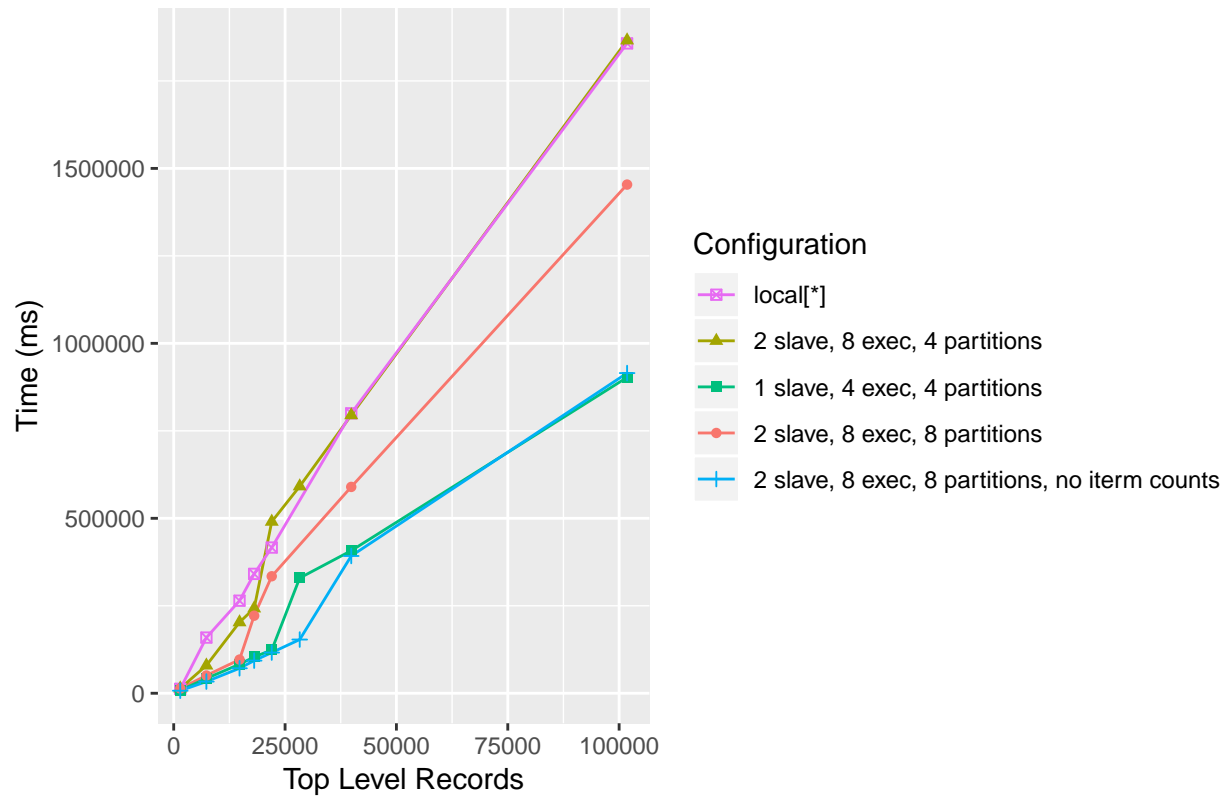


Query 4 Results





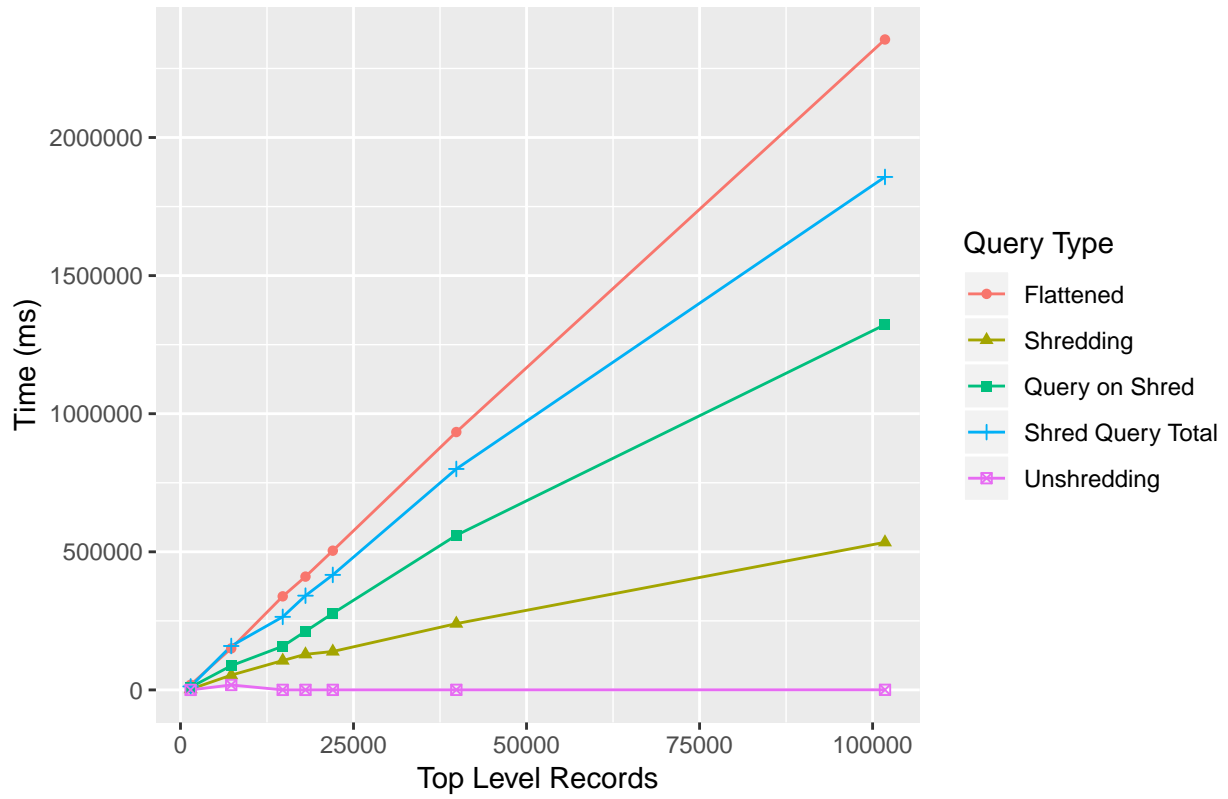
Query4 – Shredded Query Total



Local mode, Spark 2.1.1, Scala 2.11.8, 48 cores, 32G Driver, materializing shredded query stages

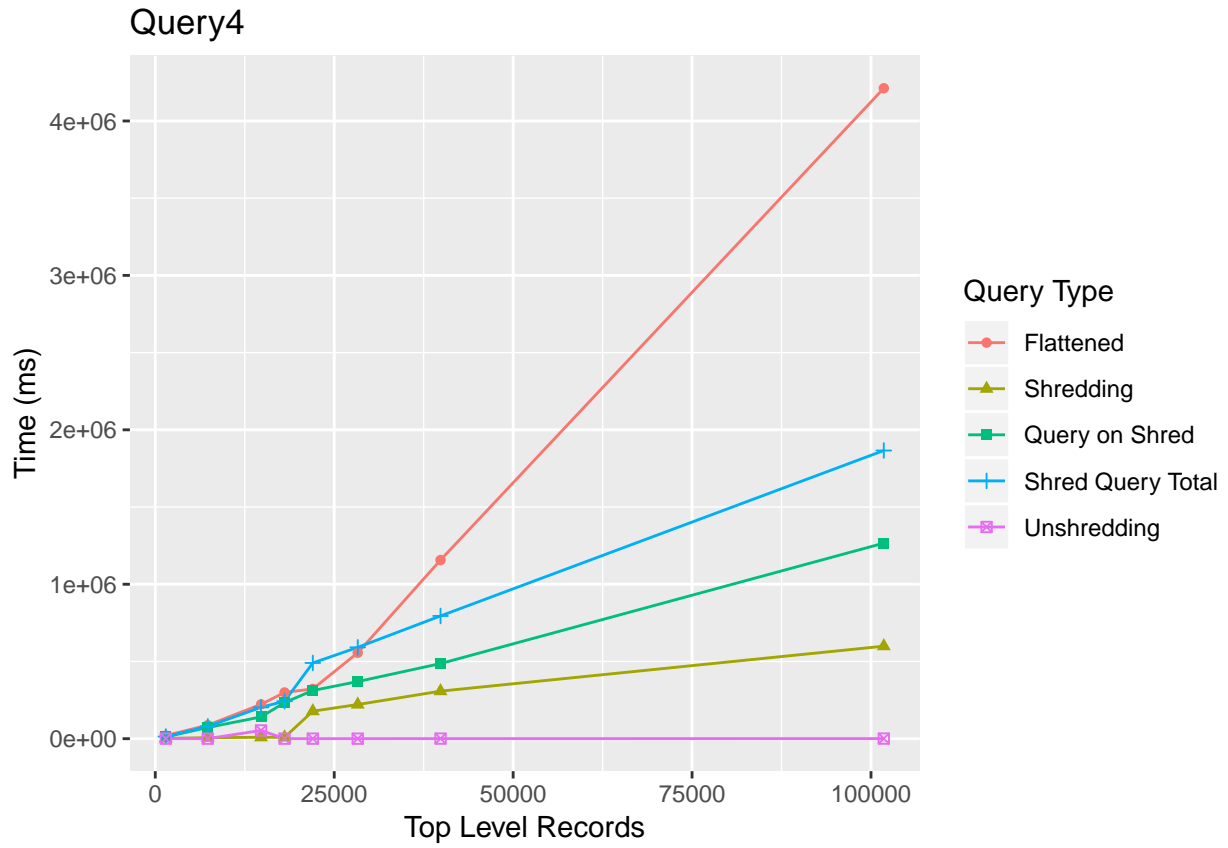
```
--master local[*] \  
--executor-memory 24G \  
--driver-memory 32G \
```

Query4



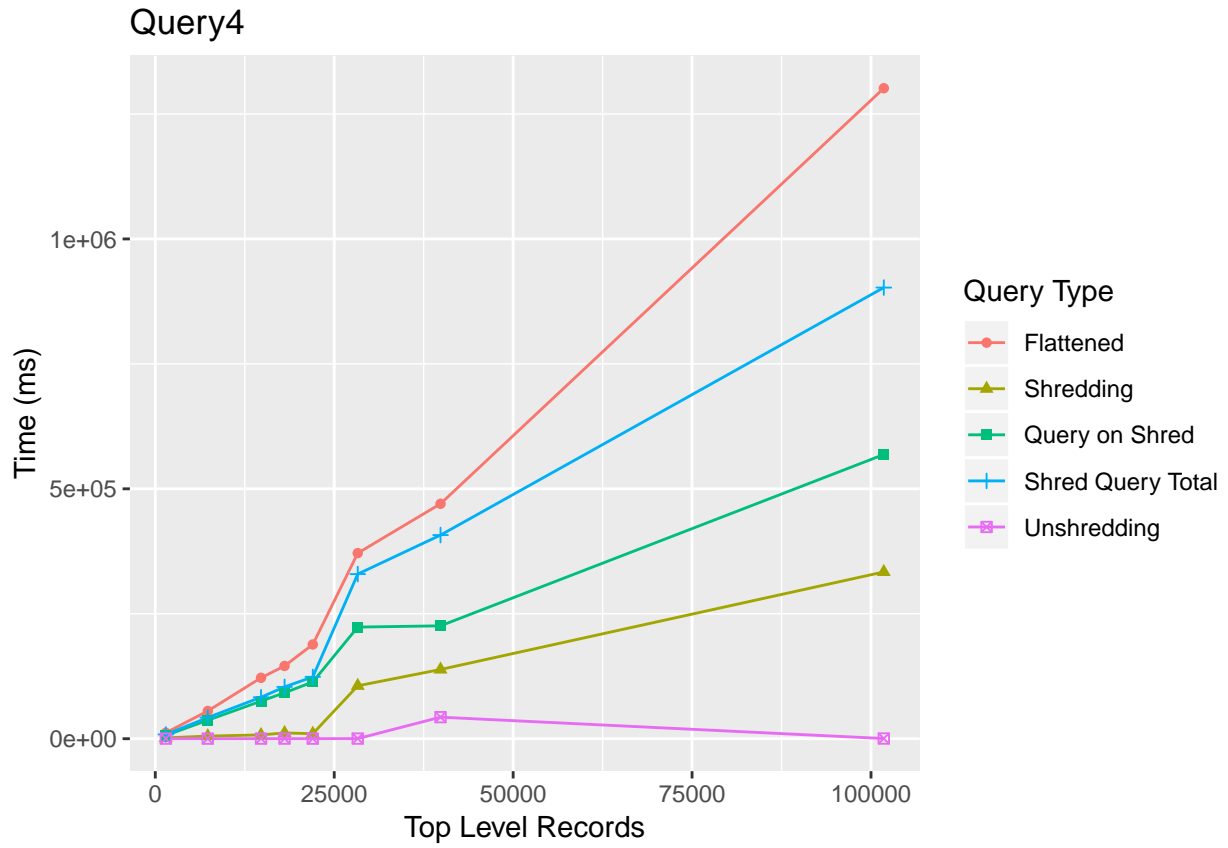
Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 4 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```



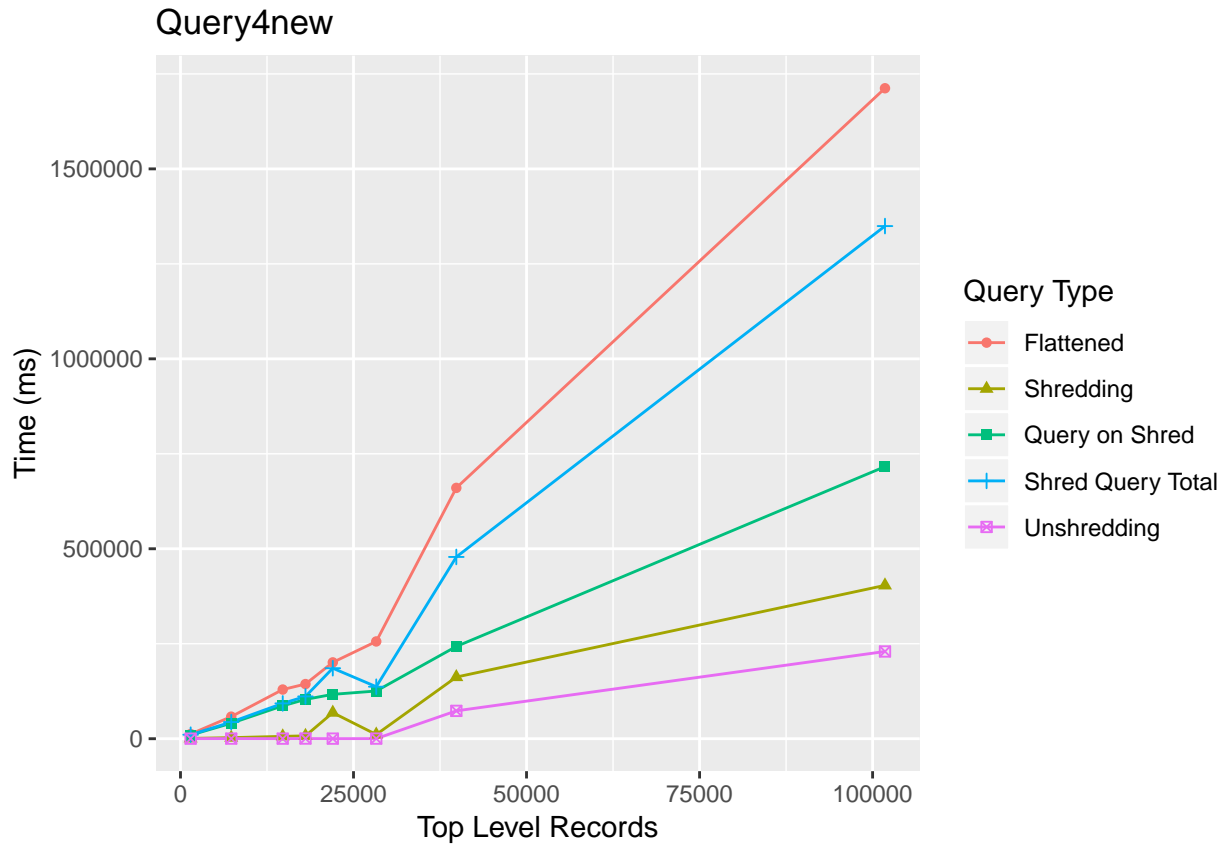
Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```



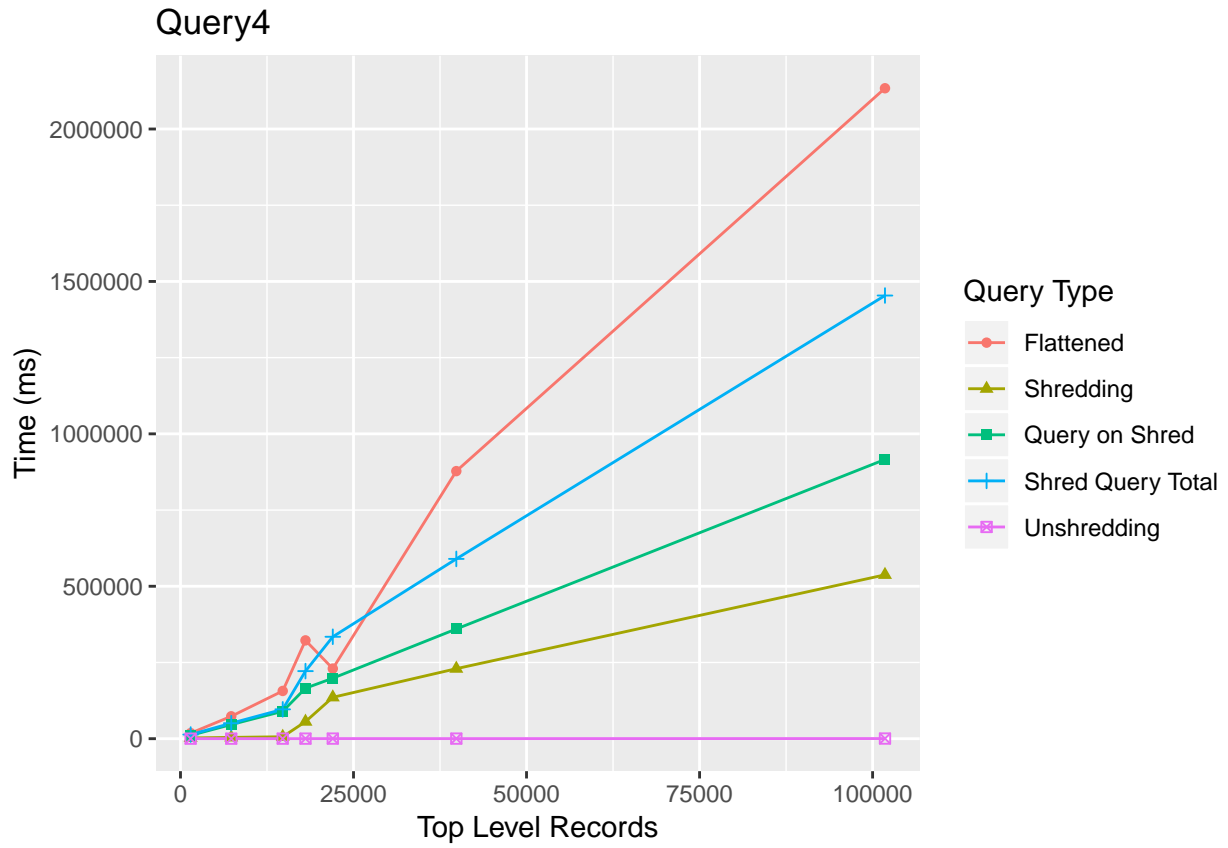
Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, materializing shredded query stages

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```



Converge, 1 slave, Spark 2.1.1, Scala 2.11.8, 4 partitions, materializing shredded query stages

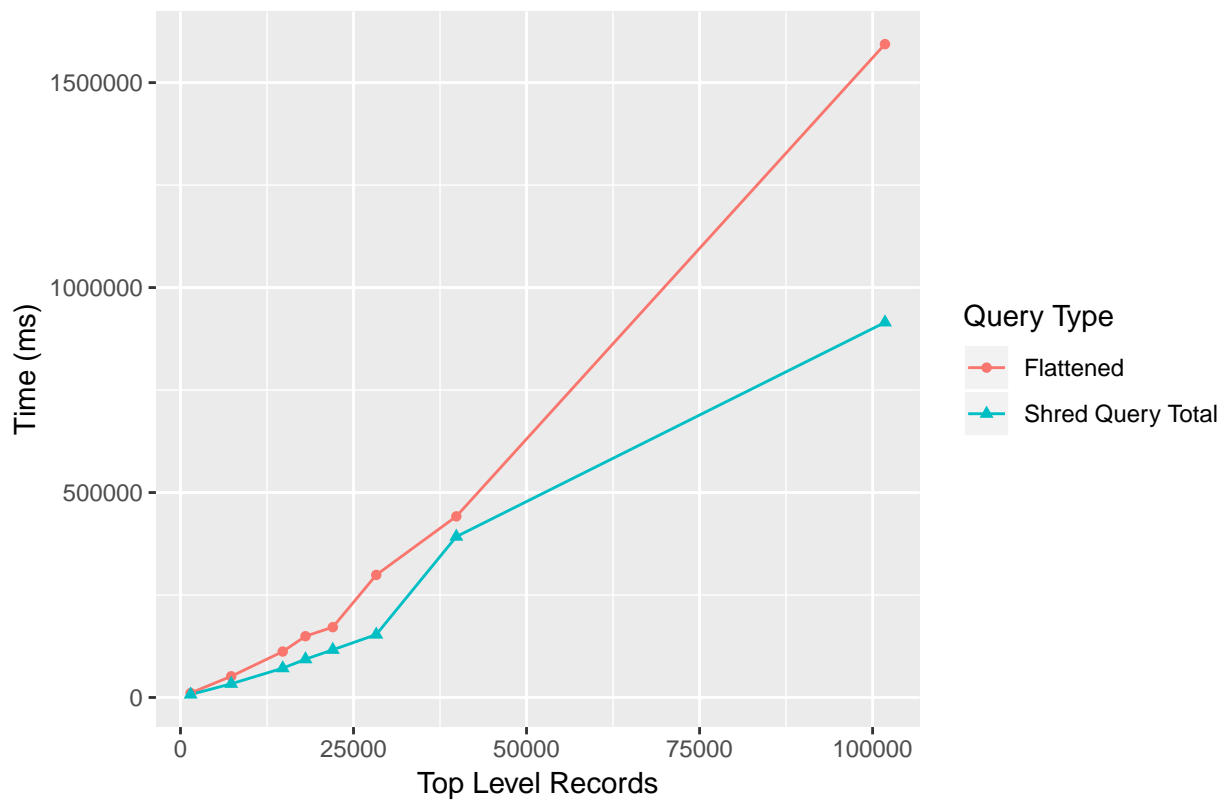
```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 4 \  
--executor-memory 24G \  
--driver-memory 32G \
```



Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, no intermediate materialization in the shredding query

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```

Query4



Query 5

Converge, 2 slaves, Spark 2.1.1, Scala 2.11.8, 8 partitions, materialization

```
--master spark://192.168.11.235:7077 \  
--executor-cores 4 \  
--num-executors 8 \  
--executor-memory 24G \  
--driver-memory 32G \
```

