Experiment Summary

1. Three queries we used

```
SELECT * FROM Sailors, Reserves WHERE Sailors.A = Reserves.G;
SELECT * FROM Sailors, Reserves, Boats WHERE Sailors.A = Reserves.G AND Reserves.H = Boats.D;
SELECT * FROM Sailors, Reserves, Boats WHERE Sailors.B = Reserves.G  AND Reserves.H = Boats.E AND Sailors.B = 5;
```

2. A description of data we used

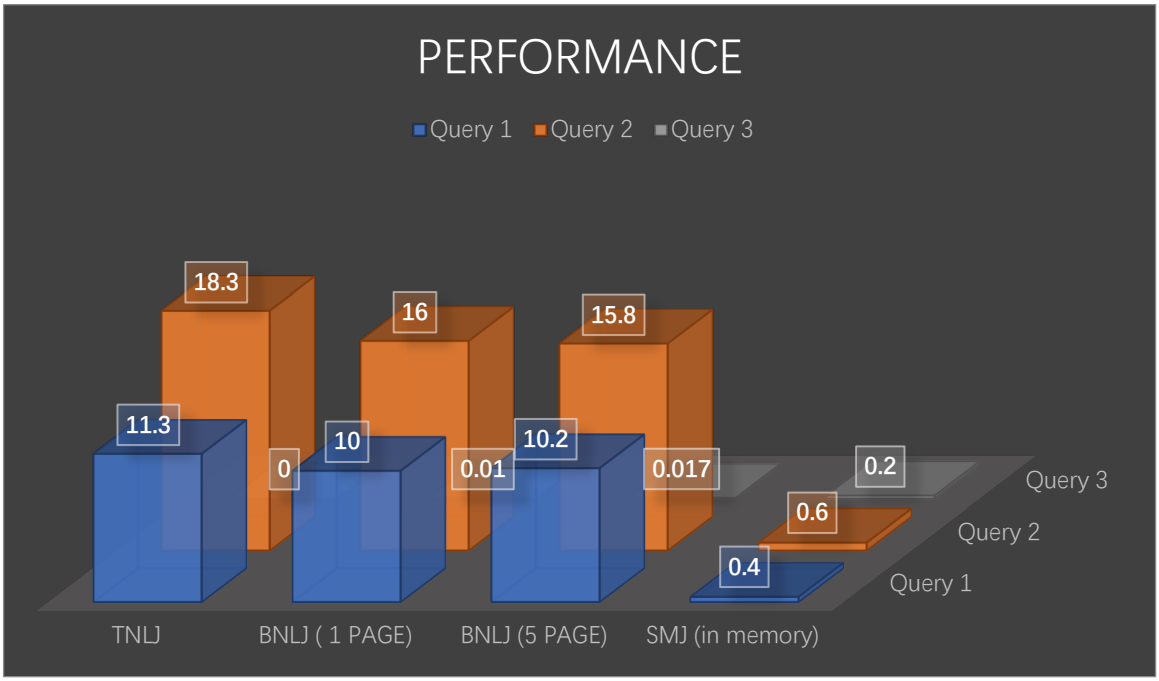
- Schema: same schema as sample input
- Tuples numbers: 6000 for each table
- Each attribute value was chosen uniformly at random in the range 0 to 10000

3. The number of pages we used as buffer size for the sort in the SMJ case

For external SMJ, we have not completed it because of unclear bugs.

But we use 4 pages when we debug our external sort.

4. Graph: performance by time difference (s)



From the graph, we found there is little difference among TNLJ and BNLJ with different pages. If we consider the time difference caused by Eclipse, that is, every time we run, the running time can change slightly, we can even think TNLJ and BNLJ here are the same. In practice, BNLJ should have a better performance than TNLJ because of I/O. However, in our project here, we just simulate these two algorithms which actually have no business with I/O. Therefore, the time difference is not obvious.

For SMJ (in memory), we join two sorted relations, which can improve performance a lot.