

## Problem Phase

This is phase 3 of CS 4321 Fall 2018 project.

## Investigation/Research

For this phase, we have implemented **B+tree**, **IndexScanOperator**, and tested with 2 relations, each relation contains 10000 sets.

Random data are generated from util/RandomGenerator.java ranging from 0 to 10000 integer randomly distributed.

And we used two relations for testing, **Sailors** and **Boats**, Boats table is indexing on **Column E** with schema D, E, clustered B+ tree with order of 10. Sailors table is indexing on **Column A** with schema A, B, C, clustered B+ tree with order of 15.

## Results

We have tested three Queries with index and clustered, index and unclustered, without index, and show runtime blow.

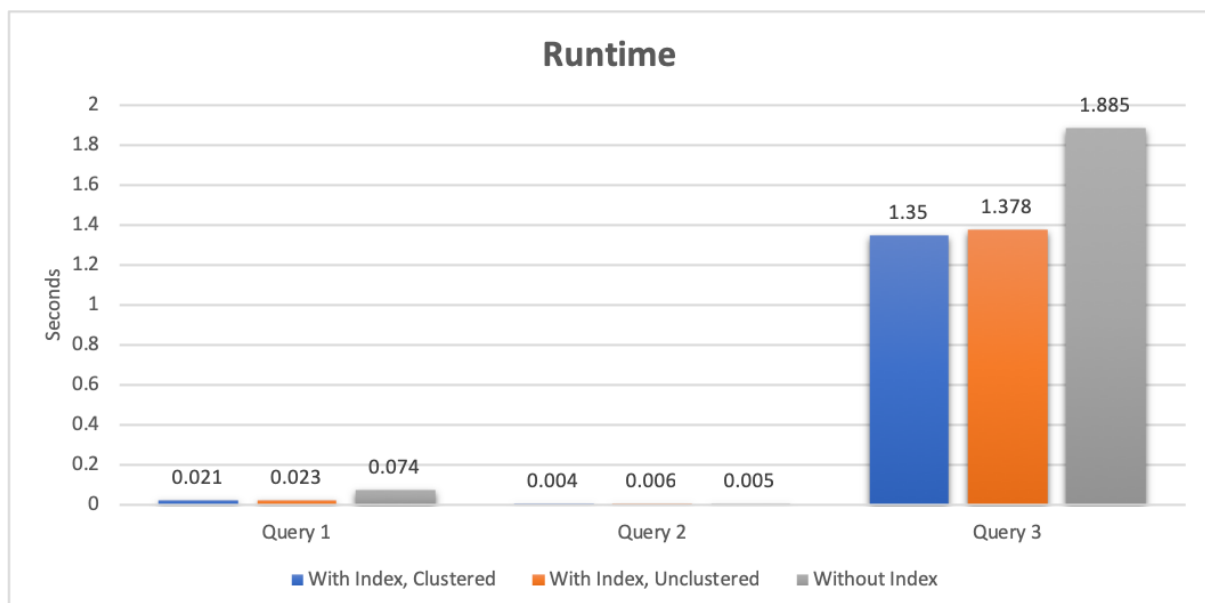


Figure 1: Running time for processing query

## Queries

Query 1 :SELECT \* FROM Sailors S WHERE S.A < 1000;

Query 2: SELECT \* FROM Boats B WHERE B.E < 500;

Query 3: SELECT \* FROM Boats B, Sailors S WHERE S.A < 500 AND B.E < 1000;