CSCI 4370 Project 4 Analysis

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Each test was run with 10,000 tuples in Student and 10,000 tuples in Transcript. Student contains one tuple in which id = “10101” so that the select condition will find the tuple. LinHash was not tested with Indexed Select for ArrayList or FileList. Each Vertical axis represents the time in nanoseconds it took to run the provided query. Each Horizontal axis represents the run number.

**1. Select - Point Query: σ id = v (Student)**

Table Scan – FileList

Table test21 = Student.select("60000 <= id & id <= 70000");

Table Scan – ArrayList

Table test21 = Student.select("60000 <= id & id <= 70000");

Indexed Select - FileList, TreeMap

Table test12 = Student.iSelect("id == 10101");

Indexed Select - FileList, LinHash

Table test12 = Student.iSelect("id == 10101");

Indexed Select - ArrayList, TreeMap

Table test12 = Student.iSelect("id == 10101");

Indexed Select - ArrayList, LinHash

Table test12 = Student.iSelect("id == 10101");

**2. Select - Range Query: σ v1 <= id & id <= v2 (Student)**

Table Scan – FileList

Table test21 = Student.select("60000 <= id & id <= 70000");

Table Scan – ArrayList

Table test21 = Student.select("60000 <= id & id <= 70000");

**3. Join: Student join id = studId Transcript**

Nested Loop Join - FileList

Table test32 = Student.join("id == studId", Transcript);

BUILD STOPPED (total time: 14 minutes 35 seconds)

After cancelling the run of this test for 10,000 tuples in each table, I decided to test it on 1,000 tuples in each table. So unfortunately, due to time constraints, this data is an outlier compared to the rest of the Project.

Nested Loop Join - ArrayList

Table test32 = Student.join("id == studId", Transcript);

Indexed Join - FileList, TreeMap

Table test3 = Student.iJoin("id == studId", Transcript);

Indexed Join - FileList, LinHash

Table test3 = Student.iJoin("id == studId", Transcript);

Indexed Join - ArrayList, TreeMap

Table test3 = Student.iJoin("id == studId", Transcript);

Indexed Join - ArrayList, LinHash

Table test3 = Student.iJoin("id == studId", Transcript);