

The following is the query plan:

```
mkdir outp
javac src/**/*.java -Xlint:unchecked -d outp
cd outp
java tests/BatchInsert sampledata.txt testColumnDB students 4

//select * from table
java tests.Select_query "SELECT testColumnDB students A,B,C,D {} 100 COLUMNSCAN"
java tests.Select_query "SELECT testColumnDB students A,B,C,D {} 100 FILESCAN"
java tests.Select_query "SELECT testColumnDB students A,B,C,D {} 100 BITMAP"
java tests.Select_query "SELECT testColumnDB students A,B,C,D {} 100 BTREE"

//Creating indexes
java tests.IndexCreateTest testColumnDB students C BITMAP
java tests.IndexCreateTest testColumnDB students C BITMAP

//select A from table where C = 6
java tests.Select_query "SELECT testColumnDB students A {C = 6} 100 FILESCAN"
java tests.Select_query "SELECT testColumnDB students B {C = 6} 100 COLUMNSCAN"
java tests.Select_query "SELECT testColumnDB students D {C = 6} 100 BITMAP"
java tests.Select_query "SELECT testColumnDB students D {C = 6} 100 BTREE"

// Index only queries
java tests.Select_query "SELECT testColumnDB students C {C = 6} 100 FILESCAN"
java tests.Select_query "SELECT testColumnDB students C {C = 6} 100 COLUMNSCAN"
java tests.Select_query "SELECT testColumnDB students C {C = 6} 100 BITMAP"
java tests.Select_query "SELECT testColumnDB students C {C = 6} 100 BTREE"

// Range search's
java tests.Select_query "SELECT testColumnDB students A,B {C > 5} 100 FILESCAN"
java tests.Select_query "SELECT testColumnDB students A,B {C > 5} 100 COLUMNSCAN"
java tests.Select_query "SELECT testColumnDB students A,B {C > 5} 100 BTREE"

//Delete queries
java tests/BatchInsert sampledata.txt testColumnDB students 4
java tests.Select_query "SELECT testColumnDB students C {C = 6} 100 COLUMNSCAN"
java tests.Delete_query "SELECT testColumnDB students A {C = 6} 100 COLUMARSCAN"
java tests/BatchInsert sampledata.txt testColumnDB students 4
java tests.Delete_query "SELECT testColumnDB students A {C = 6} 100 FILESCAN"

java tests/BatchInsert sampledata.txt testColumnDB students 4
```

java tests.IndexCreateTest testColumnDB students C BITMAP

java tests.Delete\_query "SELECT testColumnDB students A {C = 6} 100 BITMAP"

## RESULTS:

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase\$ mkdir outp

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase\$ javac src/\*\*/\*.java

-Xlint:unchecked -d outp

src/bitmap/BitMapFile.java:109: warning: [unchecked] unchecked call to ValueString(String) as a member of the raw type ValueString

```
    value = new ValueString(headerPage.getValue());
              ^
```

where String is a type-variable:

String extends Object declared in class ValueString

src/bitmap/BitMapFile.java:111: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

```
    value = new ValueInt(Integer.parseInt(headerPage.getValue()));
              ^
```

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/columnar/Columnarfile.java:470: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

```
    valueClass = new ValueInt(tuple.getIntFld(1));
              ^
```

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/columnar/Columnarfile.java:472: warning: [unchecked] unchecked call to ValueString(String) as a member of the raw type ValueString

```
    valueClass = new ValueString(tuple.getStrFld(1));
              ^
```

where String is a type-variable:

String extends Object declared in class ValueString

src/columnar/ValueFactory.java:18: warning: [unchecked] unchecked call to ValueString(String) as a member of the raw type ValueString

```
    value = new ValueString(s);
              ^
```

where String is a type-variable:

String extends Object declared in class ValueString

src/columnar/ValueFactory.java:22: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

```
value = new ValueInt(i);  
^
```

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/columnar/ValueFactory.java:26: warning: [unchecked] unchecked call to ValueFloat(Float) as a member of the raw type ValueFloat

```
value = new ValueFloat(f);  
^
```

where Float is a type-variable:

Float extends Object declared in class ValueFloat

src/columnar/ValueFactory.java:38: warning: [unchecked] unchecked call to ValueString(String) as a member of the raw type ValueString

```
value = new ValueString(tuple.getStrFld(1));  
^
```

where String is a type-variable:

String extends Object declared in class ValueString

src/columnar/ValueFactory.java:41: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

```
value = new ValueInt(tuple.getIntFld(1));  
^
```

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/columnar/ValueFactory.java:44: warning: [unchecked] unchecked call to ValueFloat(Float) as a member of the raw type ValueFloat

```
value = new ValueFloat(tuple.getFloFld(1));  
^
```

where Float is a type-variable:

Float extends Object declared in class ValueFloat

src/columnar/ValueFloat.java:6: warning: [unchecked] unchecked assignment to variable value as member of raw type ValueClass

```
value = val;  
^
```

src/columnar/ValueFloat.java:10: warning: [unchecked] unchecked cast

```
return (Float)value;  
^
```

required: Float

found: Object

where Float is a type-variable:

Float extends Object declared in class ValueFloat

src/columnar/ValueInt.java:6: warning: [unchecked] unchecked assignment to variable value as member of raw type ValueClass

```
value = val;  
^
```

src/columnar/ValueInt.java:10: warning: [unchecked] unchecked cast

return (Integer)value;

^

required: Integer

found: Object

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/columnar/ValueString.java:6: warning: [unchecked] unchecked assignment to variable value as member of raw type ValueClass

value = val;

^

src/columnar/ValueString.java:10: warning: [unchecked] unchecked cast

return (String) value;

^

required: String

found: Object

where String is a type-variable:

String extends Object declared in class ValueString

src/tests/BitMapTest.java:68: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

cf.createBitMapIndex(0, new ValueInt(4));

^

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/tests/BitMapTest.java:69: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

BitMapFile bitMapFile = new BitMapFile(cf.getBMName(0, new ValueInt(4)));

^

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/tests/ColumnarTest.java:395: warning: [unchecked] unchecked call to ValueInt(Integer) as a member of the raw type ValueInt

cf.createBitMapIndex(0,new ValueInt(4));

^

where Integer is a type-variable:

Integer extends Object declared in class ValueInt

src/tests/JoinTest.java:85: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

sailors.addElement(new SailorSM(53, "Bob Holloway", 9, 53.6));

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:86: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(54, "Susan Horowitz", 1, 34.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:87: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(57, "Yannis Ioannidis", 8, 40.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:88: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(59, "Deborah Joseph", 10, 39.8));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:89: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(61, "Landwebber", 8, 56.7));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:90: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(63, "James Larus", 9, 30.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:91: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(64, "Barton Miller", 5, 43.7));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:92: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(67, "David Parter", 1, 99.9));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:93: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(69, "Raghu Ramakrishnan", 9, 37.1));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:94: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(71, "Guri Sohi", 10, 42.1));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:95: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(73, "Prasoon Tiwari", 8, 39.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:96: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(39, "Anne Condon", 3, 30.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:97: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(47, "Charles Fischer", 6, 46.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:98: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(49, "James Goodman", 4, 50.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:99: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(50, "Mark Hill", 5, 35.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:100: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(75, "Mary Vernon", 7, 43.1));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:101: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(79, "David Wood", 3, 39.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:102: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(84, "Mark Smucker", 9, 25.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:103: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(87, "Martin Reames", 10, 24.1));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:104: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(10, "Mike Carey", 9, 40.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:105: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(21, "David Dewitt", 10, 47.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:106: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(29, "Tom Reps", 7, 39.1));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:107: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(31, "Jeff Naughton", 5, 35.0));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:108: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(35, "Miron Livny", 7, 37.6));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:109: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(37, "Marv Solomon", 10, 48.9));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:111: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
boats.addElement(new BoatsSM(1, "Onion", "white"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:112: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
boats.addElement(new BoatsSM(2, "Buckey", "red"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:113: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
boats.addElement(new BoatsSM(3, "Enterprise", "blue"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:114: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
boats.addElement(new BoatsSM(4, "Voyager", "green"));
```

^

where E is a type-variable:

E extends Object declared in class Vector



src/tests/JoinTest.java:115: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
boats.addElement(new BoatsSM(5, "Wisconsin", "red"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:117: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(10, 1, "05/10/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:118: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(21, 1, "05/11/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:119: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(10, 2, "05/11/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:120: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(31, 1, "05/12/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:121: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(10, 3, "05/13/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:122: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
reserves.addElement(new ReservesSM(69, 4, "05/12/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:123: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    reserves.addElement(new ReservesSM(69, 5, "05/14/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:124: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    reserves.addElement(new ReservesSM(21, 5, "05/16/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:125: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    reserves.addElement(new ReservesSM(57, 2, "05/10/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/JoinTest.java:126: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    reserves.addElement(new ReservesSM(35, 3, "05/15/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:136: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q1result.addElement(new S1("Mike Carey", "05/10/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:137: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q1result.addElement(new S1("David Dewitt", "05/11/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:138: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q1result.addElement(new S1("Jeff Naughton", "05/12/95"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:141: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q2result.addElement(new S2("David Dewitt"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:142: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q2result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:143: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q2result.addElement(new S2("Raghu Ramakrishnan"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:144: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q2result.addElement(new S2("Yannis Ioannidis"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:147: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q3result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:148: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q3result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:149: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q3result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:150: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("David Dewitt"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:151: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("David Dewitt"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:152: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("Jeff Naughton"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:153: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("Miron Livny"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:154: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("Yannis Ioannidis"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:155: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("Raghu Ramakrishnan"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:156: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q3result.addElement(new S2("Raghu Ramakrishnan"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:159: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("David Dewitt"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:160: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("Jeff Naughton"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:161: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:162: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("Miron Livny"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:163: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("Raghu Ramakrishnan"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:164: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q4result.addElement(new S2("Yannis Ioannidis"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:167: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("Mike Carey", 9, (float) 40.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:168: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("Mike Carey", 9, (float) 40.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:169: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("Mike Carey", 9, (float) 40.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:170: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("David Dewitt", 10, (float) 47.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:171: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("David Dewitt", 10, (float) 47.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:172: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("Jeff Naughton", 5, (float) 35.0));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:173: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q5result.addElement(new S5("Yannis Ioannidis", 8, (float) 40.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:175: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
Q6result.addElement(new S2("David Dewitt"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:176: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q6result.addElement(new S2("Mike Carey"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:177: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q6result.addElement(new S2("Raghu Ramakrishnan"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/QueryCheck.java:178: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    Q6result.addElement(new S2("Yannis Ioannidis"));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:81: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    sailors.addElement(new SailorSM(53, "Bob Holloway", 9, 53.6));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:82: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    sailors.addElement(new SailorSM(54, "Susan Horowitz", 1, 34.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:83: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    sailors.addElement(new SailorSM(57, "Yannis Ioannidis", 8, 40.2));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:84: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
    sailors.addElement(new SailorSM(59, "Deborah Joseph", 10, 39.8));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:85: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(61, "Landwebber", 8, 56.7));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:86: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(63, "James Larus", 9, 30.3));
```

^

where E is a type-variable:

E extends Object declared in class Vector

src/tests/SM\_JoinTest.java:87: warning: [unchecked] unchecked call to addElement(E) as a member of the raw type Vector

```
sailors.addElement(new SailorSM(64, "Barton Miller", 5, 43.7));
```

^

where E is a type-variable:

E extends Object declared in class Vector

Note: src/tests/SM\_JoinTest.java has additional unchecked or unsafe operations.

100 warnings

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase$ javac src/**/*.java
```

```
-Xlint:unchecked -d outp
```

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase$ cd outp/
```

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ ls
```

```
bitmap btree bufmgr catalog chainexception columnar diskmgr global heap index iterator tests
```

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java
```

```
src/tests/BatchInsert sampledata.txt testColumnDB students 4
```

```
Error: Could not find or load main class src.tests.BatchInsert
```

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests/BatchInsert  
sampledata.txt testColumnDB students 4
```

Running Batch Insert tests..../tmp/BatchInsertdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 759979

Writes: 111024

Changed number of records:



```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests/BatchInsert  
sampledata.txt testColumnDB students 4
```

Running Batch Insert tests..../tmp/BatchInsertdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 92

Writes: 92

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$
```

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java  
tests.IndexCreateTest testColumnDB students C BITMAP
```

Running Index Tests tests..../tmp/BatchInsertdixith.minibase-db

Replacer: Clock

Reads: 37

Writes: 24

...Index Tests tests completely successfully.

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$
```

---

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java  
tests.IndexCreateTest testColumnDB students C BTREE
```

Running Index Tests tests..../tmp/BatchInsertdixith.minibase-db

Replacer: Clock

Reads: 48

Writes: 35

...Index Tests tests completely successfully.

## FILESCAN

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java  
tests.Select_query "SELECT testColumnDB students A,B,C,D {} 100 FILESCAN"
```

Replacer: Clock

```
[South_Dakota, West_Virginia, 6, 3]  
[Connecticut, Delaware, 8, 8]  
[New_Hampshire, Kansas, 2, 1]  
[Connecticut, Puerto_Rico, 4, 9]  
[Montana, District_of_Columbia, 2, 8]  
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[Delaware, Singapore, 8, 6]  
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...Columnar Tests tests completely successfully.

**Reads: 91**

**Writes: 0**

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...Columnar Tests tests completely successfully.

Reads: 91

Writes: 0

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[South\_Dakota, North\_Dakota, 1, 5]  
[North\_Dakota, New\_Hampshire, 8, 3]  
[Arkansas, North\_Dakota, 2, 6]

[Business, Business, 7, 6]  
[South\_Dakota, Puerto\_Rico, 7, 1]  
[Connecticut, Arkansas, 7, 3]  
[South\_Dakota, Arkansas, 1, 5]  
[Singapore, West\_Virginia, 2, 2]

...Columnar Tests tests completely successfully.

Reads: 91

Writes: 0

---

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students D {C = 6} 100 COLUMNSCAN"  
Replacer: Clock

[3]  
[6]  
[9]  
[1]  
[7]  
[6]  
[4]  
[1]  
[4]  
[4]  
[2]  
[1]  
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[9]  
[3]  
[7]  
[5]  
[6]  
[6]  
[2]  
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[3]  
[6]  
[7]  
[2]  
[9]  
[0]  
[6]  
[8]  
[7]  
[3]  
[0]  
[9]  
[9]  
[2]  
[0]  
[5]  
[8]  
[7]  
[1]  
[6]  
[2]  
[3]  
[3]  
[7]  
[2]  
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[5]  
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[5]  
[8]  
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[7]  
[4]  
[9]  
[5]  
[0]  
[9]  
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[8]  
[7]  
[2]  
[0]  
[0]  
[5]  
[5]  
[3]  
[9]  
[3]  
[0]  
[2]

[0]

...Columnar Tests tests completely successfully.

Reads: 25

---

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students D {C = 6} 100 BITMAP"

Replacer: Clock

[3]

[6]

[9]

[1]

[7]

[6]

[4]

[1]

[4]

[4]

[2]

[1]

[1]

[9]

[3]

[7]

[5]

[6]

[6]

[2]

[3]

[7]

[8]

[6]

[6]

[9]

[3]

[6]

[7]

[2]

[9]

[0]  
[6]  
[8]  
[7]  
[3]  
[0]  
[9]  
[9]  
[2]  
[0]  
[5]  
[8]  
[7]  
[1]  
[6]  
[2]  
[3]  
[3]  
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[1]  
[3]  
[2]  
[0]  
[4]  
[6]  
[5]  
[2]  
[4]  
[5]  
[8]  
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[7]  
[4]  
[9]  
[5]  
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[0]  
[0]  
[5]  
[5]  
[3]  
[9]  
[3]  
[0]  
[2]  
[0]

...Columnar Tests tests completely successfully.

Reads: 17

---

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Select_query  
"SELECT testColumnDB students D {C = 6} 100 BTREE"
```

```
Replacer: Clock
```

```
[3]
```

```
[6]
```

```
[9]
```

```
[1]
```

```
[7]
```

```
[6]
```

```
[4]
```

```
[1]
```

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[4]
```

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[4]
```

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[2]
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[1]
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[1]
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[9]
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[3]
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[7]
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[5]
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[6]
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[2]
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[3]
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[7]
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[8]
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[6]
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[9]
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[3]
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[6]
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[7]
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[2]
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[9]
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[0]
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[6]
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[8]
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[3]  
[0]  
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[2]  
[0]  
[5]  
[8]  
[7]  
[1]  
[6]  
[2]  
[3]  
[3]  
[7]  
[2]  
[6]  
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[2]  
[0]  
[0]  
[5]  
[5]  
[3]  
[9]  
[3]  
[0]  
[2]  
[0]

...Columnar Tests tests completely successfully.

Reads: 31

Writes: 3

---

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Select_query  
"SELECT testColumnDB students A {C = 6} 100 FILESCAN"
```

Replacer: Clock

[South\_Dakota]  
[New\_Hampshire]  
[Montana]  
[Montana]  
[Oklahoma]  
[District\_of\_Columbia]  
[Idaho]  
[Business]  
[Kansas]  
[Vermont]  
[Nevada]  
[West\_Virginia]  
[Vermont]  
[Colorado]  
[Delaware]  
[Indiana]  
[New\_Hampshire]  
[Kentucky]  
[Nevada]  
[Delaware]  
[Oklahoma]  
[Puerto\_Rico]  
[Arkansas]  
[Connecticut]  
[Kentucky]  
[West\_Virginia]  
[Business]  
[District\_of\_Columbia]  
[Business]  
[Indiana]  
[New\_Hampshire]  
[North\_Dakota]  
[Indiana]  
[New\_Hampshire]  
[Connecticut]  
[Kansas]  
[Puerto\_Rico]  
[Singapore]

[Colorado]  
[Business]  
[Kansas]  
[Arkansas]  
[Singapore]  
[Vermont]  
[Oklahoma]  
[Indiana]  
[Colorado]  
[Oklahoma]  
[North\_Dakota]  
[Montana]  
[South\_Dakota]  
[New\_Hampshire]  
[Puerto\_Rico]  
[District\_of\_Columbia]  
[South\_Dakota]  
[West\_Virginia]  
[Singapore]  
[Idaho]  
[West\_Virginia]  
[Delaware]  
[Connecticut]  
[Colorado]  
[Puerto\_Rico]  
[North\_Dakota]  
[Vermont]  
[Vermont]  
[Nevada]  
[Kentucky]  
[Puerto\_Rico]  
[Singapore]  
[Nevada]  
[Business]  
[Kansas]  
[Montana]  
[New\_Hampshire]  
[Indiana]  
[Singapore]  
[North\_Dakota]  
[Singapore]  
[Indiana]  
[Indiana]

[Arkansas]  
[South\_Dakota]  
[Kansas]  
[Nevada]  
[Puerto\_Rico]  
[Kansas]  
[Oklahoma]  
[New\_Hampshire]  
[Idaho]  
[West\_Virginia]  
[Idaho]  
[West\_Virginia]  
[Vermont]  
[Montana]  
[Colorado]  
[District\_of\_Columbia]  
[North\_Dakota]  
[Nevada]  
[Connecticut]  
[Delaware]  
[Business]  
[Arkansas]  
[Idaho]  
[Singapore]  
[North\_Dakota]  
[Colorado]  
[Oklahoma]  
[Delaware]  
[Montana]  
[Singapore]  
[Delaware]  
[Nevada]

...Columnar Tests tests completely successfully.

Reads: 91

Writes: 0

---

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students C {C = 6} 100 COLUMNSCAN"

Replacer: Clock

[6]

[6]

[6]

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[illegible]

...Columnar Tests tests completely successfully.

Reads: 15

Writes: 0

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Select_query
"SELECT testColumnDB students C {C = 6} 100 BITMAP"
Replacer: Clock
```

[6]  
[6]



[illegible]

[illegible]

[illegible]

...Columnar Tests tests completely successfully.

Reads: 7  
Writes: 0

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Select_query
"SELECT testColumnDB students A,B {C > 5} 100 FILESCAN"
Replacer: Clock
```

[South\_Dakota, West\_Virginia]  
[Connecticut, Delaware]  
[Vermont, West\_Virginia]  
[New\_Hampshire, District\_of\_Columbia]

[Delaware, Singapore]  
[Colorado, Connecticut]  
[Nevada, District\_of\_Columbia]  
[Montana, District\_of\_Columbia]  
[Oklahoma, Oklahoma]  
[Montana, Colorado]  
[North\_Dakota, Kentucky]  
[Nevada, Kentucky]  
[Connecticut, Puerto\_Rico]  
[Idaho, Delaware]  
[Delaware, North\_Dakota]  
[Oklahoma, Kentucky]  
[District\_of\_Columbia, Connecticut]  
[Vermont, West\_Virginia]  
[Idaho, Colorado]  
[Montana, Vermont]  
[Business, Montana]  
[Oklahoma, Montana]  
[South\_Dakota, Colorado]  
[Kansas, District\_of\_Columbia]  
[Montana, North\_Dakota]  
[Vermont, North\_Dakota]  
[West\_Virginia, Vermont]  
[North\_Dakota, Singapore]  
[Vermont, Singapore]  
[Idaho, Idaho]  
[New\_Hampshire, Puerto\_Rico]  
[Nevada, Montana]  
[North\_Dakota, Business]  
[Kentucky, Kentucky]  
[Connecticut, South\_Dakota]  
[Colorado, Nevada]  
[West\_Virginia, Kentucky]  
[New\_Hampshire, Oklahoma]  
[Vermont, Vermont]  
[Colorado, Idaho]  
[Kansas, Puerto\_Rico]  
[South\_Dakota, Montana]  
[North\_Dakota, Oklahoma]  
[Idaho, New\_Hampshire]  
[Indiana, District\_of\_Columbia]  
[Colorado, Puerto\_Rico]  
[Nevada, Connecticut]

[North\_Dakota, Idaho]  
[South\_Dakota, Kansas]  
[Nevada, Montana]  
[Indiana, Arkansas]  
[Singapore, Kentucky]  
[Puerto\_Rico, Colorado]  
[Singapore, Vermont]  
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[West\_Virginia, Arkansas]  
[South\_Dakota, Delaware]  
[Delaware, Puerto\_Rico]  
[Indiana, Indiana]  
[Vermont, Montana]  
[Business, Arkansas]  
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[Puerto\_Rico, Arkansas]  
[Puerto\_Rico, North\_Dakota]  
[New\_Hampshire, Nevada]  
[Montana, South\_Dakota]  
[Vermont, Singapore]  
[Kentucky, Puerto\_Rico]  
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[South\_Dakota, Nevada]  
[Arkansas, Arkansas]  
[North\_Dakota, Vermont]  
[Nevada, South\_Dakota]  
[Arkansas, Arkansas]  
[Delaware, New\_Hampshire]  
[Puerto\_Rico, Colorado]  
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[New\_Hampshire, Montana]  
[West\_Virginia, Idaho]  
[Idaho, Puerto\_Rico]  
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[Oklahoma, Connecticut]  
[Puerto\_Rico, New\_Hampshire]  
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[Puerto\_Rico, Puerto\_Rico]  
[Arkansas, New\_Hampshire]  
[District\_of\_Columbia, District\_of\_Columbia]  
[District\_of\_Columbia, Montana]  
[New\_Hampshire, Indiana]

[Business, Idaho]  
[Kansas, Montana]  
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[New\_Hampshire, Nevada]  
[Singapore, Idaho]  
[West\_Virginia, Vermont]  
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[Vermont, Nevada]  
[Business, Montana]  
[Nevada, Puerto\_Rico]



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[Connecticut, Kansas]

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[Colorado, Connecticut]  
[Oklahoma, Singapore]  
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[New\_Hampshire, Vermont]  
[District\_of\_Columbia, Idaho]  
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...Columnar Tests tests completely successfully.

Reads: 91

Writes: 0

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dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students A,B {C > 5} 100 COLUMNSCAN"  
Replacer: Clock

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...Columnar Tests tests completely successfully.

Reads: 81

Writes: 0

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dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Select_query  
"SELECT testColumnDB students A,B {C > 5} 100 FILESCAN"  
Replacer: Clock
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...Columnar Tests tests completely successfully.

Reads: 91

Writes: 0

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dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students A,B {C > 5} 100 COLUMNSCAN"  
Replacer: Clock

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...Columnar Tests tests completely successfully.

Reads: 81

Writes: 0

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dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students A,B {C > 5} 100 BTREE"  
Replacer: Clock

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...Columnar Tests tests completely successfully.

Reads: 98

Writes: 15

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DELETE

bitmap btree bufmgr catalog chainexception columnar diskmgr global heap index iterator  
sampledata.txt tests

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests/BatchInsert  
sampledata.txt testColumnDB students 4

Running Batch Insert tests..../tmp/testColumnDBdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 92

Writes: 92

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/outp\$ java tests.Select\_query  
"SELECT testColumnDB students C {C = 6} 100 COLUMNSCAN"

Replacer: Clock

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...Select Query tests completely successfully.

Reads: 13

Writes: 0

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests.Delete\_query  
"SELECT testColumnDB students A {C = 6} 100 COLUMARSCAN"

Replacer: Clock

...Delete Query tests completely successfully.

Reads: 1

Writes: 0

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests.BatchInsert  
sampledata.txt testColumnDB students 4

Running Batch Insert tests..../tmp/testColumnDBdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 92

Writes: 92

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/oupt\$ java tests.Select\_query  
"SELECT testColumnDB students C {C = 6} 100 COLUMNSCAN"

Replacer: Clock

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[illegible]

...Select Query tests completely successfully.

Reads: 13

Writes: 0

```
dixith@dixith-kurra:~/Documents/CSE-510/CSE510_DBMSI/javaminibase/outp$ java tests.Delete_query
```

"SELECT testColumnDB students A {C = 6} 100 FILESCAN"

Replacer: Clock

...Delete Query tests completely successfully.

Reads: 94

Writes: 5

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests/BatchInsert  
sampledata.txt testColumnDB students 4

Running Batch Insert tests..../tmp/testColumnDBdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 92

Writes: 92

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests.Delete\_query  
"SELECT testColumnDB students A {C = 6} 100 FILESCAN 1"

Replacer: Clock

...Delete Query tests completely successfully.

Reads: 94

Writes: 5

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests/BatchInsert  
sampledata.txt testColumnDB students 4

Running Batch Insert tests..../tmp/testColumnDBdixith.minibase-db

Replacer: Clock

...Batch Insert tests completely successfully.

Reads: 92

Writes: 92

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java  
tests.IndexCreateTest testColumnDB students C BITMAP

Running Index tests..../tmp/testColumnDBdixith.minibase-db

Replacer: Clock

Reads: 37

Writes: 24

...Index tests completely successfully.

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$ java tests.Delete\_query

"SELECT testColumnDB students A {C = 6} 100 FILESCAN"

Replacer: Clock

...Delete Query tests completely successfully.

Reads: 98

Writes: 7

dixith@dixith-kurra:~/Documents/CSE-510/CSE510\_DBMSI/javaminibase/otp\$