Gagnasafnsfræði-verkefni 11

Ásdís Valtýsdóttir

```java
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.sql.PreparedStatement;
// Notkun: java -cp .;sqlite-jdbc-...jar V11 <args>
// þar sem <args> er: [autocommit|noautocommit] [index|noindex]

// Eftir: Búið er að mæla tíma fyrir gagnagrunnsaðgerðir og
// skrifa niðurstöður
// Use: java -cp .;sqlite-jdbc-....jar V11 <args>
// where <args> is: [autocommit|noautocommit] [index|noindex]
// Post: The duration of database operations has been measured and
// the results written.
public class V11 {
Run | Debug
public static void main( String[] args )
throws Exception {
 Class.forName(className: "org.sqlite.JDBC");
 boolean USE_AUTOCOMMIT = args[0].equals(anObject: "autocommit");
 boolean USE_INDEX = args[1].equals(anObject: "index");
 Connection conn = null;
try {
 conn = DriverManager.getConnection(url: "jdbc:sqlite:v11.db");
 conn.setAutoCommit(USE_AUTOCOMMIT);
 Statement stmt = conn.createStatement();
 stmt.executeUpdate(sql: "DROP TABLE IF EXISTS R");
 stmt.executeUpdate(sql: "DROP INDEX IF EXISTS RINDEX");
 stmt.executeUpdate(sql: "CREATE TABLE R( key INTEGER PRIMARY KEY, value DOUBLE )");
 if(USE_INDEX) stmt.executeUpdate(sql: "CREATE INDEX RINDEX ON R(value)");
 PreparedStatement pstmt = conn.prepareStatement(sql: "INSERT INTO R VALUES(?,?)");
```

```java
long start,end;
start = System.nanoTime();
int i;
for( i=0 ; i!=1000000 ; i++ ) {
   pstmt.setInt(parameterIndex: 1,i);
   pstmt.setDouble(parameterIndex: 2,2.0*Math.random());
   pstmt.executeUpdate();
   if(System.nanoTime() -start > 60e9 ) break;
/*
```

```
    }
  if( !USE_AUTOCOMMIT ) conn.commit();
    end = System.nanoTime();
    System.out.println("Tími fyrir/Time for "+
                       i+" innsetningar/inserts: "+
                       (double)(end-start)/1e9
                      );
    System.out.println("Tími per innsetningu/Time per insert: "+
    (double)(end-start)/1e9/i
   );
    start = System.nanoTime();
    ResultSet r =
    stmt.executeQuery
   ("SELECT COUNT(*) FROM R WHERE "+
    "value BETWEEN 0.05 AND 0.15"
  );
    r.next();
    System.out.println("Niðurstaða leitar/Result of search: "+r.getInt(columnIndex: 1));
    System.out.println("Tími fyrir leit/Time for search: "+
    (double)(System.nanoTime()-start)/1e9
  );
  }
  catch(SQLException e)
  {
  System.err.println(e.getMessage());
  }
  finally
  {
  try {
    if(conn != null)
    conn.close();
  }
  catch(SQLException e)
  {
  System.err.println(e);
   }
  }
 }
}
```

```
TÃ mi fyrir/Time for 24447 innsetningar/inserts: 60.0004192
TÃ mi per innsetningu/Time per insert: 0.0024543060170982125
NiÃºrstaÃºa leitar/Result of search: 1248
TÃ mi fyrir leit/Time for search: 0.0055183
```

```
TÃ mi fyrir/Time for 1000000 innsetningar/inserts: 9.8239054
TÃ mi per innsetningu/Time per insert: 9.8239054E-6
NiÃºrstaÃºa leitar/Result of search: 49591
TÃ mi fyrir leit/Time for search: 0.0108055
PS C:\Users\Lenovo\Documents\HÍ\gagnasafnsfræði\verk11>
```

Þannig að:

Tími fyrir leit	-||-	-||-	-||-
Án vísis	Án vísis	Með vísi	Með vísi
Án autocommit	Með autocommit	Án autocommit	Með autocommit
0.063353	0.0024543060170982125	9.8239054E-6	0.0065917