Gagnasafnsfræði vikublað 11

brj46

Nóvember 2024

Forritið

```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;


public class V11
{
    public static void main( String[] args )
        throws Exception
    {
        Class.forName("org.sqlite.JDBC");
        boolean USE_AUTOCOMMIT = args[0].equals("autocommit");
        boolean USE_INDEX = args[1].equals("index");

        Connection conn = null;
        Statement stmt = null;
        PreparedStatement pstmt = null;
        try
        {
            conn = DriverManager.getConnection("jdbc:sqlite:v11
                .db");
            conn.setAutoCommit(USE_AUTOCOMMIT);
            stmt = conn.createStatement();



            stmt.executeUpdate("DROP TABLE IF EXISTS R");
            stmt.executeUpdate("DROP INDEX IF EXISTS RINDEX");

            stmt.executeUpdate("CREATE TABLE R( key INTEGER
                PRIMARY KEY, value DOUBLE )");

            if( USE_INDEX )
                stmt.executeUpdate("CREATE INDEX RINDEX ON R(
                    value)");

            pstmt = conn.prepareStatement("INSERT INTO R VALUES
                (?,?)");

            long start,end;

            start = System.nanoTime();
            int i;
            for( i=0 ; i!=1000000 ; i++ )
            {

                pstmt.setInt(1,i);
                pstmt.setDouble(2,Math.random()*2);
                pstmt.executeUpdate();
```

```java
                if( System.nanoTime()-start > 60e9 )
                    break;
            }
            if( !USE_AUTOCOMMIT ) conn.commit();

            end = System.nanoTime();
            System.out.println("Timi fyrir/Time for "+
                                i+" innsetningar/inserts: "+
                                (double)(end-start)/1e9
                                );

            System.out.println("Timi per innsetningu/Time per
                insert: "+
                                (double)(end-start)/1e9/i
                                );

            start = System.nanoTime();
            ResultSet r =
                stmt.executeQuery
                    ("SELECT COUNT(*) FROM R WHERE "+
                     "value BETWEEN 0.01 AND 0.10"
                    );
            r.next();
            System.out.println("Ni?ursta?a leitar/Result of
                search: "+r.getInt(1));
            System.out.println("Timi fyrir leit/Time for search
                : "+
                                (double)(System.nanoTime()-start
                                    )/1e9
                                );
        }
        catch(SQLException e)
        {
            System.err.println(e.getMessage());
        }
        finally
        {
            try
            {
                if (pstmt != null) pstmt.close();
                if (stmt != null) stmt.close();
                if (conn != null) conn.close();

            }
            catch(SQLException e)
            {
                System.err.println(e);
            }
        }
    }
}
```

Skjáskot af keyrslum

Autocommit Index:

```
;sqlite-jdbc-3.43.0.0.jar" V11 autocommit index
>>
Tími fyrir/Time for 10867 innsetningar/inserts: 60.0040883
Timi per innsetningu/Time per insert: 0.0055216792399006166
Ni?ursta?a leitar/Result of search: 520
Tími fyrir leit/Time for search: 0.0076736
```

Autocommit NoIndex:

```
PS C:\Users\benja\OneDrive\Desktop\gagnasafnsfraedi\forritun> java -cp ".;
Tími fyrir/Time for 10786 innsetningar/inserts: 60.0018658
Timi per innsetningu/Time per insert: 0.00556293953272761
Ni?ursta?a leitar/Result of search: 488
Tími fyrir leit/Time for search: 0.0099891
```

NoAutocommit Index:

```
;sqlite-jdbc-3.43.0.0.jar" V11 noautocommit noindex
>>
Tími fyrir/Time for 1000000 innsetningar/inserts: 2.0006387
Timi per innsetningu/Time per insert: 2.0006387E-6
Ni?ursta?a leitar/Result of search: 44877
Tími fyrir leit/Time for search: 0.156338
```

NoAutocommit NoIndex:

```
;sqlite-jdbc-3.43.0.0.jar" V11 noautocommit index
>>
Tími fyrir/Time for 1000000 innsetningar/inserts: 20.3006062
Timi per innsetningu/Time per insert: 2.03006062E-5
Ni?ursta?a leitar/Result of search: 45190
Tími fyrir leit/Time for search: 0.0135772
```

Fyllum í töfluna

Tími fyrir innsetningar

	Tími fyrir	Innsetningu	
	Án Vísi	**Með Vísi**	
Án AutoCommit	**Með AutoCommit**	**Án Autocommit**	**Með Autocommit**
2 míkrósekúndur	$\approx$ 5.56 millisekúndur	20.3 míkrósekúndur	$\approx$ 5.52 millisekúndur

Tími Fyrir leit	Án vísis	Með Vísi
	156 millisekúndur	13.6 millisekúndur