SQLite
SQL Database Engine

SQLite Java Tutorial

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Installation

Before we start using SQLite in our Java programs, we need to make sure that we
Driver and Java set up on the machine. You can check Java tutorial for Java i
machine. Now, let us check how to set up SQLite JDBC driver.

Download latest version of *sqlite-jdbc-(VERSION).jar* from sqlite-jdbc reposito

Add downloaded jar file *sqlite-jdbc-(VERSION).jar* in your class path, or you ca
-classpath option as explained below in examples.

Following section assumes you have little knowledge about Java JDBC concepts. If
suggested to spent half an hour with JDBC Tutorial to become comfortable with c
below.

Connecting To Database

Following Java programs shows how to connect to an existing database. If databa
then it will be created and finally a database object will be returned.

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Opened database successfully");
  }
}
```

Now, let's compile and run above program to create our database **test.db** in the cu
can change your path as per your requirement. We are assuming current version of
jdbc-3.7.2.jar is available in the current path

```
$javac SQLiteJDBC.java
$java -classpath ".:sqlite-jdbc-3.7.2.jar" SQLiteJDBC
Open database successfully
```

If you are going to use Windows machine, then you can compile and run your code a

```
$javac SQLiteJDBC.java
$java -classpath ".;sqlite-jdbc-3.7.2.jar" SQLiteJDBC
Opened database successfully
```

Create a Table

Following Java program will be used to create a table in previously created database

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    Statement stmt = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
      System.out.println("Opened database successfully");

      stmt = c.createStatement();
      String sql = "CREATE TABLE COMPANY " +
                   "(ID INT PRIMARY KEY     NOT NULL," +
                   " NAME           TEXT    NOT NULL, " +
                   " AGE            INT     NOT NULL, " +
                   " ADDRESS        CHAR(50), " +
                   " SALARY         REAL)";
      stmt.executeUpdate(sql);
      stmt.close();
      c.close();
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Table created successfully");
  }
}
```

When above program is compiled and executed, it will create COMPANY table in yo
listing of the file will be as follows:

```
-rw-r--r--. 1 root root 3201128 Jan 22 19:04 sqlite-jdbc-3.7.2.jar
-rw-r--r--. 1 root root    1506 May  8 05:43 SQLiteJDBC.class
-rw-r--r--. 1 root root     832 May  8 05:42 SQLiteJDBC.java
-rw-r--r--. 1 root root    3072 May  8 05:43 test.db
```

INSERT Operation

Following Java program shows how we can create records in our COMPANY tabl
example:

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    Statement stmt = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
      c.setAutoCommit(false);
      System.out.println("Opened database successfully");

      stmt = c.createStatement();
```

```
      String sql = "INSERT INTO COMPANY (ID,NAME,AGE,ADDRESS,SALARY) " +
                   "VALUES (1, 'Paul', 32, 'California', 20000.00 );";
      stmt.executeUpdate(sql);

      sql = "INSERT INTO COMPANY (ID,NAME,AGE,ADDRESS,SALARY) " +
            "VALUES (2, 'Allen', 25, 'Texas', 15000.00 );";
      stmt.executeUpdate(sql);

      sql = "INSERT INTO COMPANY (ID,NAME,AGE,ADDRESS,SALARY) " +
            "VALUES (3, 'Teddy', 23, 'Norway', 20000.00 );";
      stmt.executeUpdate(sql);

      sql = "INSERT INTO COMPANY (ID,NAME,AGE,ADDRESS,SALARY) " +
            "VALUES (4, 'Mark', 25, 'Rich-Mond ', 65000.00 );";
      stmt.executeUpdate(sql);

      stmt.close();
      c.commit();
      c.close();
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Records created successfully");
  }
}
```

When above program is compiled and executed, it will create given records in COMP display following two line:

```
Opened database successfully
Records created successfully
```

SELECT Operation

Following Java program shows how we can fetch and display records from ou created in above example:

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    Statement stmt = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
      c.setAutoCommit(false);
      System.out.println("Opened database successfully");

      stmt = c.createStatement();
      ResultSet rs = stmt.executeQuery( "SELECT * FROM COMPANY;" );
      while ( rs.next() ) {
         int id = rs.getInt("id");
         String  name = rs.getString("name");
         int age  = rs.getInt("age");
         String  address = rs.getString("address");
         float salary = rs.getFloat("salary");
         System.out.println( "ID = " + id );
         System.out.println( "NAME = " + name );
         System.out.println( "AGE = " + age );
         System.out.println( "ADDRESS = " + address );
         System.out.println( "SALARY = " + salary );
         System.out.println();
      }
      rs.close();
```

```
      stmt.close();
      c.close();
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Operation done successfully");
  }
}
```

When above program is compiled and executed, it will produce the following result:

```
Opened database successfully
ID = 1
NAME = Paul
AGE = 32
ADDRESS = California
SALARY = 20000.0

ID = 2
NAME = Allen
AGE = 25
ADDRESS = Texas
SALARY = 15000.0

ID = 3
NAME = Teddy
AGE = 23
ADDRESS = Norway
SALARY = 20000.0

ID = 4
NAME = Mark
AGE = 25
ADDRESS = Rich-Mond
SALARY = 65000.0

Operation done successfully
```

UPDATE Operation

Following Java code shows how we can use UPDATE statement to update any rec
and display updated records from our COMPANY table:

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    Statement stmt = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
      c.setAutoCommit(false);
      System.out.println("Opened database successfully");

      stmt = c.createStatement();
      String sql = "UPDATE COMPANY set SALARY = 25000.00 where ID=1;";
      stmt.executeUpdate(sql);
      c.commit();

      ResultSet rs = stmt.executeQuery( "SELECT * FROM COMPANY;" );
      while ( rs.next() ) {
         int id = rs.getInt("id");
         String  name = rs.getString("name");
         int age  = rs.getInt("age");
```

```
         String  address = rs.getString("address");
         float salary = rs.getFloat("salary");
         System.out.println( "ID = " + id );
         System.out.println( "NAME = " + name );
         System.out.println( "AGE = " + age );
         System.out.println( "ADDRESS = " + address );
         System.out.println( "SALARY = " + salary );
         System.out.println();
      }
      rs.close();
      stmt.close();
      c.close();
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Operation done successfully");
  }
}
```

When above program is compiled and executed, it will produce the following result:

```
Opened database successfully
ID = 1
NAME = Paul
AGE = 32
ADDRESS = California
SALARY = 25000.0

ID = 2
NAME = Allen
AGE = 25
ADDRESS = Texas
SALARY = 15000.0

ID = 3
NAME = Teddy
AGE = 23
ADDRESS = Norway
SALARY = 20000.0

ID = 4
NAME = Mark
AGE = 25
ADDRESS = Rich-Mond
SALARY = 65000.0

Operation done successfully
```

DELETE Operation

Following Java code shows how we can use DELETE statement to delete any rec
and display remaining records from our COMPANY table:

```
import java.sql.*;

public class SQLiteJDBC
{
  public static void main( String args[] )
  {
    Connection c = null;
    Statement stmt = null;
    try {
      Class.forName("org.sqlite.JDBC");
      c = DriverManager.getConnection("jdbc:sqlite:test.db");
      c.setAutoCommit(false);
      System.out.println("Opened database successfully");
```

```
      stmt = c.createStatement();
      String sql = "DELETE from COMPANY where ID=2;";
      stmt.executeUpdate(sql);
      c.commit();

      ResultSet rs = stmt.executeQuery( "SELECT * FROM COMPANY;" );
      while ( rs.next() ) {
         int id = rs.getInt("id");
         String  name = rs.getString("name");
         int age  = rs.getInt("age");
         String  address = rs.getString("address");
         float salary = rs.getFloat("salary");
         System.out.println( "ID = " + id );
         System.out.println( "NAME = " + name );
         System.out.println( "AGE = " + age );
         System.out.println( "ADDRESS = " + address );
         System.out.println( "SALARY = " + salary );
         System.out.println();
      }
      rs.close();
      stmt.close();
      c.close();
    } catch ( Exception e ) {
      System.err.println( e.getClass().getName() + ": " + e.getMessage() );
      System.exit(0);
    }
    System.out.println("Operation done successfully");
  }
}
```

When above program is compiled and executed, it will produce the following result:

```
Opened database successfully
ID = 1
NAME = Paul
AGE = 32
ADDRESS = California
SALARY = 25000.0

ID = 3
NAME = Teddy
AGE = 23
ADDRESS = Norway
SALARY = 20000.0

ID = 4
NAME = Mark
AGE = 25
ADDRESS = Rich-Mond
SALARY = 65000.0

Operation done successfully
```