**Database Testing:** is to ensure there are no defects while processing the data.

JDBC is the standard java API for database-independent connectivity between Java programming language and a wide range of databases.

JDBC API encode the access request statements, in a Structured Query Language. They are then passed to the program that manages the database. (CRUD operations on database).

* Load and Register DriverManager.
* Establish connection.
* Prepare Statement
* Send and Execute SQL query to bring the result.
* Get results as ResultSet.

(Note: **JDBC** is similar to **ODBC** provided Microsoft.)

**JDBC API** provides following **interfaces** and **classes**.

* **DriverManager**: It is used to manage a list of database drivers. Recognizes a certain subprotocol under JDBC in order to **establish a database Connection**.
* **Driver**:It is an interface that **handles the communications** with the **database Server**.
* **Connection:** It is an interface that consists of all the methods required to connect to the database.

**4 main components of JDBC:**

* **Driver software (translator)**
* **Connection object**
* **Statement Object**
* **ResultSet**
* **SQL query**

Maven Dependency

<dependency>  
 <groupId>mysql</groupId>  
 <artifactId>mysql-connector-java</artifactId>  
 <version>8.0.18</version>  
</dependency>

**The Code:**

Class.*forName*(**"com.mysql.cj.jdbc.Driver"**).newInstance();  
Connection con = DriverManager.*getConnection*(**"jdbc:mysql://localhost:3306/world"**, **"root"**, **"admin"**);  
Statement stmt = con.createStatement();  
String qry = **"select \* from country"**;  
ResultSet res = stmt.executeQuery(qry);  
**while** (res.next()) {  
 System.***out***.println(res.getString(1) + **"\t"** + res.getString(2));  
}  
con.close();

**Feature file:**

@country  
**Feature:** Search for the continent  
   
**Scenario:** Search for continent of a given country  
 Given I have a database  
 When I enter the continent name "Asia"  
 Then I should view the countries in the continent

**Step Definitions:**

**public class** MyDataBaseTest {  
  
 **private** Connection **con** = **null**;  
 **private** Statement **statement** = **null**;  
 **private** String **query** = **null**;  
 **private** ResultSet **result** = **null**;  
  
 @Given(**"I have a database"**)  
 **public void** i\_have\_a\_database() **throws** ClassNotFoundException, SQLException, IllegalAccessException, InstantiationException {  
 Class.*forName*(**"com.mysql.cj.jdbc.Driver"**).newInstance();  
 **con** = DriverManager.*getConnection*(**"jdbc:mysql://localhost:3306/world"**, **"root"**, **"admin"**);  
 }  
  
 @When(**"I enter the continent name {string}"**)  
 **public void** i\_enter\_the\_continent\_name(String word) **throws** SQLException {  
 **query** = **"SELECT Name,Continent FROM country where Continent="** + **"\'"** + word + **"\'"**;  
 Statement statement = **con**.createStatement();  
 **result** = statement.executeQuery(**query**);  
 }  
  
 @Then(**"I should view the countries in the continent"**)  
 **public void** i\_should\_view\_the\_countries\_in\_the\_continent() **throws** SQLException {  
 **while** (**result**.next()) {  
 System.***out***.println(**result**.getString(1) + **"\t"** + **result**.getString(2));  
 }  
 **con**.close();  
 }  
  
}