

JAVA WITH JDBC COURSE

JDBC INTRODUCTION



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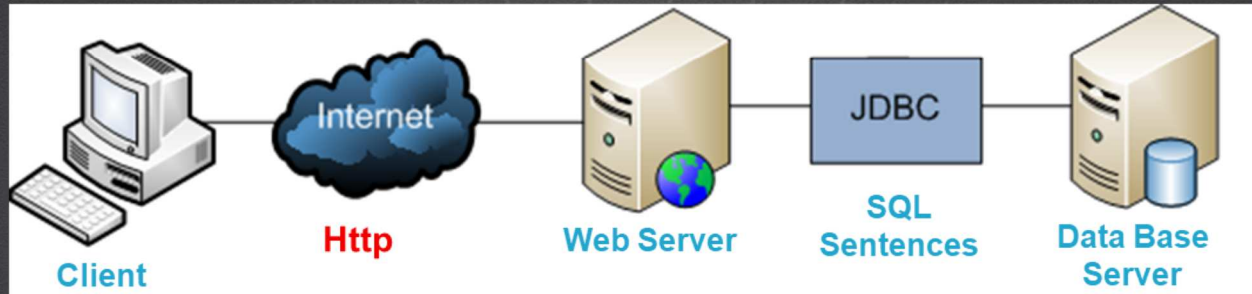
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Hello, Ubaldo Acosta greets you again. I hope you're ready to start with this lesson.

We are going to study an introduction to the JDBC API (Java Database Connectivity).

Are you ready? Come on!

WHAT IS JDBC?



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In this lesson, which is still introductory, we are going to review some features of the JDBC API. First we will define what is an API, which is JDBC and we will see what are the general steps to use JDBC in order to consult and modify the information of a relational database, no matter which relational database we want to use, such as the database engines of MySQL, Oracle, Microsoft SQL Server, PostgreSQL, or any other database engine.

An API (Application Program Interface) is a set of classes, in this case Java classes, which are usually packaged in a file known as JAR (Java Archive File). These classes fulfill a very specific function, for example the task of connecting to a particular database, such as MySQL, Oracle, etc. For this course we will use the JDBC API. Now we will see what JDBC is.

JDBC (Java Database Connectivity) is a standard API in Java, and is used to connect to a database. The JDBC API defines a set of interfaces and Java classes, which must be implemented by each database provider in order to provide the functionality to consult, modify and many more tasks based on data from each provider, example of these providers are Oracle, MySQL, PostgreSQL, etc.

JDBC allows us, among many other things, to perform the basic CRUD operations (Create-Insert, Read-Select, Update and Delete) on a database.

In summary, each database handler implements the JDBC specification, and each database handler provides its own JDBC driver.

ROLE OF JDBC IN A JAVA EE ARCHITECTURE



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In previous courses we commented that there are different versions of Java for the development of applications. The Java EE enterprise version (Jakarta EE) allows us to create very robust applications that support a large number of users using our applications. However, to create a business application involves several challenges, one of them is to create several logical layers in our application.

As we can see in the figure, a business application in Java, is composed of different layers of information. Each layer has a very specific function. Divide an application into layers has several advantages, such as separation of responsibilities, better maintenance of the application and specialization of programmers in each layer.

The DB (Database) stores the information of the business application. JDBC allows us to communicate through the data layer with the Database. JDBC is an API that is used in the data access layer, so its role is very important in a Java Enterprise application.

There are other technologies such as Servlets and JSPs, or EJBs, however these technologies will be studied in other courses. In this course we will focus on creating a data layer as robust as possible, applying design patterns and best practices so that the data layer we create is the basis for your own real-world Java applications.

BASIC STEPS TO USE JDBC

1. Download the driver (.jar) depending on the database to be used

2. Add the driver (.jar) to the classpath of the application

3. Create a Java class

- Register the JDBC driver
- Create a connection to the DB (DataBase)
- Create a Statement object
- Execute the SQL statement and process it
- Close created objects, such as Statement or Connection.

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Now let's review the basic steps to use JDBC.

1. First of all what we have to do is download the JDBC driver or driver depending on the database that we are going to use.

2. Once we have downloaded our driver, we added the downloaded driver to the application's classpath. It should be noted that the classpath of the application only means that it is the path where the classes or .jar files that our application will use are going to be found. The word classpath is composed of class that refers to the classes and path that means a path or path.

3. As a third step we are going to create a Java class and in this class we need to perform the following steps:

- a) Let's add code to register the respective JDBC driver
- b) Then we add the necessary code to create a connection to the desired database,
- c) Then we create a Statement object, which will allow us to execute the query that we want. Recall that a query or SQL query is one that will allow us to consult or modify the information of the database that we are using.
- d) The next step is to execute the SQL statement that we have selected and we can process it depending on the type of sentence that we have executed
- e) As a last step we are going to close the database connection that we have opened, as well as any other object such as the Statement object or any other object that we have used to execute our SQL statements.

These are the most basic steps to be able to use JDBC in our Java applications. Later we will create an example to connect to our MySQL database that we have already installed.

ONLINE COURSE

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