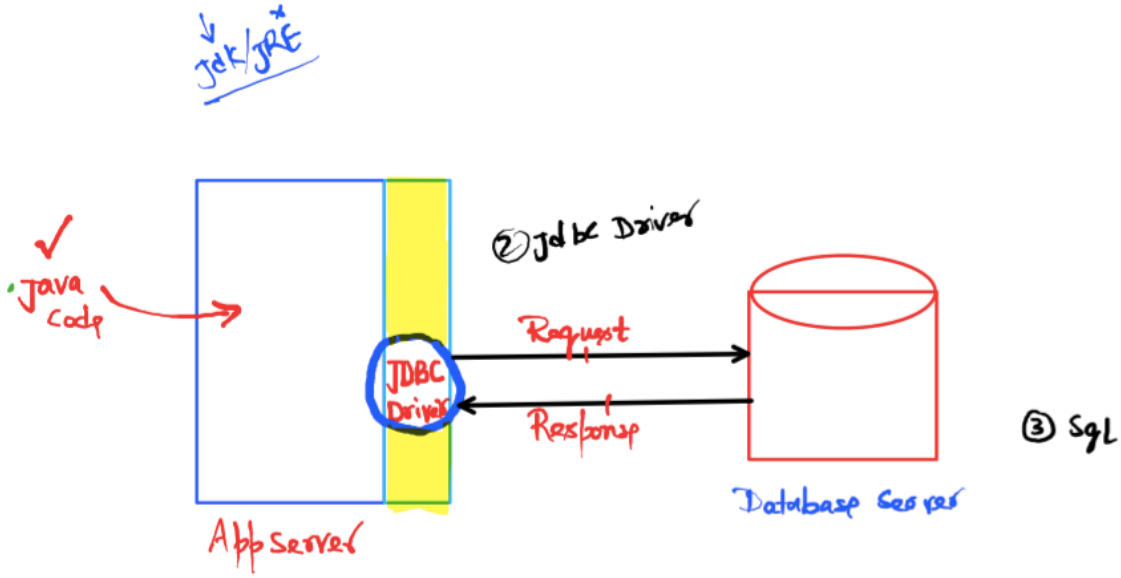
Backend Development using [Unit-05]

Topics:

- The concept of JDBC and MySql Server
- JBDC drivers
- Install MySql server
- Add MySql connector to project build path
- Create JDBC and MySql base Java Project
    - Accessing data from MySQL Server using java and Storing data from java to MySQL server
        - Connection interface
        - Statement interface
        - ResultSet interface

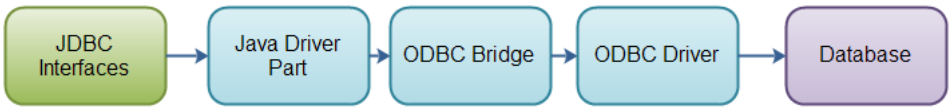
The concept of JDBC and MySql Server



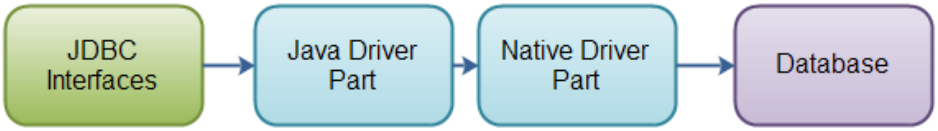
JBDC drivers (Type1 Driver to Type4 Driver):

- Type 1: JDBC-ODBC Bridge Driver
- Type 2: JDBC-Native API
- Type 3: JDBC-Net pure Java
- Type 4: 100% Pure Java

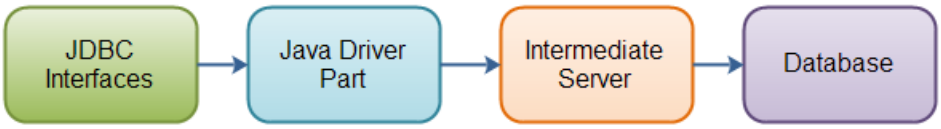
- **Type 1: JDBC-ODBC Bridge Driver**
  - A type 1 JDBC driver consists of a Java part that translates the JDBC interface calls to ODBC calls.
  - An ODBC bridge then calls the ODBC driver of the given database.



- **Type 2: JDBC-Native API**
  - A type 2 JDBC driver is like a type 1 driver, except the ODBC part is replaced with a native code part instead.
  - The native code part is targeted at a specific database product.

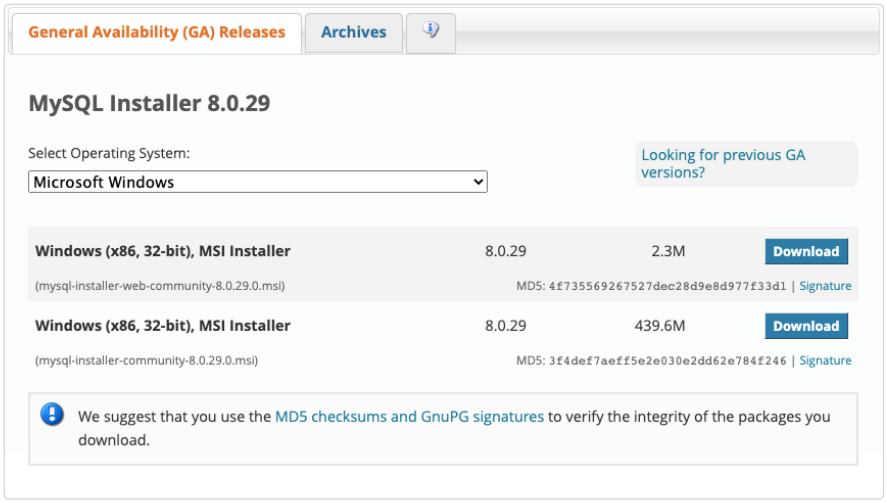


- **Type 3: JDBC-Net pure Java**
  - A type 3 JDBC driver is an all Java driver that sends the JDBC interface calls to an intermediate server.
  - The intermediate server then connects to the database on behalf of the JDBC driver.



- **Type 4: 100% Pure Java**
  - A type 4 JDBC driver is an all Java driver which connects directly to the database.
  - It is implemented for a specific database product.

1. Installation MySql server:

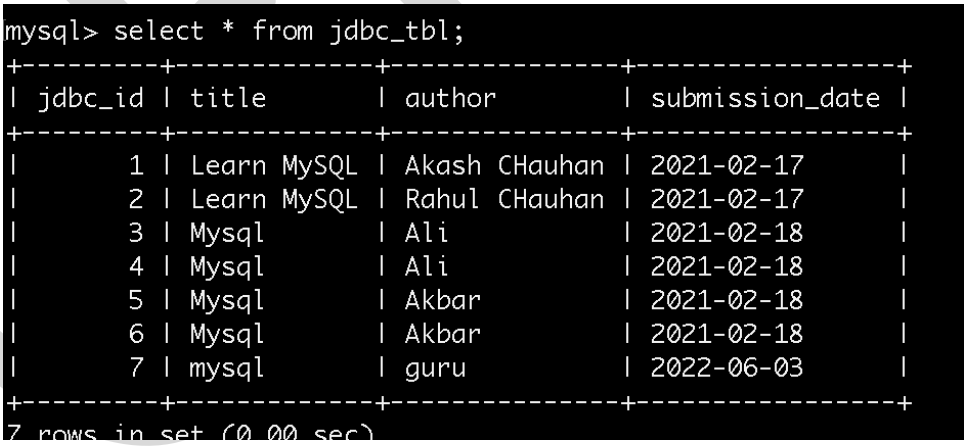
- Install MySQL server and create a Database there and one Table as well
- https://www.mysql.com/downloads/
    - MySQL Community (GPL) Downloads »
    - MySQL Community Server
    - Go to download page
    - MySQL Community Downloads
      MySQL Installer
    - 

    - Windows (x86, 32-bit), MSI Installer {this setup = ~ 450MB}
    - 'Server only' ->next
    - Name [short name], root
    - Username and password [server]
        - root,root [admin]
    - Windows:
        - Search Mysql
        - Task manager -> services -> mysql -> right click start
    - Mac
        - System preferences [start/stop]
        - Terminal
            - mysql -u root -p
                - root

2. Perform these Database operations [One by one]

- show databases;
- create database jdbcDatabase;
- use jdbcDatabase;
- CREATE TABLE jdbc_tbl(
  jdbc_id int,
  title varchar(255),
  author varchar(255),
  submission_date varchar(255)
  );

  - INSERT INTO jdbc_tbl VALUES (1, 'Mysql', 'Akbar', '2021-02-18');
  - INSERT INTO jdbc_tbl VALUES (2, 'Mysql', 'Akbar', '2021-02-18');
  - INSERT INTO jdbc_tbl VALUES (3, 'Mysql', 'Akbar', '2021-02-18');
  - INSERT INTO jdbc_tbl VALUES (4, 'Mysql', 'Akbar', '2021-02-18');
  - run 2 or 3 more such quaries just make sure to change jdbc_id
  - select * from jdbc_tbl;

- 

```
mysql> select * from jdbc_tbl;
+---------+-------------+---------------+-----------------+
| jdbc_id | title       | author        | submission_date |
+---------+-------------+---------------+-----------------+
|       1 | Learn MySQL | Akash CHauhan | 2021-02-17      |
|       2 | Learn MySQL | Rahul CHauhan | 2021-02-17      |
|       3 | Mysql       | Ali           | 2021-02-18      |
|       4 | Mysql       | Ali           | 2021-02-18      |
|       5 | Mysql       | Akbar         | 2021-02-18      |
|       6 | Mysql       | Akbar         | 2021-02-18      |
|       7 | mysql       | guru          | 2022-06-03      |
+---------+-------------+---------------+-----------------+
7 rows in set (0.00 sec)
```

3. Add MySql connector into project Build Path:

- Download JDBC connecting jar [MySql connector Java jar]
  - For Mac {Platform Independent}:
    - https://dev.mysql.com/downloads/connector/j/?os=26

- Add this jar into library [Build Path of your Project]
- We are going to use, Connection, Statement and ResultSet from import java.sql.*;

4. Create Java Project

- Now Create a Java project with name: JDBC_Project

- In src folder create a package name Unit_05 and then a java class name{BackendDevelopmentUsingJDBC.java}

- **BackendDevelopmentUsingJDBC.java -> Copy and Paste this code there:**

```
package com.java.jdbc;
import java.sql.*;

public class BackendDevelopmentUsingJDBC {

    public static void main(String[] args) throws SQLException {

            Connection myConn = null;
            Statement myStmt = null;
            ResultSet myRs = null;

            try {
                    myConn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/jdbcData
base", "root" , "root@123");
```

```
                myStmt = myConn.createStatement();

                int a = myStmt.executeUpdate("INSERT INTO jdbc_tbl
VALUES (5, 'Mysql', 'Akbar', '2021-02-18')");

                myRs = myStmt.executeQuery("select * from
jdbc_tbl");

                while (myRs.next()) {
                        System.out.println(myRs.getString("jdbc_id") +
", " + myRs.getString("title") + ", " + myRs.getString("author") + ", " +
myRs.getString("submission_date"));
                }
            }

            catch (Exception exc) {
                exc.printStackTrace();
            }

            finally {
                myRs.close();
                myStmt.close();
                myConn.close();
                }
    }
}
```

- Run the project:
  - Right click on project
  - Run as Java Application