

Course: Web Application Development

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Lab 5 - Database (MySQL), JSP

Content:

- DBMS - MySQL
- Java Server Pages.
- Connection JSP-MySQL

Duration: 3 hours

Part 1: Database Management System (MySQL)

To install MySQL and MySQL Workbench, please refer to Lab 01
(file: WAD_Lab01_Basic_HTML.pdf)

You can also find the user manual of MySQL Workbench at
<https://dev.mysql.com/doc/workbench/en/>

To review SQL you can visit <https://www.w3schools.com/sql/>

**Note: MySQL Workbench is optional, you can use your system's command prompt or terminal to create database for your website.

Example:

- Create a database for courses registration
- Create following tables in your new database

```
--  
-- Table structure for table 'course'  
--  
  
CREATE TABLE IF NOT EXISTS course (  
    _ID int(10) NOT NULL auto_increment,  
    CourseName varchar(255) NOT NULL,  
    Credits int(1) NOT NULL,  
    PRIMARY KEY (_ID),  
    KEY Course_CourseID_INDEX (CourseName)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8 AUTO_INCREMENT=5 ;  
  
--  
-- Table structure for table 'student'  
--  
CREATE TABLE IF NOT EXISTS student (  
    _ID int(10) NOT NULL auto_increment,  
    StudentID varchar(10) NOT NULL,  
    StudentName varchar(255) NOT NULL,  
    PRIMARY KEY (_ID)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8 AUTO_INCREMENT=6 ;
```

```

-- Table structure for table 'studentcourse'
--

CREATE TABLE IF NOT EXISTS studentcourse (
    Student_ID int(10) NOT NULL,
    Course_ID int(10) NOT NULL,
    PRIMARY KEY (Student_ID,Course_ID),
    KEY StudentCourse_StudentID_INDEX (Student_ID),
    KEY StudentCourse_CourseID_INDEX (Course_ID)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

- Use file <course.csv> to import records to your database (you can either copy/paste, write java code or sql query).
- Create one or more records for student table.

Part 2: Connection JSP - MySQL

Seven steps to connect JSP-DBMS by using JDBC:

- Load driver
- Define a connection URL
- Establish a connection
- Create a statement object
- Execute a query
- Process the results
- Close the connection

Use the following source below to test your system

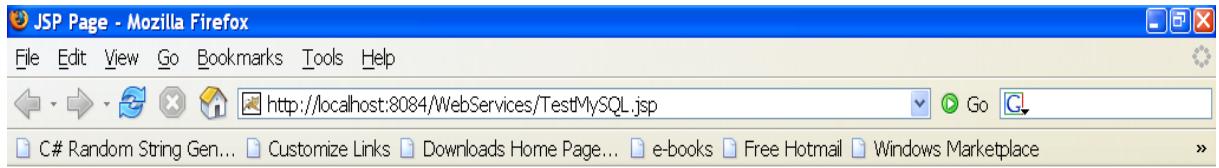
```

<%
    String connectionURL="jdbc:mysql://localhost:3306/<your database name>"; //step 2
    Connection connection = null; //step 3
    Statement statement = null; //step 4
    ResultSet rs = null;
%>

<%
    Class.forName("com.mysql.jdbc.Driver").newInstance(); //step 1
    connection = DriverManager.getConnection(connectionURL, "<your database
username>", "<your database password>");
    statement = connection.createStatement();
    rs = statement.executeQuery("SELECT * FROM course"); //step 5

    while (rs.next()) {
        out.println(rs.getString("CourseName"));
        out.println(rs.getString("Credits")+"<br>");
    } //step 6
    rs.close(); //step 7
%>

```



Testing Connection MySQL

1 Computer Graphics
2 Web

Now go on to develop your project base on part 3

Part 3: Java Server Pages

Using what you have learned in previous labs to create several jsp files:

- **login.jsp**: provide login form and check username and password for authentication. If user input valid username and password, he/she will go to homepage.jsp.
** Note: Use StudentID column in student table to validate username and password.
- **homepage.jsp**: display your username and registered courses. There should be a button or link to add/update registered course;
- **register.jsp**: allow user to register courses by providing a list of available courses and check-box for selection.