Programování v Javě II

JSP a JDBC

Michal Pobucký

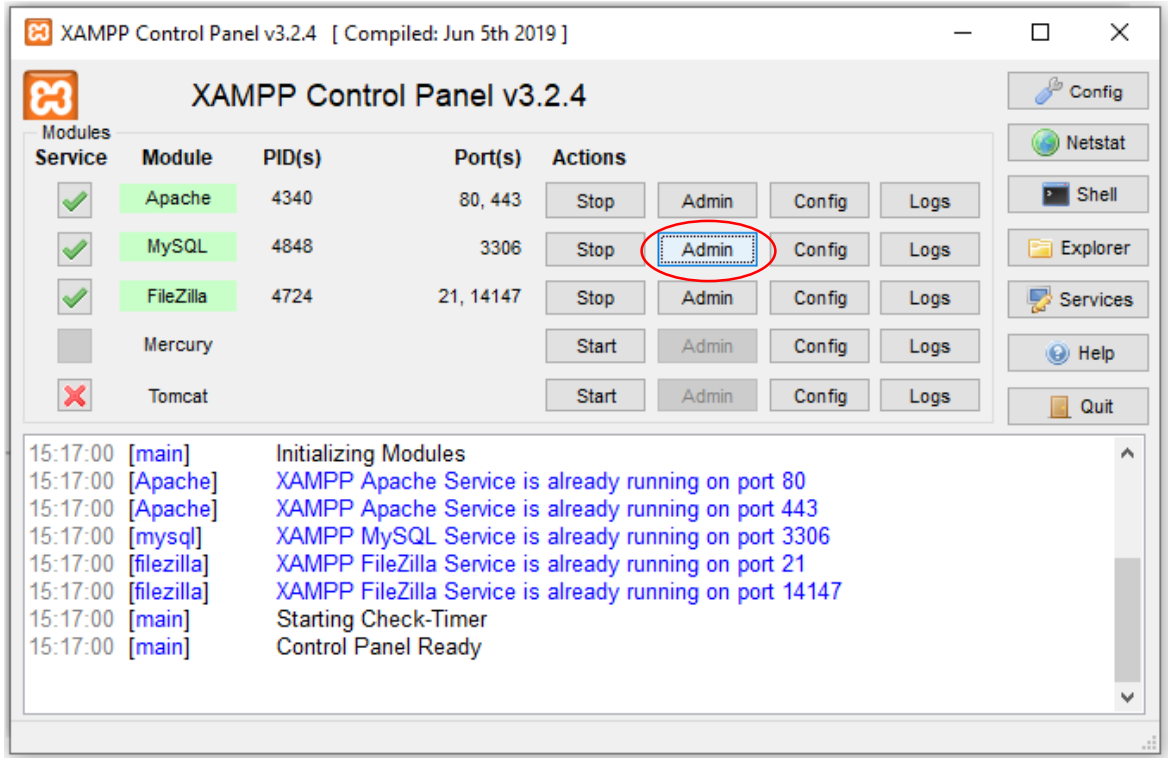
michal.pobucky@fpf.slu.cz

Ústav informatiky – léto 2020

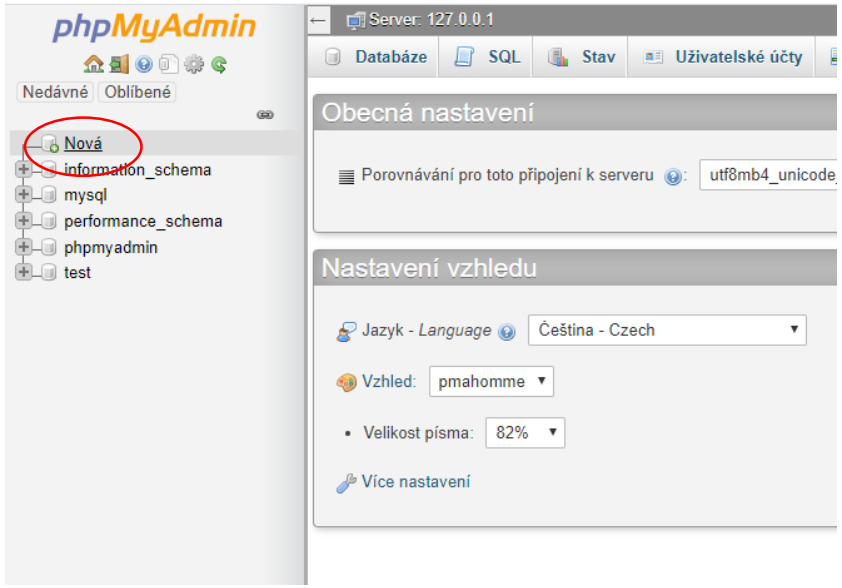
SLEZSKÁ UNIVERZITA
FILOZOFICKO-PŘÍRODOVĚDECKÁ FAKULTA V OPAVĚ

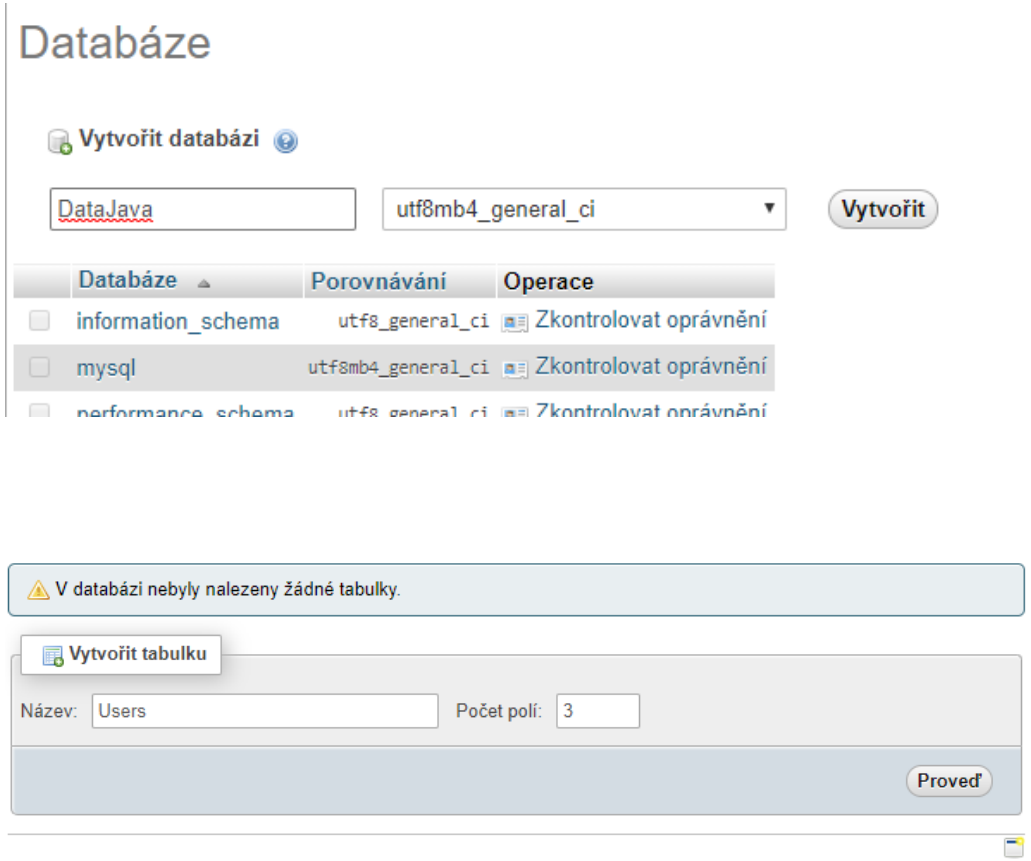
JSP a JDBC

- Nejprve nutné nainstalovat databázi (například jeden z odkazů)
  - XAMPP
  - MySQL
- Nainstalovat MySQL Connector (pokud budou problémy, vložit mysql-connector-java-8.0.19.jar do složky WebContent / WEB-INF / lib
- Po instalaci spustit

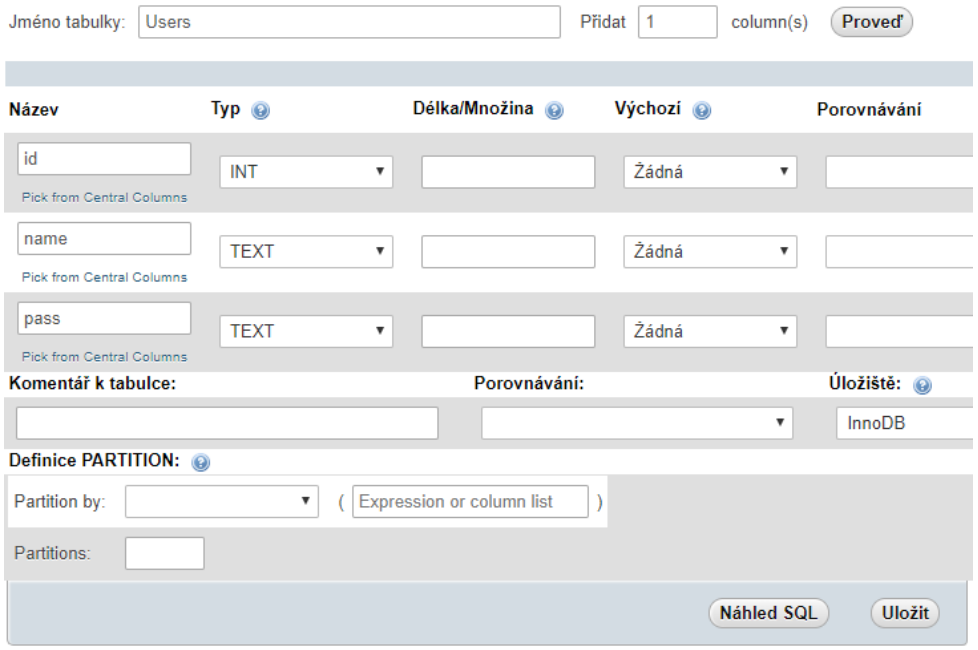


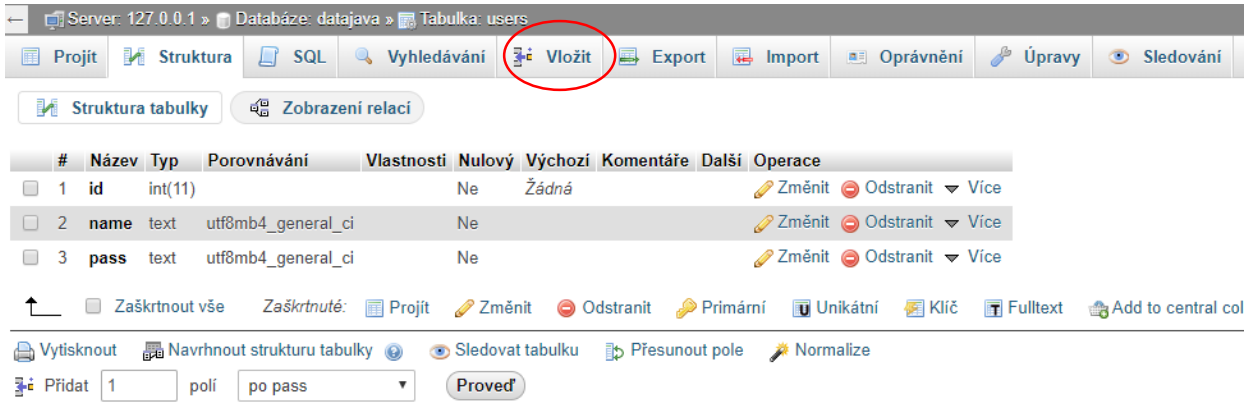
JSP a JDBC


phpMyAdmin
Nedávné
Oblíbené
Nová
information_schema
mysql
performance_schema
phpmyadmin
test
Server: 127.0.0.1
Databáze
SQL
Stav
Uživatelské účty
Obecná nastavení
Porovnávání pro toto připojení k serveru:
utf8mb4_unicode
Nastavení vzhledu
Jazyk - Language
Čeština - Czech
Vzhled:
pmahomme
Velikost písma:
82%
Více nastavení

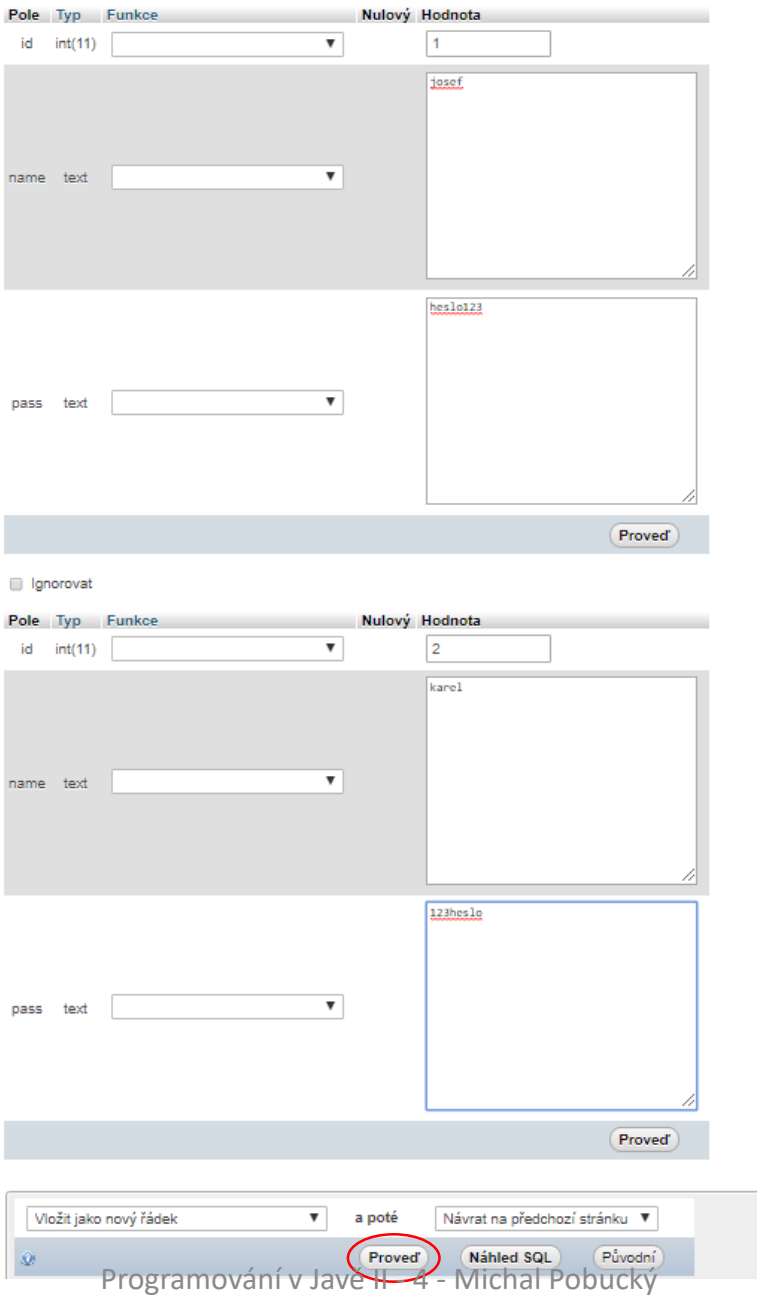

Databáze
Vytvořit databázi
DataJava
utf8mb4_general_ci
Vytvořit
Databáze
Porovnávání
Operace
information_schema
utf8_general_ci
Zkontrolovat oprávnění
mysql
utf8mb4_general_ci
Zkontrolovat oprávnění
V databázi nebyly nalezeny žádné tabulky.
Vytvořit tabulku
Název:
Users
Počet polí:
3
Proveď

JSP a JDBC


Jméno tabulky: Users
Přidat 1 column(s)
Proveď
Název
Typ
Délka/Množina
Výchozí
Porovnávání
id
INT
Žádná
Pick from Central Columns
name
TEXT
Žádná
Pick from Central Columns
pass
TEXT
Žádná
Pick from Central Columns
Komentář k tabulce:
Porovnávání:
Úložiště:
InnoDB
Definice PARTITION:
Partition by:
Expression or column list
Partitions:
Náhled SQL
Uložit


Server: 127.0.0.1 » Databáze: datajava » Tabulka: users
Projít
Struktura
SQL
Vyhledávání
Vložit
Export
Import
Oprávnění
Úpravy
Sledování
Struktura tabulky
Zobrazení relací
Název Typ Porovnávání Vlastnosti Nulový Výchozí Komentáře Další Operace
1 id int(11) Ne Žádná Změnit Odstranit Více
2 name text utf8mb4_general_ci Ne Změnit Odstranit Více
3 pass text utf8mb4_general_ci Ne Změnit Odstranit Více
Zaškrtnout vše
Zaškrtnuté:
Projít
Změnit
Odstranit
Primární
Unikátní
Klíč
Fulltext
Add to central col
Vytisknout
Navrhnout strukturu tabulky
Sledovat tabulku
Přesunout pole
Normalize
Přidat 1 polí po pass
Proveď

JSP a JDBC

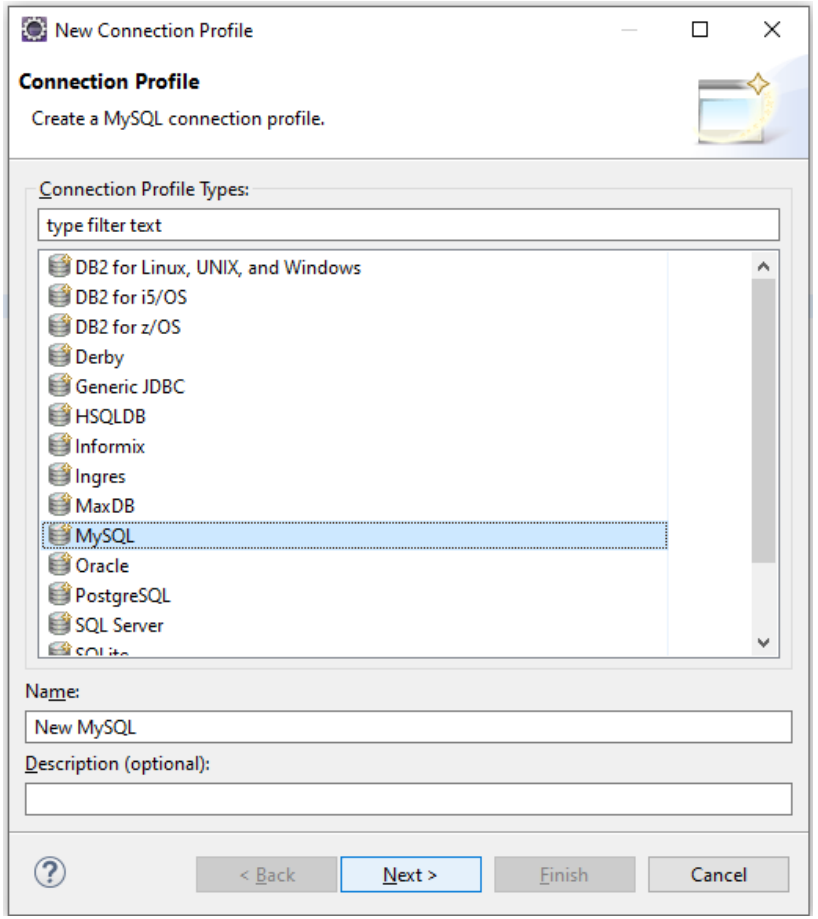

Pole Typ Funkce Nulový Hodnota
id int(11) 1
name text josef
pass text heslo123
Proveď
Ignorovat
Pole Typ Funkce Nulový Hodnota
id int(11) 2
name text karel
pass text 123heslo
Proveď
Vložit jako nový řádek
a poté
Návrat na předchozí stránku
Proveď
Náhled SQL
Původní

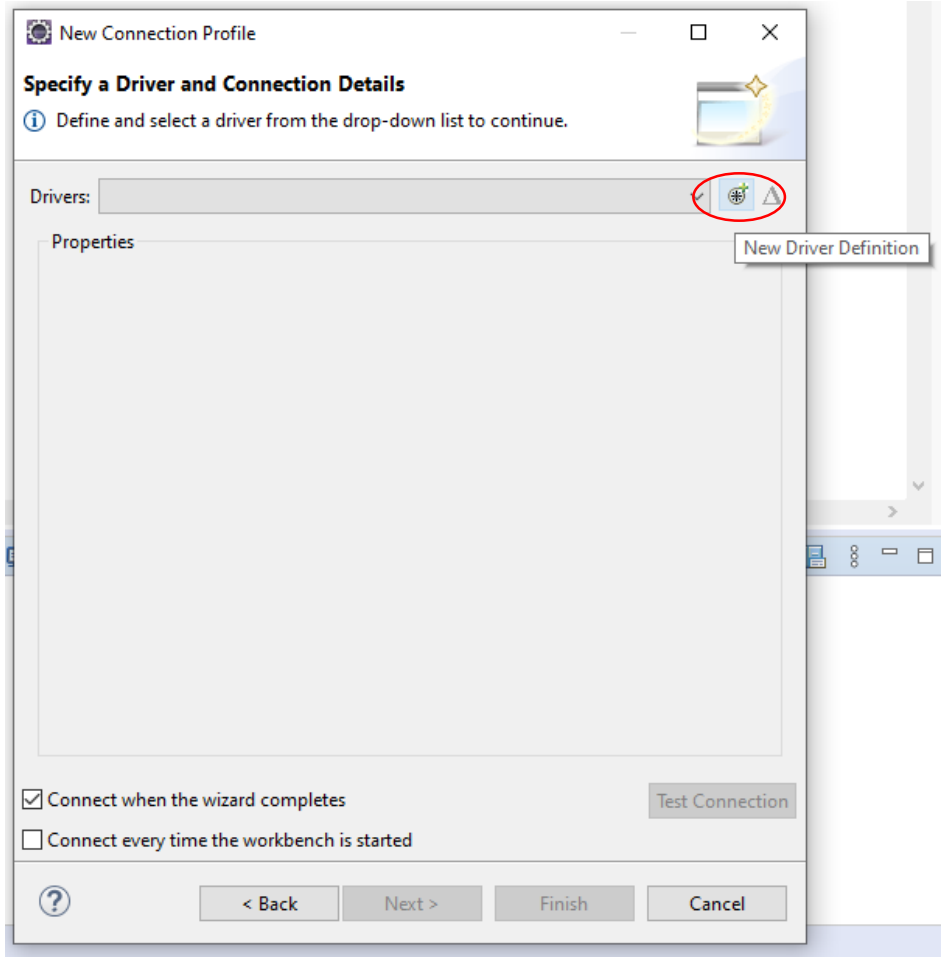
JSP a JDBC

- V Eclipse v okně Data Source Explorer – Database Connections – kliknout pravým tlačítkem myši a vybrat New

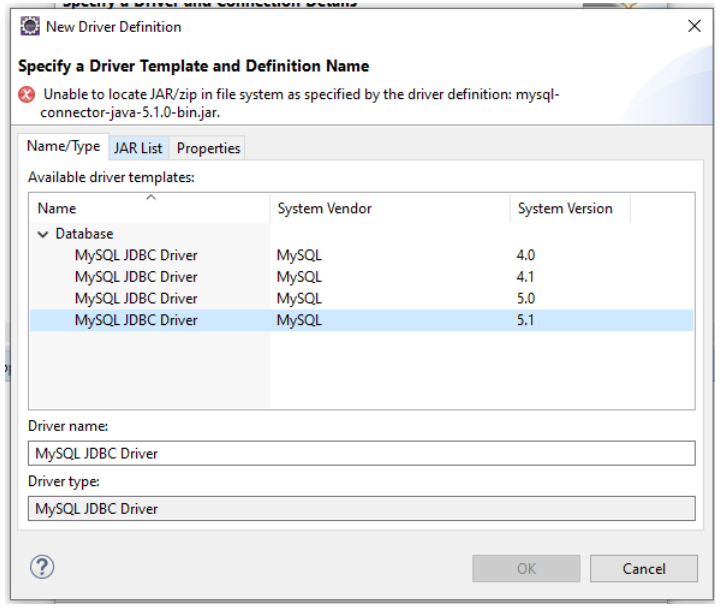
JSP a JDBC

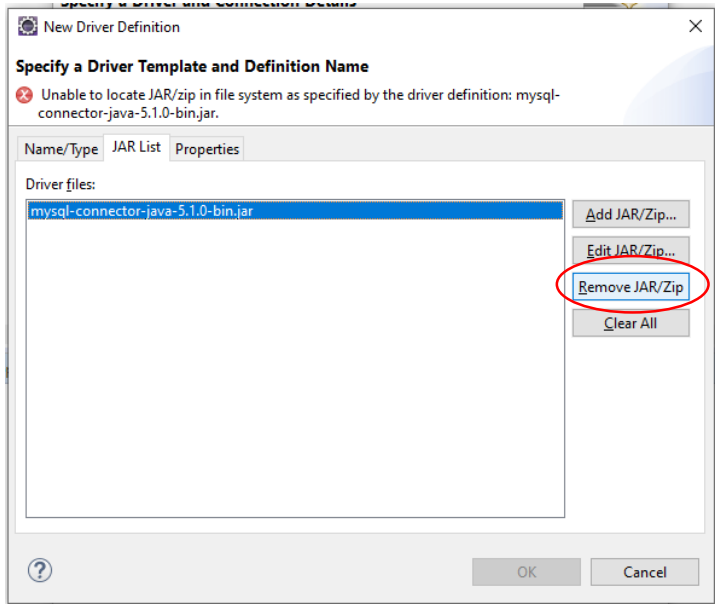
- Vybrat MySQL

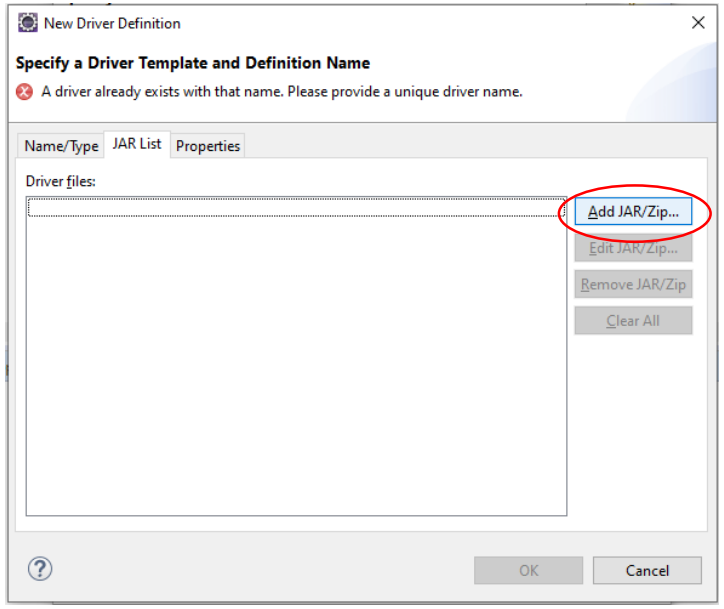




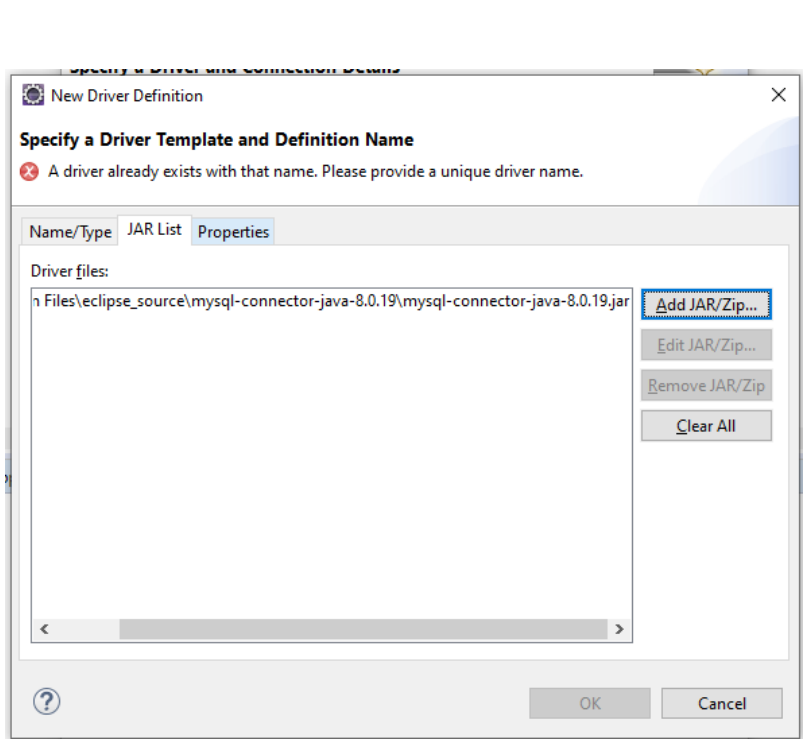
JSP a JDBC

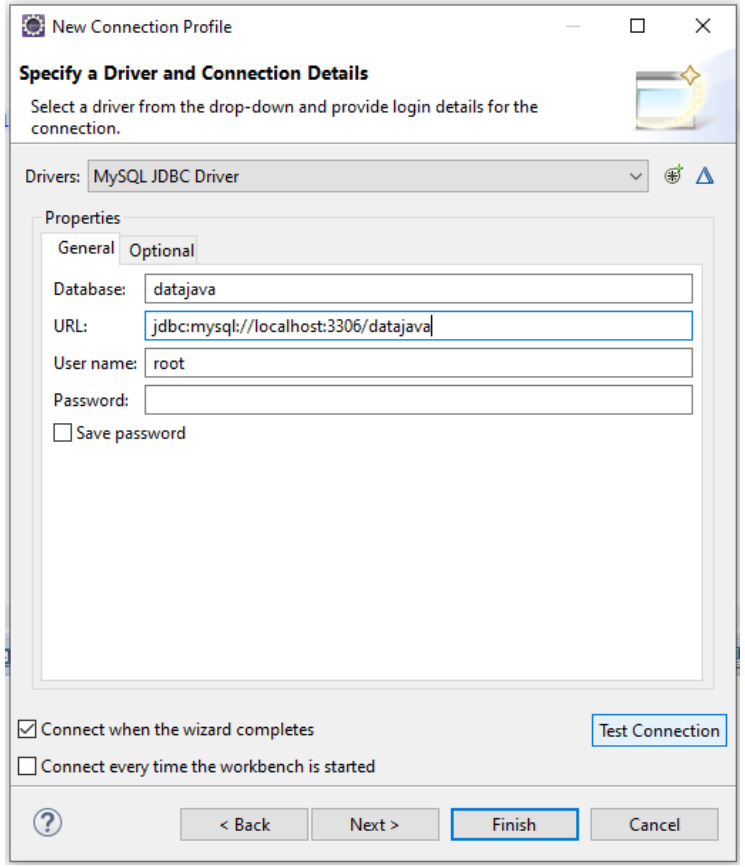

New Driver Definition
Specify a Driver Template and Definition Name
Unable to locate JAR/zip in file system as specified by the driver definition: mysql-connector-java-5.1.0-bin.jar.
Name/Type
JAR List
Properties
Available driver templates:
Name
System Vendor
System Version
Database
MySQL JDBC Driver
MySQL
4.0
MySQL JDBC Driver
MySQL
4.1
MySQL JDBC Driver
MySQL
5.0
MySQL JDBC Driver
MySQL
5.1
Driver name:
MySQL JDBC Driver
Driver type:
MySQL JDBC Driver
OK
Cancel

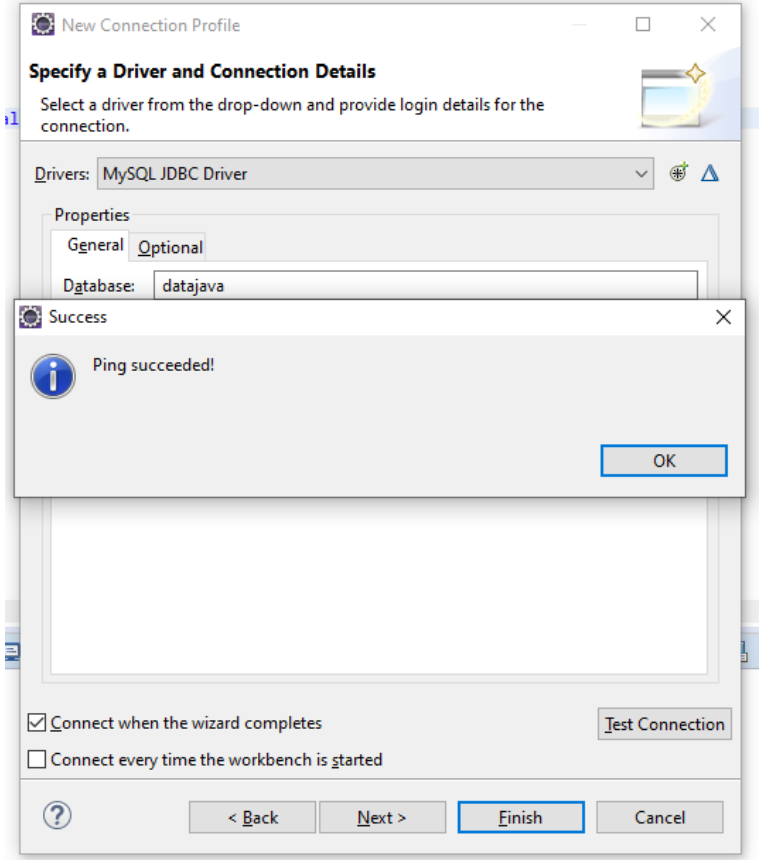

New Driver Definition
Specify a Driver Template and Definition Name
Unable to locate JAR/zip in file system as specified by the driver definition: mysql-connector-java-5.1.0-bin.jar.
Name/Type
JAR List
Properties
Driver files:
mysql-connector-java-5.1.0-bin.jar
Add JAR/Zip...
Edit JAR/Zip...
Remove JAR/Zip
Clear All
OK
Cancel


New Driver Definition
Specify a Driver Template and Definition Name
A driver already exists with that name. Please provide a unique driver name.
Name/Type
JAR List
Properties
Driver files:
Add JAR/Zip...
Edit JAR/Zip...
Remove JAR/Zip
Clear All
OK
Cancel

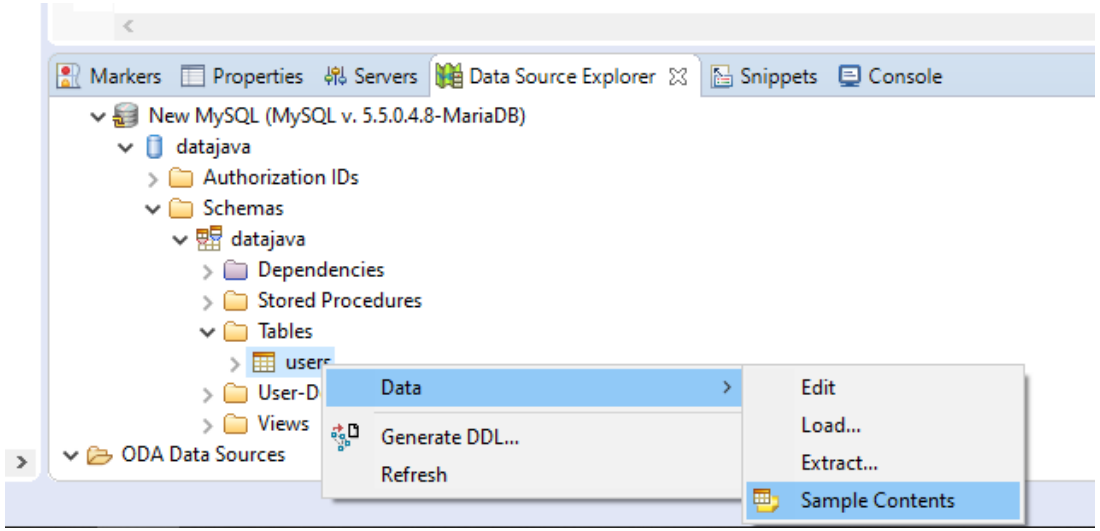
JSP a JDBC

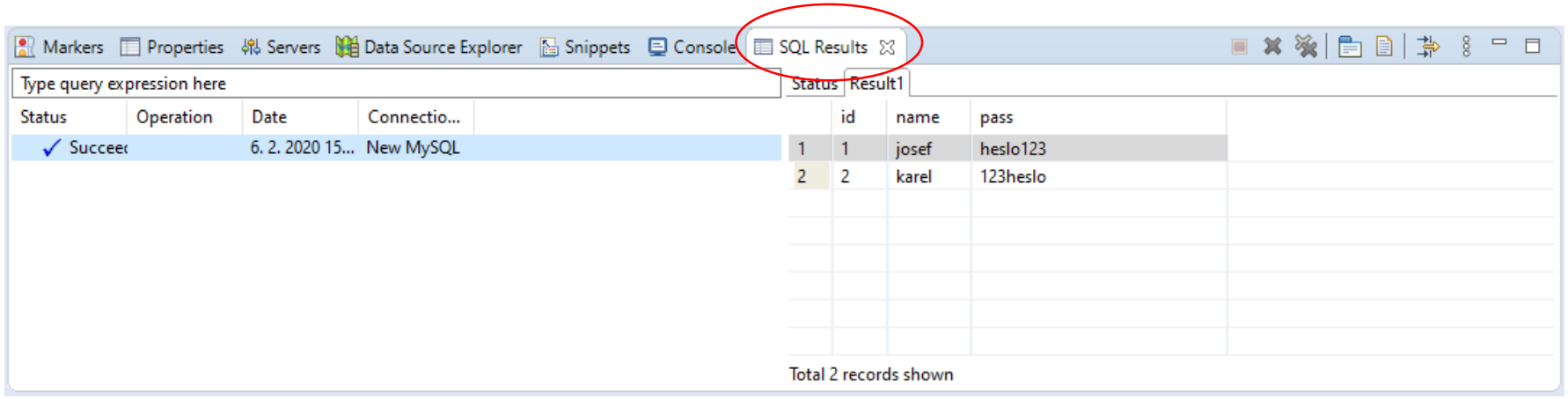

New Driver Definition
Specify a Driver Template and Definition Name
A driver already exists with that name. Please provide a unique driver name.
Name/Type
JAR List
Properties
Driver files:
n Files\eclipse_source\mysql-connector-java-8.0.19\mysql-connector-java-8.0.19.jar
Add JAR/Zip...
Edit JAR/Zip...
Remove JAR/Zip
Clear All
OK
Cancel


New Connection Profile
Specify a Driver and Connection Details
Select a driver from the drop-down and provide login details for the connection.
Drivers:
MySQL JDBC Driver
Properties
General
Optional
Database:
datajava
URL:
jdbc:mysql://localhost:3306/datajava
User name:
root
Password:
Save password
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel


New Connection Profile
Specify a Driver and Connection Details
Select a driver from the drop-down and provide login details for the connection.
Drivers:
MySQL JDBC Driver
Properties
General
Optional
Database:
datajava
Success
Ping succeeded!
OK
Connect when the wizard completes
Test Connection
Connect every time the workbench is started
< Back
Next >
Finish
Cancel

JSP a JDBC


Markers
Properties
Servers
Data Source Explorer
Snippets
Console
New MySQL (MySQL v. 5.5.0.4.8-MariaDB)
datajava
Authorization IDs
Schemas
datajava
Dependencies
Stored Procedures
Tables
users
User-D
Views
ODA Data Sources
Data
Generate DDL...
Refresh
Edit
Load...
Extract...
Sample Contents


Markers
Properties
Servers
Data Source Explorer
Snippets
Console
SQL Results
Type query expression here
Status
Result1
Status
Operation
Date
Connectio...
Succeed
6. 2. 2020 15...
New MySQL
id
name
pass
1
1
josef
heslo123
2
2
karel
123heslo
Total 2 records shown

JSP a JDBC

- Program
  - Načte a zobrazí data z databáze v tabulce

JSP a JDBC

- Index.jsp

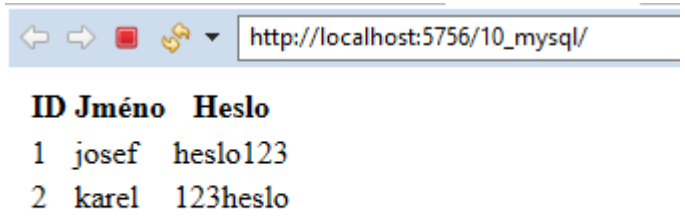
```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8" import="java.sql.*"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Databáze</title>
</head>
<body>
    <jsp:useBean id="Databaze" class="moje.Databaze" />
    <table>
        <tr>
            <th>ID</th>
            <th>Jméno</th>
            <th>Heslo</th>
        </tr>
    <%
        Databaze.Pripoj();
        ResultSet vystup = Databaze.Dotaz("SELECT * FROM users");
        while (vystup.next()) { %>
        <tr>
            <td><%= vystup.getString("id") %></td>
            <td><%= vystup.getString("name") %></td>
            <td><%= vystup.getString("pass") %></td>
        </tr>
        <%
        }
    %>
    </table>

</body>
</html>
```

JSP a JDBC

- Databaze.java

```java
package moje;

import java.sql.*;

public class Databaze {

    Connection conn = null;
    Statement stat = null;

    public void Pripoj() throws SQLException, ClassNotFoundException {

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/datajava", "root", "");
        }

        catch(SQLException se) {
            se.printStackTrace();
            System.out.println(se.getMessage());
        }
        catch(ClassNotFoundException ce) {
            ce.printStackTrace();
            System.out.println(ce.getMessage());
        }
    }

    public ResultSet Dotaz(String sql) throws SQLException{
        ResultSet res = null;
        stat = conn.createStatement();
        res = stat.executeQuery(sql);

        return res;
    }
}
```

JSP a JDBC

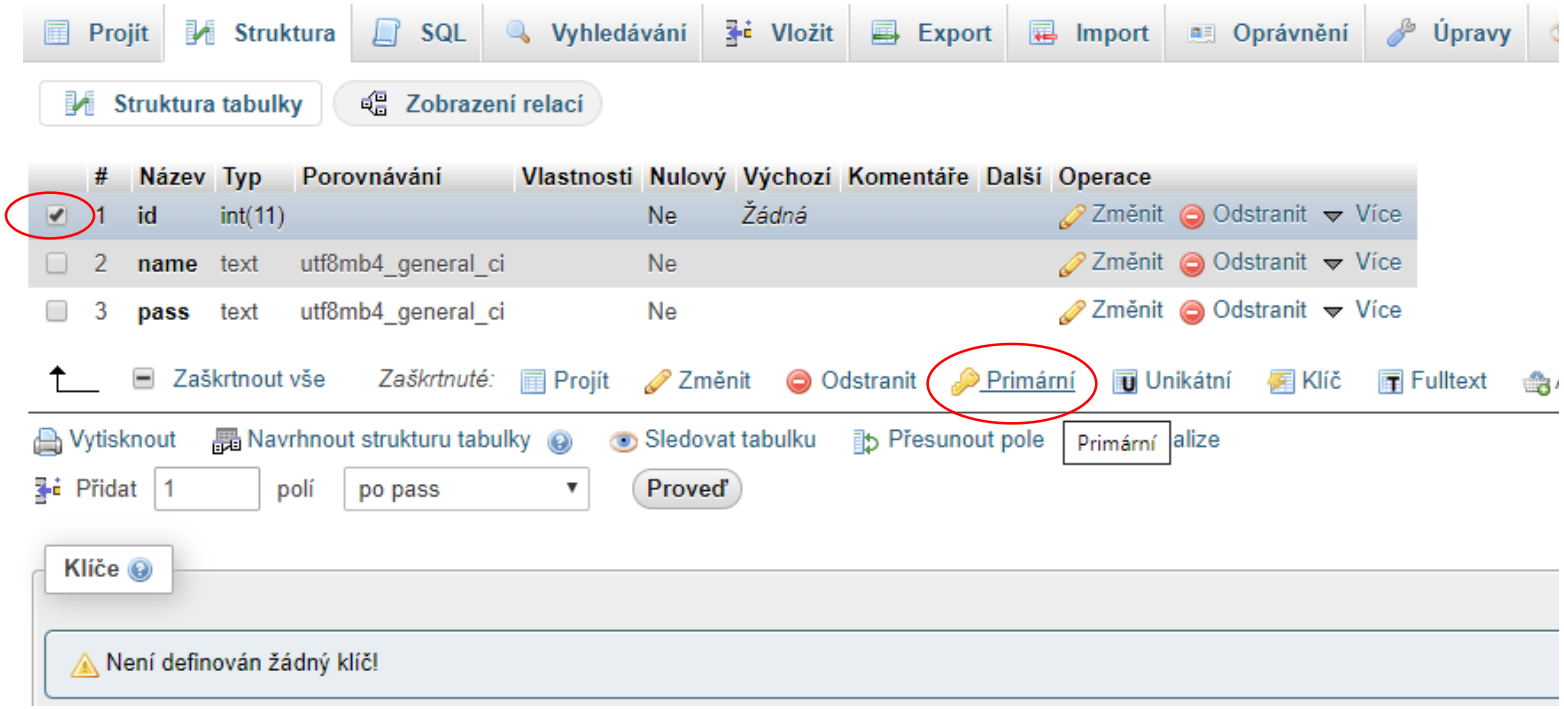

http://localhost:5756/10_mysql/
ID Jméno Heslo
1 josef heslo123
2 karel 123heslo

JSP a JDBC

- Program
  - Klient vkládá nové uživatelské účty do systému, ukládají se do databáze

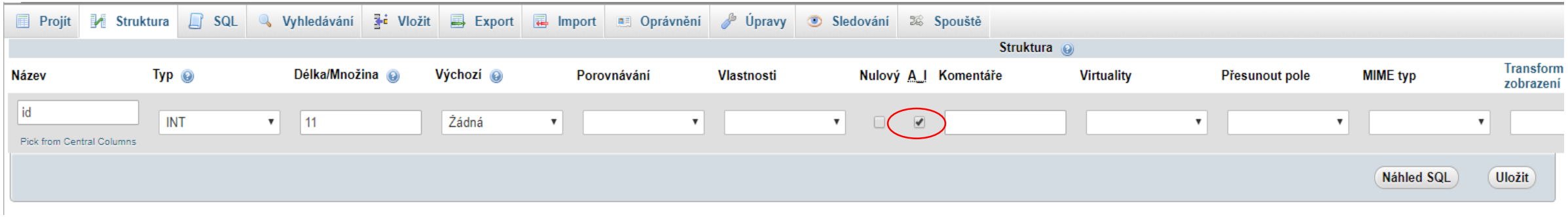
JSP a JDBC

- Nastavíme primární klíč



JSP a JDBC

- Nastavíme auto increment



JSP a JDBC

- Index.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8" import="java.sql.*"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Databáze</title>
</head>
<body>
    <jsp:useBean id="Databaze" class="moje.Databaze" />

    <%@ include file="login.jsp" %>

    <%
        if (request.getMethod().equals("POST")){
            String sql = "INSERT INTO users (name, pass) VALUES ('" + request.getParameter("name") + "', '" + request.getParameter("pass") + "');";
            Databaze.Pripoj();
            Databaze.Uloz(sql);
            Databaze.Odpoj();
        }
    %>

    <hr>
    <table>
        <tr>
            <th>ID</th>
            <th>Jméno</th>
            <th>Heslo</th>
        </tr>
    <%
        Databaze.Pripoj();
        ResultSet vystup = Databaze.Dotaz("SELECT * FROM users");
        while (vystup.next()) { %>
        <tr>
            <td><%= vystup.getString("id") %></td>
            <td><%= vystup.getString("name") %></td>
            <td><%= vystup.getString("pass") %></td>
        </tr>
        <%
        }
        Databaze.Odpoj();
    %>
    </table>

</body>
</html>
```

JSP a JDBC

- Login.jsp

```jsp
<%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%>

<form action="index.jsp" method="post" accept-charset="UTF-8">
    Jméno:<input type="text" name="name"><br>
    Heslo:<input type="password" name="pass"><br>
    <input type="submit" value="Uložit">
</form>
```

JSP a JDBC

- Databaze.java

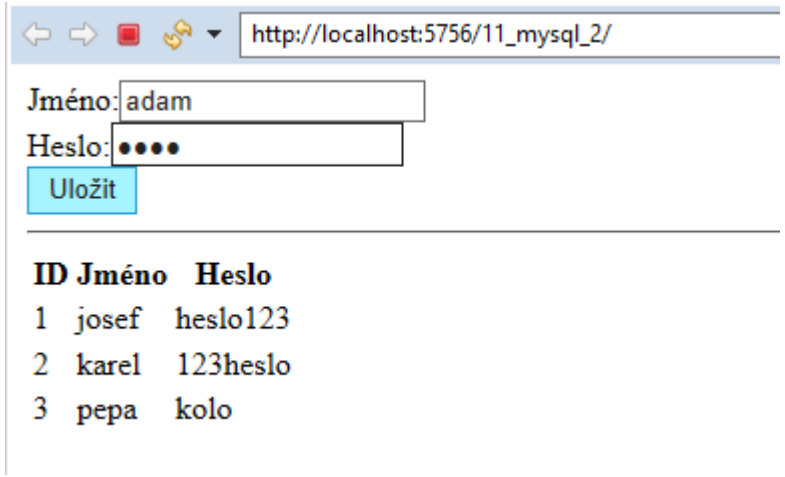
```java
package moje;

import java.sql.*;

public class Databaze {

    Connection conn = null;
    Statement stat = null;

    public void Pripoj() throws SQLException, ClassNotFoundException {

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/datajava", "root", "");
        }

        catch(SQLException se) {
            se.printStackTrace();
            System.out.println(se.getMessage());
        }
        catch(ClassNotFoundException ce) {
            ce.printStackTrace();
            System.out.println(ce.getMessage());
        }
    }

    public ResultSet Dotaz(String sql) throws SQLException{
        ResultSet res = null;
        stat = conn.createStatement();
        res = stat.executeQuery(sql);

        return res;
    }

    public void Uloz(String sql) throws SQLException{
        stat = conn.createStatement();
        stat.executeUpdate(sql);
    }

    public void Odpoj() throws SQLException{
        conn.close();
    }
}
```

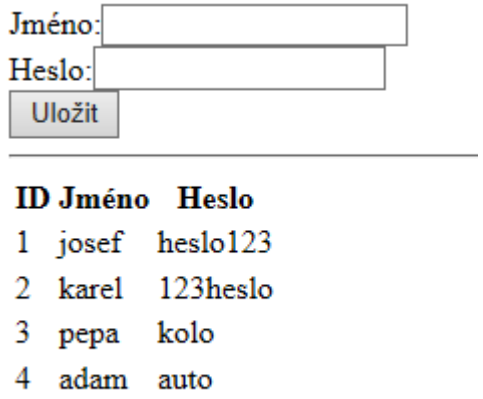
JSP a JDBC

- Web.xml

```
<web-app>

    <request-character-encoding>UTF-8</request-character-encoding>

</web-app>
```

JSP a JDBC


http://localhost:5756/11_mysql_2/
Jméno: adam
Heslo: ••••
Uložit
ID Jméno Heslo
1 josef heslo123
2 karel 123heslo
3 pepa kolo


Jméno:
Heslo:
Uložit
ID Jméno Heslo
1 josef heslo123
2 karel 123heslo
3 pepa kolo
4 adam auto