

Hang He

Bachelor's thesis

Information Technology Programme

# IMPLEMENT CHINESE TO ERP FRAMEWORK


May 2010



**MIKKELIN AMMATTIKORKEAKOULU**

*Mikkeli University of Applied Sciences*

## DESCRIPTION

 <b>MIKKELIN AMMATTIKORKEAKOULU</b> Mikkeli University of Applied Sciences		<b>Data of the bachelor's thesis</b>  10.5.2008	
<b>Author(s)</b> Hang He		<b>Degree program and option</b> Information Technology	
<b>Name of the bachelor's thesis</b> Java programming for MHG(a local company located in Mikpoli)			
<b>Abstract</b> <p>With the internationalization of the software, implementing different languages to software plays an increasingly important role in the market. Like the mobile system, people from different countries can buy and use the same Nokia system. All they need is to choose their own languages from the language menu. They can read and understand the information in the system easily.</p> <p>The MHG Systems Ltd is one of the world's leading suppliers of bioenergy ERP systems. The company utilizes its partner network to produce customer-oriented IT and map service solutions designed for developing bioenergy, and field work business operations.</p> <p>Currently there are many problems to implement Chinese letters to MHG ERP framework. MHG ERP framework includes: MHG Mobile, MHG ERP, MHG Users and MHG Map, MHG ERP UI and database encoding is in UTF8.</p> <p>In my thesis I use ResourceBundle in Java programming to implement Chinese to MHG ERP framework and documents all steps and possible changes. With the application, the Chinese letters can be added to the system. The software can be read by Chinese customers and then help the company to enter the Chinese market.</p>			
<b>Subject headings,(key words)</b> MHG, ResourceBundle, Chineselanguage, Netbeans , Icefaces, Mysql			
<b>Pages</b> 42 p	<b>Language</b> English	<b>URN</b> NBN:fi:amk-2010052910934	
<b>Remarks,notes on appendices</b>			
<b>Tutor</b> Matti Koivisto		<b>Employer of the bachelor's thesis</b> Mikkeli University of Applied Science	

## **ACKNOWLEDGEMENT**

During the period of my final thesis, I really learnt and experienced a lot.

This was my first time working for a company. At the beginning, I was not sure that I had enough knowledge or ability to finish the work. Time was limited and the work must be kept secret because the software was not published by the company yet. To be honest, the work made me feel worried and nervous. I knew that I encounter a big problem but I must get over of it.

However, when I began to work on the big problem, it was not as hard as I thought and I completed it soon. I would like to express my thanks to all the people who helped me and encouraged me during my final thesis.

Like my tutor Matti Koivisto, my colleague Veli Matti. Not only the technology support provided by them but also the patience and the hard working spirit they showed to me.

With their help, I learnt many new skills which I never knew about and I learnt how to face the problems by myself. This is a big progress for me.

## **LIST OF FIGURES**

Figure2.1 Combining Charts

Figure4.1 MHG system login interface

Figure4.2 MHG system user interface

Figure4.3 MHG system interface

Figure4.4 The picture of my work A

Figure4.5 The picture of my work B

Figure4.6 The Chinese login interface

Figure4.7 The Chinese user interface

Figure 4.8 The Chinese MHG system interface

Figure 4.9 The Chinese MHG system interface

Figure4.10 The picture of database

**LIST OF ABBREVIATIONS**

JSF	Java Server Faces
java EE	Java Platform, Enterprise Edition
MPS	Master Production Schedule
PDM	Product Data Management
MRP	Material Requirements Planning
CRP	Capacity Requirements Planning
DRP	Distribution Requirements Planning
SFC	Shop floor Control
QM	Quality Management
PCM	Product Configuration Management
WFM	Work Flow Management
RM	Repetitive Manufacturing
GL	General Ledger
AR	Accounts Receivable
AP	Accounts Payable

## TABLE OF CONTENTS

1.INTRODUCTION.....	1
2.BASCI KNOWLEDGE.....	2
2.1 IceFaces part.....	2
2.11 The introduction of IceFaces.....	2
2.12 How to install IceFaces .....	3
2.13.Add ICEfaces Framework.....	5
2.14 Add ICEfaces Facelets Framework.....	6
2.2 Class java.util.ResourceBundle.....	9
2.3 Make NetBeans IceFaces Project.....	12
2.31 Define the properties files.....	12
2.32.Creat the project and write the code of the web.....	12
2.33 The result of the project. ....	16
3.How TO CONNECT MYSQL WITH NETBEANS.....	17
3.1 Installation and Configuration.....	17
3.11.Start the Command-line client of MySQL and enter the password of it... 17	
3.12. Configuration with MySQL .....	25
3.13.Add mysql-connector-java to NetBeans.....	26
3.2 The example of create a connection between MySQL and NetBeans.....	27
4.MHG ERP WORK.....	32
4.1What is ERP? .....	32
4.2 The background of the whole MHG ERP work.....	34
4.3 My work, What need I do?.....	36
5. CONCLUSIONS.....	41
5.1 Challenges and solutions of my final thesis.....	41
5.2 What have I learnt in my job.....	42
REFERENCE	
Appendix: A The code for example of ICEfaces	
Appendix: B The ues of java.util.ResourceBundle	
Appendix: C The example for how to connect Netbeans and Mysql	

## **1. INTRODUCTION**

In international markets we must be able to localize our products and services. Computer and software industry is often considered so international that there is no need for localization. However, that is not true because for example in Chinese market you must be able to use local characters and symbols. Now there are many problems to implement Chinese letters to MHG ERP framework. The software developed by the company must can be understood by Chinese people if they what to sell it in Chinese market. We need to implement Chinese to MHG ERP framework and documents all steps and possible changes.

The aim of the study is mainly to learn about NetBeans IceFaces 1.8.2 project and the use of ResourceBundle. MySql knowledge is also required in the whole project.

The structure of the study is as follows. Firstly, I will introduce the basic knowledge in Chapter 2.

Secondly, I will tell something about MySQL in Chapter 3. How to connect the NetBeans and MySQL, as well as how to built the work environment are the main topics which I want to talk about in this chapter.

Then Chapter 4 describes the whole work I have done in MHG ERP framework. It is mainly the translation from English to Chinese. In addition, the test results and the outcome of the whole software will also be shown.

Finally in Chapter 5, final conclusions are identified.

## 2. BASIC KNOWLEDGE

### 2.1 IceFaces part

#### 2.11 The introduction of IceFaces

“ICEfaces is an open source Ajax framework that enables Java EE application developers to create and deploy server-based rich Internet application (RIA) using the Java language.”

“ICEfaces leverages the entire standards-based Java EE ecosystem of tools and execution environments. Rich enterprise application features are developed in pure Java, and in a pure thin-client model. There are no Applets or proprietary browser plug-ins required. ICEfaces applications are JavaServer Faces (JSF) applications, so Java EE application development skills apply directly and Java developers are isolated from doing any JavaScript related development.”[1]

The figure2.1 shows the combine chart types below.

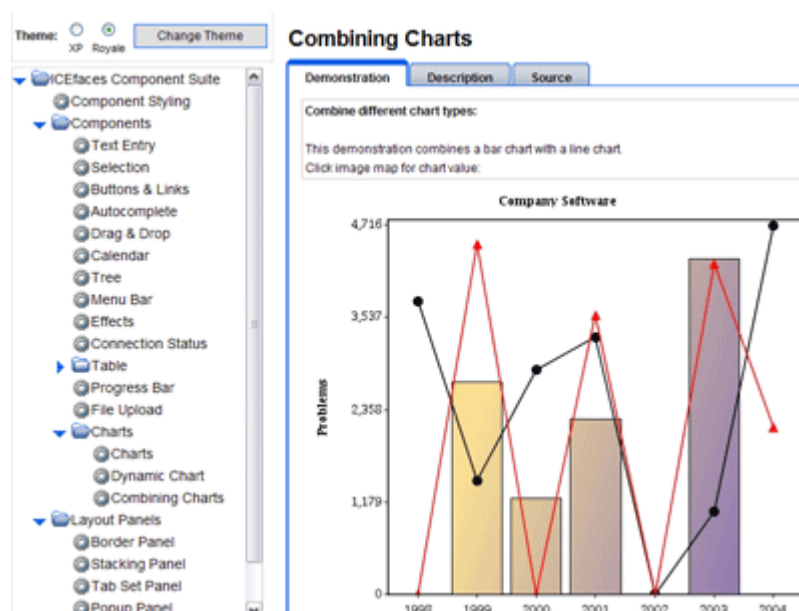


Figure2.1 Combining Charts



## 2.12 How to install IceFaces

Download and unzip **ICEfaces-1.8.2-Netbeans-6.7-modules.zip** to a local directory. After the zip file is unzipped, a subdirectory named “nbms” with 2 .nbm files:

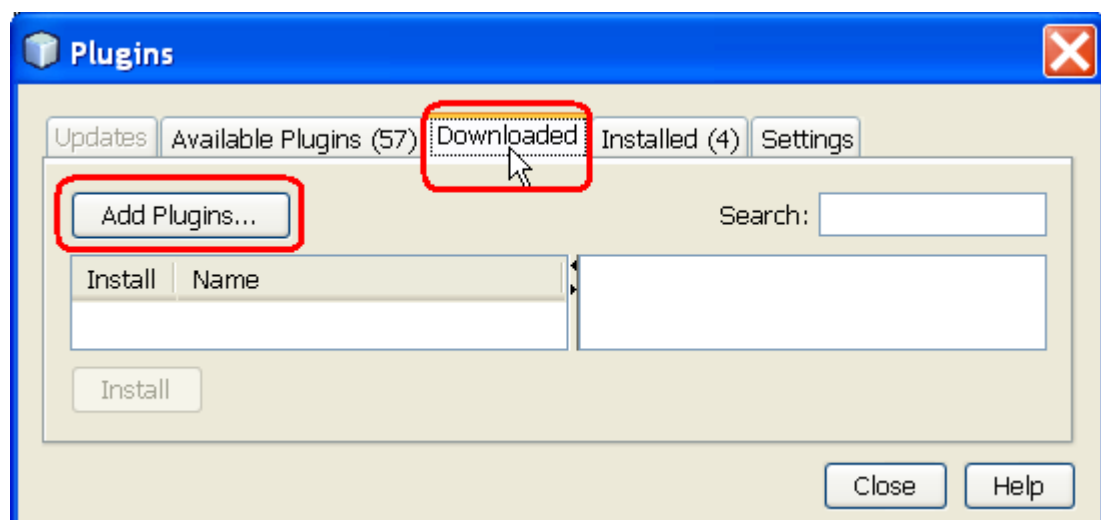
- org-icefaces-netbeans-modules-web-frameworks.nbm ICEfaces Project

Integration

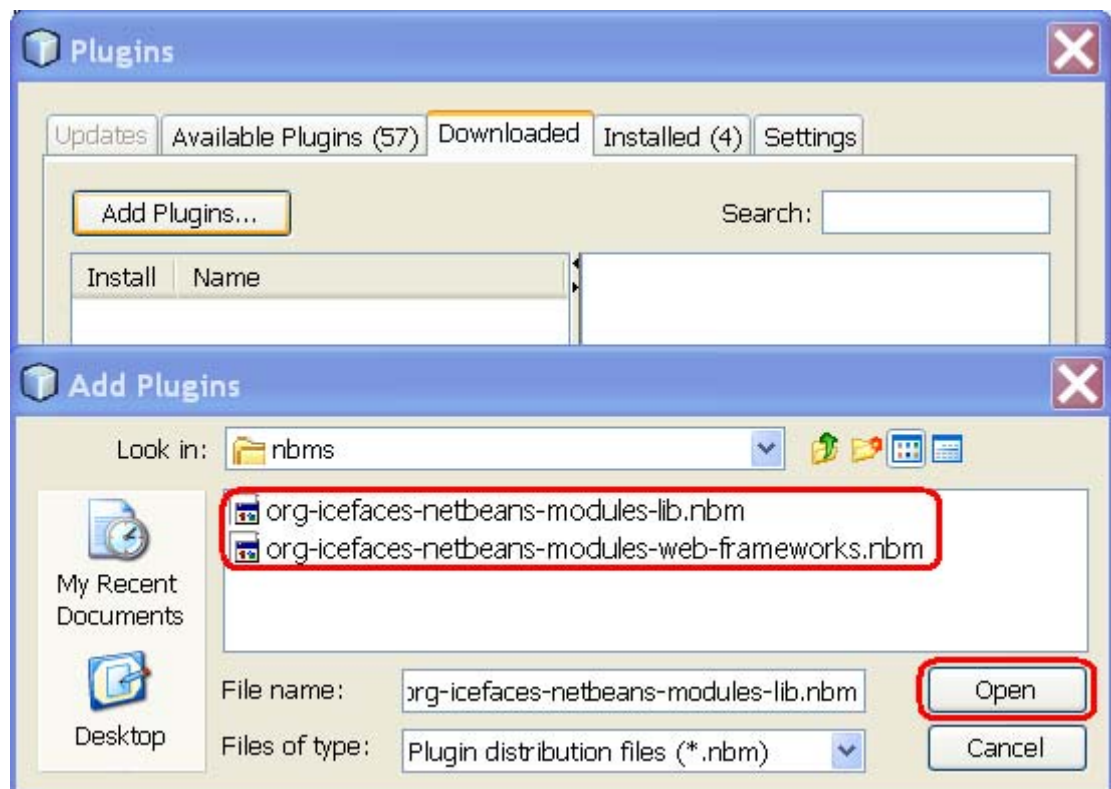
- org-icefaces-netbeans-modules-lib.nbm ICEfaces Run-Time Libraries

Following instructions describe how to install ICEfaces Project Integration and ICEfaces Run-Time Libraries.

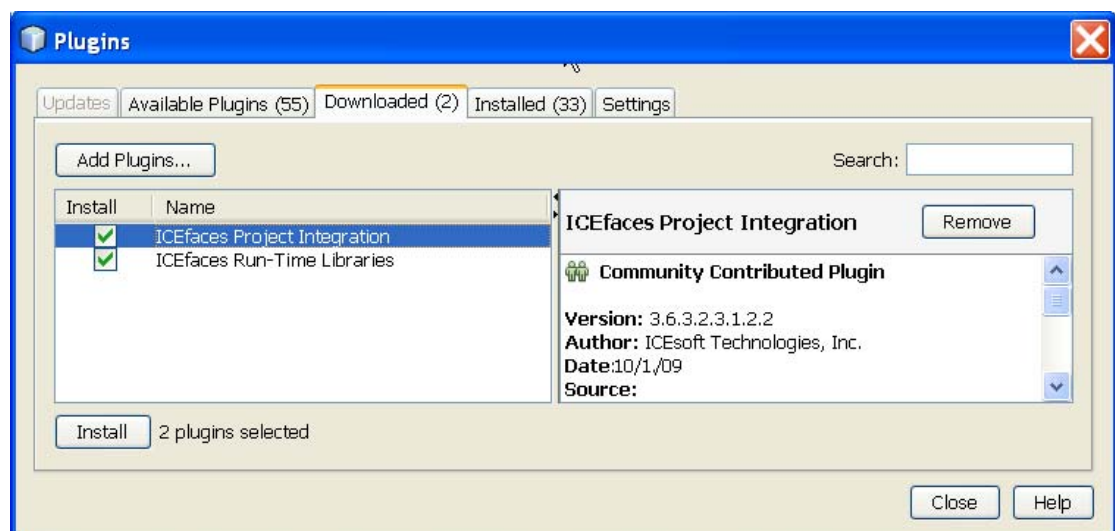
1. From the main menu bar, select **Tools --> Plugins**.
2. Select **Downloaded** tab in Plugins installation wizard and click **Add Plugins...** button.



3. In Add Plugins file dialog, navigate to the directory where **ICEfaces-1.8.2-Netbeans-6.7-modules.zip** was unzipped. Navigate to nbms subdirectory and select **org-icefaces-netbeansmodules-lib.nbm** module and later on **org-icefaces-netbeans-modules-web-frameworks.nbm** module. Click **Open** button.



4. In Plugins installation wizard, check the **Install** checkboxes beside ICEfaces Run-TimeLibraries and ICEfaces Project Integration, and click **Install** button.



5. In following dialogs, accept license agreement, follow instructions and finally press **Close** button.

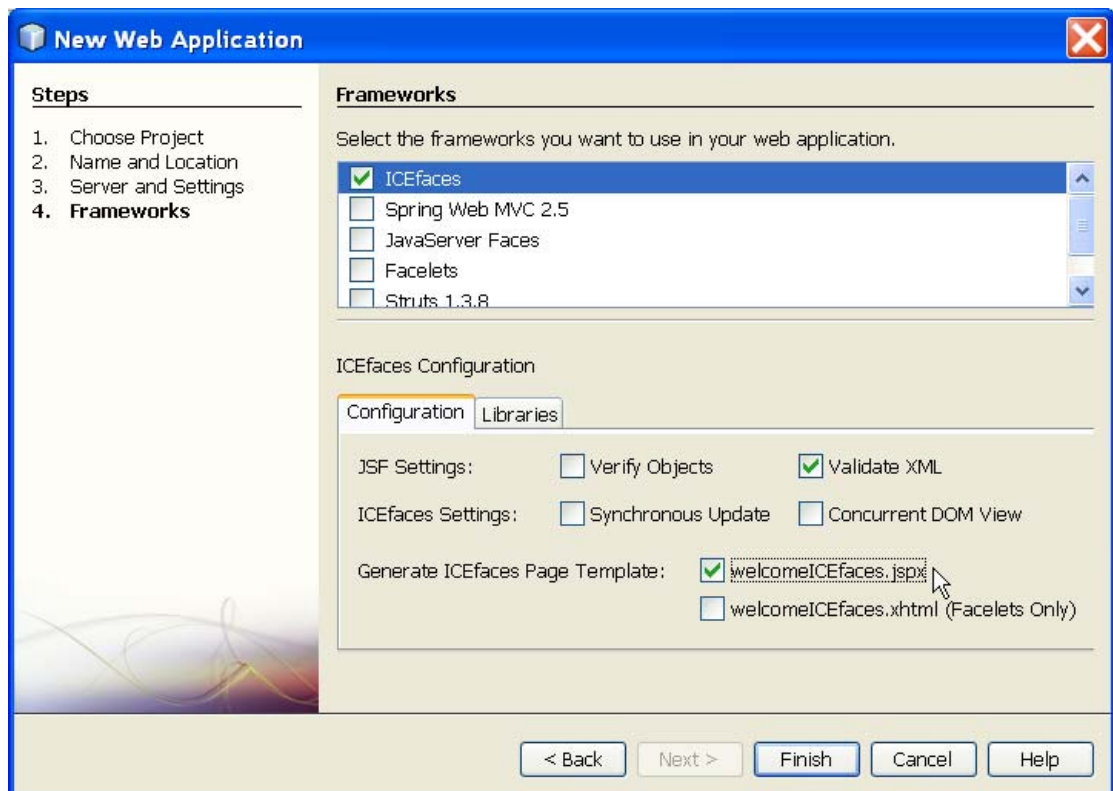
Please note that un-install any previous versions of the ICEfaces Project

Integration prior to installing this plugin.

## 2.13 Add ICEfaces Framework

In order to create a web project with ICEfaces support, adding ICEfaces Framework to the web projects required. Follow these steps to create ICEfaces web project.

1. From main menu bar, choose **File** → **New Project...** → **Java Web** → **Web Application** and press **Next >** button
2. In Name and Location view, enter Name and Location of your project, and press **Next >** button
3. In Server and Settings view, select runtime server, Java EE Version, and press **Next >** button
4. In Frameworks view, press Configuration tab and select **ICEfaces**. (**Do not select JavaServer Faces Framework here.**) Select ICEfaces template as well. If this ICEfaces project is not ICEfaces Facelets project, check `welcomeICEfaces.jspx` and uncheck `welcomeICEfaces.xhtml`. For ICEfaces Facelets project, see next section **Add ICEfaces Facelets Framework**.



5. Enter any desired parameters in the options dialog.

6. Click **Finish**.

## 2.14 Add ICEfaces Facelets Framework

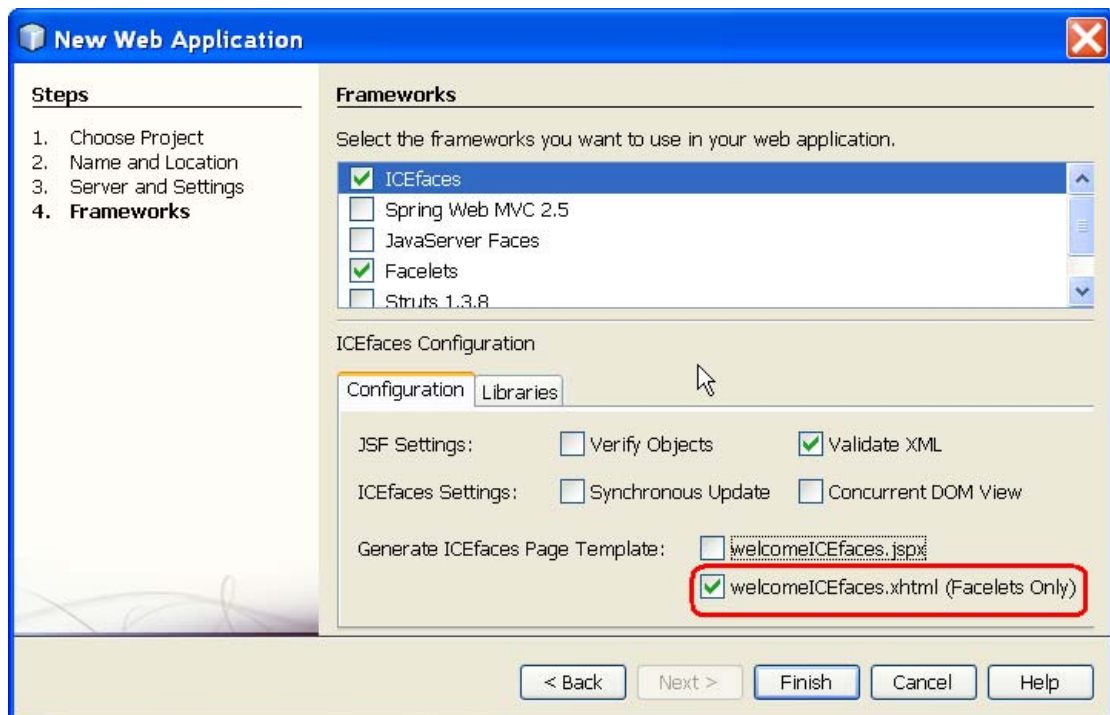
In order to create a web project with ICEfaces Facelets framework support in Netbeans v6.7, Facelets support module is also required. Facelets module is available from Netbeans' update center and can be downloaded and installed as follows:

1. From the main menu bar select Tools->Plugins
2. Click the Available Plugins tab, select Facelets Support, and click Install.
3. Click Next.

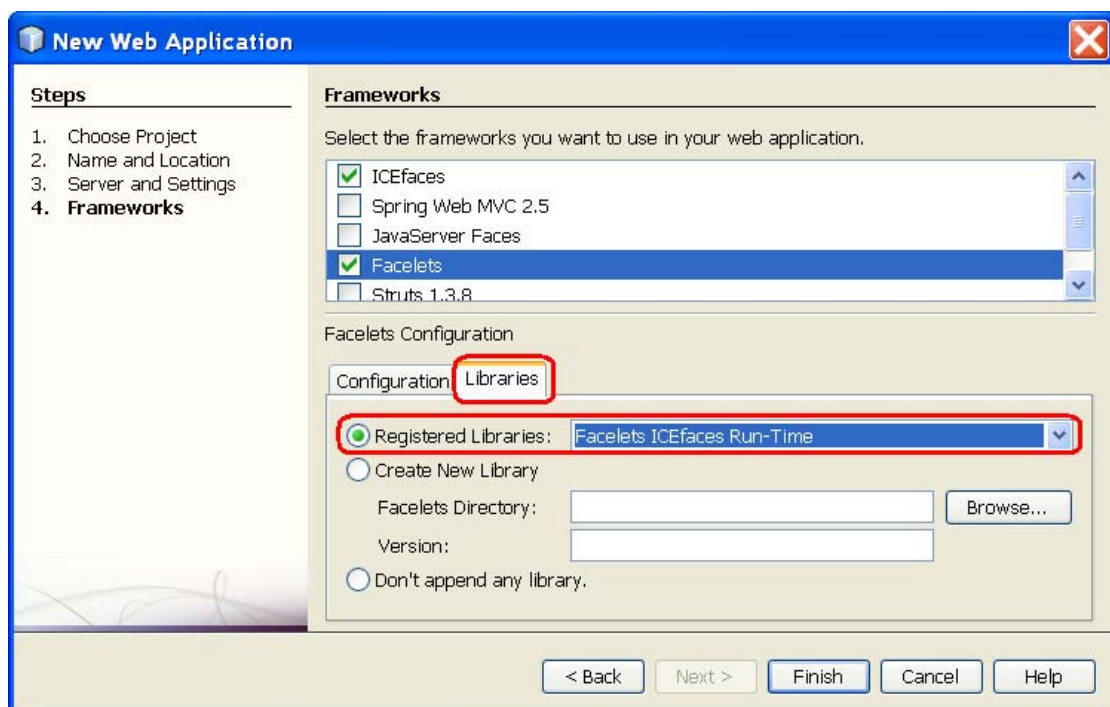
4. Check the License Agreement accept box and click Install.
5. After the plugins are installed, click Finish, then Close.

Following these steps to create ICEfaces Facelets web project.

1. From main menu bar, choose **File** → **New Project...** → **Java Web** → **Web Application** and press **Next >** button
2. In Name and Location view, enter Name and Location of your project, and press **Next >** button
3. In Server and Settings view, select runtime server, Java EE Version, and press **Next >** button
4. In Frameworks view, select ICEfaces and Facelets frameworks. **Please do not select JavaServer Faces.**
5. Still in Frameworks view, highlight **ICEfaces** framework and click **Configuration** tab in ICEfaces Configuration pane. Check `welcomeICEfaces.xhtml` and un-check `welcomeICEfaces.jspx`



6. Still in Frameworks view, highlight **Facelets** framework and click **Libraries** tab in **Facelets Configuration** pane. Select **Facelets ICEfaces Run-Time** library from Registered Libraries.[2]



## 2.2 Class `java.util.ResourceBundle`

`public abstract class ResourceBundle extends Object`

The following class of parent:

`ListResourceBundle`, `PropertyResourceBundle`, `ResourceBundles` contain locale-specific objects.

When the program needs a locale-specific resources, like String, program can load it in the resource bundle which is suitable for the environment of the current user. In this way, you can write most of code which independent of user language environment. It separates from the information of the most resources which are specific to the language environment. This can make the program:

1. Easily localized, or translated into different languages
2. With multilingual environment
3. Can be easily changed the environment to support more languages in future

A resource bundle is conceptually a collection of related classes, those classes are inherited from `ResourceBundle`. Each relevant sub-class of `ResourceBundle` has the same base name and logo of its language environment with additional components. For example, suppose your name of the resource bundle is `MyResource`. The first class you write may be the default resource bundle. It and its family has the same name-`MyResource`. You also can provide locale-specific classes as required. Like, you can give it a German name `MyResources_de`.

Each related subclass of `ResourceBundle` has the same program. The program has been translated by the language environment which described by the subclass of `ResourceBundle`. For example, `MyResources` and `MyResources_de` may have a confirmation operation with a button in the String. In `MyResources`,

String may contain OK, in MyResources\_de, it may contain Gut. We may make provision if different countries have different resources, For example:MyResource\_de\_CH is the resource of Switzerland. If you just want change a part of the resource,you can do this:

when your program needs the special object of the language environment, it uses getBundle method to load ResourceBundle class:

```
ResourceBundle myResources =
    ResourceBundle.getBundle("MyResources", currentLocale);
```

The first parameter specifies the family name of resource bundle which contains the doubt object. The second parameter specifies the desired locale. GetBundle use the two parameters to creat the name of the subclass of the ResourceBundle. It should be loaded with the following method:

ResourceBundle uses different suffix to find class,base on (1)the desired language environment (2)the default language environment:

```
baseclass + "_" + language1 + "_" + country1 + "_" + variant1
baseclass + "_" + language1 + "_" + country1
baseclass + "_" + language1
baseclass
baseclass + "_" + language2 + "_" + country2 + "_" + variant2
baseclass + "_" + language2 + "_" + country2
baseclass + "_" + language2
```

The result of the search is a class, but this class may be supported by special files in the disk. If the search fails, getBundle() will throw MissingResourceException exception.

The base class must be fully qualified. It must be the code which is runnable, not the private class of the ResourceBundle.getBundle package



Resource bundles contain Key, Key is the only object which can identify the special language environment of the Resource bundles. Following is an example which contains the key of ListResourceBundle.[3]

```
class MyResource extends ListResourceBundle {
    public Object[][] getContents() {
        return contents;
    }
    static final Object[][] contents = {
        // LOCALIZE THIS
        {"OkKey", "OK"},
        {"CancelKey", "Cancel"},
        // END OF MATERIAL TO LOCALIZE
    };
}
```

The key always is String. In this example, keys are OkKey and CancelKey. In the example upside, the values are String—OK and Cancel. But they may be not like this. The values can be any object.

Use the appropriate access method from the resource bundle to get an object. Because OkKey and CancelKey are string. We can search them using getString method.

```
button1 = new Button(myResourceBundle.getString("OkKey"));
button2 = new Button(myResourceBundle.getString("CancelKey"));
```

Access methods require the key as a parameter, and if found, then returned this object. If the object is not found, access method throws exception MissingResourceException.

## 2.3 Make Netbeans Icefaces project

### 2.31 Define the properties files

When I write the content of the ResourceBundle. I named two languages in the properties files. One is Chinese and one is English.

myres.properties:

aaa=good

bbb=thanks

myres\_en\_US.properties:

aaa=good

bbb=thanks

myres\_zh\_CN.properties:

aaa=好的

bbb=多谢

### 2.32. Creat the project and write the code of the web

When creating the project, we must down load the Icefaces and use it as the framework.

This is the code of the web page:

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<jsp:root version="2.1" xmlns:f="http://java.sun.com/jsf/core"
```

```
xmlns:h="http://java.sun.com/jsf/html"
```

```
xmlns:jsp="http://java.sun.com/JSP/Page"
```

```
xmlns:ice="http://www.icesoft.com/icefaces/component">

    <jsp:directive.page                contentType="text/html;charset=UTF-8"
pageEncoding="UTF-8"/>

    <f:view>
        <html lang='zh'>
            <head>
                <title>TODO JSP Page</title>
            </head>
            <body>

                <form method="POST" action="NewServlet">

                    <input type="submit" name="submit" value="中文">
                    </input>

                    <input type="submit" name="submit" value="English">
                    </input>
                </form>
            </body>
        </html>
    </f:view>
</jsp:root>
```

Notice: In the "NewServlet" we define the action of the button.

The code of the NewServlet:

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import java.util.Locale;
import java.util.ResourceBundle;

public class NewServlet extends HttpServlet {
    protected void processRequest(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {

        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        String x=(String)request.getParameter("submit");

        if(x.equals("English")){

            Locale locale3 = new Locale("en", "US");
            ResourceBundle resb3 =
ResourceBundle.getBundle("myres", locale3);

            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet NewServlet</title>");
            out.println("</head>");
```

```

        out.println("<body>");
        out.println("<h1>" + resb3.getString("aaa") + "</h1>");
        out.println("</body>");
        out.println("</html>");
    }
    else{

```

```

        Locale locale1 = new Locale("zh", "CN");
        ResourceBundle resb1 =
ResourceBundle.getBundle("myres", locale1);

```

```

        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet NewServlet</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1>" + resb1.getString("aaa") + "</h1>");
        out.println("</body>");
        out.println("</html>");

    }

```

```

}

```

### 2.33 The result of the project.



When you click the “中文” button, it will show the web page written in Chinese;

好的

When you click the “English” button it will show the web page written in English

good

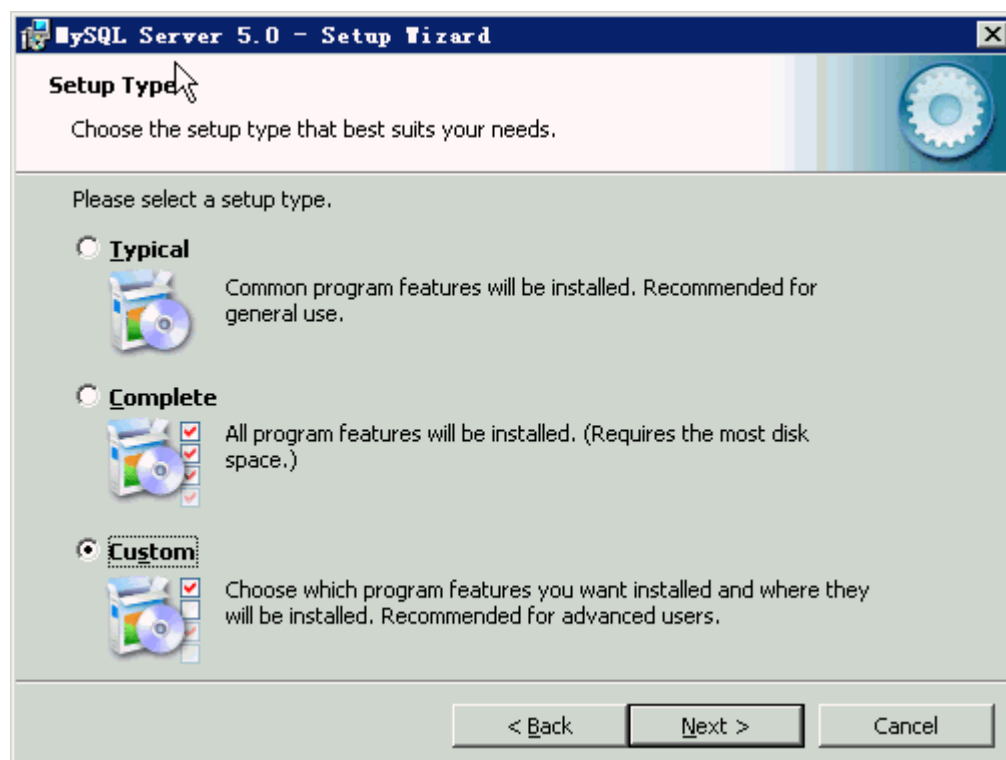
### 3.HOW TO CONNECT MMYSQL WITH NETBEANS

#### 3.1 Installation and Configuration

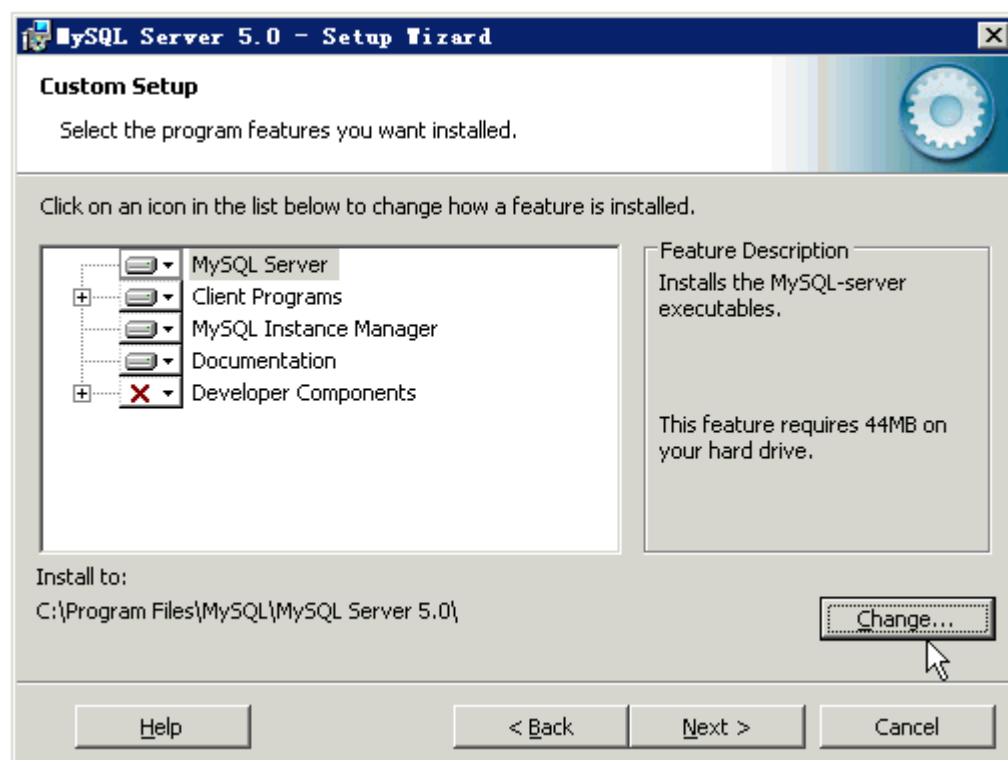
##### 3.11 Basic installation of MYSQL

First download **MYSQL5.0** then we begin to install it Step by step:

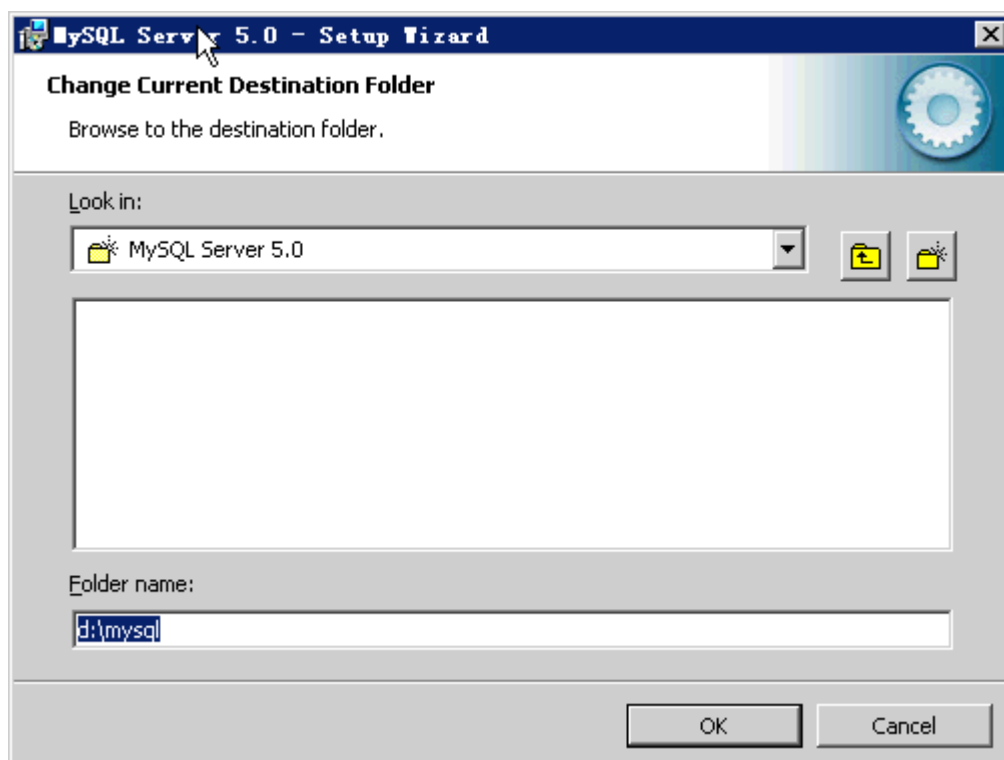




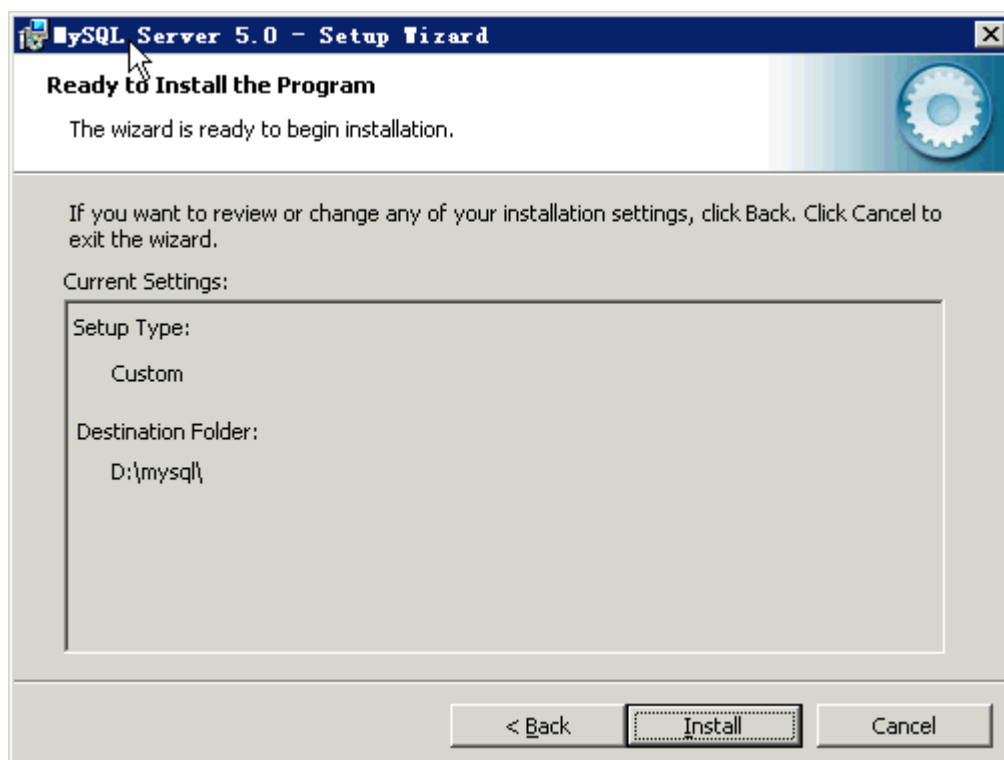
Please note that image above select Custom option, so as to modify the installation directory

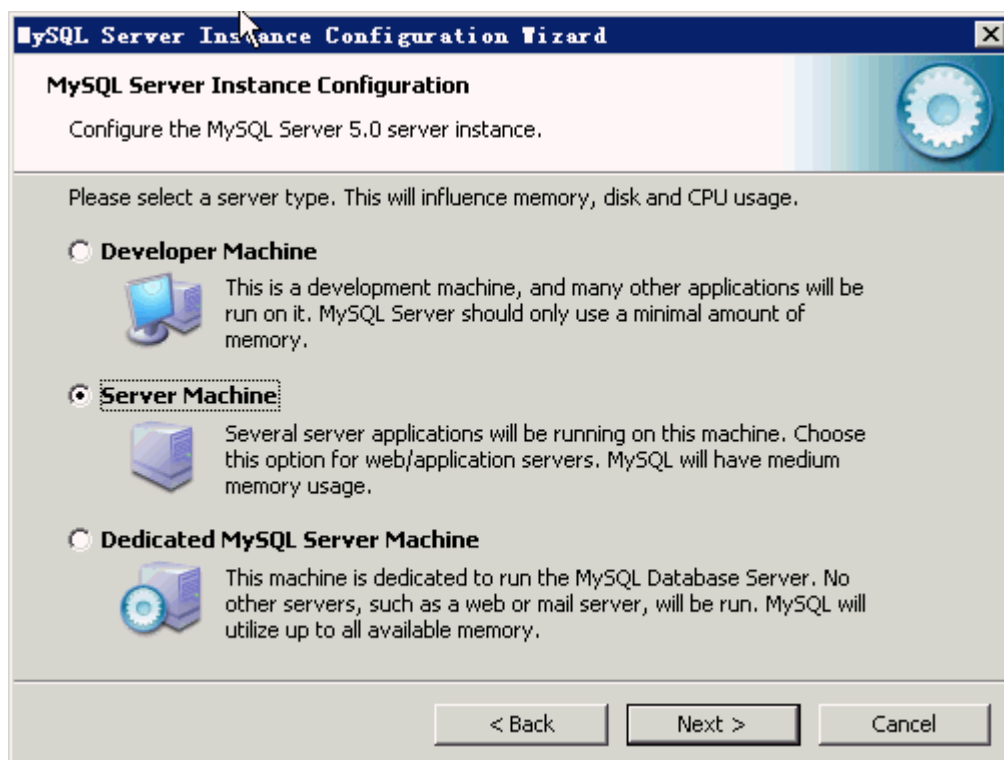
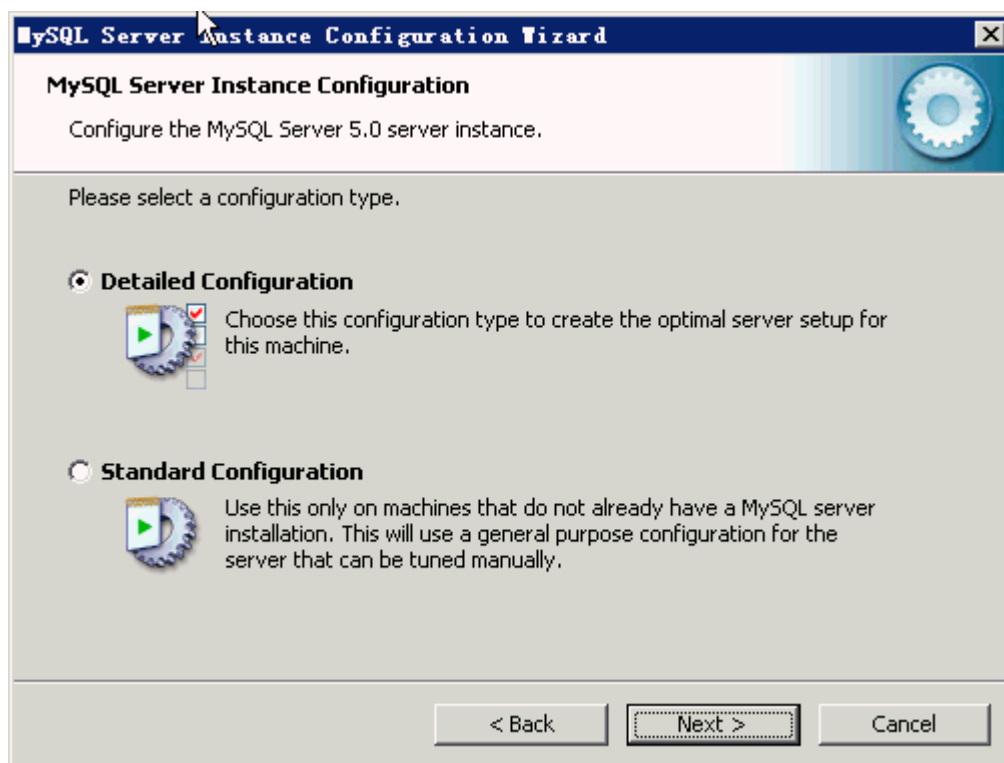


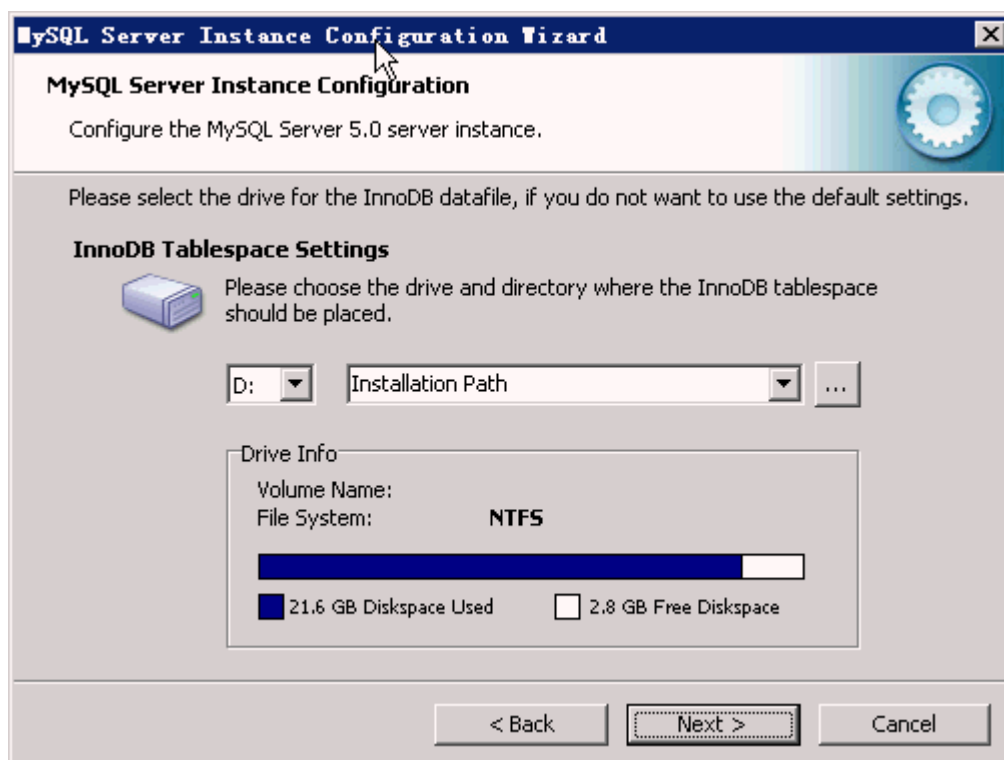
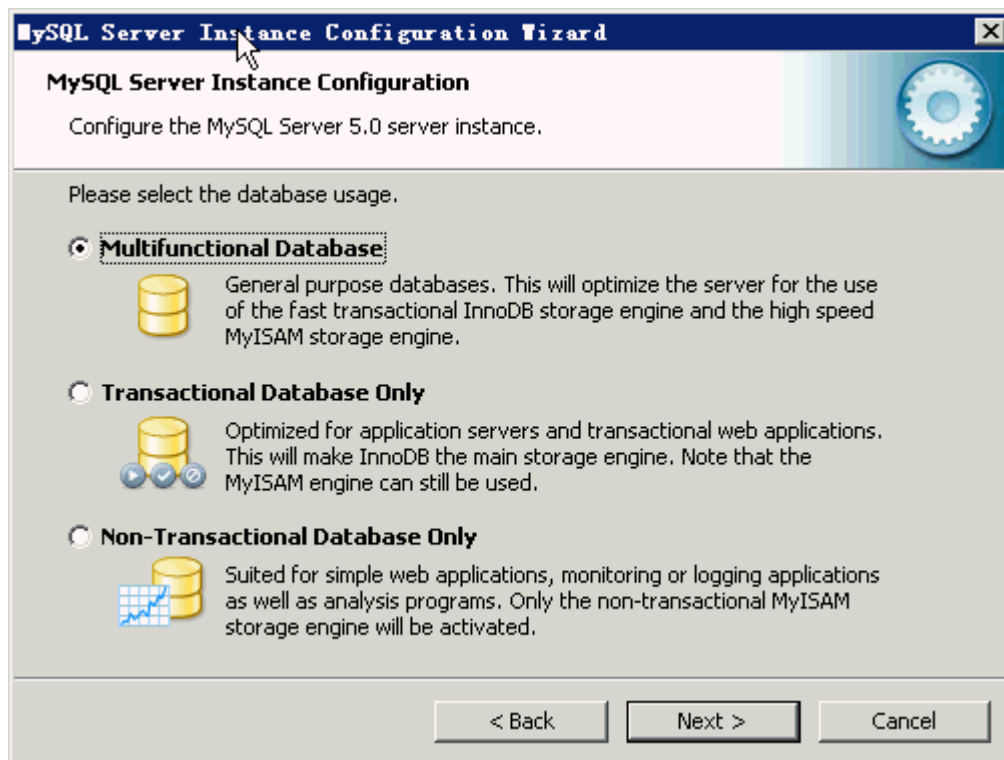


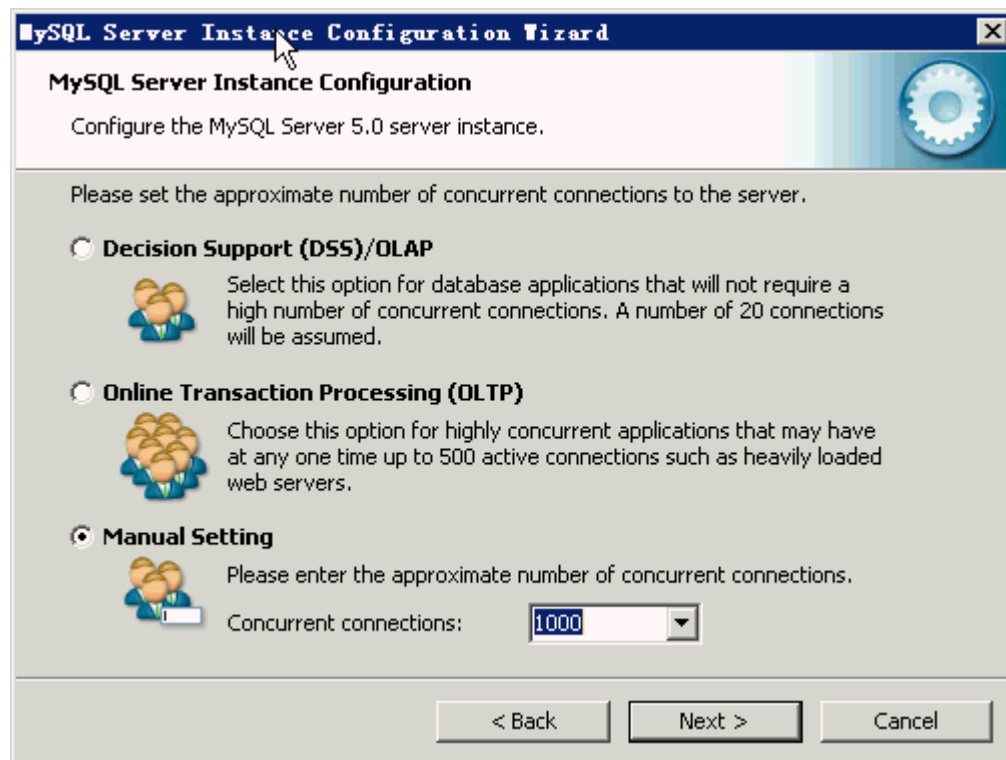


Please note that for data security, not to mysql installed on the system disk, such as the C: drive

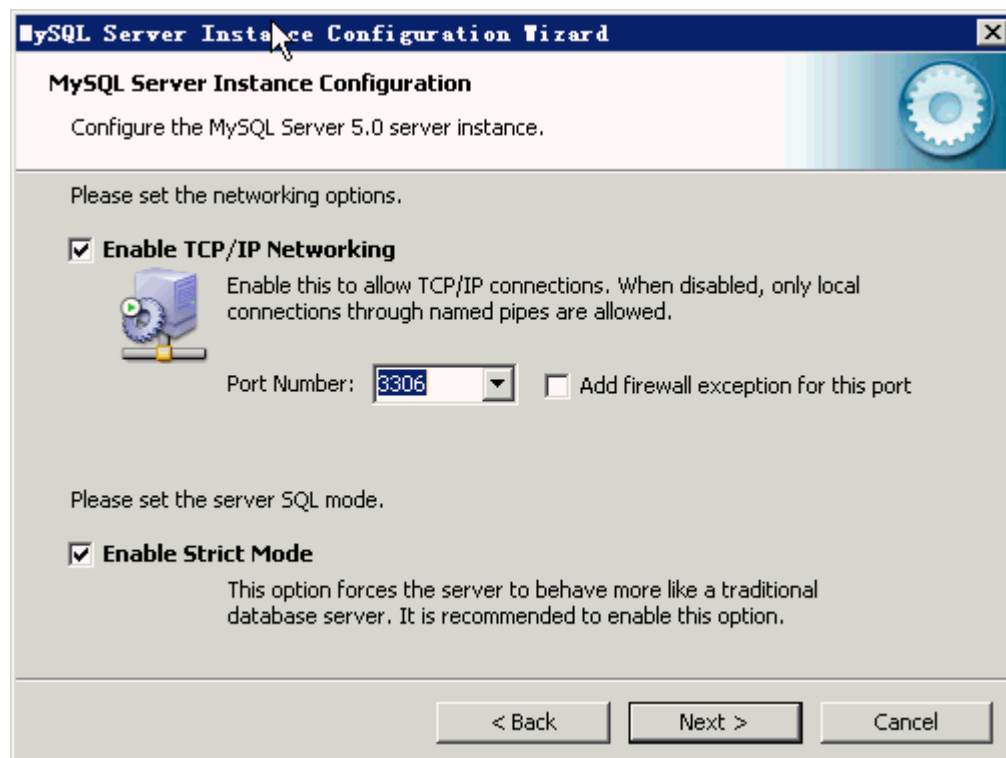


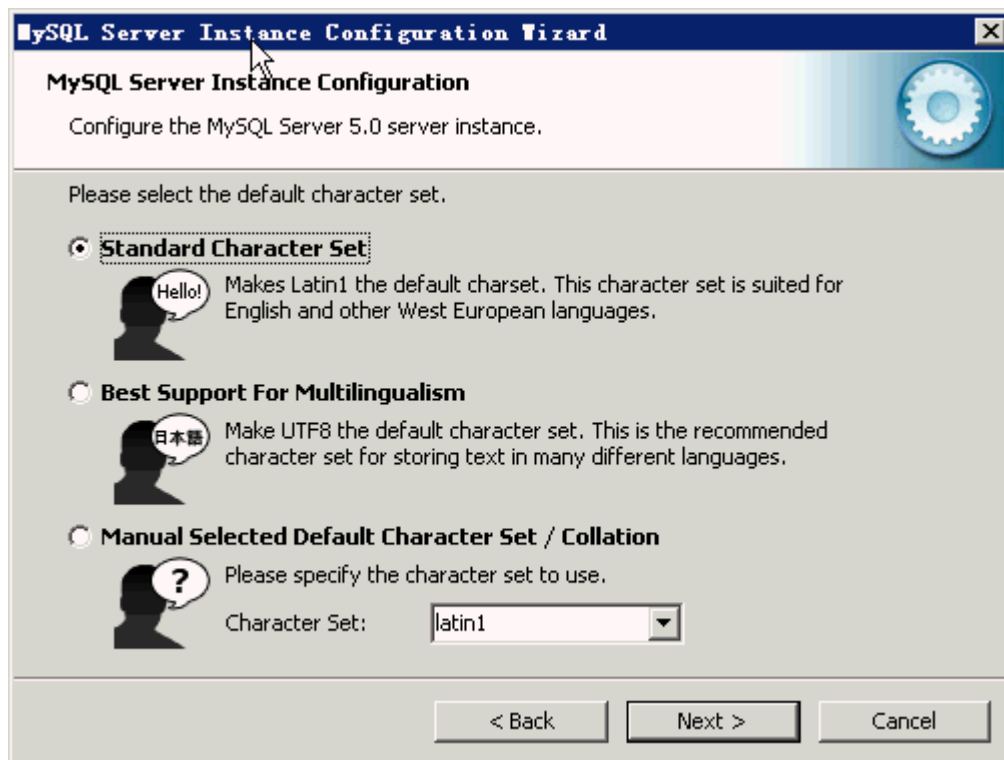






Please note the image above setting, the number of simultaneous connections to mysql to 1000





Please note that image above, MYSQL service name of the selected "MYSQL", do not use other symbols



The screenshot shows the 'MySQL Server Instance Configuration Wizard' window. The title bar reads 'MySQL Server Instance Configuration Wizard'. The main heading is 'MySQL Server Instance Configuration' with a subtitle 'Configure the MySQL Server 5.0 server instance.' Below this, it says 'Please set the security options.' There are two main sections. The first is 'Modify Security Settings', which is checked. It contains a 'New root password' field with a masked password '\*\*\*\*\*', a 'Confirm' field with a masked password '\*\*\*\*\*', and an unchecked checkbox for 'Enable root access from remote machines'. The second section is 'Create An Anonymous Account', which is unchecked. It features a question mark icon and a warning: 'This option will create an anonymous account on this server. Please note that this can lead to an insecure system.' At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.0 server instance.

Please set the security options.


☒ **Modify Security Settings**

 New root password:  Enter the root password.

 Confirm:  Retype the password.

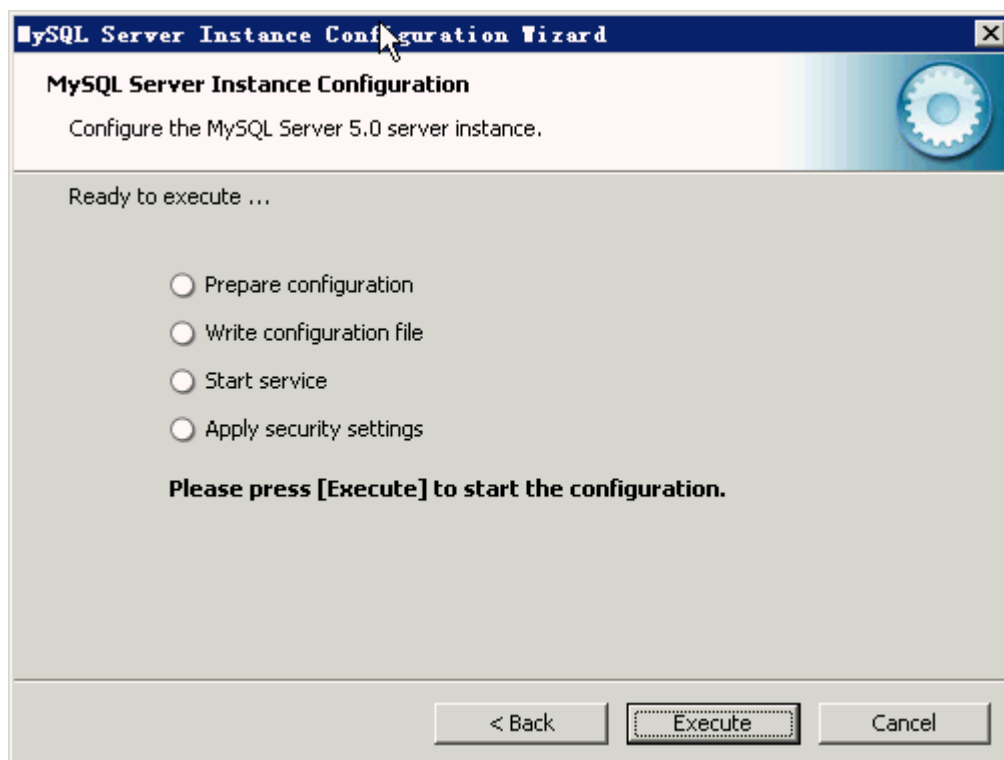
☐ Enable root access from remote machines

☐ **Create An Anonymous Account**

 This option will create an anonymous account on this server. Please note that this can lead to an insecure system.

< Back   Next >   Cancel

The password you create here is the password for login



The screenshot shows the 'MySQL Server Instance Configuration Wizard' window at the 'Ready to execute' step. The title bar reads 'MySQL Server Instance Configuration Wizard'. The main heading is 'MySQL Server Instance Configuration' with a subtitle 'Configure the MySQL Server 5.0 server instance.' Below this, it says 'Ready to execute ...'. There are four radio button options: 'Prepare configuration', 'Write configuration file', 'Start service', and 'Apply security settings'. Below these options, it says 'Please press [Execute] to start the configuration.' At the bottom, there are three buttons: '< Back', 'Execute', and 'Cancel'.

MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.0 server instance.

Ready to execute ...

☐ Prepare configuration

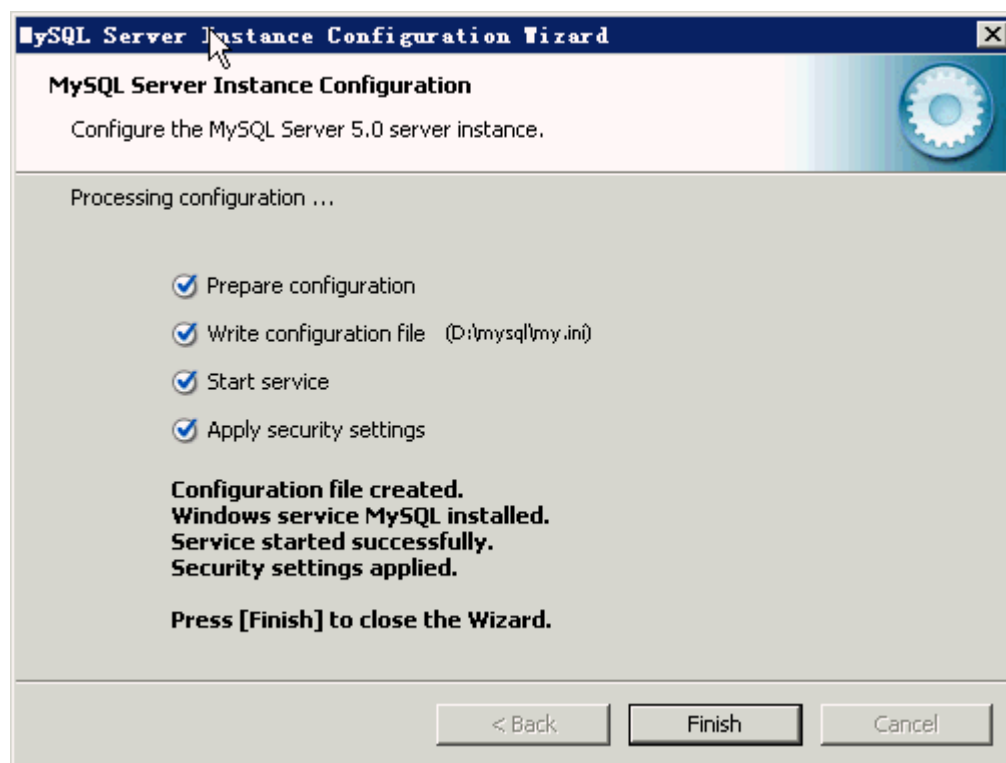
☐ Write configuration file

☐ Start service

☐ Apply security settings

**Please press [Execute] to start the configuration.**

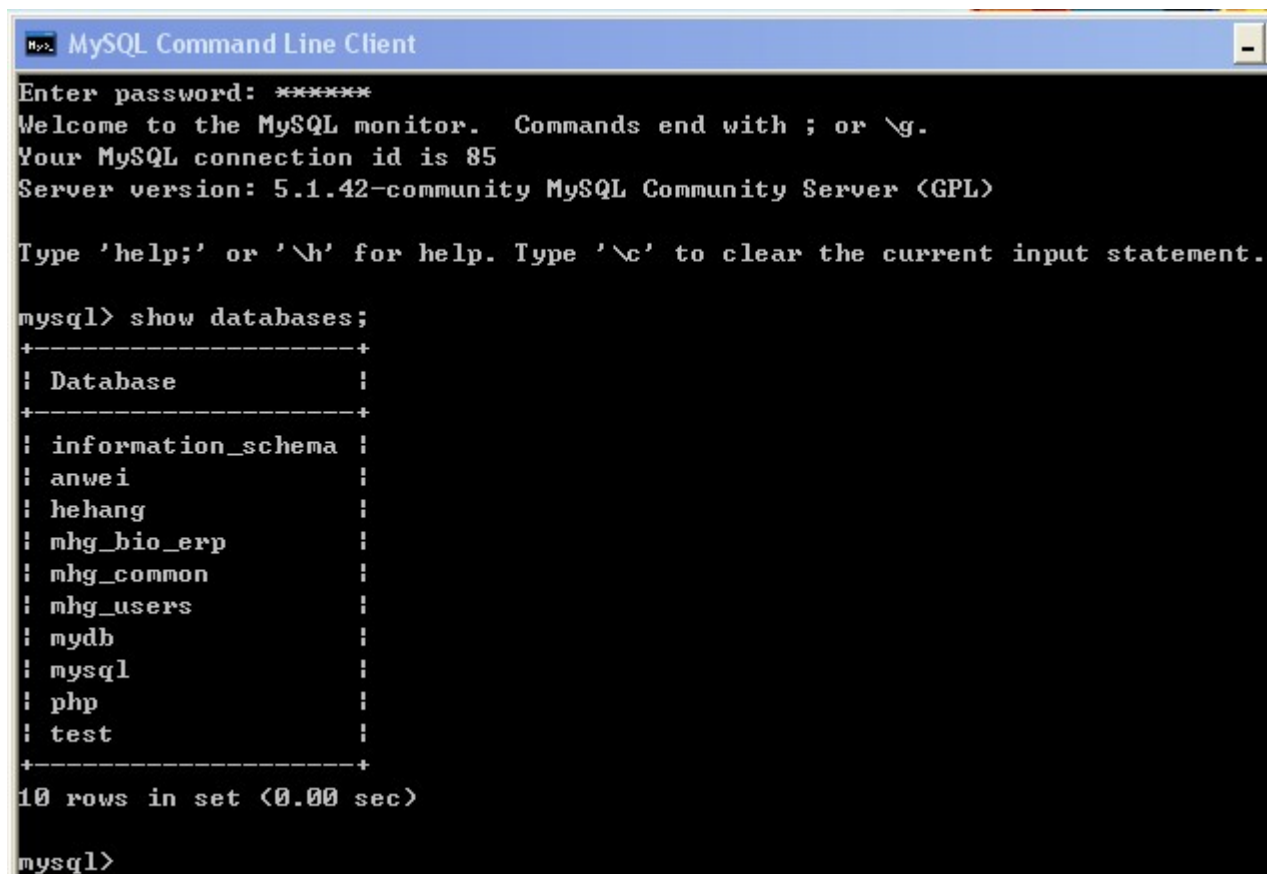
< Back   Execute   Cancel



Then we finish the installation of the MYSQL

### 3.12 Configuration with MySQL

Start the Command-line client of MySQL and enter the password of it. Then create a database named “mydb” by command “create database test”. We can check whether the database is created successfully by the command “show databases”[7]



```
MySQL Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 85
Server version: 5.1.42-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| anwei      |
| hehang    |
| mhg_bio_erp |
| mhg_common |
| mhg_users  |
| mydb       |
| mysql      |
| php        |
| test       |
+-----+
10 rows in set (0.00 sec)

mysql>
```

### 3.13. Add mysql-connector-java to NetBeans

First download mysql-connector-java from the internet. Then open the database view and click right to add a new driver to the drivers.



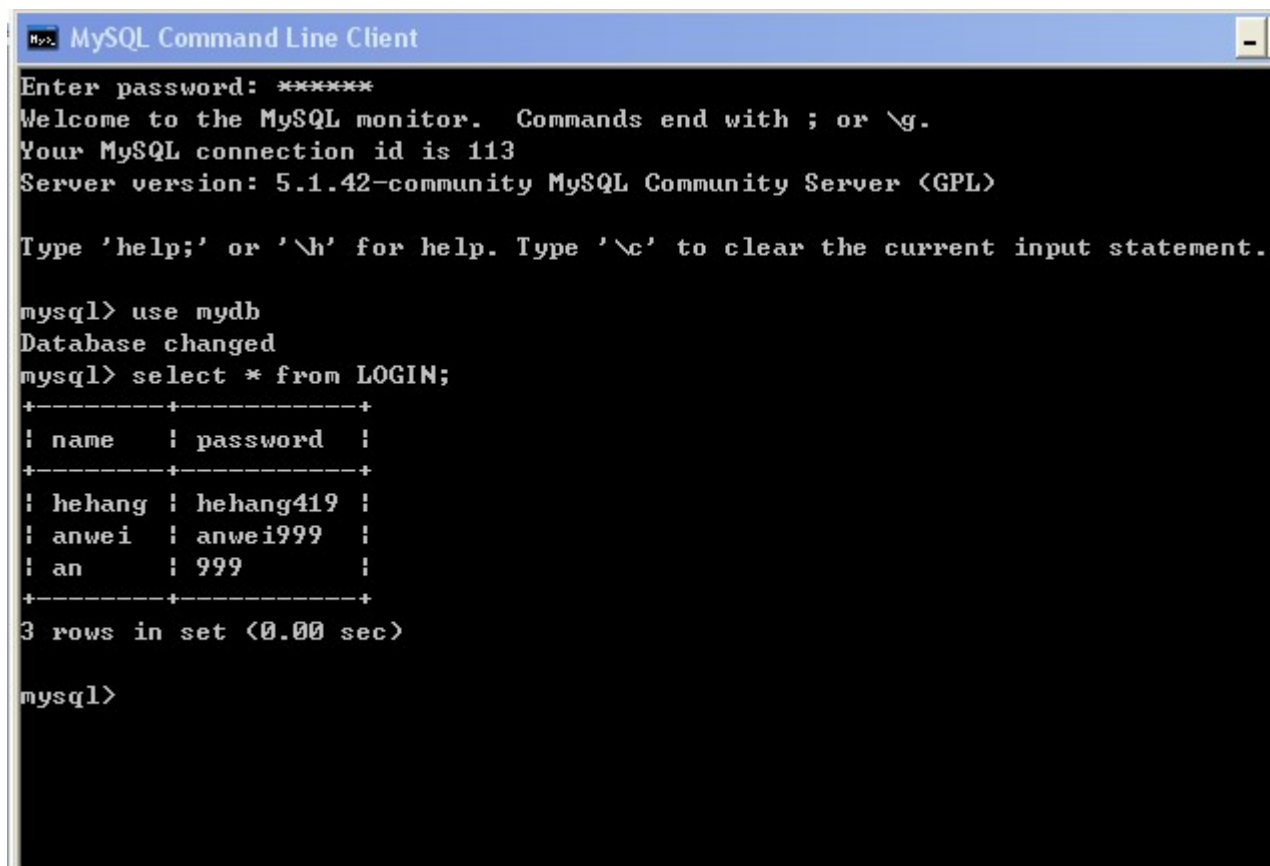


After this we have the MySQL (connector/J driver) in the driver



### 3.2 The example of creating a connection between MySQL and NetBeans.

First, I create an database named "mydb" and there is a table named "LOGIN" inside. The table have two rows:"name" and "password". Then I insert some values into the table.



```

MySQL Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 113
Server version: 5.1.42-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement

mysql> use mydb
Database changed
mysql> select * from LOGIN;
+-----+-----+
| name  | password |
+-----+-----+
| hehang | hehang419 |
| anwei  | anwei999 |
| an     | 999      |
+-----+-----+
3 rows in set (0.00 sec)

mysql>

```

Then create a new Java project in NetBeans named “NewClass”

This is the code of “NewClass”:

```
import java.sql.*;
```

```
public class NewClass {
```

```
    public static void main(String[] args) {
```

```
        String user = "root";
```

```
        String password = "hehang";
```

```
        String url = "jdbc:mysql://localhost:3306/mydb";
```

```
        String driver = "com.mysql.jdbc.Driver";
```

```
        String tableName = "LOGIN";
```

```
        String sqlstr;
```

```
        Connection con = null;
```

```

Statement stmt = null;
ResultSet rs = null;
try{
    Class.forName(driver);
    con = DriverManager.getConnection(url, user,
password);

    stmt = con.createStatement();
    sqlstr = "insert into "+tableName+" values ('hanna','12345')";
    stmt.executeUpdate(sqlstr);

    sqlstr = "select * from "+tableName;
    rs = stmt.executeQuery(sqlstr);
    ResultSetMetaData rsmd = rs.getMetaData();
    int j = 0;
    j = rsmd.getColumnCount();
    for(int k = 0; k<j; k++)
    {
        System.out.print(rsmd.getColumnName(k+1));
        System.out.print("\t");
    }
    System.out.println();
    while(rs.next())
    {
        for(int i=0;i<j;i++)
        {
            System.out.print(rs.getString(i+1));
            System.out.print("\t");
        }
        System.out.println();
    }
}

```

```

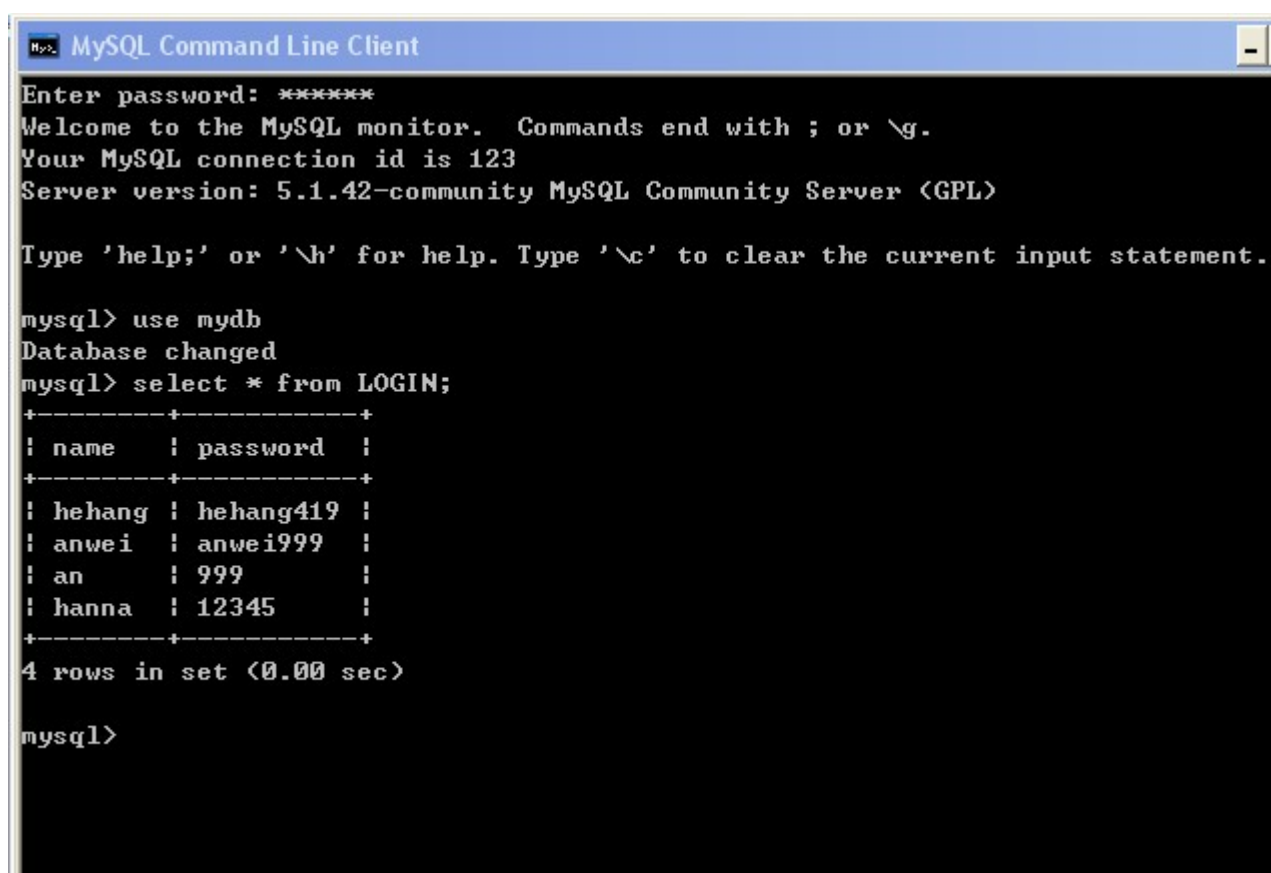
catch(ClassNotFoundException e1)
{
    System.out.println("Not found the database! ");
    System.out.println(e1.toString());
}
catch(SQLException e2)
{
    System.out.println("Exception of the database! ");
    System.out.println(e2.toString());
}
finally
{
    try
    {
        if(rs != null) rs.close();
        if(stmt != null) stmt.close();
        if(con != null) con.close();
    }
    catch(SQLException e)
    {
        System.out.println(e.toString());
    }
}
}
}

```

The function of the code is adding a name "hanna" and password "12345" to the table "LOGIN". Then select the values in the table as well as show all the values.



We also can see the result of the database after executing the program.



So we can see that the connection has been created successfully.

## **4.MHG ERP WORK**

### **4.1 What is ERP?**

ERP is short for Enterprise Resource Planning. It is a new generation of integrated management information systems which developed from MRP(Material Resource Plan).

It extends the function of MRP, the core idea is to supply chain management. It jumped out of the traditional enterprise boundaries, the scope of the supply chain to optimize resources, is a new generation of Web-based Economy Information System. The role which improved business processes, enhancing the core competence of it is obvious.

ERP started from the beginning in 80 years of twenty century. SAP, Oracle, represented by the famous international ERP products started in 90years.

Characteristics and core of the ERP system are the following:

- 1.Applications system which internal management enterprise needed, mainly refer to financial, logistics, human resources and other core modules.
- 2.Logistics management system uses the MRP manufacturing management thought; FMIS effective implementation of the budget management, business assessment, management and accounting
- 3.ABC Cost Absorption methods of modern basic financial management; human resources management system in organization design, position management, salary system and Human resources development, also advanced the concept of integrated

4.ERP system is a company-wide applications, highly integrated systems. Data in a high degree of sharing between the various business systems, all source data in one system only enter once, to ensure data consistency.

5.The company's internal business processes and management processes are optimized, the main business processes automated.

6.Mainstream computer uses the latest technology and architecture: B / S, INTERNET architecture, WINDOWS interface. Able to communicate in places where you can easily access to the system.

7.Integrated, advanced, unity, integrity, openness

Common function modules of ERP system:

Forecast;

Order management;

Sale analysis;

Purchasing management;

Inventory management ;

Inventory control ;

Asset maintenance;

Transportation management;

Master Production Schedule(MPS);

Product Data Management(PDM);

Material Requirements Planning(MRP) ;

Capacity Requirements Planning(CRP)

Distribution Requirements Planning(DRP);

Shop floor Control(SFC);

Quality Management;

Product Configuration Management;

Work Flow Management;  
 Repetitive Manufacturing;  
 General Ledger ;  
 Accounts receivable(AR);  
 Accounts payable (AP) ;  
 Wage fixed;  
 Cash;  
 Manage cost;  
 Multi-Currency Processing ;  
 Human Resource Management;

With the development of the new management ideas and emerging information .It will inevitably bring about the contents of ERP systems management software extensive and more functional modules. Even though, from the point of view of basic principles, ERP software system should include the basis of basic data management, production planning, production management, and supply and marketing management, financial and cost management, auditing and statistical analysis, six aspects.[4]

## **4.2 The background of the whole MHG ERP work**

“MHG ERP is a platform and user interface independent service which can be used practically anywhere in the world, as it can be set to utilize several maps like national raster maps, Google Premium Maps, satellite and customer’s own maps.”

The service comprises the following independent modules: Power, Forest, Mobile, Tracking, Invoicing, and CO<sub>2</sub>-Tracking. MHG ERP Service is provided as three different basic services which always are customized to customer’s business model and practices in the best possible way.

“MHG ERP is available as customer-based solution or ASP-Service with more than 10 language options but without Chinese. So my job is adding Chinese words to MHG ERP. The service is easily implemented into new languages as well.”[5]

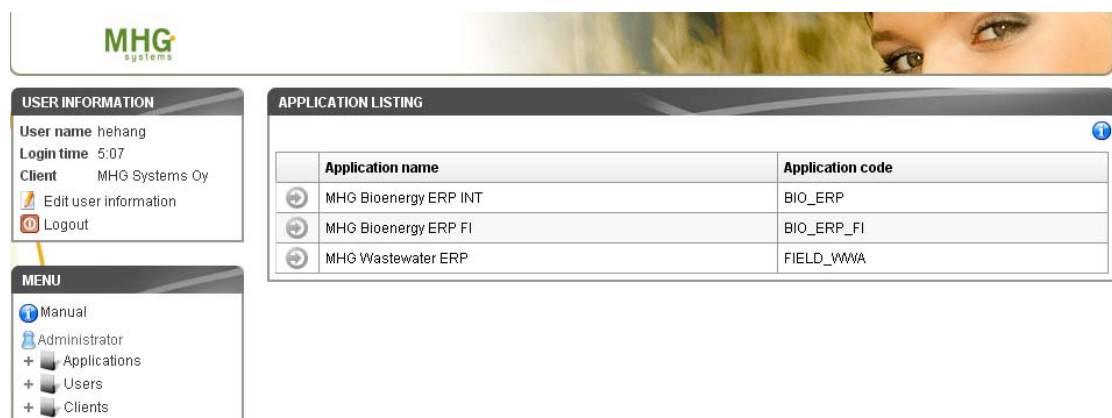




The login interface features the MHG systems logo at the top. Below it are two input fields: one for the user name and one for the password, both preceded by an asterisk. A 'Login' button is positioned below the password field. At the bottom, there is a horizontal row of flags representing various countries.

Figure4.1 MHG system login interface

When you login, you come to the user interface management:



The dashboard is divided into several sections. At the top left is the MHG systems logo. To its right is a banner image showing a person's face. Below the logo is a 'USER INFORMATION' section displaying the user's name, login time, and client information, along with links to edit user information and logout. To the right of this is an 'APPLICATION LISTING' section containing a table of applications.

	Application name	Application code
➡	MHG Bioenergy ERP INT	BIO_ERP
➡	MHG Bioenergy ERP FI	BIO_ERP_FI
➡	MHG Wastewater ERP	FIELD_WWA

Below the user information section is a 'MENU' section with links to Manual, Administrator, Applications, Users, and Clients.

Figure4.2 MHG system user interface

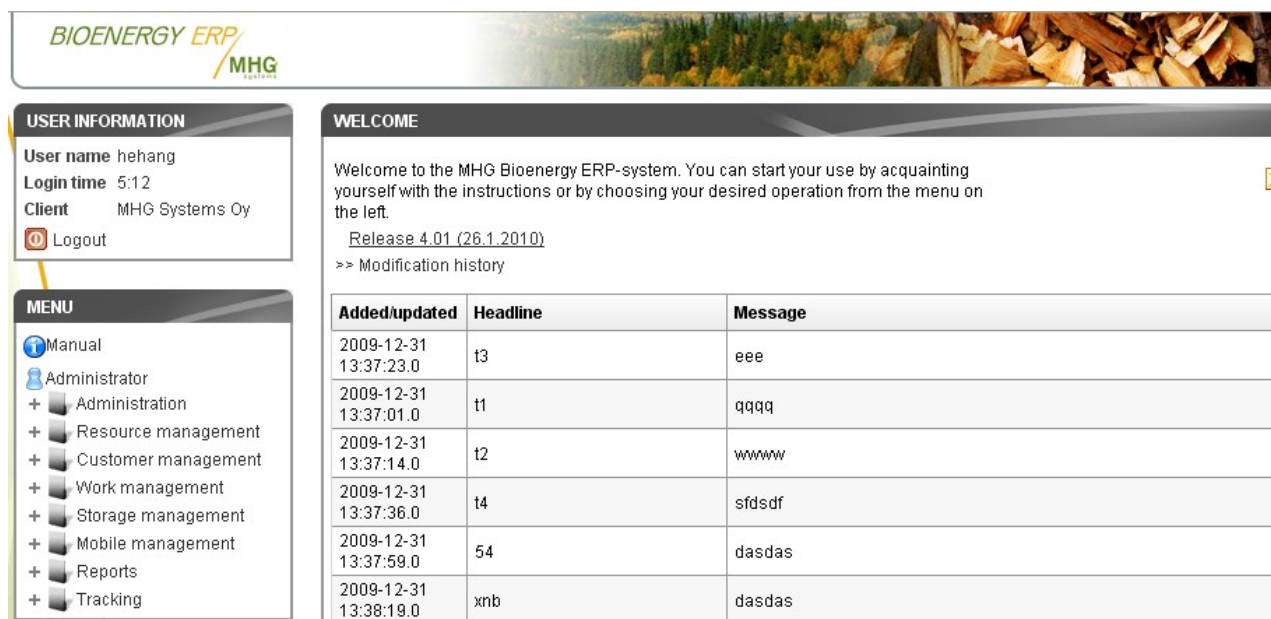


Figure4.3 MHG system interface

### 4.3 What need I do?

So the first step of my job is making the English words in the user interface (every menu, every notice) become Chinese. When the users choose the language button in the login interface. The whole language of the system will be Chinese. In this way, the Chinese users can understand it.

I insert the AlertResources\_ch.properties to the “com.mhgsystems.ui” package

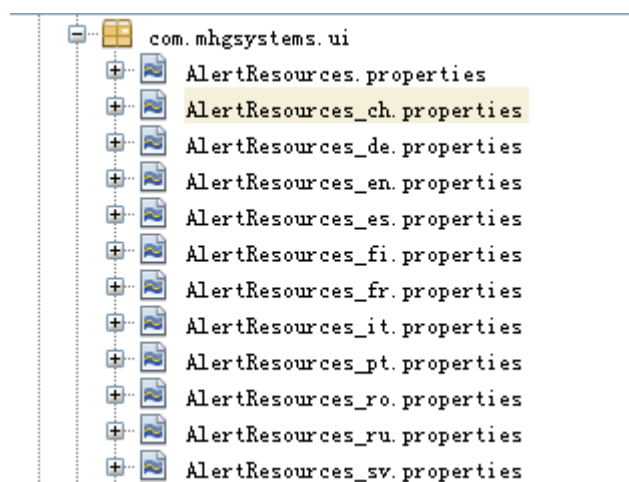


Figure4.4 The picture of my work A

This is part code of the porperties file:

```
storageMailSubject=MHG生物能企业资源计划\：仓库
storageMailCompliment=你好
storageMailText=这是一条来自MHG生物能企业资源计划申请的自动信息。
highPriorityStorages=优先级高的仓库
planName=计划名称
storageNumber=仓库号
remainingLooseM3=剩余量 (loose-m3)
pilesRemaining=财产剩余
state=状态
```

Figure4.5 The picture of my work B

In this way, I finish all the translation of the porperties file. This is a big project but all the things I need to do are translations. So it was not difficult for me. When I completed all the translations. The interfaces look like this:



Figure4.6 The Chinese login interface

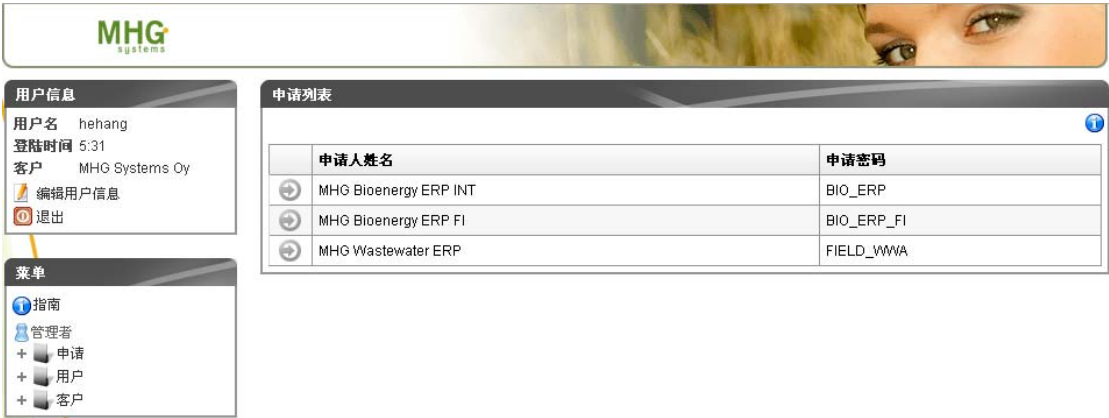


Figure4.7 The Chinese user interface



Figure 4.8 The Chinese MHG system interface

However this was not enough. I also needed to translate the data in database. Because some of the words appearing in the users interface were called from database.

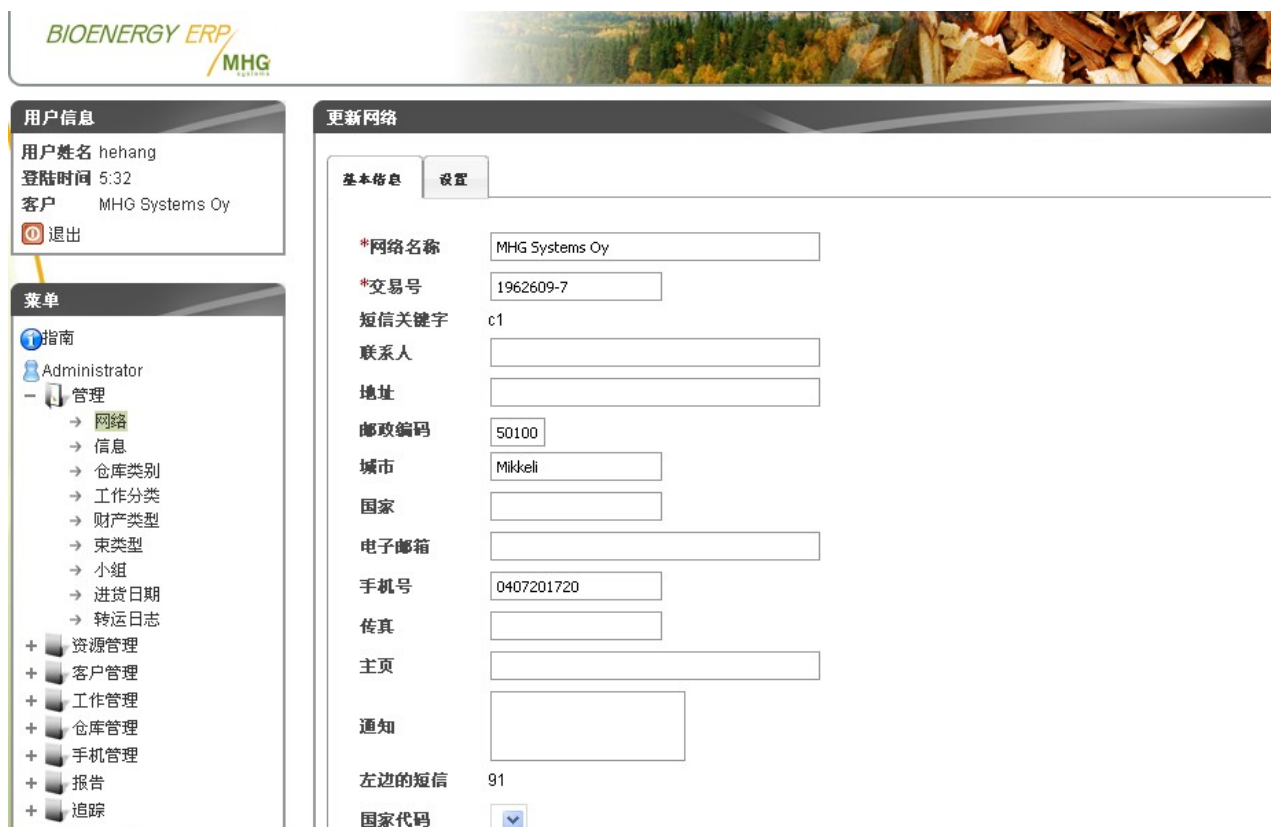


Figure 4.9 The Chinese MHG system interface

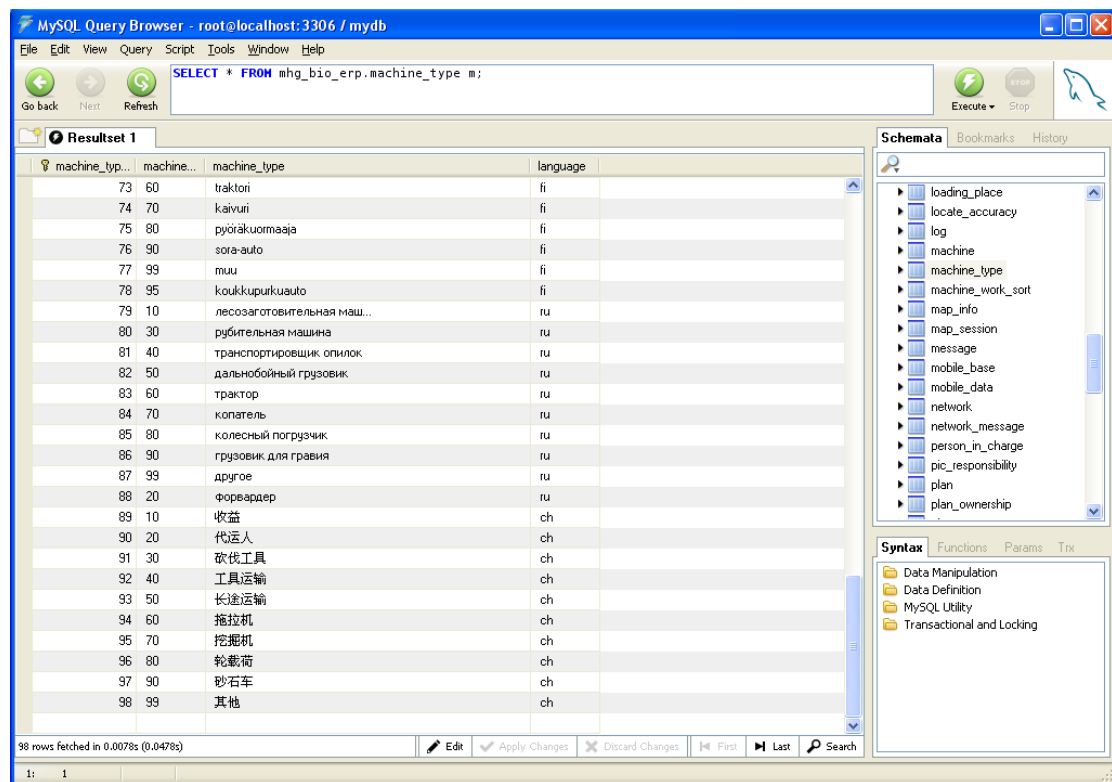


Figure4.10 The picture of database

## **5. CONCLUSIONS**

### **5.1 Challenges and solutions of my final thesis**

During the whole project, I met many challenges with my work. Each challenge was a difficult question to me. Luckily, I worked out all of them.

The first challenge of my work was in the connection between Netbeans and MYSQL part. When I download all the software and install them step by step. I tried all ways and all codes to make the connections come true. However, they were all failed.

Finally I found that not only should I install the mysql-connector-java, but also add the mysql-connector-java to the netbeans platform. Because the mysql-connector-java must be built on a specific platform. And the name of the MYSQL and the password in the code must be correct. Only in this way, the connection can be achieved. Although the solution was easy to do, it took me a long time to find it and understand it.

The second challenges of my work was about the MHG ERP part. When I opened the MHG ERP project in Netbeans, it cannot be run normally. In other words, it cannot be shown in webpage. I thought this question was a little hard for me. So I asked my colleague in the company for help. And we worked out the problem together.

The reason why I cannot open the webpage was that I did not configure the values of the localhoast. There were many values in the local host like connection pools and the way you connect. If you want open the webpage which includes the Mysql connection, you must complete the configuration of each program

## **5.2 What have I learnt in my job**

During the whole translation of MHG ERP framework, which impressed me the most is the professional words of the program. Because as an student from science department I really know few about how a company is run and what is the market about. There were just so many management words in the project. And in different solutions they might have different meanings. This was really a big challenge to me. Before the translation, I must get familiar with the product of the company. I must know what is the main function of it and try my best to master more management vocabulary. What was more, the cultural differences between Finland and China cannot be ignored. And we must translate the software depend on different customers. Though this final project, not only did I learn more knowledge of my subject, but also learned so much about the management. What was the most important, I worked for MHG company. It was really a good practice chance for me.



**Reference:**

[1]<URL <http://en.wikipedia.org/wiki/ICEfaces>>

[2] InstallationGuide.pdf

[3]<URL [http://blog.sina.com.cn/s/blog\\_616b57310100fl9e.html](http://blog.sina.com.cn/s/blog_616b57310100fl9e.html)>

[4]<URL <http://wenku.baidu.com/view/d929504de518964bcf847cce.html>>

[5]<URL

[http://www.mhgsystems.com/index.php?option=com\\_content&view=article&id=35&Itemid=40](http://www.mhgsystems.com/index.php?option=com_content&view=article&id=35&Itemid=40)>

## Appendix: A

### The code for example of ICEfaces:

```
<?xml version="1.0" encoding="UTF-8"?>

<jsp:root version="2.1" xmlns:f="http://java.sun.com/jsf/core"
          xmlns:h="http://java.sun.com/jsf/html"
          xmlns:jsp="http://java.sun.com/JSP/Page"
          xmlns:ice="http://www.icesoft.com/icefaces/component">
  <jsp:directive.page           contentType="text/html; charset=UTF-8"
  pageEncoding="UTF-8"/>
  <f:view>
    <html lang='zh'>
      <head>
        <title>TODO JSP Page</title>
      </head>
      <body>
        <form method="POST" action="NewServlet">
          <input type="submit" name="submit" value="中
文">

          </input>
          <input      type="submit"      name="submit"
value="English">

          </input>
        </form>
      </body>
    </html>
  </f:view>
</jsp:root>
```

## Appendix: B

The use of java.util.ResourceBundle;

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import java.util.Locale;
import java.util.ResourceBundle;

public class NewServlet extends HttpServlet {
    protected void processRequest(HttpServletRequest request,
    HttpServletResponse response)
        throws ServletException, IOException {

        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        String x=(String)request.getParameter("submit");

        if(x.equals("English")){

            Locale locale3 = new Locale("en", "US");
            ResourceBundle resb3 =
ResourceBundle.getBundle("myres", locale3);

            out.println("<html>");
            out.println("<head>");
            out.println("<title>Servlet NewServlet</title>");
            out.println("</head>");
```

```

        out.println("<body>");
        out.println("<h1>" + resb3.getString("aaa") + "</h1>");
        out.println("</body>");
        out.println("</html>");
    }
    else{

        Locale locale1 = new Locale("zh", "CN");
        ResourceBundle resb1 =
ResourceBundle.getBundle("myres", locale1);

        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet NewServlet</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1>" + resb1.getString("aaa") + "</h1>");
        out.println("</body>");
        out.println("</html>");

    }

}

```

The example for how to connecti Netbeans and Mysql

```
import java.sql.*;

public class NewClass {

    public static void main(String[] args) {

        String user = "root";
        String password = "hehang";
        String url = "jdbc:mysql://localhost:3306/mydb";
        String driver = "com.mysql.jdbc.Driver";

        String tableName = "LOGIN";
        String sqlstr;
        Connection con = null;
        Statement stmt = null;
        ResultSet rs = null;
        try{
            Class.forName(driver);
            con = DriverManager.getConnection(url, user,
password);

            stmt = con.createStatement();
            sqlstr = "insert into "+tableName+" values ('hanna','12345')";
            stmt.executeUpdate(sqlstr);

            sqlstr = "select * from "+tableName;
            rs = stmt.executeQuery(sqlstr);
            ResultSetMetaData rsmd = rs.getMetaData();
            int j = 0;
            j = rsmd.getColumnCount();
```

```

        for(int k = 0; k<j; k++)
        {
            System.out.print(rsmd.getCatalogName(k+1));
            System.out.print("\t");
        }
        System.out.println();
        while(rs.next())
        {
            for(int i=0;i<j;i++)
            {
                System.out.print(rs.getString(i+1));
                System.out.print("\t");
            }
            System.out.println();
        }
    }
    catch(ClassNotFoundException e1)
    {
        System.out.println("Not found the database! ");
        System.out.println(e1.toString());
    }
    catch(SQLException e2)
    {
        System.out.println("Exception of the database! ");
        System.out.println(e2.toString());
    }
    finally
    {
        try
        {
            if(rs != null) rs.close();

```

```
        if(stmt != null) stmt.close();
        if(con != null) con.close();
    }
    catch(SQLException e)
    {
        System.out.println(e.toString());
    }
}
}
```