**Practical Exam   
Subject: PRJ301  
Duration: 90 minutes  
Total marks: 10**

**Read the instructions below carefully before start coding.**

Students are ONLY allowed to use:

* Materials on his/her computer (including JDK 1.8, NetBeans, Window explorer, zip tools, Browser, PEA, SQLServer, Webserver Tomcat ).
* Using the account( username=sa, password=12345) to connect to the SQLServer

Follow the steps below to complete PE:

1. Create a folder to save given projects, e.g. PRJ301\_StudentID (1). Down load given materials to (1).
2. Write code according to the requirements in the exam.
3. DO NOT delete or create java file with the same name as given files.
4. DO NOT EDIT the file DBUtils.java. This file is used to connect to the database
5. Using MVC2 model with MainController
6. Students are provided with a PE project. And it is mandatory to use the provided project to complete your PE.

If at least one of the above requirements is not followed, the exam will get **ZERO**.

**Resource**: You are supported the materials. They include:

1. The java web project named “PE\_PRJ301”. It contains some files (.java,.html,…).

* Some classes in the package “pe.dao” are used to access the database
* Some classes in the package “pe.dto” are used to create basic objects
* The class DBUtils.java is used to make a connection to the database
* Some classes in the package “pe.controllers” to handle request , then forward the results to one of a number of different JSP pages

1. The file “database.sql” is used to create a database

**Database**: You must run codes in the given file “database.sql” to create the database [PE\_PRJ301] and use it in the practical exam.

**tblUsers** table

|  |  |  |
| --- | --- | --- |
| **Field name** | **datatype** | **Note** |
| Field Name | Type | Validation |
| userID | varchar(50) (Primary Key) | Not null |
| fullName | nvarchar(500) | Not null |

**tblCars** table

|  |  |  |
| --- | --- | --- |
| **Field name** | **datatype** | **Note** |
| id | Char(5) (Primary Key) | Not null, format: C-XXX |
| name | nvarchar(50) | Not null |
| description | nvarchar(500) | Not null |
| price | Float | Numberic, not null |
| speed | int | Int, not null |
| status | Bit | Bit |

**Requirements**:

Create a Java web application, which can be used to manage the Car. The application have the following functions:

1. Login:
   1. On login.jsp page, user enters userID and password.
   2. The system will check if the userID with the password is correct, then grant the access permission and go to carList.jsp page( **1.5 points**)
   3. If not, the system will show the message” Incorrect UserID or Password” on login.jsp page. **( 0.5 points)**
   4. On carList.jsp page need show welcomes the fullName of login user. **(0.5 point)**
   5. On carList.jsp page need has a Logout function. **(1.5 points)**
2. Add new car.
   1. On carList.jsp page show the form to create new car. Status has default value is true**( not show on the insert screen)**- **1point**
   2. Data must validate before insert to database. **(1 point)**
   3. Show corresponding errors if validation is not satisfied**( 1 point)**
      1. Ínsert new car and show the corresponding notify. **(2 points)**
3. Authentication:
   1. Authentication and authorization functions: to use the functions on the carList.jsp page, the user is required to log into the system with the “AD” role. Otherwise, redirect to login.jsp page **(1 point)**

The End