**Practical Exam**

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| --- | --- | --- | --- |
| **Subject** | PRJ301 | **Total marks** | 10 |
| **Duration** | 90 minutes | **Department** | CF-HCM |

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

Students are ONLY allowed to use:

* It is mandatory to turn off all existing projects in Netbeans. If the supervisor detects that there is a project other than the project being worked on, it is considered a violation.
* Only allow opening applications related to PE exam: PE tool, Netbeans, window explorer, zip tools, browser. Note that if students open tools other than those allowed, they will get 0 points, whether opening the tool accidentally or intentionally.
* MUST use MVC2 model with MainController.
* Students are provided with a PE project. And it is mandatory to use the provided project to complete your PE.
* You are provided with a getConnection() method in the DBUtil.java file that is used to connect to the database. You must use this method and are not allowed to change the content in this file.

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 project “**PE\_PRJ301**”: you **must use** this project to take your practical exam.
2. The file “**Regulations\_for\_Participating\_in\_the\_PE\_PRJ301\_Examination.docx**” is PE policies.

**Problem:** You are participating in a software project, building product management and sales software for **ABC Electronic** company, your tasks in the project is to build some features

* + **Login – Logout** for company members when working on the software [**4.0đ**]
  + **Search according to user requirements** based on product name [**3.0đ**]
  + **Update information** for found data [**3.0đ**]

**Database**: To complete your tasks, the database – ElectronicsManagement, is provided with relevant tables with the design as described below.

1. User table: **tblUsers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Type** | **Constrain** | **Description** |
| userID | varchar(50) | Primary key,  not null | ID used for login |
| fullName | nvarchar(500) | Not null | Member's full name |
| roleID | char(2) | Not null,  Default ‘**MB**’ | User roles in the system:  **AD** – Administrator; **MB** – Member |
| password | varchar(50) | Not null | Password used for login |

1. Electronics table: **tblElectronics**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Type** | **Constraint** | **Description** |
| id | char(5) | Primary key, format: **E-XXX** | Electronics product ID |
| name | nvarchar(100) | Not null | Product name |
| description | nvarchar(500) | Not null | Product details |
| price | Float | Not null | Product price |
| quantity | Int | Not null | Available quantity |
| status | Bit | Default 1 | Status: 1 - Available; 0 - Out of stock |

# Requirements:

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

# Login – Logout [4.0đ]

* 1. Login
     1. On **login.jsp** page, user enters userID and password to login system, These fields cannot be left blank and must use the appropriate input type **0.5đ**
     2. if the **userID** or the **password** is incorrect, the error message will be display like this “Invalid user or password” **0.5đ**
     3. if the **userID** with the **password** is correct, then grant the access permission, Set up a session and retain the essential account information required for the upcoming features then go to **welcome.jsp** page **1.0đ**
  2. Welcome
     1. After successful login, the user is redirected to welcome.jsp, where a welcome message is displayed in the format: 'Welcome [fullName] !'. This message must also be shown on all functional pages accessed after login **0.5đ**
     2. The links allow the user to choose to go to the **search.jsp** page or log out of the system **0.5đ**
  3. Logout
     1. Clear user session and associated post-login data **0.5đ**
     2. Redirect the user back to the **login.jsp** page in a non-logged-in state **0.5đ**

# Search [3.0đ]

* 1. Redirect to the login page if the user is unauthenticated and accesses this page via direct URL entry in the browser **0.5đ**
  2. If no data is entered into the TextBox used for search criteria and the '**Search**' button is clicked, no results will be displayed on the results page **0.5đ**
  3. If search criteria are entered and the **'Search'** button is clicked, only the matching records will be displayed in the search results table **0.5đ**
  4. An '**Update**' button should be included in each row of the search results table to

enable users to select and modify the data of the corresponding product **0.5đ**

* 1. If no matching data is found, the message

“No data matching the search criteria found !” will be shown **0.5đ**

* 1. The value entered in the condition TextBox is retained after the search results are displayed **0.5đ**

# Update [3.0đ]

* 1. Redirect to the login page if the user is unauthenticated and accesses this page via direct URL entry in the browser **0.5đ**
  2. When the user clicks the **'Update'** button in the search results, the **Update.jsp** page should display the current information of the selected product **0.75đ**
  3. The system must validate the updated data and return appropriate error messages if the input violates any constraints defined in the corresponding database table schema **0.75đ**
  4. If the updated data is valid, the system shall save it to the database. Upon successful completion, the data grid shall be refreshed with all records retrieved from the database **1.0đ**

**Note: Full marks may not be awarded if students apply inefficient algorithms or use inappropriate components in their code.**

**The End**