**Application description**

Assignment2

Course: CST2355

Section: 311

Group members: Chunhua Li

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# Description of application

**The purpose of the application:**

This application revolutionizes tool rental management across various sectors, including equipment rental firms, construction sites, and home improvement projects. With a user-friendly Access front-end, clients gain seamless control over tool inventory, user management, and storage. Supported by a robust Oracle SQL backend, the system offers advanced functionalities, allowing administrators to grant user permissions, tweak the data model, and implement triggers. Its flexible user access control ensures secure operations. The dynamic backend facilitates adjustments to the data model, catering to evolving business needs. In essence, this integrated solution optimizes tool rental company operations, ensuring heightened efficiency and streamlined processes.

**Apps used for this application:**

Microsoft Access and Oracle SQL Developer

**Image of Access of relationship model:**

A diagram of a company

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# Instructions

**Section 1: How to use the front-end application (Microsoft Access)**

**Purpose of the Microsoft Access Front-End Application:**

The Microsoft Access front-end application serves as the user-friendly gateway to interact with the database. It empowers you to effortlessly manage various tasks and activities related to Tool Rental Management. Here's how user can efficiently utilize this application:

Step-by-Step Instructions:

**1.Launch Microsoft Access.**

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**2.Open the provided database file following the steps:**

a) After launching Access, click on "Open Other Files" or "File" in the top left corner.

b) Choose "Open" or "Open Recent File" to locate the provided database file (in our case, it is "2.accdb").

c) Select the file and click "Open."

**3.Upon opening, you will see a main menu or dashboard with options related to your application's functionality.**

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**4.Click on “Navigation Bar-Main Page” from the left menu bar to start.** A screenshot of a computer

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a) Users will see the main page and the options on it as follows: A screenshot of a computer

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Now you can click on the buttons to use the functions of this application.

b) Let’s try on ‘New Invoice’, click on it.

You will see a login page asking for user name and password. A screenshot of a computer

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Keep the Service Name and as default, you only need to enter you User Name and password. For this application, I have created 4 users, including one administrator and 3 manage users. The names and passwords are: group7/assignment2, LiUser/LiPassword, LeUser/LePassword and WuUser/WuPassword. If you want to have the full privilege, you need to login as ‘group7/assignment2’, which is the administrator of this application. After login, you will be able to use all the functions.

**5. Functions Introduction**

**a) New Invoice.**

Click on ‘New Invoice’ will lead user to a form, from which user can add new record. See as below:

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Attention, ‘RentalID’ is a unique key so you need to make sure there is no same ID you want to insert in the previous record. You could click on tables and Click on ‘Rentals’ to check.

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This means you could insert a new record whose RENTALID is not 2 to 13. Let’s try! A screenshot of a group

Description automatically generatedInput the information and click on Add Record. Now go back and check table ‘RENTALS’ again.

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The new rental invoice has been added!!!!

**b) Check item Stock.**

With this functional users can check all the availability of the tools. Click on ‘Check item Stock’. A screenshot of a computer

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There are two options here, click on See all you will see all the tools available or not. A screenshot of a computer

Description automatically generated

And if user has a printer, you can also click on ‘Print record’ to print it out.

**c) Tool Feedback**

**It is a form for users to update the descriptions of each tools. And it can store all the historical data into a specific table-Tool History. This table contains a multi-valued field, which is called DescriptionHistory. Let’s click on this button and see how it works!** A screenshot of a computer

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It leads us to another form. There are two buttons here, let’s click on ‘See All’ to check all the tool feedback description histroy first. A screenshot of a computer

Description automatically generated

Focus on ‘DescriptionHistory’ please. Now we go back to add a feedback. A screenshot of a computer

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For example, I want to give ToolID 1 a new description ‘Really Really Really Nice’, input and save. Now we click on ‘See All’ again, it shows: A screenshot of a computer

Description automatically generated

The new description has been added just after the previous descriptions instead of covering it!!!! And if user continues to add new description, the new one will be added after the previous descriptions as well. So the descriptionHistory could store multiple values!

d) Tool Description History

Like the previous function, but this function will show all the description history page by page.

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Description automatically generated

And clicking on ‘Show all’ will also bring user to see all the records of all the tools descriptions.

e) User Info(Marketing Purpose)

Clicking this button will navigate the user to a report where all client information is displayed. For example, Clients’ names, email addresses, postal codes, etc. This report is for marketing purposes.

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f) Rental History

Clicking on this button will lead a report displaying the rental history of all the tools, including the customers’ names, rental date, return date, etc. It is a good idea to the length that tools may need to be used.

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g) Check Stock

This button helps users to check how many items available in stock and whether they are available to be rented. A screenshot of a computer

Description automatically generated

h)Feedback of Tools

Click on this button, users will see all the description history(similar to the tables). However, it is more intuitive, concise, and presented in report format, making it a convenient way to review feedback for each tool. And you can always print it out for store development purposes.A screenshot of a computer

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i) There are two buttons on the bottoms. The left is to close the main page and the right is to close the application.

A white background with black dots

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**6. More Functions Introduction**

Our team has also created a separate form for management team to modify, which is ‘UserManagement’. It is not shown on the main page because we want it to not that obvious for customers.

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In this form, users can add new record to the ‘Users’ table and ‘See all’ customers of the company. To be clarified, when adding a new record, users need to check whether UserId is unique.

**Section 2: How to use the back-end application (Oracle SQL Developer)**

1. Connections

Before using the front-end application, you need to open the back-end application already. A screenshot of a computer

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In this assignment, our team has already created all the connections so users do not have to connect by themselves.

1. On the left bar, choose the database name and click on it. (in this assignment, the database is called’assignment2OfG7’). A screenshot of a computer

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2. Expand it and you wil see the details of this database. Left sides are tables, views, indexes, etc. And the right sides are for users to input and run queries. (I don’t suggest users modify the tables or triggers by themselves because it could cause connection failed in access. Please feel free to contact our team if users have more requires about the database.)A screenshot of a computer

   Description automatically generated
3. In this database, our team has created a trigger for users. This trigger helped the database store historic data instead of using new data covering old data so that all the data will not be missing. The field we create is called ”ToolHistory”, in the table there is a key called ’descriptionhistory’, whenever users update the description of a tool, it stores. And it stores from the first update to the last update, no data missing.

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1. From the left bar, users will also be able to see all the user names for this database, including those we created. (LiUser, LeUser and WuUser). Different users may have different privilege. Right click on ’Other users’ will show the options for you to create a new user or drop an existing user.

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And right click on specific user will show the options for you to modify the existing user, for example, you could change the privilege for the specific user. A screenshot of a computer

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Of course, you can create different queries to create users or drop users.

**Section 3: How to backup and restore data**

1. **Backup(Export data):**
2. On top tools there is an option called ”tools”, click on it. A screenshot of a computer

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3. And then click on “Database Export”. A screenshot of a computer

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4. Then choose the database you want to backup and choose the right folder you want to put the database in.
5. Press next to choose the you want to backup. A screenshot of a computer

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6. Press next to the final page and then press “Finish”. The database has been backuped. A screenshot of a computer

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7. **Restore(Import data):**

a) Users will need to create new database connection to import the database. Click on the green ‘+’ to create.

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b) The new window will load and 3 places you need to change. First, name your new database. Second, use the username and password provided. Last, change the SID (mine is orcl2355). Then click connect.A screenshot of a computer

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c) Now it will show on the left tool bar.

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d) Now you can put the backup file here and execute it.

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**Section 4: Additional information: Generate documentation**

Users can generate DB documentation by right-clicking on the database, shown below:

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Users will be prompt to save the documents in their folders.A screenshot of a computer

Description automatically generated

After generating, open the folder and double click on the index.html. All the information will be shown. For example:

A screenshot of a computer

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### **More information, please contact:**

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#### Database Design:

Responsible: Tianying Le

Description: Design the database schema, create tables for tools, customers, and rentals, and define relationships.

#### Oracle Views and Triggers:

Responsible: Yanan Wu

Description: Implement Oracle views corresponding to the original tables. Create triggers for INSERT, UPDATE, and DELETE commands for the views to capture historical data.

#### Forms Development:

Responsible: Chunhua Li

Description: Update forms for editing tool, customer, and rental information. Integrate buttons or forms to view historical data for each field in a pop-up form.

#### Documentation:

Responsible: All Members