**Application description**

Course: CST2355

Section: 311

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# Description of application

**The purpose of the application:**

The purpose of this application is to make renting and tracking tools easier and more efficient in different settings, such as equipment rental companies, construction sites, and home improvement projects. It manages tool data, availability, rental history, and system connections for streamlined operations.

**Apps used for this application:**

Access and SQL Server

**Image of Access of relationship model:** A screenshot of a computer

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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 "assignment1Group7.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. Accessing and Viewing Data in Tables:**

a) Navigation Bar: On the left side of the application, you'll see a navigation bar. It lists the tables available for you to view and work with.

b) Categories Table: Click on "Categories" to see the types of tool categories available for rental.

c) Rentals Table: Select "Rentals" to view records of tool rental transactions, including dates, user info, and rented tools.

d) Tools Table: Click on "Tools" to access details about each tool, including names, descriptions, and availability status.

e) Inventories Table: Navigate to "Inventories" to see tool quantities and locations.

F) Users Table: Select "Users" to find information about registered users, like names and contact details.

g) Viewing Data: In each table, scroll through records to see data. Click on specific rows to see more details about a particular item.

h) Returning to the Main Menu: To go back to the main menu or dashboard, look for a "Home" button or a back arrow.

**5.Inserting Data(Using tables)**

User can input data by double clicking one of the tables, for example: (insert data into the table’Rentals’)

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After completing the data inserting, user will need to click the blank to save it or use the save button in tool bar.

**6.Insert data(Using forms)**

Under ‘Forms’ from left tool bar, we have designed three different functions of forms for users.

AddNewTool form. It allows users to add new tools in inventory of the system. After information input, user needs to click on the ‘Add Record’button to save. Or Click ’Cross’ button to Exit.A screenshot of a computer

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**7.Additional Functions.(Main Page Navigation)**

From the left tool bar, Users could find ‘Main Page’ form the section Forms as follows:

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**Examples:**

⑴ Click on ‘Tool’ in Main page, user will go to ‘AddNewTool’ form, inserting information will help user add new record.(From previous instruction 5)

⑵Click on ‘User’ in Main page, user will go to ‘AddNewUser’ form, inserting information will help user add new record.

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⑶Click on ‘Report’, it will show user some options of report. And if user clicks on one of the reports, for example, ‘Category’, the report of Category will print.A screenshot of a computer

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

**Purpose: Microsoft SQL Server serves as the back-end database engine for your application, storing and managing data efficiently.**

**1.Launch Microsoft SQL Server Management Studio.**

a) Click on the Windows Start menu.

b) Search for "SQL Server Management Studio" and open it.

c) Connect to the SQL Server instance. SQL Server name:littleanimal5, username:WuUser, password:algonquincollege.

**2.In the Object Explorer, expand the Databases node and locate the database.**

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**3.To view or edit the database schema (tables, views, triggers, etc.), navigate to the respective sections in Object Explorer.**

You can manage different parts of your database like this:

a) Tables: Click "Tables" to see and edit tables.

Users can use query to view a table and the information in the table is exactly same in Microsoft Access since they’re linked, for example:

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b)User can also insert data using SQL Server and it will be linked to the front-end(Access). For example:

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c) Views: Click "Views" to work with views.

d) Triggers: Click "Triggers" to handle triggers.

We have created two triggers to help users’ convenience.

⑴Trigger for ‘Blocked Client’. For some rude clients, user may want to block him to rent the company’s tools. We use ’Mickey Mouse’ as an example, when user try to input ‘Mickey Mouse’ in Front-end or Back-end, the warning will come out. It will show ’Mickey Mouse is in our blacklist’. User can add more blocked clients by modifying our trigger provided.

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⑵Check Unique Username trigger. It will remind user to make sure that whether the client is an existing client and whether he is in the system already. It helps to track existing clients’ rental history and provide a better service to them.

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e) Functions: Under "Programmability," find "Functions" to work with functions.

These simple steps should help uses navigate and edit various components of assignment1.

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

**Purpose: Backing up and restoring data is for ensuring data safety and recovery in case of unexpected issues.**

**1.Backup Data:**

a. Launch Microsoft SQL Server Management Studio.

b. Connect to the SQL Server instance. (For example, SQL Server name: littleanimal5, username: WuUser, password: algonquincollege).

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c. In the Object Explorer, expand the "Databases" node and locate your assignment1.

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c. Right-click on assignment.

d. Select "Tasks" and then "Back Up."

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c. Follow the backup wizard instructions, specifying the backup file location and settings. Make sure to remember where you have backed it up.

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d. Click "OK" to start the backup process.

**2.Restore Data**

a. Launch Microsoft SQL Server Management Studio.

b. Connect to the SQL Server instance. (For example, SQL Server name: littleanimal5, username: WuUser, password: algonquincollege).

In the Object Explorer, locate the "Databases" node. (As above)

c. Restore Database:

d. Right-click on the "Databases" node.

e. Choose "Restore Database."

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c. Choose the back up file from where the file is, it could be in your database or in your device or in wherever you back up last time. There will be a warning on the top and you ne ed to unselect ‘Take tail-log backup before restore’.

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Find it! And click on it!

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d. Click "OK" to start the restore process.

Important: Always make sure to securely store your backup files in a safe location.

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

**4.Instructions of adding new users to SQL Server and modifying unique permissions for different roles.**

As administrators, users can add different login accounts for the employees, different roles could have different functions on the same database. The following is an example of how to create a new login account and modify the permissions.

a) Find the Object Explorer(left bar), expand the administrator’s connection and you will see “Security”.

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b) Right click on”Security”, then click on the New, then Login.

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c) Create a login name you want, select “SQL Server authentication” and create a password for the account owner to login. Keep the rest as default. Then press OK.

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d)Now go to File and Connect Object Explorer with the login name and password you just created. It will ask you to create a new password, just do it.

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e) Modify permissions for the logins you just created. Before that, you need to create new users under the database you want to share with. In our case, it is “assginment1”. Go back to Object Explorer and find adminstor’s connection. Go Databases, then assignment1, then Security(different from the Security option under the connection!!), then User. Right click on User and click on New User.

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f) Create a user name for the employee, the Login name will be the logins you created from last steps. In this example, it is “Management Team-Yanan”. For the “Default schema”, choose”dbo” and press OK.

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g)Now the new user has been added and she can use the database”assignment1”.

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h) Modify Users’ Permissions. Right click on the User and click on Properties. A screenshot of a computer

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i) In the new window, choose Securables and click on Search. Choose the last option and scroll down choose”dbo”. Then press OK.

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j) Now the tables and views are here and you can modify the permissions by choosing ‘grant’ or ‘deny’ or whatever you want to modify for you employees.

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In our assignment, we have created several new logins(users). They’re Management Team-Chunhua, Management Team-Yanan, Management Team-Tianying. These three users have all the permissions on database assignment including insertion, deletion, updating, etc.

We also created “Stock” user who only have access to the table” Inventories” by doing following.

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And “ReceiptionPerson” who can only read information from table”Users” but cannot update information. (In the following picture, you can see only dbo.Users table is available for employees who login as Receiption)

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## **Team member Contributions and Responsibilities:**

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