Workspace Project Report

Form 1 :

The Form1 class contains event handlers for the form load event, the button click event, and the link label click event. The button click event handler retrieves the email and password entered by the user, validates the input, and then queries the database to check if the user exists. If the user exists, the application displays a success message and opens a new form. If the user does not exist, the application displays an error message.

The link label click event handler opens a new form for user registration.

The code also includes a UserManager class, which is not used in this implementation.

The main method begins by creating a UserManager object and using it to register a new user and authenticate them. If the authentication is successful, the user's name is displayed. If not, an error message is displayed and the program exits.

Next, a WorkspaceManager object is created and used to reserve a workspace for the authenticated user. If the reservation is successful, a success message is displayed. If not, an error message is displayed.

Finally, a ResourceManager object is created and used to reserve a resource (in this case, a meeting room) for the authenticated user. If the reservation is successful, a success message is displayed. If not, an error message is displayed.

The code also includes a User class, which defines the properties of a user object, such as their name, email, and password. The class includes several constructors to allow for different ways of creating user objects.

The UserManager class is responsible for registering new users, authenticating existing users, and retrieving user information from the database. The class uses an OleDbConnection to connect to a Microsoft Access database and execute SQL queries. The GetUserByEmail method retrieves a user from the database based on their email address, while the AuthenticateUser method checks if a user's email and password match those stored in the database. The RegisterUser method creates a new user object and inserts it into the database.

The Workspace class represents a physical workspace, such as a desk or office, and includes properties for the workspace's ID, name, and capacity. The WorkspaceReservation class represents a reservation of a workspace by a user and includes properties for the reservation's ID, the user who made the reservation, the workspace being reserved, and the start and end times of the reservation. The WorkspaceManager class is responsible for managing workspace reservations and includes a method for reserving a workspace for a user at a specific time.

The Resource class represents a resource that can be reserved, such as a meeting room or equipment, and includes properties for the resource's ID, name, and type. The ResourceType enum defines the different types of resources that can be reserved. The ResourceReservation class represents a reservation of a resource by a user and includes properties for the reservation's ID, the user who made the reservation, the resource being reserved, and the start and end times of the reservation. The ResourceManager class is responsible for managing resource reservations and includes a method for reserving a resource for a user at a specific time.

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Form 2:

The code begins by initializing the Form2 class, which is a child form of the main Form1 class. The constructor for Form2 is called, which initializes the form's components.

The button1\_Click event handler is responsible for handling the user's registration. When the user clicks the "Register" button, the event handler is triggered. The first step is to retrieve the user's input from the text boxes for name, email, and password.

Next, the code checks if any of the input fields are empty. If any of the fields are empty, a message box is displayed asking the user to enter their name, email, and password. If all fields are filled, the UserManager class is used to register the user.

If the registration is successful, a message box is displayed indicating that the registration was successful. If the registration fails, a message box is displayed indicating that the registration failed and the user should try again.

Finally, the code creates a new instance of the main Form1 class and displays it while hiding the current Form2 instance.

Overall, this code demonstrates good software engineering practices such as error handling, input validation, and separation of concerns. The UserManager class is used to handle user registration, which separates the registration logic from the UI code. Additionally, the code is well-organized and easy to read, which makes it easier to maintain and modify in the future.

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Form 3

The form, Form3, allows users to choose between different room options and then navigate to another form, Form4, to complete the booking process.

The code begins by initializing the Form3 class, which is a child form of the main Form1 class. The constructor for Form3 is called, which initializes the form's components.

The button1\_Click event handler is responsible for handling the user's room selection. When the user clicks the "Select Room" button, the event handler is triggered. The first step is to declare two variables, roomname and pricePerHour, which will store the selected room's name and price per hour, respectively.

Next, the code checks which radio button is selected. Based on the selected radio button, the roomname and pricePerHour variables are assigned appropriate values. For example, if radioButton1 is selected, the roomname is set to "Shared area" and the pricePerHour is set to 10.

After determining the selected room and its price per hour, the code creates a new instance of Form4 and passes the pricePerHour and roomname values to it. Form4 is then displayed, and the current Form3 instance is hidden.

The radioButton1\_CheckedChanged event handler is also present in the code but does not contain any logic. This event handler can be removed if it is not needed for future functionality.

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Form 4:

The form, Form4, allows users to select a start and end time for their booking and calculates the total cost based on the selected room's price per hour.

The code begins by initializing the Form4 class, which is a child form of the main Form1 class. The constructor for Form4 is called, which initializes the form's components.

The button1\_Click event handler is responsible for handling the user's booking request. When the user clicks the "Book" button, the event handler is triggered. The first step is to retrieve the start and end times selected by the user from the dateTimePicker1 and dateTimePicker2 controls, respectively.

Next, the code checks if the end time is after the start time. If the end time is before or equal to the start time, a message box is displayed indicating that the end time must be after the start time. If the end time is after the start time, the code calculates the total number of hours between the start and end times and multiplies it by the passedvalue variable, which represents the price per hour of the selected room.

After calculating the total cost, the code creates a new instance of Form5 and passes the total cost, start time, end time, and room name values to it. Form5 is then displayed, and the current Form4 instance is hidden.

The dateTimePicker2\_ValueChanged event handler is also present in the code but does not contain any logic. This event handler can be removed if it is not needed for future functionality.

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Form 5

The code begins by initializing the Form5 class, which is a child form of the main Form1 class. The constructor for Form5 is called, which initializes the form's components.

The button1\_Click event handler is responsible for handling the user's exit request. When the user clicks the "Exit" button, the event handler is triggered, and the Application.Exit() method is called to close the application.

The button2\_Click event handler is responsible for displaying the booking details to the user. When the user clicks the "Display Booking Details" button, the event handler is triggered. The start time, end time, room name, and total cost values are retrieved from the corresponding internal variables and displayed in the textBox2, textBox3, textBox4, and textBox5 controls, respectively.

The button3\_Click event handler is responsible for allowing the user to return to the room selection form. When the user clicks the "Select Another Room" button, the event handler is triggered. A new instance of Form3 is created, and it is displayed while the current Form5 instance is hidden.