

Section 1: Metadata

to be filled by the student

1.1. Project Information to be filled by the student

Title: DairyPro	
Section: L3	Instructor: Dr. Faisal Alvi

1.2. Student(s) Information

Name: Elyan Ali Momin	ID: em08434
Section: L3	Batch: CS 2026

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Section: L3	Batch: CS 2026

Name: Sameer Kamani	ID: sk08109
Section: L3	Batch: CS 2026

Submission guideline: Save your project proposal as a pdf file and rename as Project Proposal_L1_ProposedTitle where L1 is to be replaced with your section

Section 2: The Project

to be filled by the student

2.1. Project Description: *Please provide a brief introduction of the project including its scope.*

Project Description:

DairyPro is a comprehensive Dairy Business Management System designed to streamline and optimize the operations of dairy businesses, from small farms to large-scale dairy processors. The system encompasses a wide range of functionalities, including product management, employee tracking, distributor and marketing channel management, manufacturing process oversight, raw material management, inventory control, and compliance monitoring.

By implementing DairyPro, dairy businesses can efficiently manage their day-to-day operations, ensure product quality, and make data-driven decisions to improve their competitiveness and growth in the dairy industry.

Scope: Medium to Large, the scope of the DairyPro project includes the development and implementation of a robust database management system tailored to the unique needs of dairy businesses. This system will encompass various aspects of dairy operations and provide tools and functionalities to manage each of them effectively.

2.2 Functional Requirements

This section describes each function/feature provided by your system. These functions are logically grouped into modules based on their purposes. The users in your system must be categorized such as client, customer or administrator etc. These users will be accessing the database with the level of access that they are authorized with.

Module 1: Registrations and Log in:

- Function 1: Register a new user: Customers, distributors, and suppliers can register themselves by supplying necessary details such as name, email, and user type in the registration form which will be connected to the respected tables, adding their information to the table as they submit their details.
- Function 2: Log in: Users will first take to the stakeholder dashboard, where they will select their role and then log in as their designated role.

Stakeholder 1: Administration:

Module 2: Look over all Transactions:

- Function 3: Admins will have control over all transactions and can view, add, and delete everything through their dashboard. (All Function mentioned for each stakeholder can be managed or modified by the Admin.)

Module 3: User Access Control

- Function 4: Assign roles and permissions: Administrators can assign specific roles and permissions to users, granting them access to various parts of the system.
- Function 5: Deactivate user accounts: Administrators can deactivate or suspend user accounts if necessary or requested by the customer, distributor, or the supplier.

Stakeholder 2: Distributor:

Module 4: Distributor Order Management

- Function 6: View Products: Distributors can search for dairy products based on criteria like product type, brand, or price through the view form that pops up when view button is clicked in the distributor dashboard.
- Function 7: Place an order: Distributors can place orders for dairy products, specifying product quantities, names, and delivery details by clicking the place an order button. The system will prompt them to fill in a form and the order will be generated.
- Function 8: Cancel an Order: Distributors can remove an order if the status does not show “process started” or “processing” in the activity status.
- Function 9: Track order status: Distributors can track the status of their orders, including order processing and delivery updates by clicking the track order button and supplying the order id.

Stakeholder 3: Customer:

Module 5: Customer Order Management

- Function 10: View Products: Customers can search for dairy products based on criteria like product type, brand, or price through the view form that pops up when view button is clicked in the distributor dashboard.
- Function 11: Place an order: Customers can place orders for dairy products, specifying product quantities, names, and delivery details by clicking the place an order button. The system will prompt them to fill in a form and the order will be generated.
- Function 12: Cancel an Order: Customers can cancel an order if the delivery status does not show “delivery started”.
- Function 13: Track order status: Customers can track the status of their orders, including order processing and delivery updates by clicking the track order button and supplying the order id.

Stakeholder 4: Supplier:

Module 6: Material Supply

- Function 14: Dispatch form for raw materials: There will be a materials dispatch form where the supplier will notify the admin that their raw materials are dispatched, and that will reflect in the inventory once the raw materials are dispatched.
- Function 15: Track supply status: Suppliers can track and view the status of their supply orders, including order acceptance and delivery updates.

Stakeholder 5: Employee:

Module 7: Employee Management

- Function 16: View personal information: Employees can view their personal information and employment details by clicking the view info button in their dashboard.

Module 8: Quality Control

- Function 17: Record and Update quality assessments: Employees involved in quality control can record assessments and inspections of products updating the Quality Control Table and its attributes. This can be accessed by only those employees whose department is Quality Control.

Module 9: Manufacturing

- Function 18: Manage and Update production: Employees responsible for manufacturing can input data about the production process, the expiry of the product, and production efficiency. This can be accessed by only those employees whose department is Production.

Module 10: Inventory Management

- Function 19: Update inventory: Employees can update inventory levels, including adding new products and adjusting stock quantities. This can be accessed by only those employees whose department is Inventory.

Module 11: Compliance and Reporting

- Function 20: View and Update compliance records: Employees can access, view and update compliance records and documentation. This can be accessed by only those employees whose department is Compliance.

Module 12: Review and Feedback (Additional Feature)

- Function 21: Leave product reviews: Customers, distributors, and suppliers can leave reviews and feedback for dairy products they have bought through their respective dashboards when their order status is changed to delivered.

2.3. Planned Schedule: *Kindly list the start/end dates and the timeline for the achievement of any intermediate milestones and the expected contribution to be made by the participant(s).*

Week 6	Populating tables with dummy data
Week 7 - Week 10	Connecting forms from back end using python.
Week 11 - 12	Implementing SQL
Week 13	Working additional functions of the database
Week 14 - 15	Finalizing our project

2.4. Technology Stack: *If you are utilizing any language or database besides PyQt and SQL Server, please complete this section; otherwise, leave it blank. Specify the programming language and database management system intended for constructing this application, as well as the application type (Desktop, Web, or Mobile).*

SOFTWARES:

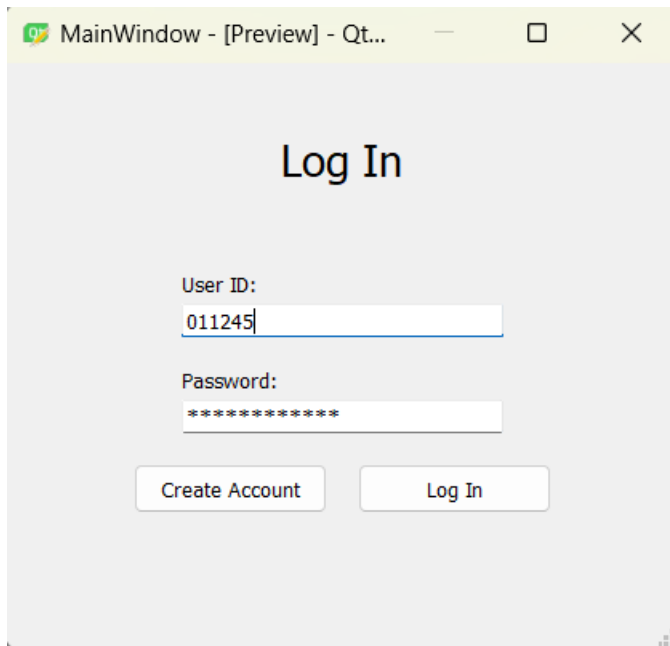
1. DBdesigner
2. MySQL
4. Visual Studio Code
5. GitHub

PROGRAMMING LANGUAGES:

1. Python (pyQt6)
2. SQL

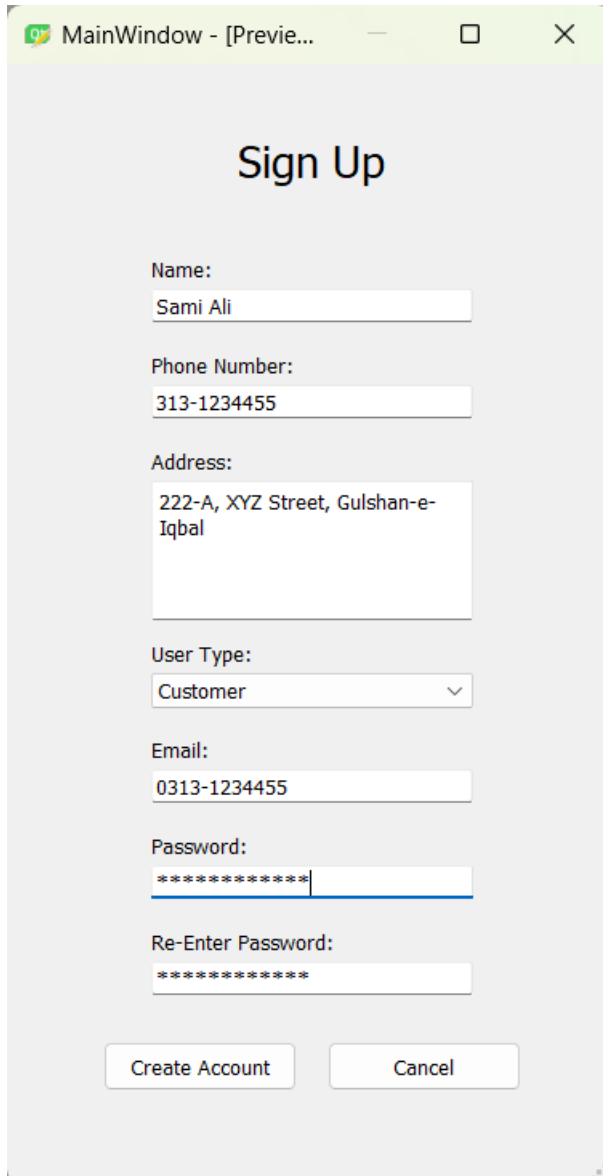
2.5. Screens: *Provide images of all application screens, showcasing clear input and corresponding outputs. Ensure each image includes a concise caption explaining user action and expected/observed output. You can create these screens using Qt Designer.*

1) User will be greeted with a Login Screen:



The image shows a Qt Designer preview window titled "MainWindow - [Preview] - Qt...". The window displays a login form with a light gray background. At the top center, the text "Log In" is displayed in a large, bold, black font. Below this, there are two input fields. The first is labeled "User ID:" and contains the text "011245". The second is labeled "Password:" and contains a series of asterisks "*****". At the bottom of the form, there are two buttons: "Create Account" on the left and "Log In" on the right. The window has standard Qt Designer window controls (minimize, maximize, close) in the top right corner.

2) If the User does not have an account they can Sign Up as well:



The screenshot shows a 'Sign Up' form within a window titled 'MainWindow - [Previe...]'.

Sign Up

Name:

Phone Number:

Address:

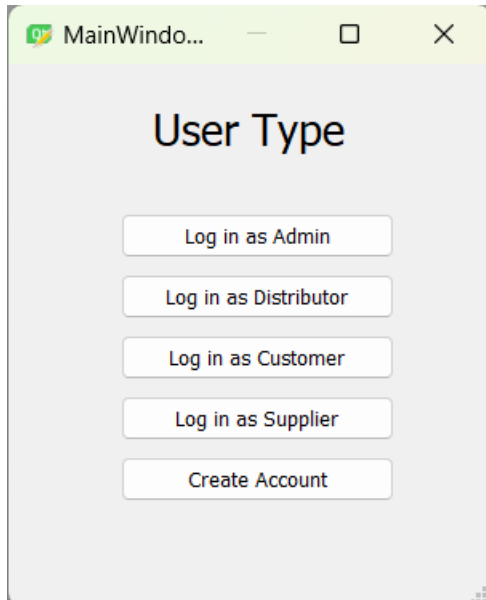
User Type:

Email:

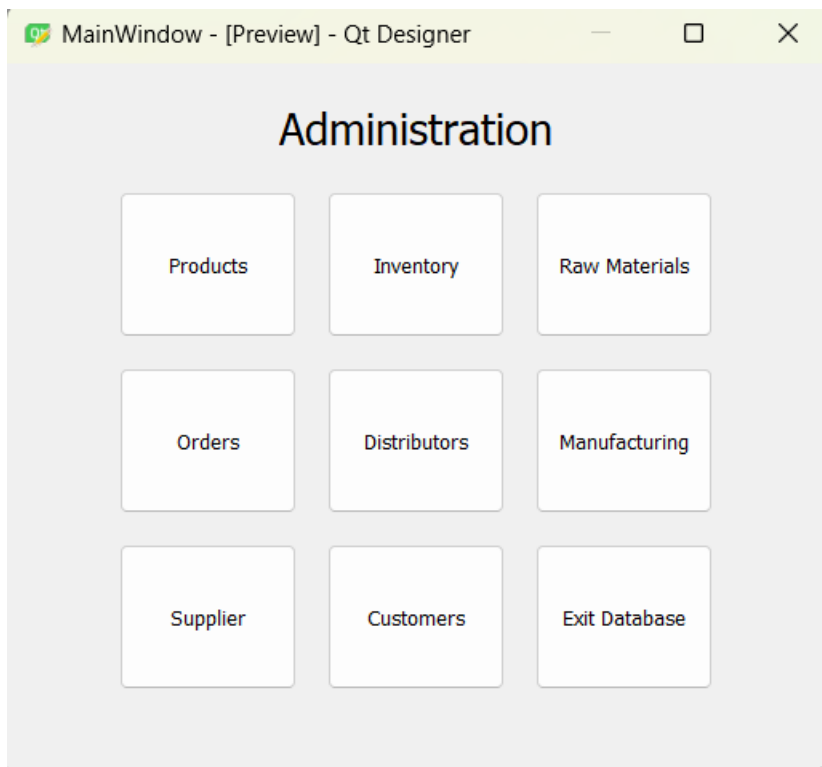
Password:

Re-Enter Password:

3) Users can select how they want to Log in (This is only permitted when the user has multiple roles):



4) If Logged in as Admin:(Admin Dashboard):



4a) Product Button in the Admin Dashboard, gives access to view, search, add, and delete the products:

MainWindow - [Preview] - Qt Designer

Search

Product Name:

Price:

☐ In Stock

Type

☐ Infant Formula

☐ Tea Whitener

☐ Coffee Creamer

☐ Powdered Milk

Search

	ID	Name	Type	Price	Ingredients	In Stock
1	0001	Nido	Infant Formula	400	Wheat, Sugar, ...	True

View

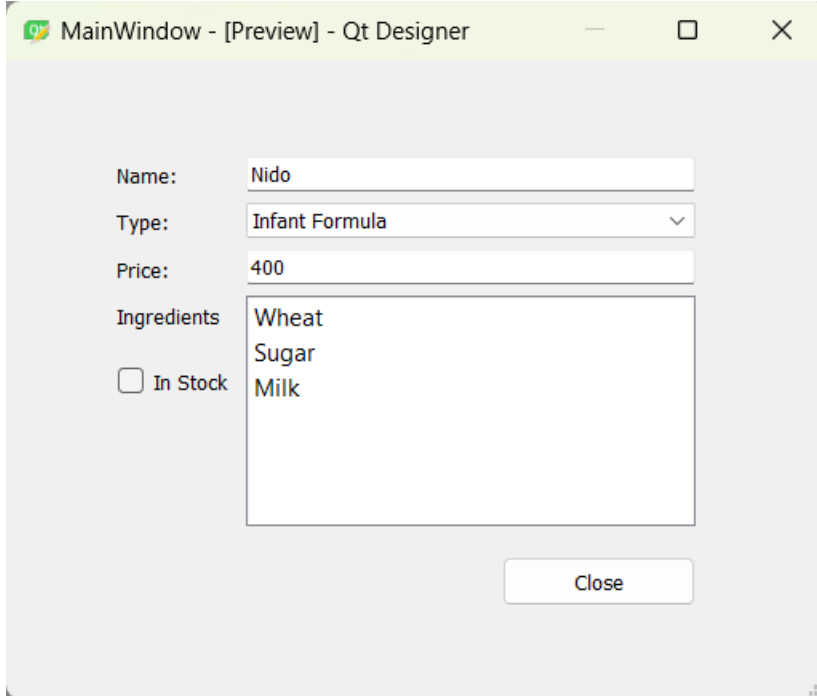
Add

Edit

Delete

Close

4a i) If View button is clicked in products form:



MainWindow - [Preview] - Qt Designer

Name: Nido

Type: Infant Formula

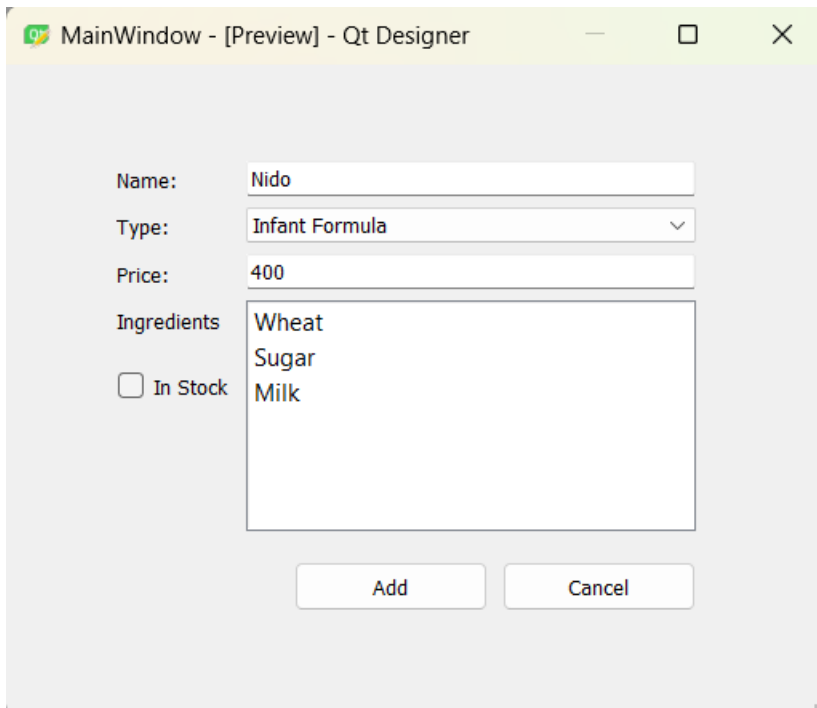
Price: 400

Ingredients: Wheat, Sugar, Milk

☐ In Stock

Close

4a ii) If Add button is clicked in products form:



MainWindow - [Preview] - Qt Designer

Name: Nido

Type: Infant Formula

Price: 400

Ingredients: Wheat, Sugar, Milk

☐ In Stock

Add Cancel

4b) If Inventory Button is clicked in the Admin Dashboard:

MainWindow - [Preview] - Qt Designer

Search

WareHouse ID:

Product ID:

Managed By:

WareHouse City

☐ Karachi

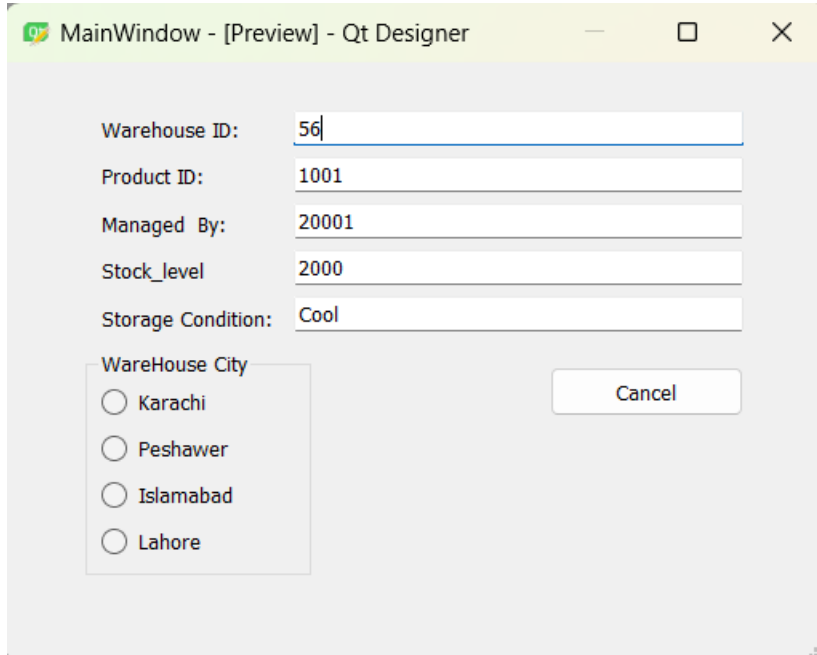
☐ Peshawer

☐ Islamabad

☐ Lahore

	Product ID	WareHouse ID	Managed By	Warehouse City	Stocks Level	Storage
1	1001	56	20001	Karachi	2000	Cool

4b i) View Button in Inventory form to view a specific inventory:

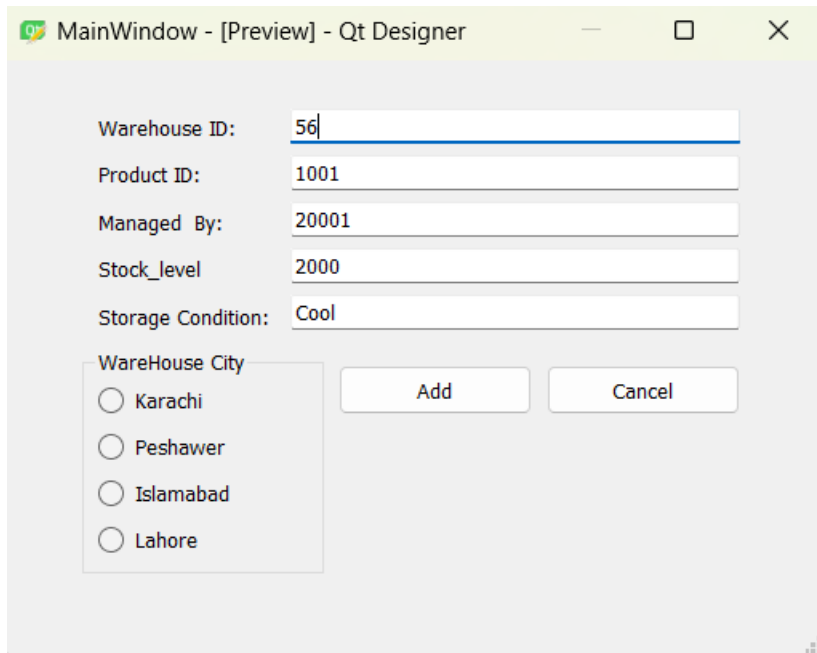


The screenshot shows a Qt Designer window titled 'MainWindow - [Preview] - Qt Designer'. The form contains the following fields and controls:

- Warehouse ID:
- Product ID:
- Managed By:
- Stock_level:
- Storage Condition:
- WareHouse City:

☐ Karachi
☐ Peshawer
☐ Islamabad
☐ Lahore
- Cancel:

4b ii) Add Button in the Inventory form to add a specific inventory:



The screenshot shows a Qt Designer window titled 'MainWindow - [Preview] - Qt Designer'. The form contains the following fields and controls:

- Warehouse ID:
- Product ID:
- Managed By:
- Stock_level:
- Storage Condition:
- WareHouse City:

☐ Karachi
☐ Peshawer
☐ Islamabad
☐ Lahore
- Add:
- Cancel:

4c) If the Raw Material button is clicked in the Admin Dashboard:

MainWindow - [Preview] - Qt Designer

Search

Material ID: 0010

Material Name: Milk

Supplier ID: 011224

Cost: 500

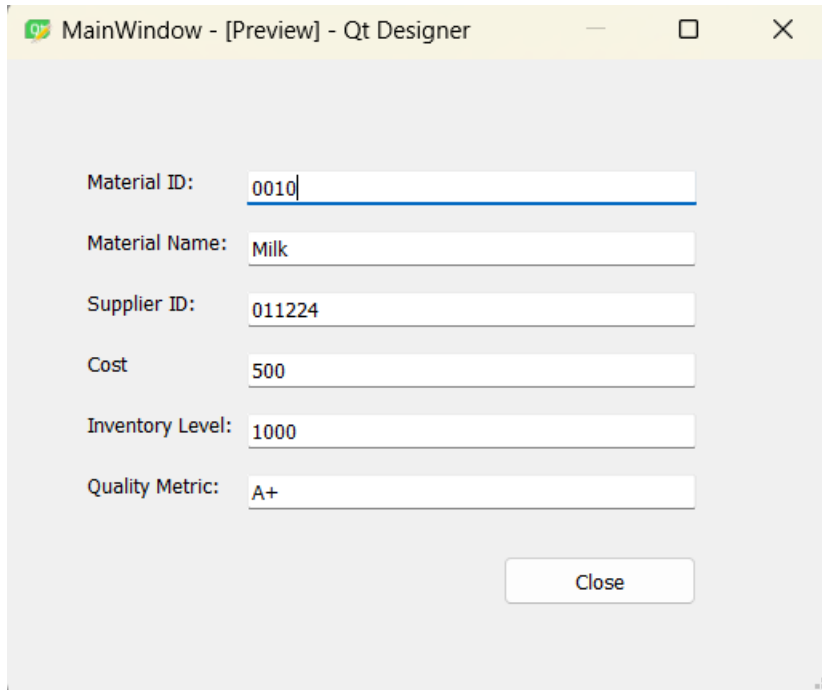
☐ In Stock

Search

	Material ID	Material Name	Supplier ID	
1	0010	Milk	011224	500

View Add Edit Delete Close

4c i) If View Button is clicked in the Raw Material Form:

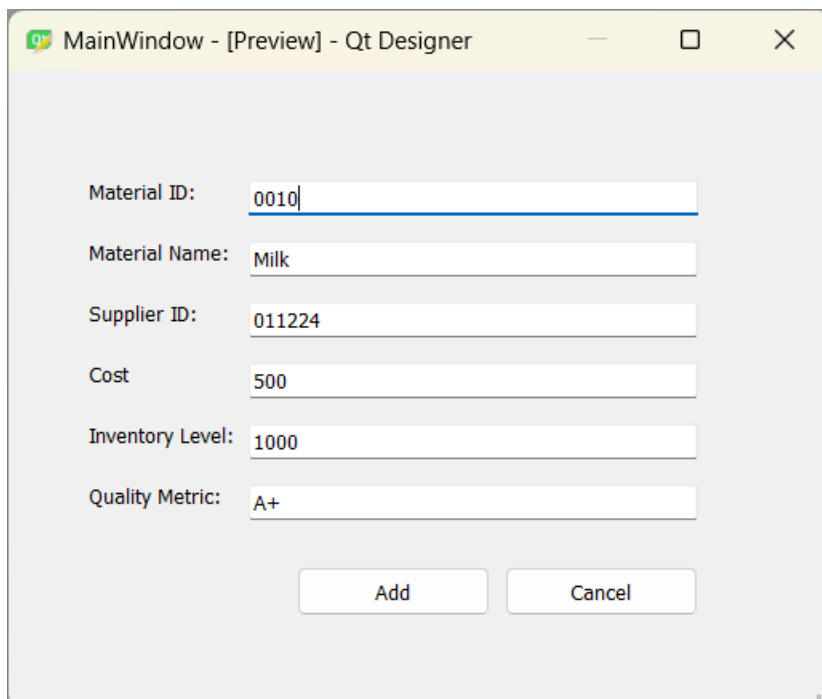


The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and values:

Field	Value
Material ID:	0010
Material Name:	Milk
Supplier ID:	011224
Cost	500
Inventory Level:	1000
Quality Metric:	A+

At the bottom right of the form is a button labeled "Close".

4c ii) If Add Button is clicked in the Raw Material Form:



The screenshot shows the same Qt Designer window as above, but with different buttons at the bottom. The form fields and values remain the same:

Field	Value
Material ID:	0010
Material Name:	Milk
Supplier ID:	011224
Cost	500
Inventory Level:	1000
Quality Metric:	A+

At the bottom of the form are two buttons: "Add" and "Cancel".

4d) If Order Button is clicked in the Admin Dashboard:

MainWindow - [Preview] - Qt Designer

Search

Product ID: 0001

Customer ID: 011245

Distributor ID:

Order Date: 1/1/2000

Quantity: 2

Price: 1000

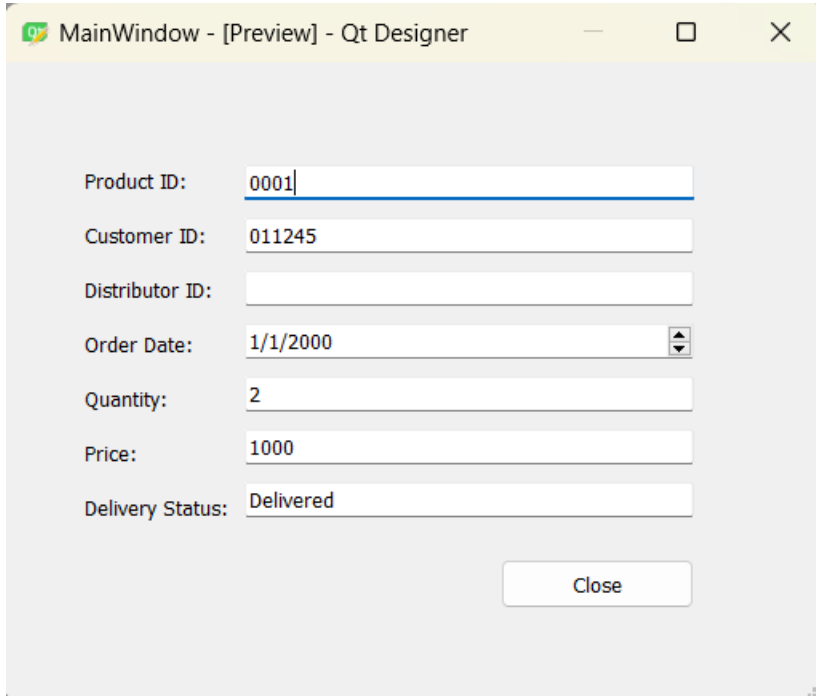
Delivery Status: Delivered

Search

	Product ID	Customer ID	Distributor ID	Order Date
1	0001	011245		1/1/2000
2	0100		011222	31/1/2000

View Add Edit Delete Close

4d i) If View is clicked in the Order Form:

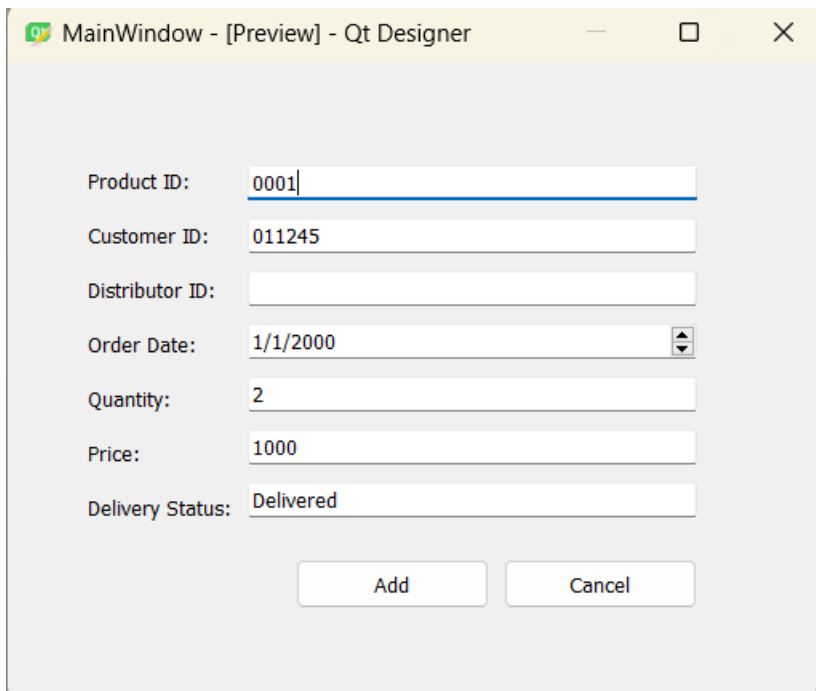


The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and values:

Field	Value
Product ID:	0001
Customer ID:	011245
Distributor ID:	
Order Date:	1/1/2000
Quantity:	2
Price:	1000
Delivery Status:	Delivered

A "Close" button is located at the bottom right of the form.

4d ii) If Add is clicked in the Order Form:



The screenshot shows the same Qt Designer window as above, but with "Add" and "Cancel" buttons instead of a "Close" button. The form fields and values are identical to the previous screenshot.

Field	Value
Product ID:	0001
Customer ID:	011245
Distributor ID:	
Order Date:	1/1/2000
Quantity:	2
Price:	1000
Delivery Status:	Delivered

"Add" and "Cancel" buttons are located at the bottom right of the form.

4e) If Distributors Button is clicked in the Admin Dashboard:

MainWindow - [Preview] - Qt Designer

Search

Representative Name:

Distributor ID:

Company Name:

City

☐ Karachi

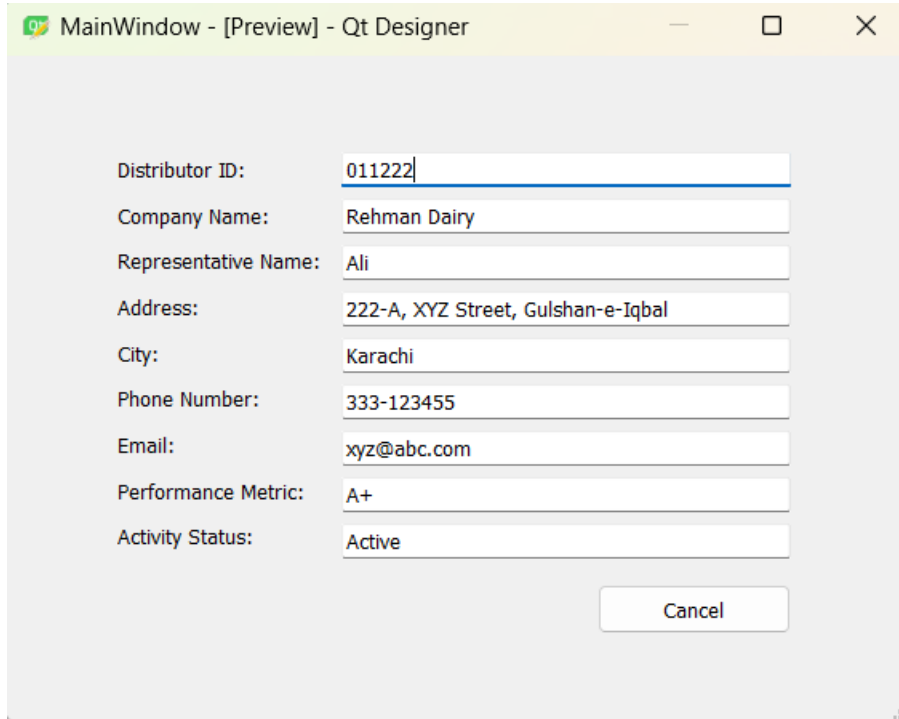
☐ Peshawer

☐ Islamabad

☐ Lahore

	Distributor ID	Company Name	Representative Name	Address	City	Phone
1	011222	Rehman Dairy	Ali	222A, Gulistan-...	Karachi	333-12

4e i) If View Button is clicked in the Distributors Form:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The window contains a form with the following fields and values:

Field	Value
Distributor ID:	011222
Company Name:	Rehman Dairy
Representative Name:	Ali
Address:	222-A, XYZ Street, Gulshan-e-Iqbal
City:	Karachi
Phone Number:	333-123455
Email:	xyz@abc.com
Performance Metric:	A+
Activity Status:	Active

At the bottom right of the form, there is a "Cancel" button.

4f) If Manufacturing Button is clicked in the Admin Dashboard:

MainWindow - [Preview] - Qt Designer

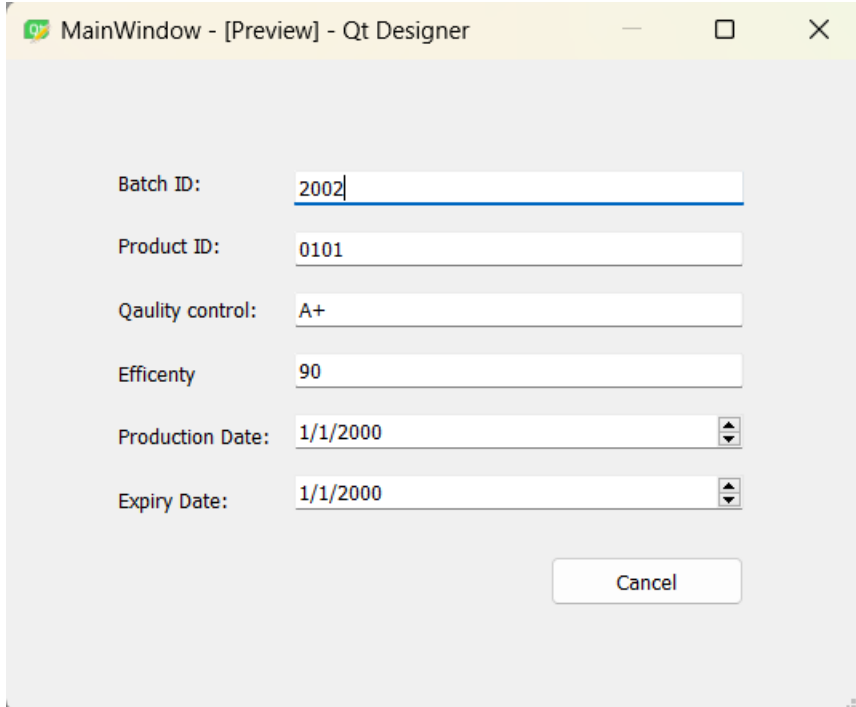
Search

Batch ID:

Product ID:

	Batch ID	Product ID	Production Date	Expiry
1	2002	0101	14/5/20	12/7/25

4f i) If View is clicked in the Manufacturing Form:

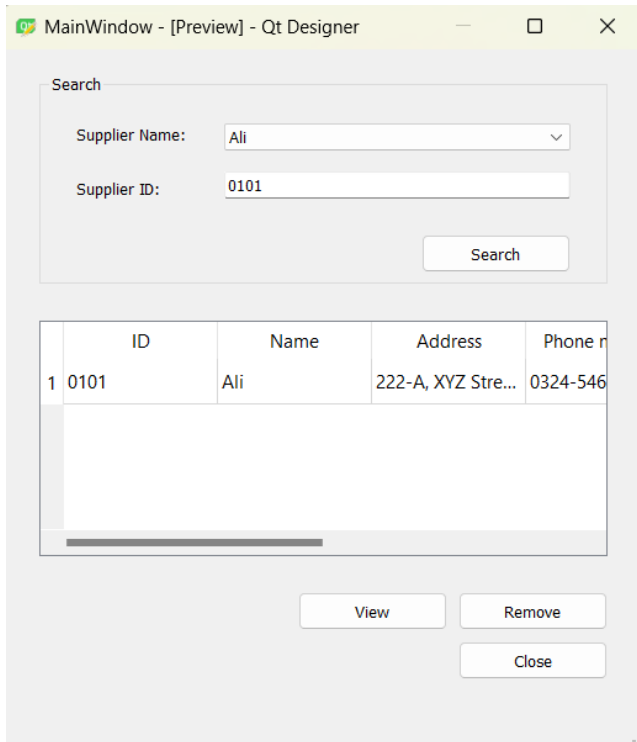


The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields:

- Batch ID: 2002
- Product ID: 0101
- Quality control: A+
- Efficiency: 90
- Production Date: 1/1/2000
- Expiry Date: 1/1/2000

A "Cancel" button is located at the bottom right of the form.

4g) If Suppliers Button is clicked in the Admin Dashboard:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields:

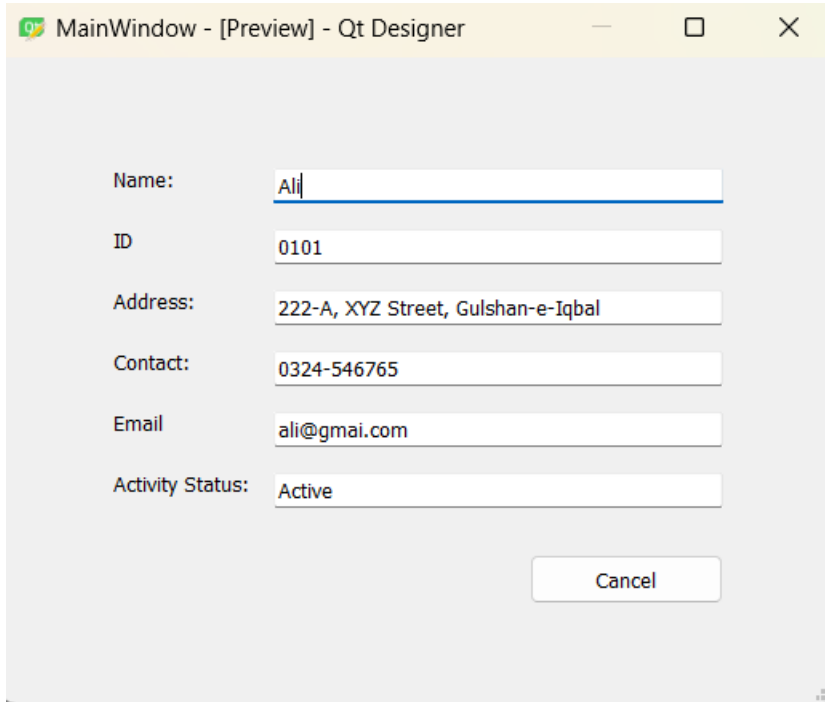
- Search: Supplier Name: Ali
- Supplier ID: 0101
- Search button

Below the search fields is a table with the following data:

	ID	Name	Address	Phone n
1	0101	Ali	222-A, XYZ Stre...	0324-546

At the bottom of the form are three buttons: "View", "Remove", and "Close".

4g i) If View is clicked in the Supplier Form:



MainWindow - [Preview] - Qt Designer

Name:

ID:

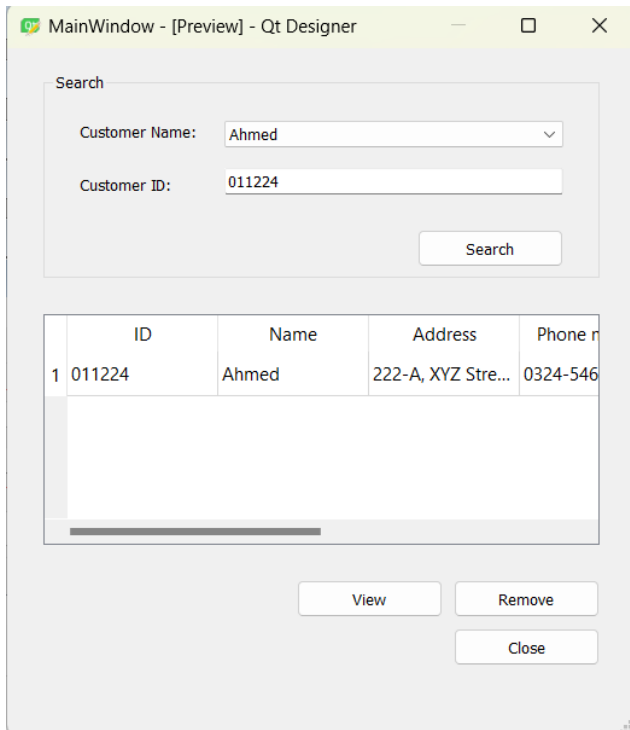
Address:

Contact:

Email:

Activity Status:

4h) If Customers Button is clicked in the Admin Dashboard:



MainWindow - [Preview] - Qt Designer

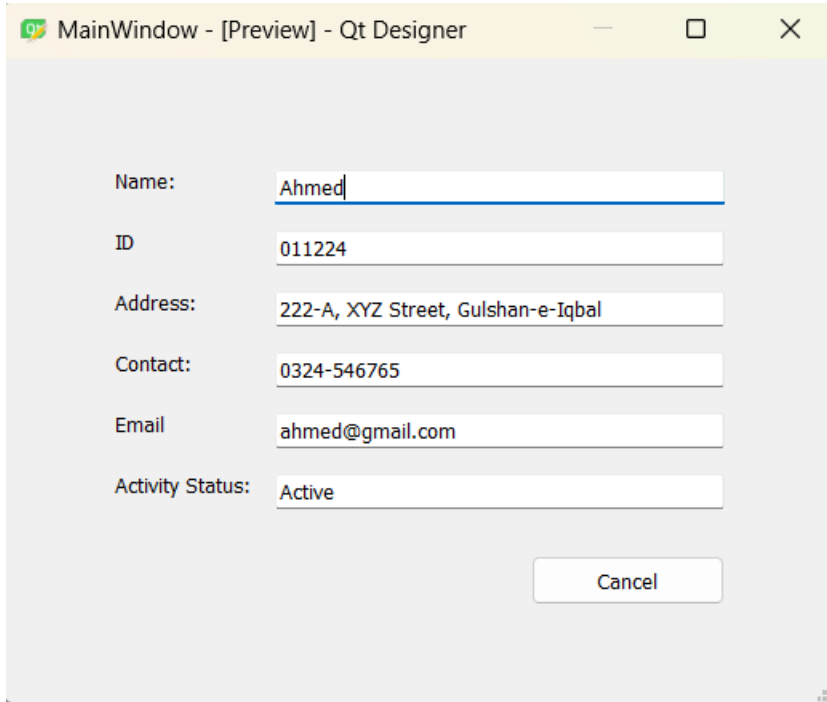
Search

Customer Name:

Customer ID:

	ID	Name	Address	Phone n
1	011224	Ahmed	222-A, XYZ Stre...	0324-546

4h i) If View is clicked in the Customers Form:

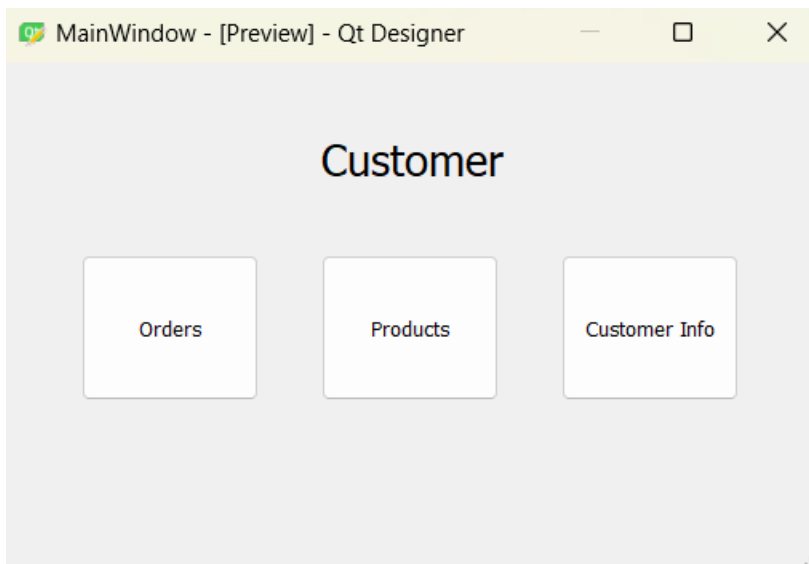


The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields:

Name:	Ahmed
ID	011224
Address:	222-A, XYZ Street, Gulshan-e-Iqbal
Contact:	0324-546765
Email	ahmed@gmail.com
Activity Status:	Active

At the bottom right of the form is a "Cancel" button.

5) Customer's Dashboard:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The dashboard is titled "Customer" and contains three buttons:

- Orders
- Products
- Customer Info

5a) If Orders Button is clicked:

MainWindow - [Preview] - Qt Designer

Search

Product ID: 0001

Customer ID: 011245

Quantity: 2

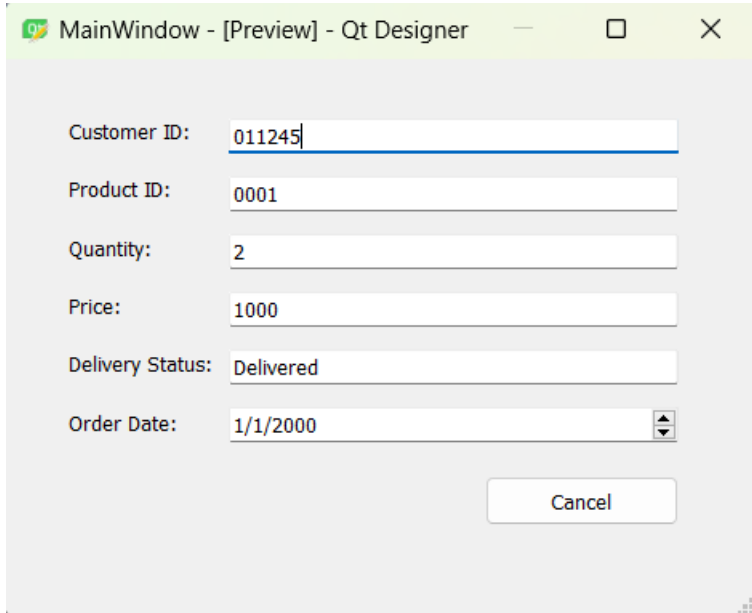
Search

	Product ID	Customer ID	Distributor ID	Order Date
1	0001	011245	2005	1/1/20

View Place Order

Delete Close

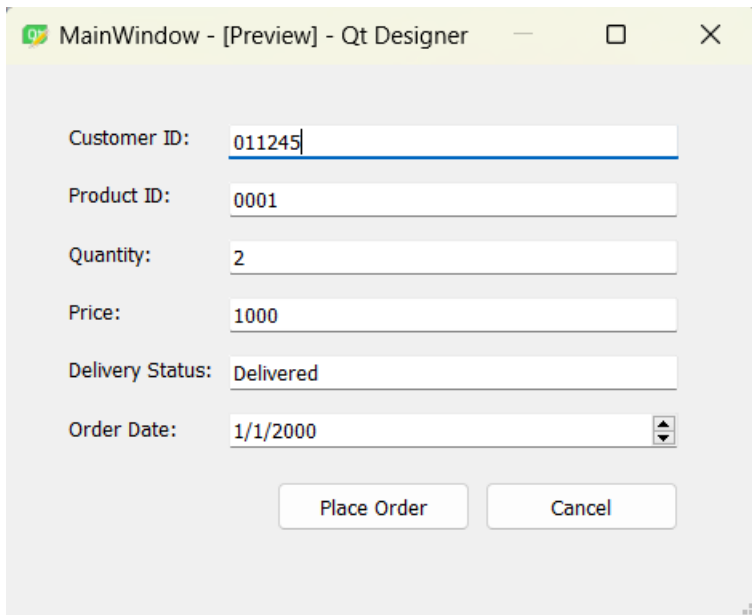
5a i) If View Button is clicked in the products Form:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and controls:

- Customer ID:
- Product ID:
- Quantity:
- Price:
- Delivery Status:
- Order Date:
- Cancel button

5a ii) Customer can Place an order too in the Orders Form:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and controls:

- Customer ID:
- Product ID:
- Quantity:
- Price:
- Delivery Status:
- Order Date:
- Place Order button
- Cancel button

CS355 – Database Project Proposal Form

5b) Product Button in Customer Dashboard:

MainWindow - [Preview] - Qt Designer

Search

Product Name:

Price:

☐ In Stock

Type

☐ Infant Formula

☐ Tea Whitener

☐ Coffee Creamer

☐ Powdered Milk

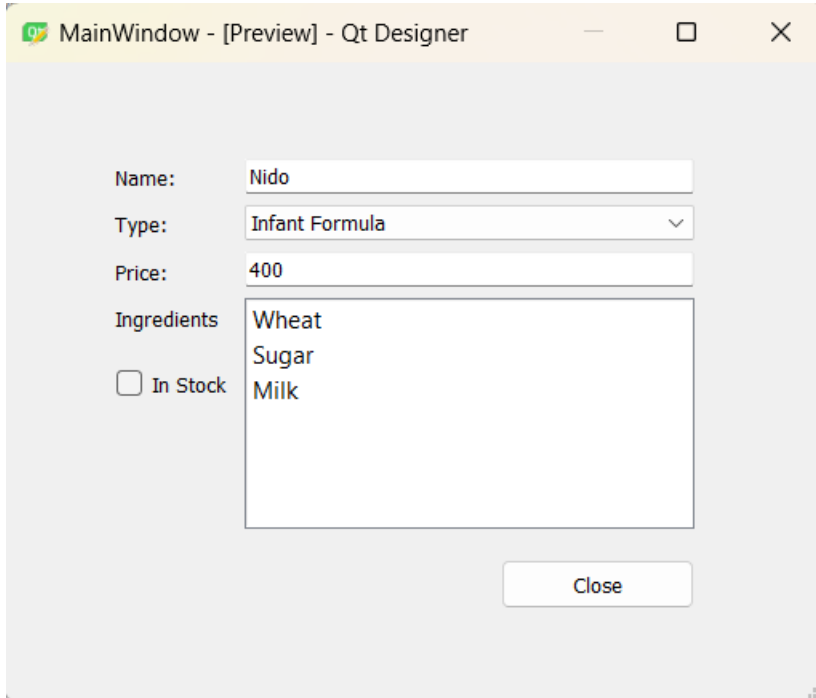
Search

	ID	Name	Type	Price	Ingredients	In Stock
1	0001	Nido	Infant Formula	400	Wheat, Sugar, ...	True

View

Close

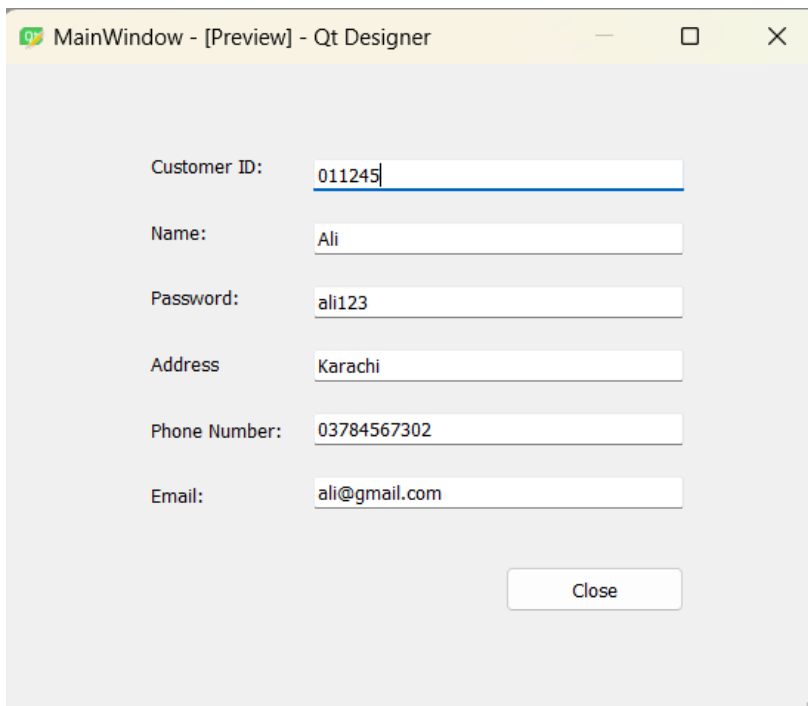
5b i) View button in Products Form:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and controls:

- Name:** Text input field with the value "Nido".
- Type:** Dropdown menu with the selected value "Infant Formula".
- Price:** Text input field with the value "400".
- Ingredients:** A list box containing the text "Wheat", "Sugar", and "Milk".
- In Stock:** A checkbox that is currently unchecked.
- Close:** A button located at the bottom right of the form.

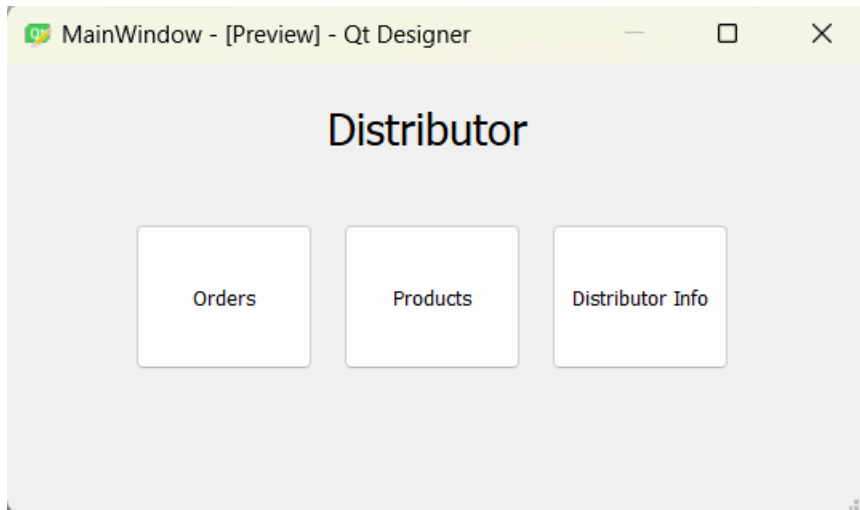
5c) Customer information button in Admin Dashboard:



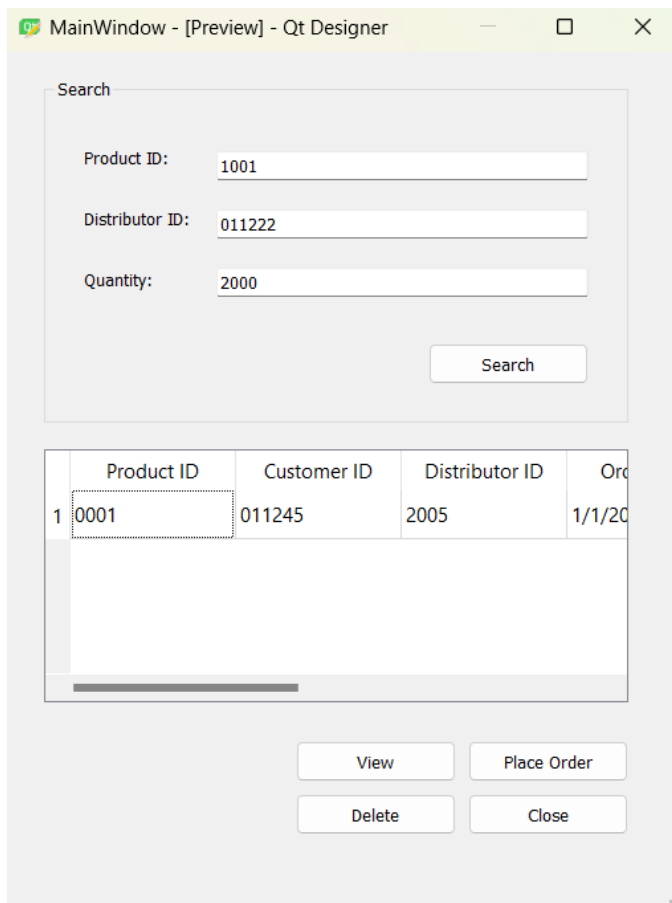
The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The form contains the following fields and controls:

- Customer ID:** Text input field with the value "011245".
- Name:** Text input field with the value "Ali".
- Password:** Text input field with the value "ali123".
- Address:** Text input field with the value "Karachi".
- Phone Number:** Text input field with the value "03784567302".
- Email:** Text input field with the value "ali@gmail.com".
- Close:** A button located at the bottom right of the form.

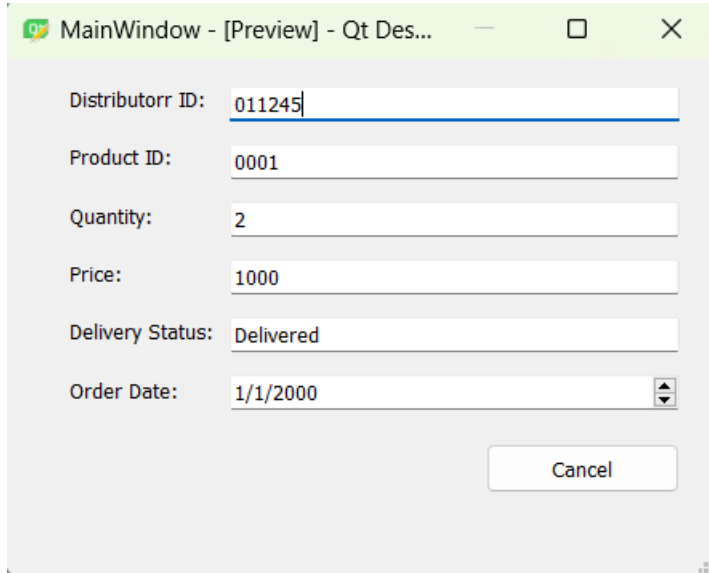
6) Distributor Dashboard:



6a) Order Button in Distributor Dashboard:



6a i) View Button in Order Form:



MainWindow - [Preview] - Qt Des...

Distributorr ID: 011245

Product ID: 0001

Quantity: 2

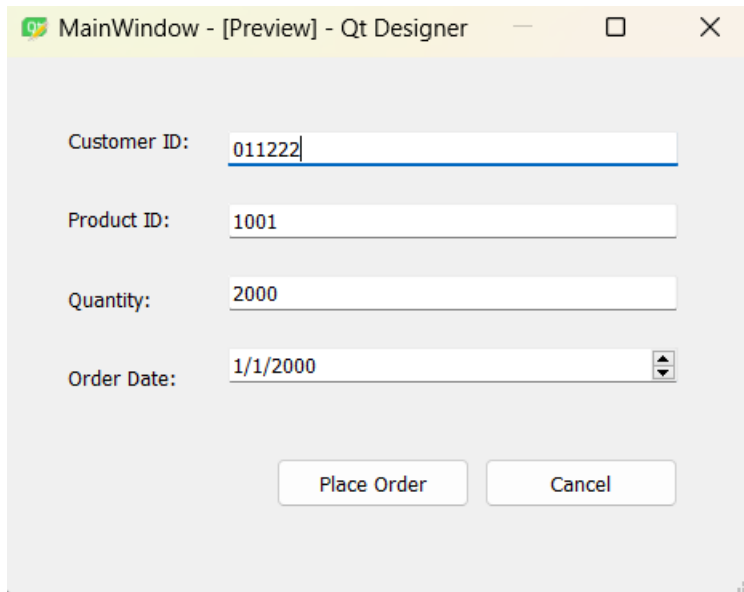
Price: 1000

Delivery Status: Delivered

Order Date: 1/1/2000

Cancel

6a ii) Place an order functionality in the Distributor Dashboard:



MainWindow - [Preview] - Qt Designer

Customer ID: 011222

Product ID: 1001

Quantity: 2000

Order Date: 1/1/2000

Place Order Cancel

6b) Product Button in Distributor Dashboard:

MainWindow - [Preview] - Qt Designer

Search

Product Name:

Price:

☐ In Stock

Type

☐ Infant Formula

☐ Tea Whitener

☐ Coffee Creamer

☐ Powdered Milk

Search

	ID	Name	Type	Price	Ingredients	In Stock
1	0001	Nido	Infant Formula	400	Wheat, Sugar, ...	True

View

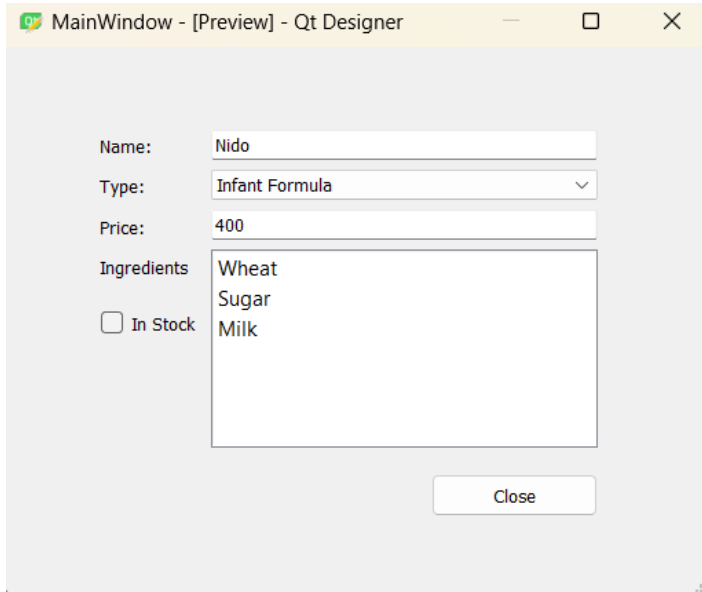
Place an Order

Edit

Delete

Close

6b i) View button in Products Form:



MainWindow - [Preview] - Qt Designer

Name:

Type:

Price:

Ingredients

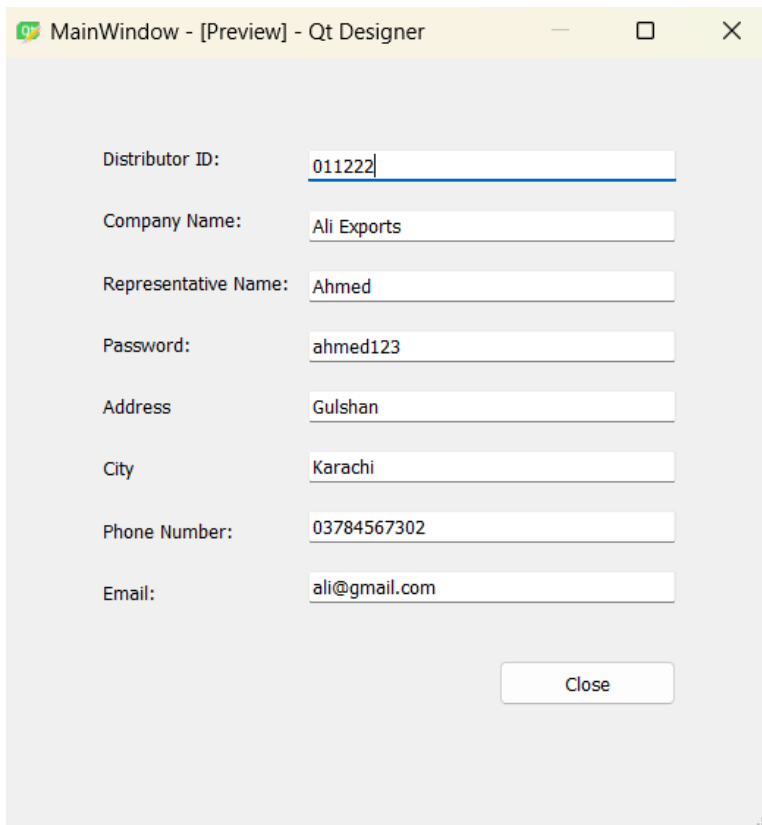
☐ In Stock

Wheat

Sugar

Milk

6c) Distributors Information button:



MainWindow - [Preview] - Qt Designer

Distributor ID:

Company Name:

Representative Name:

Password:

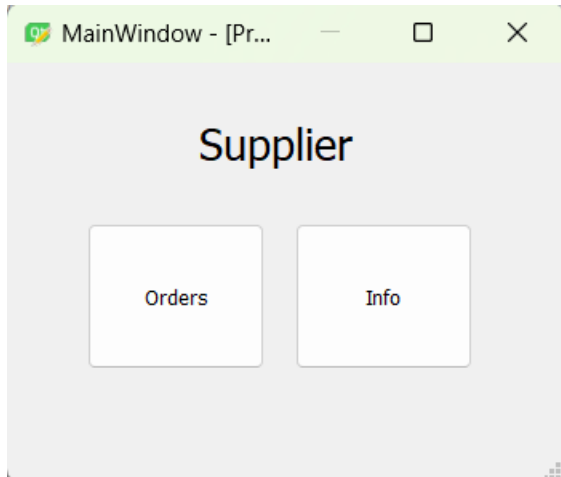
Address:

City:

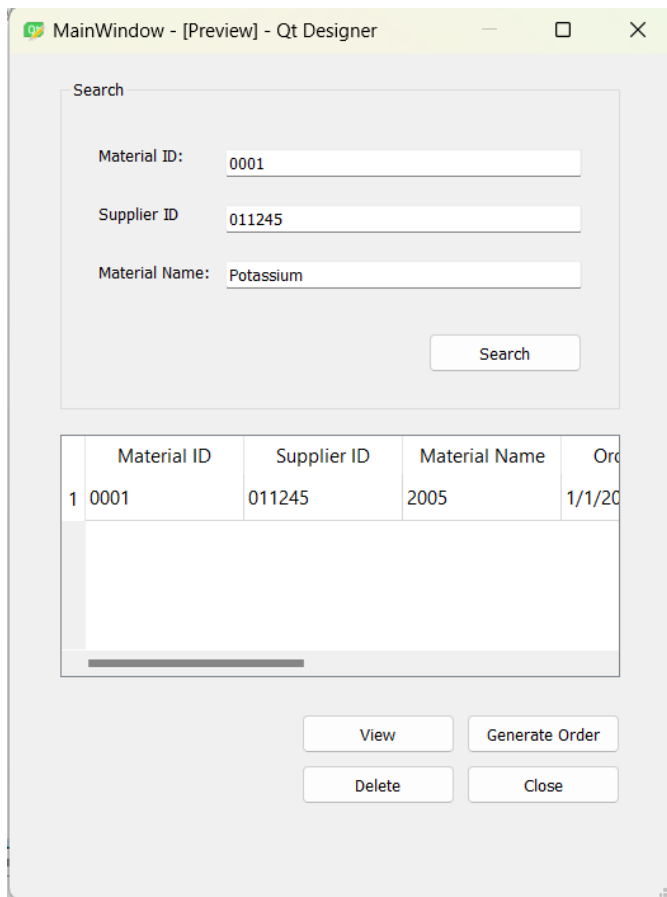
Phone Number:

Email:

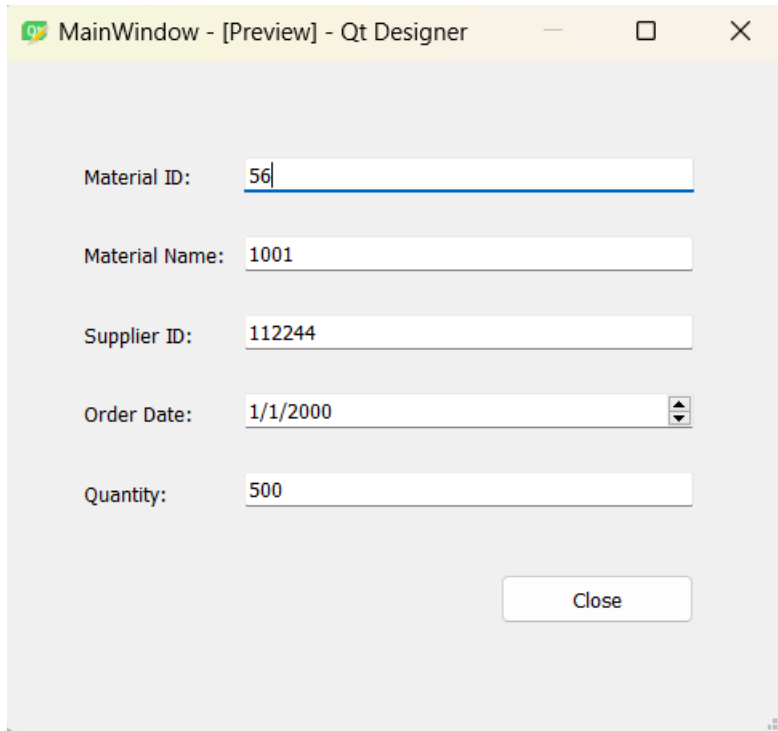
7) Supplier Dashboard:



7a) Order Button in Supplier Dashboard:



7a i) View Button in Orders Form:

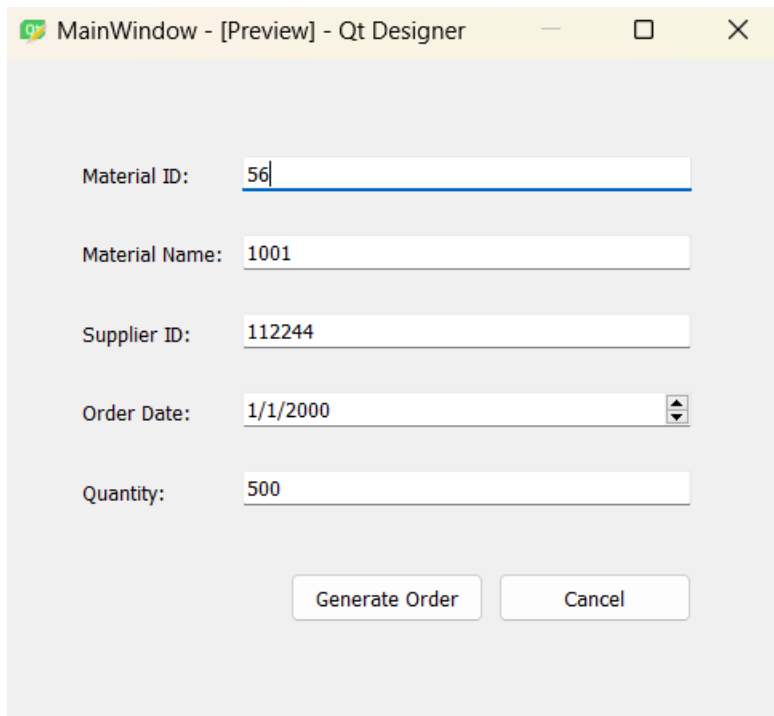


The screenshot shows a Qt Designer window titled 'MainWindow - [Preview] - Qt Designer'. The form contains the following fields and a button:

Field Label	Value
Material ID:	56
Material Name:	1001
Supplier ID:	112244
Order Date:	1/1/2000
Quantity:	500

Close

7a ii) Generate Order (Specific for Supplier) in the Orders Form:

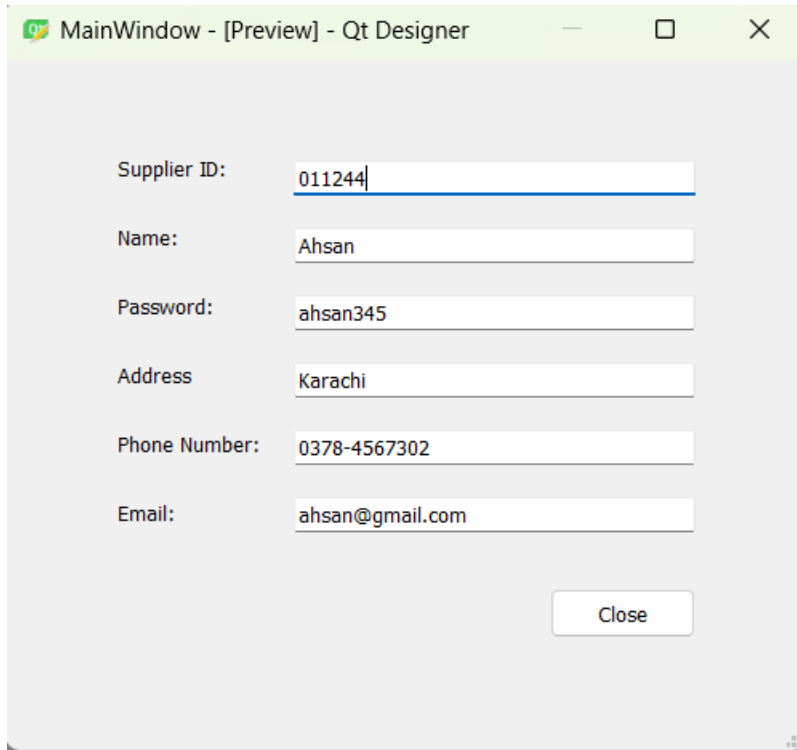


The screenshot shows a Qt Designer window titled 'MainWindow - [Preview] - Qt Designer'. The form contains the following fields and two buttons:

Field Label	Value
Material ID:	56
Material Name:	1001
Supplier ID:	112244
Order Date:	1/1/2000
Quantity:	500

Generate Order Cancel

7b) Supplier Information in the Supplier Dashboard:



The screenshot shows a Qt Designer window titled "MainWindow - [Preview] - Qt Designer". The window contains a form with the following fields and values:

Field	Value
Supplier ID:	011244
Name:	Ahsan
Password:	ahsan345
Address	Karachi
Phone Number:	0378-4567302
Email:	ahsan@gmail.com

At the bottom right of the form, there is a "Close" button.

2.5. ERD: Please incorporate an initial ERD for your project, ensuring clear highlighting of primary keys and accurate depiction of table relationships. Avoid manual ERD creation; utilize tools like DBdesigner for this purpose.

