

# Premium Brands (Online Store)

Database class project 2021/2022

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Date/time

-----This section is intended for the Instructor-----

<u>Topic</u>	<u>Mark</u>
Project Requirements and Modeling	
Correctness of Database mapping	
Functional Dependency and Normalization	
Project Tools	
Project Discussion	
Project Completeness	
Project Output Results or reporting (JasperReport, charts, graphs, etc.)	
Project Administration and Management	
Project Report	
Project Idea	
Project Complexity	
Team work	

## Abstract:

**Premium Brands** is an online store that offers products to online buyers, such as clothes, shoes, glasses and watches, where the buyer was able to sign in or sign up in this store via the application, then he can navigate between the existing items, choose the product he wants and add it to the shopping bag, then he will be shown his bill.

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## Introduction:

- We chose this project due to its frequent circulation in our lives and our great need for it. This program allows the buyer can buy without the need to go to places to buy, as it may be far from him or not be able to reach them, and to save time where with the push of a button he can get any product he wants.

## Project Requirements:

- Store database that keeps track of the **products**, their **type** as well as the **users** and their information, The database also keeps track of the **shopping bag** that includes the **products** to be purchased by the buyer.
- For each **User**, the database maintains information of the User's Name [**UName**], Personal Identification Number [**U\_ID**], E-mail [**UEmail**], and Password [**UPass**], Phone Number [**UPhone\_Number**], 2 Address [**Address**] (City, Street). Two subclasses of the **User** entity type are identified: **Buyer** and **Seller** we differentiated between them by [**BuyerOrSeller**] attribute.
- For each **Product**, the database maintains information of the Product's Name [**PName**], Product's Number [**P#**], Price [**Price**], Color [**Color**], Size [**PSize**], Image [**PImage**]. Each **Buyer** can buy a lot of **Products**, and Each **Product** can be bought by many **Buyers** if the available quantity of it is more than one. (So, the relationship is M:N) and Each **Seller** can manage all **Products**, and Each **Product** can be managed by the **Seller**, if there is more than one. (So, the relationship is M:N).
- For each **Type**, the database maintains information of the Type's Name [**TName**] (like Clothes, Shoes, Watches, Glasses ... etc.), Type's Number [**T\_ID**]. Each **Product** belongs to a specific **Type**, but it can be more than one **Product** of the same **Type**. (So, the relationship is M:1).
- For each **Shopping Bag**, the database maintains information of the Item's Number [**Item#**], Total price that should be paid [**Total Price**] and the information of the **Buyer** (like his Address, Phone Number ... etc.) who wants to buy the **Products** that were placed inside this bag with the necessary information for it (like color, size ... etc.). Each **Buyer** has one **Shopping Bag** and each **Shopping Bag** is for one **Buyer** only. (So, the relationship is 1:1) and One **Shopping Bag** can contain more than one **Product**, and the **Product** can be in more than one **Shopping Bag** if there is more than 1 quantity of the **Product**. (So, the relationship is M:N).

# Functional Dependency:

## - User Table:

UUSER	
PK	U_ID
	UPASS
	UEMAIL
	UFNAME
	ULNAME
	UPHONE_NUMBER
	ADDRESS_ID
	BUYERORSELLER

**U\_ID → UPASS, UEMAIL, UFNAME, ULNAME, UPHONE\_NUMBER, ADDRESS\_ID, BUYERORSELLER .**

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## - Product Table:

PRODUCT	
PK	P#
	PNAME
	COLOR
	PRICE
	PSIZE
	T_ID
	PIMAGE

**P# → PNAME, COLOR, PRICE, PSIZE, T\_ID, PIMAGE .**

- Type Table:

TYPE	
PK	<u>T_ID</u>
	TNAME

T\_ID → TNAME.

---

- Shopping Bag Table:

SHOPPING BAG	
PK	<u>ITEM#</u>
	TOTALPRICE
	U_ID
	P_ID

ITEM# → TOTALPRICE, U\_ID, P\_ID.

---

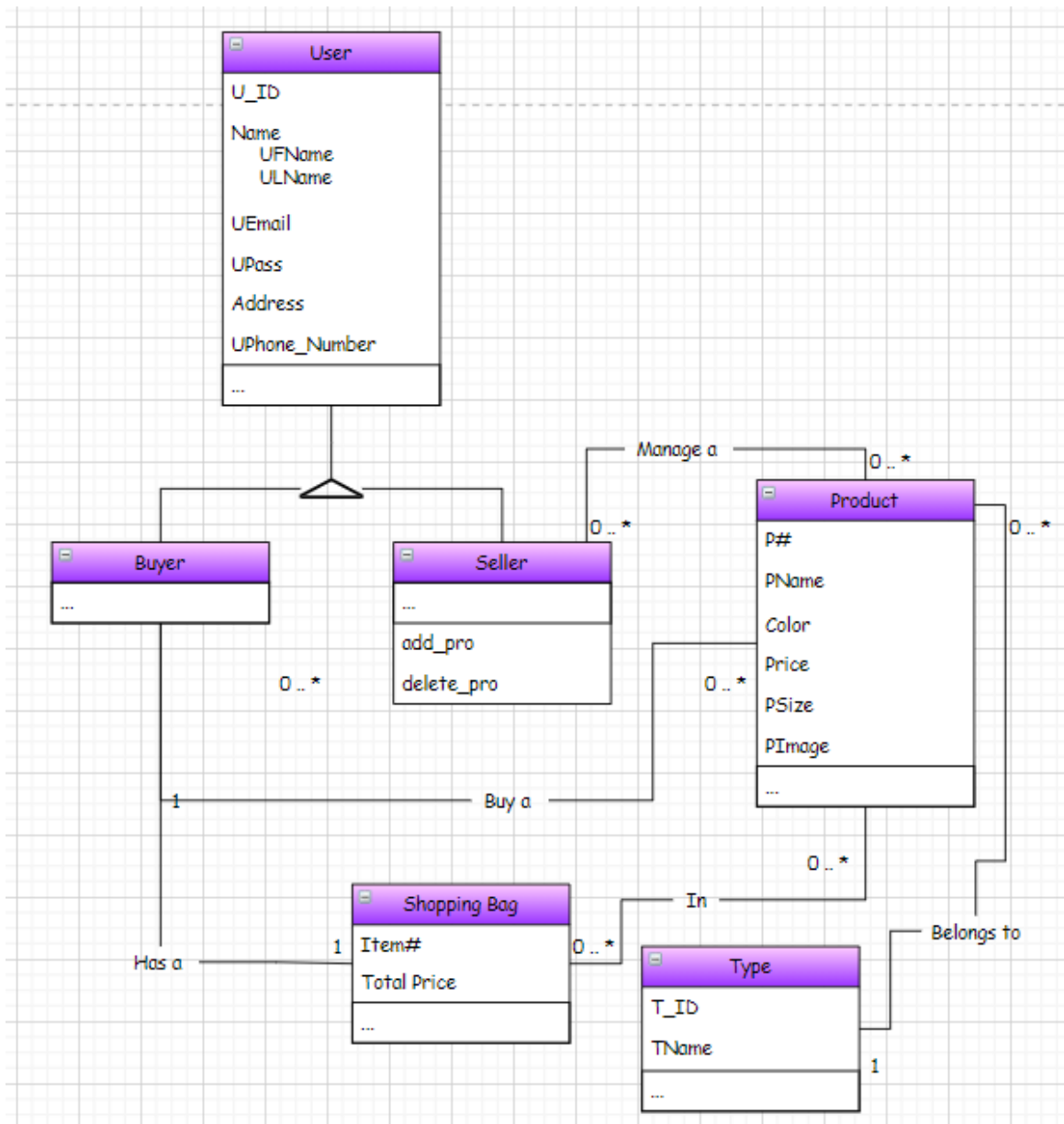
- Address Table:

ADDRESS	
PK	<u>A_ID</u>
	CITY
	STREET

A\_ID → CITY, STREET.

---

## Project UML:



## Checking if the Tables in BCNF:

All tables are in BCNF.

- 1NF: they in which the intersection of every column and record contains only one value.
- 2NF: they don't have any composite key.
- 3NF: there is no non primary key column is transitively dependent on the primary key.
- BCNF: every functional dependency Left Hand side is the super key of the table.

## Tools Used:

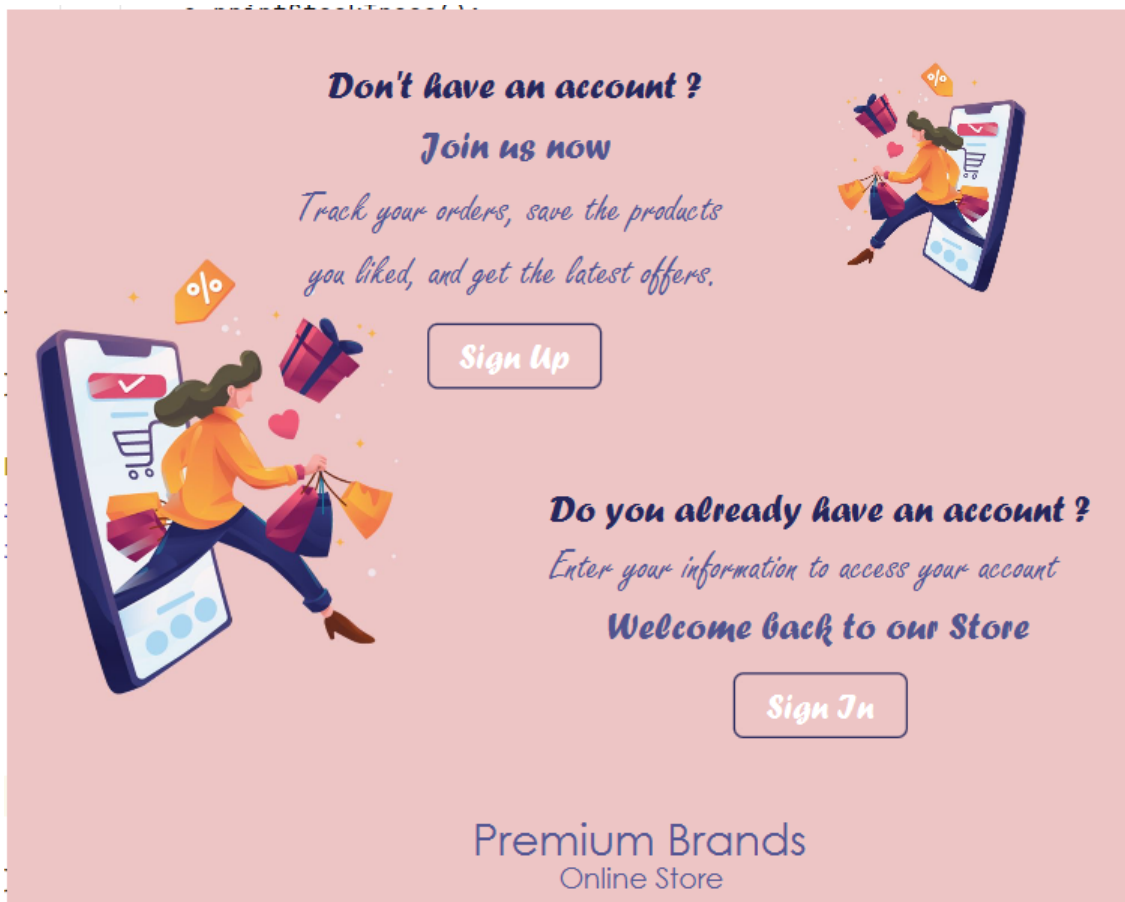
1. IntelliJ as an IDE for Java.
2. Jasper soft studio for jasper report.
3. OracleXE184\_Win64.
4. Draw.io for creating the initial Database UML.
5. Scene Builder for creating the FXML files used inside the JavaFX Project.
6. SQL Developer for connecting and creating the database tables and SQL Testing.
7. CSS for styling the interfaces in JavaFX.
8. Word documents.
9. Text documents.



## GUI Discussion:

### 1- Main Page:

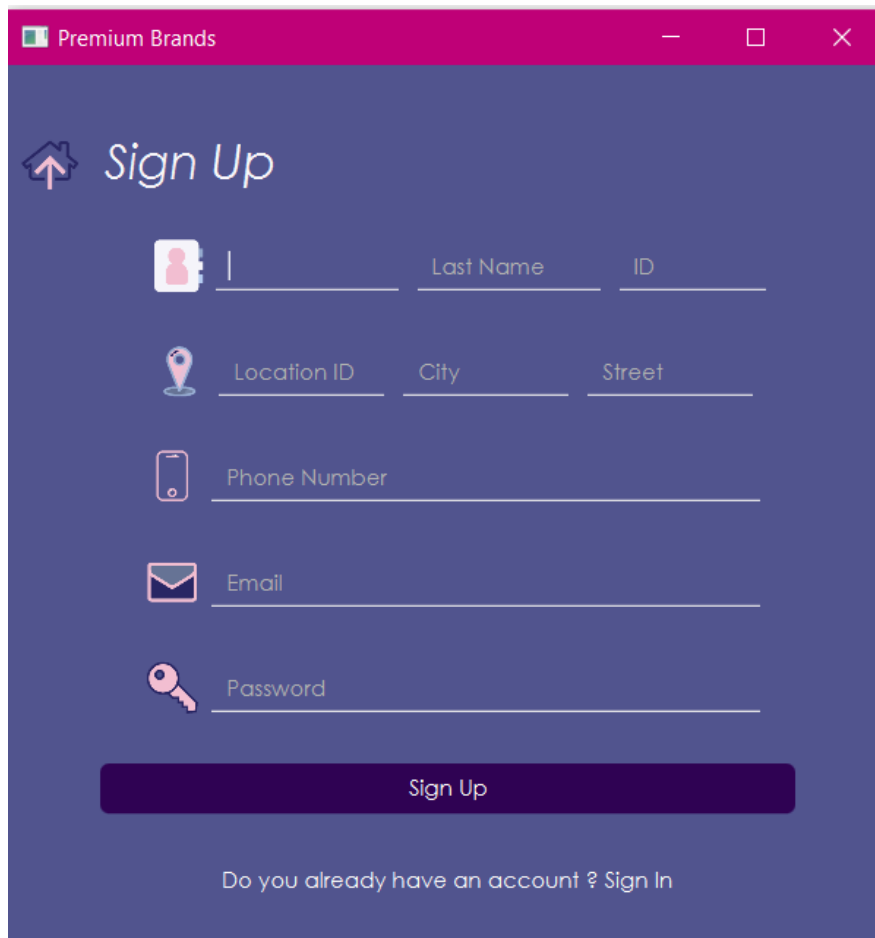
Through this interface, the user can choose whether he wants to Sign-In or Sign-Up.



## 2- Sign Up Page:

On this page, if the user is new, he must enter his information in the appropriate places, then press the [Sign-Up](#) button and then take him to the [Sign-In](#) screen to verify his registration and then enter the store.

If he is not a new user, he can click on the [Sign-In](#) button at the bottom of [Sign-Up](#) screen to go to the [Sign-In](#) screen to enter through it.

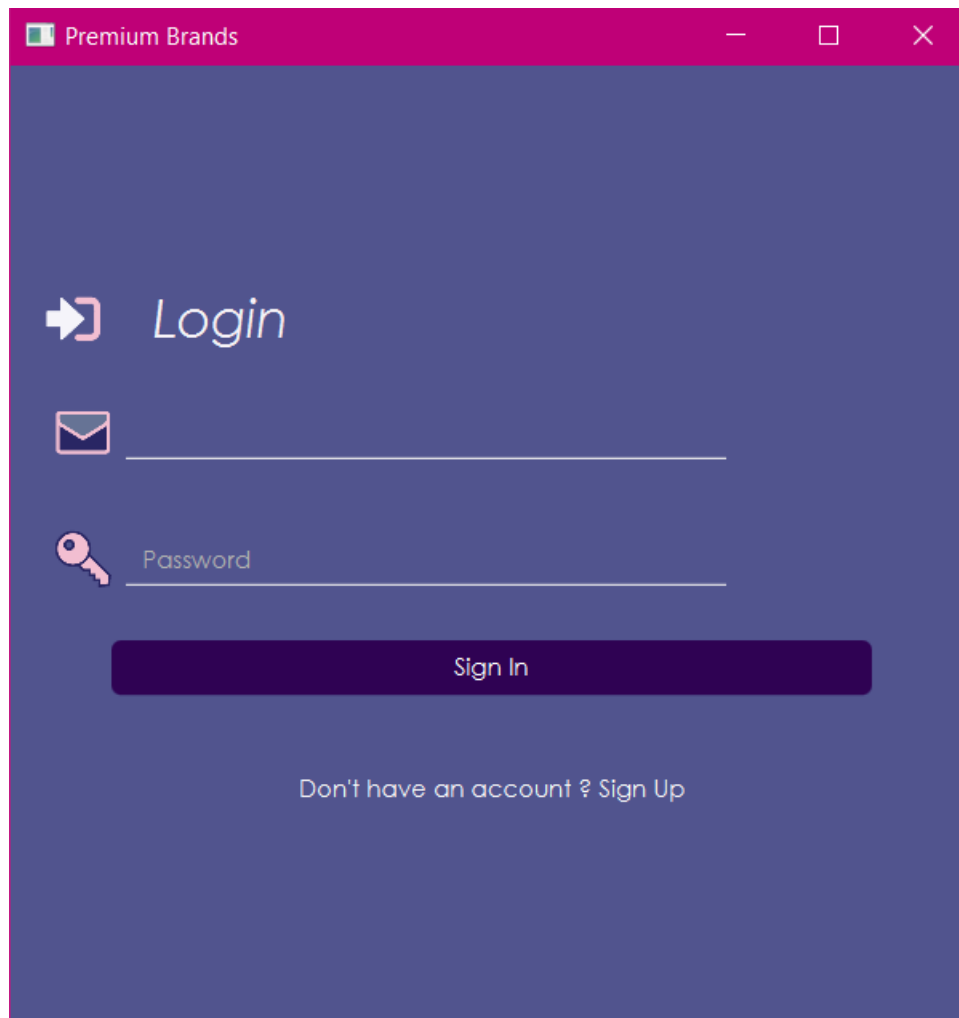


The image shows a web application window titled "Premium Brands" with standard window controls. The main content area has a dark blue background and is titled "Sign Up" with a house icon. It contains several input fields with icons: a person icon for a name field (split into "Last Name" and "ID"), a location pin icon for a location field (split into "Location ID", "City", and "Street"), a phone icon for "Phone Number", an envelope icon for "Email", and a key icon for "Password". A large, dark blue "Sign Up" button is positioned below the fields. At the bottom, a link reads "Do you already have an account ? Sign In".

### 3- Sign In Page:

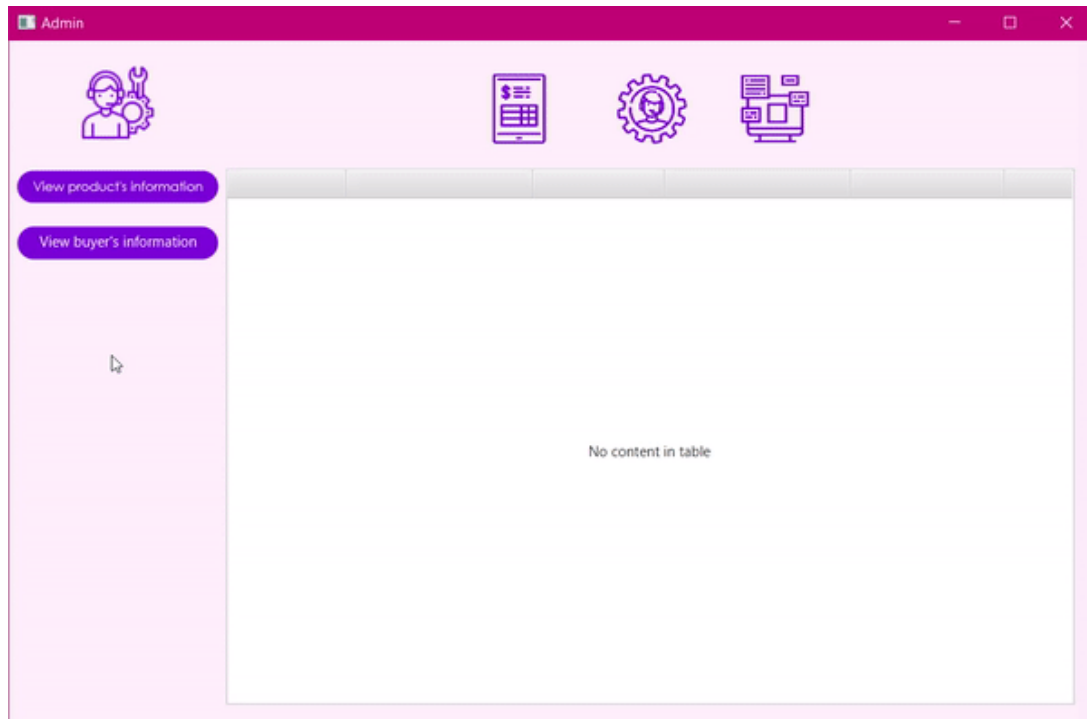
On this page, if the user is a previous user, he must enter his email that he previously registered with and the password in the appropriate places, then press the [Sign-In](#) button to enter the store.

If he is a new user, he can click on the [Sign-Up](#) button at the bottom of the [Sign-In](#) screen to move to the [Sign-Up](#) screen to enter his information and register.



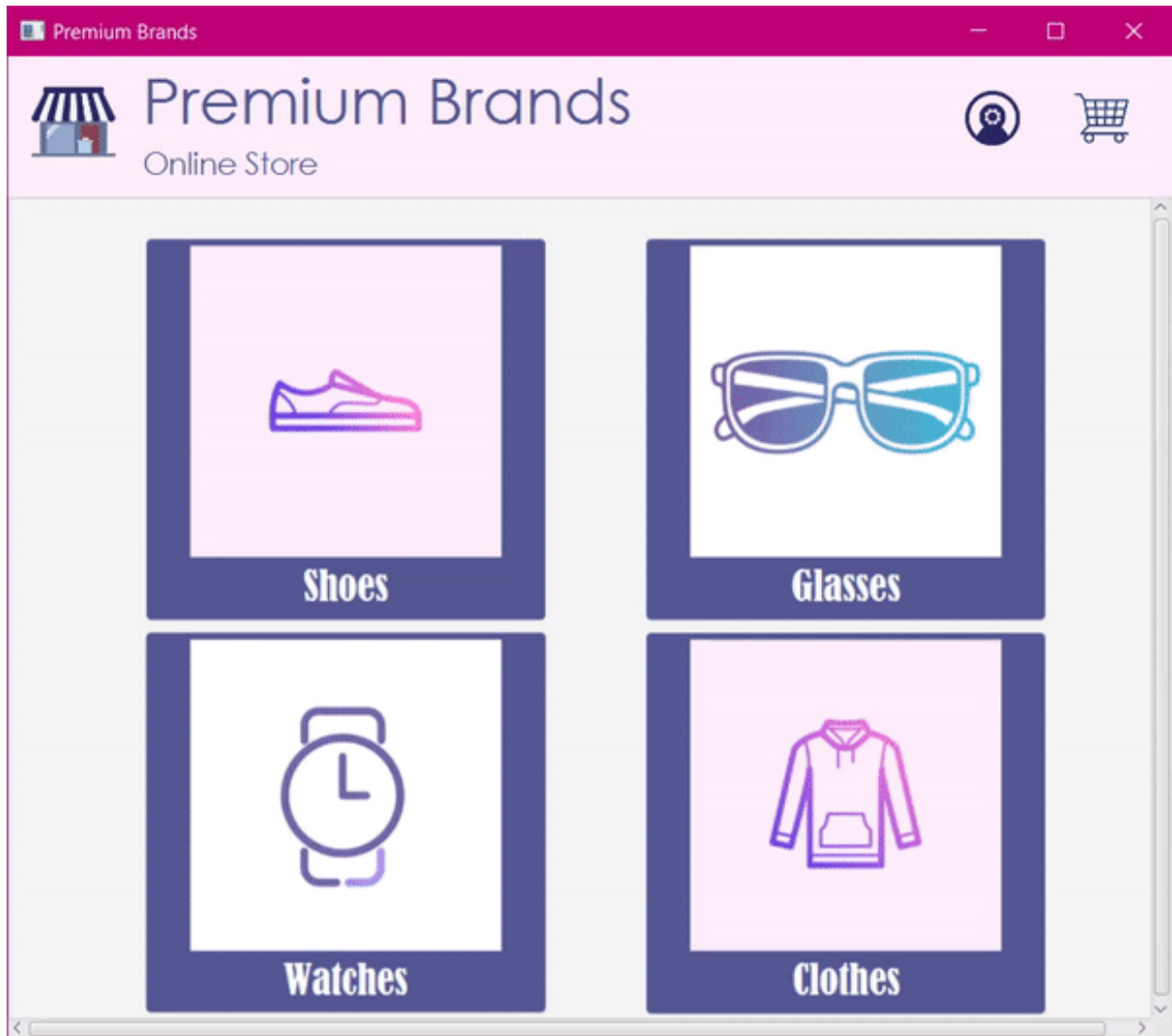
The image shows a web browser window titled "Premium Brands" with a dark blue header. The main content area has a dark blue background. On the left, there is a white icon of a right-pointing arrow inside a square. To its right, the word "Login" is written in a white, sans-serif font. Below this, there are two input fields. The first field has a white envelope icon to its left and a white underline. The second field has a white key icon to its left and the word "Password" in a small, white, sans-serif font to its left, followed by a white underline. Below the input fields is a dark blue rectangular button with the text "Sign In" in a white, sans-serif font. At the bottom of the page, the text "Don't have an account ? Sign Up" is written in a small, white, sans-serif font.

If the admin's email and password are entered, it will be transferred to another page through which the admin can see all the products in the store and their information and all the people registered in this store and their personal information



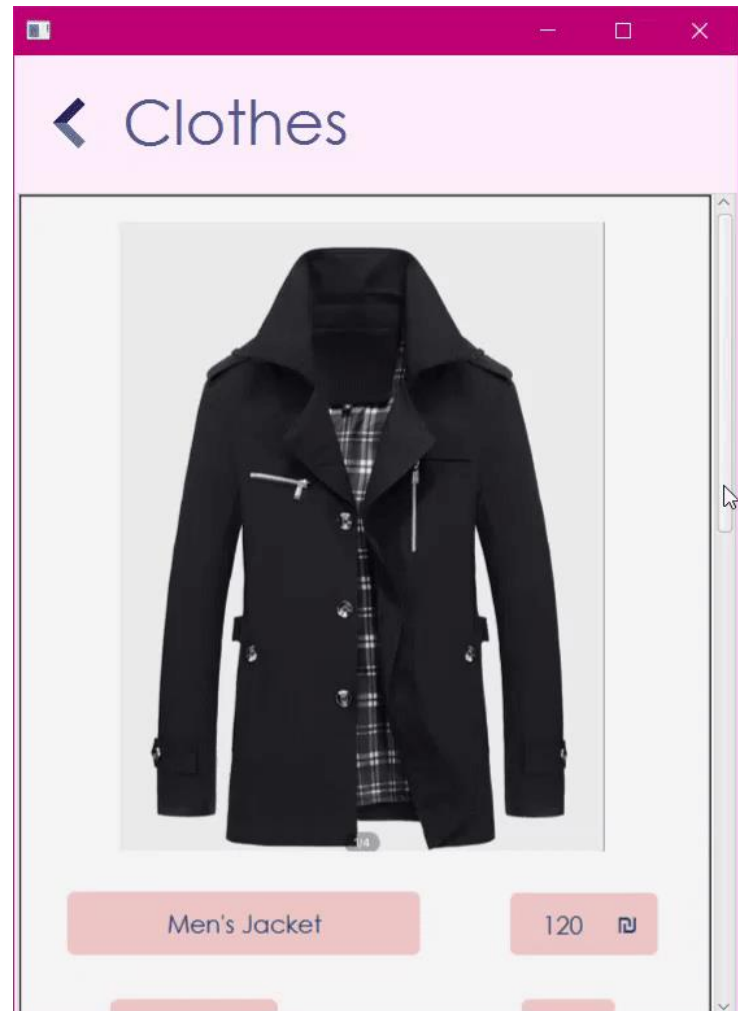
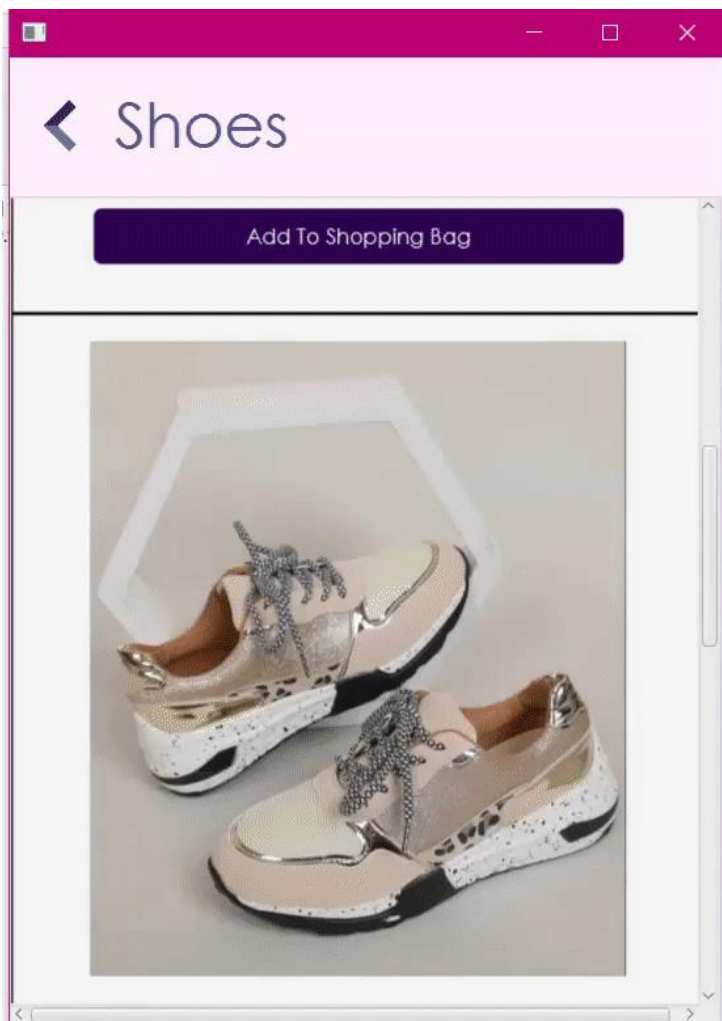
#### 4- Start Page:

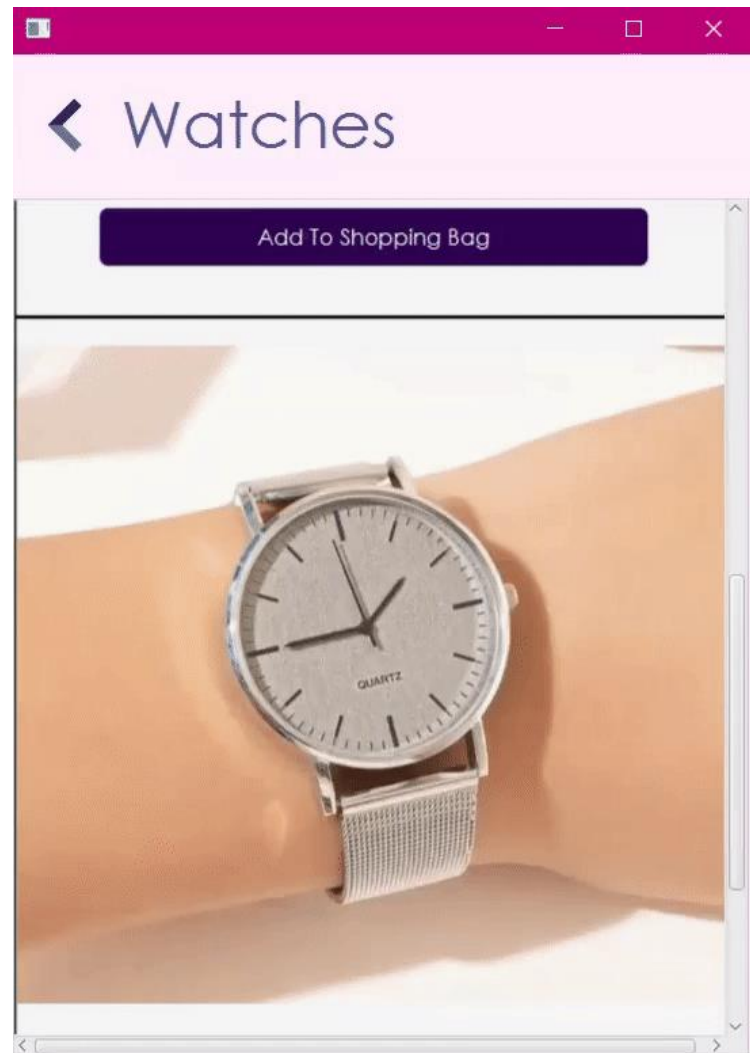
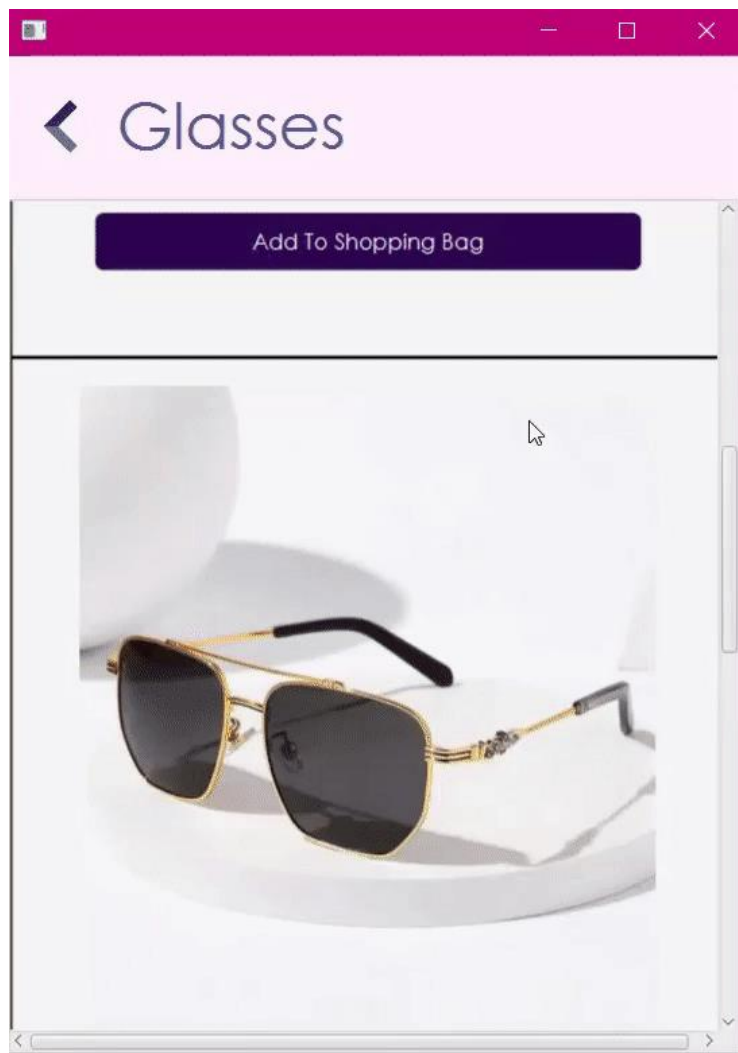
After signing in, this screen will be displayed where the user can choose the product he wants by clicking on one of these types, then the products will be shown to him according to their type.



## 5- Clothes, Shoes, Glasses, Watches Page:

When you click on this button, its screen will display and contain the products belonging to it. Each product will display its specifications such as an image, name, color and size. Then he can click on the [Add To Shopping Bag](#) button, and this product will be added to his cart





## 6- Shopping Bag Page:

This screen will display the products added by the user via the previous [Add To Shopping Bag](#) button, the total price and the price with delivery, then if he presses the [Send Order](#) button, the Bill will be displayed to him according to the Jasper Report.

The screenshot shows a mobile application window titled "Shopping Bag". The header bar is dark red and contains a back arrow on the left, two shopping bag icons, and the title "Shopping Bag" in a white script font. Below the header is a large, empty white rectangular area for displaying items. At the bottom of the screen, there is a summary section with three rows: "ORDER VALUE", "DELIVERY VALUE", and "TOTAL AMOUNT", each followed by a dollar sign (\$). Below this summary is a red button with a white shopping bag icon and the text "Send Oreder".

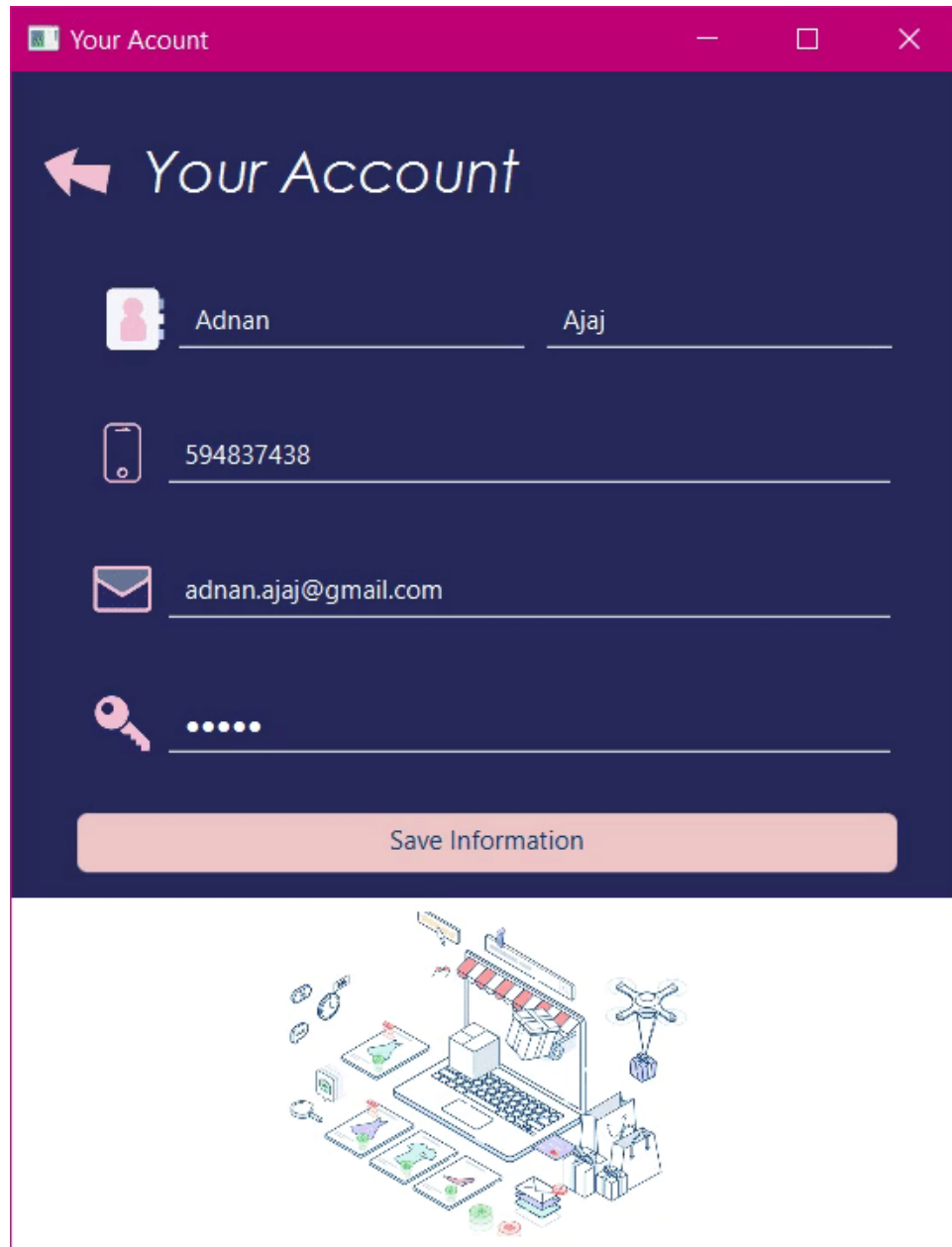
ORDER VALUE	\$
DELIVERY VALUE	\$
TOTAL AMOUNT	\$

Send Oreder




## 7- Account Page:


On this screen, the data of the user who entered the store is displayed, and he can modify it by deleting what he wants and writing the new information in the same place again and then pressing the [Save Information](#) button





**Your Account**

← *Your Account*










[Save Information](#)



# SQL Statement:

The screenshot shows the SQL Developer interface. On the left, the 'PREMIUM BRANDS' schema is expanded, showing tables like ADDRESS, PRODUCT, SHOPPING\_BAG, TYPE, and USER. The 'TYPE' table is selected. On the right, the 'Columns' tab is active, displaying the SQL statement for creating the 'TYPE' table.

```
CREATE TABLE "C##ALAA"."TYPE"
(
  "T_ID" NUMBER NOT NULL ENABLE,
  "TNAME" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  CONSTRAINT "TYPE_PK" PRIMARY KEY ("T_ID")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE,
  CONSTRAINT "S" UNIQUE ("TNAME")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE
) SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;
```

The screenshot shows the SQL Developer interface. On the left, the 'PREMIUM BRANDS' schema is expanded, showing tables like ADDRESS, PRODUCT, SHOPPING\_BAG, TYPE, and USER. The 'ADDRESS' table is selected. On the right, the 'Columns' tab is active, displaying the SQL statement for creating the 'ADDRESS' table.

```
CREATE TABLE "C##ALAA"."ADDRESS"
(
  "A_ID" NUMBER NOT NULL ENABLE,
  "CITY" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "STREET" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  CONSTRAINT "ADDRESS_PK" PRIMARY KEY ("A_ID")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE
) SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;
```

At the bottom, a 'Messages - Log' window shows the successful execution of the statement.

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitioning

Actions...

```

CREATE TABLE "C##ALAA"."USER"
(
  "U_ID" NUMBER NOT NULL ENABLE,
  "UPASS" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "UEMAIL" VARCHAR2(100 BYTE) NOT NULL ENABLE,
  "UFNAME" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "ULNAME" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "UPHONE_NUMBER" NUMBER NOT NULL ENABLE,
  "ADDRESS_ID" NUMBER NOT NULL ENABLE,
  "BUYERORSELLER" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  CONSTRAINT "SUSER_FK" PRIMARY KEY ("U_ID")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE,
  CONSTRAINT "UADDRESS" FOREIGN KEY ("ADDRESS_ID")
  REFERENCES "C##ALAA"."ADDRESS" ("A_ID") ENABLE
) SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

```

PREMIUM BRANDS

- Tables (Filtered)
  - ADDRESS
    - A\_ID
    - CITY
    - STREET
  - PRODUCT
    - P#
    - PNAME
    - COLOR
    - PRICE
    - PSIZE
    - T\_ID
    - PIMAGE
  - SHOPPING\_BAG
    - ITEM#
    - TOTALPRICE
    - U\_ID
    - P\_ID
  - TYPE
    - T\_ID
    - TNAME
  - USER
    - U\_ID
    - UPASS
    - UEMAIL
    - UFNAME
    - ULNAME
    - UPHONE\_NUMBER
    - ADDRESS\_ID
    - BUYERORSELLER
- Views
- Indexes

Columns | Data | Model | Constraints | Grants | Statistics | Triggers | Flashback | Dependencies | Details | Partitioning

Actions...

```

CREATE TABLE "C##ALAA"."PRODUCT"
(
  "P#" NUMBER NOT NULL ENABLE,
  "PNAME" VARCHAR2(100 BYTE) NOT NULL ENABLE,
  "COLOR" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "PRICE" NUMBER NOT NULL ENABLE,
  "PSIZE" VARCHAR2(20 BYTE) NOT NULL ENABLE,
  "T_ID" NUMBER NOT NULL ENABLE,
  "PIMAGE" VARCHAR2(100 BYTE) NOT NULL ENABLE,
  CONSTRAINT "PRODUCT_FK" PRIMARY KEY ("P#")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE,
  CONSTRAINT "T" UNIQUE ("T_ID", "P#")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
  TABLESPACE "USERS" ENABLE,
  CONSTRAINT "TYPEOFPRODUCT" FOREIGN KEY ("T_ID")
  REFERENCES "C##ALAA"."TYPE" ("T_ID") ENABLE
) SEGMENT CREATION IMMEDIATE
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
TABLESPACE "USERS" ;

```

PREMIUM BRANDS

- Tables (Filtered)
  - ADDRESS
    - A\_ID
    - CITY
    - STREET
  - PRODUCT
    - P#
    - PNAME
    - COLOR
    - PRICE
    - PSIZE
    - T\_ID
    - PIMAGE
  - SHOPPING\_BAG
    - ITEM#
    - TOTALPRICE
    - U\_ID
    - P\_ID
  - TYPE
    - T\_ID
    - TNAME
  - USER
    - U\_ID
    - UPASS
    - UEMAIL
    - UFNAME
    - ULNAME
    - UPHONE\_NUMBER
    - ADDRESS\_ID
    - BUYERORSELLER
- Views
- Indexes
- Packages
- Procedures
- Functions

The screenshot displays the Oracle SQL Developer interface. On the left, a tree view shows the database schema 'PREMIUM BRANDS' with tables: ADDRESS, PRODUCT, SHOPPING\_BAG (highlighted), TYPE, and USER. The SHOPPING\_BAG table is expanded, showing columns: ITEM#, TOTALPRICE, U\_ID, and P\_ID. On the right, the 'Actions...' tab is active, displaying the SQL code for creating the table.

```
CREATE TABLE "C##ALAA"."SHOPPING_BAG"
(
  "ITEM#" NUMBER NOT NULL ENABLE,
  "TOTALPRICE" NUMBER NOT NULL ENABLE,
  "U_ID" NUMBER NOT NULL ENABLE,
  "P_ID" NUMBER NOT NULL ENABLE,
  CONSTRAINT "SHOPPING_BAG_PK" PRIMARY KEY ("ITEM#")
  USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 COMPUTE STATISTICS
  TABLESPACE "USERS" ENABLE,
  CONSTRAINT "UIDD" FOREIGN KEY ("U_ID")
    REFERENCES "C##ALAA"."USER" ("U_ID") ENABLE,
  CONSTRAINT "PIDD" FOREIGN KEY ("P_ID")
    REFERENCES "C##ALAA"."PRODUCT" ("P#") ENABLE
) SEGMENT CREATION DEFERRED
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255
NOCOMPRESS LOGGING
TABLESPACE "USERS" ;
```

## Jasper Report:

## Conclusion:

This application helps its users to shop from their homes and from everywhere, and choose the product they want.

## References:

- <https://imagecolorpicker.com/>
- <https://ezgif.com/maker>
- <https://www.tutorialspoint.com/how-to-display-an-image-in-javafx>
- <https://loading.io/icon/>
- <https://ar.shein.com/>
- <https://youtu.be/wxhGKR3PQpo>
- <https://youtu.be/SKyDoyAZyOo>