


<b>Project – External Documentation</b>	
ISYS6197003 Business Application Development	
Odd Semester Year 2023	

- **Project Title**

NJuice

- **Introduction**

In this project, students are required to make a GUI to do transactions in the NJuice database. The GUI can be accessed by the customers and admins and based on their roles, their accessibilities and capabilities in the system differ:

1. Customer:

Customers can **Login** to the system with their username and password. If they don't have an account they can head to the **Register** page and create an account. After that, they will be directed to the **Customer Home** scene and will be able to see the contents of their **Cart**. In this scene, customers have the options of adding new items to their cart by clicking the 'Add new item to Cart' button, deleting products by clicking 'Delete from Cart' button, and checking out the items from the cart by clicking 'Checkout' button.

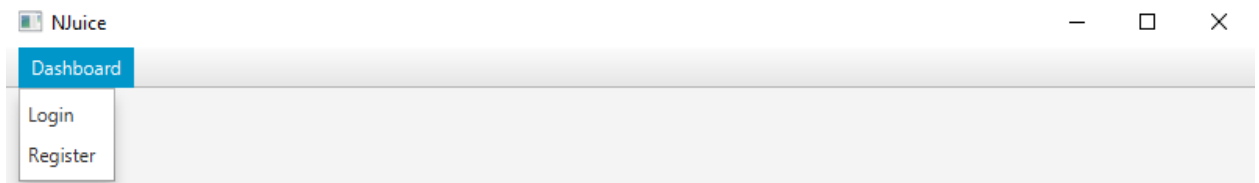
2. Admin:

Admin can login to the system with their username and password. If the admin successfully logs in, they will be directed to the **View Transaction** scene and will be able to see the transaction details by clicking through various transactions. If the admin selects the **Manage Products** navigation bar, they will be able to view, insert, update, and delete products in NJuice's catalog.

The NJuice application attempts to give administrators control over transactions and product catalog management, as well as customers a convenient and effective platform to manage their carts. The MySQL and JavaFX program improves the application's speed and guarantees a smooth user experience for both administrators and customers.

## ● Report / Documentation

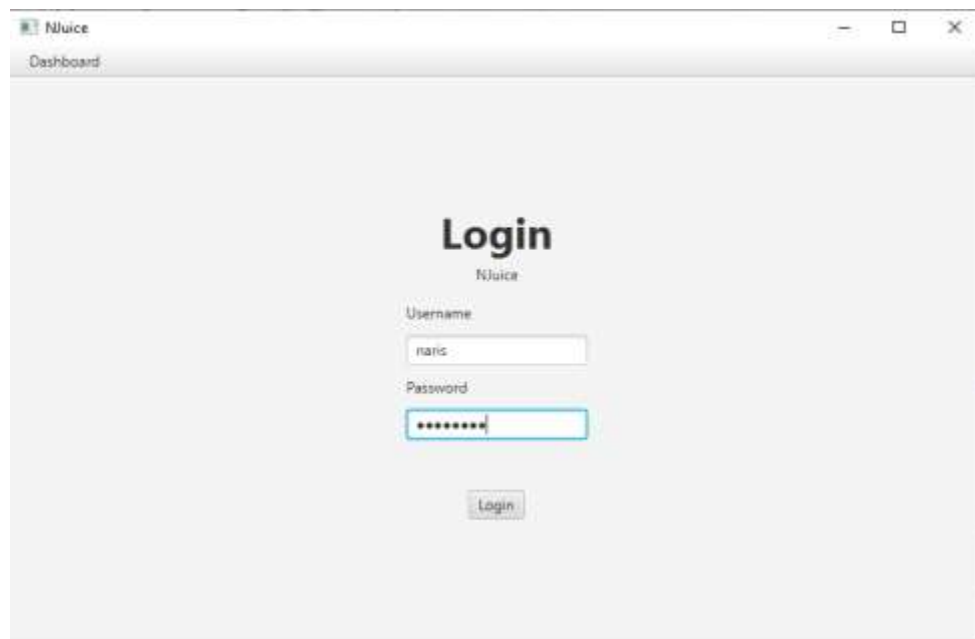
### 1. Landing Page Navigation Bar



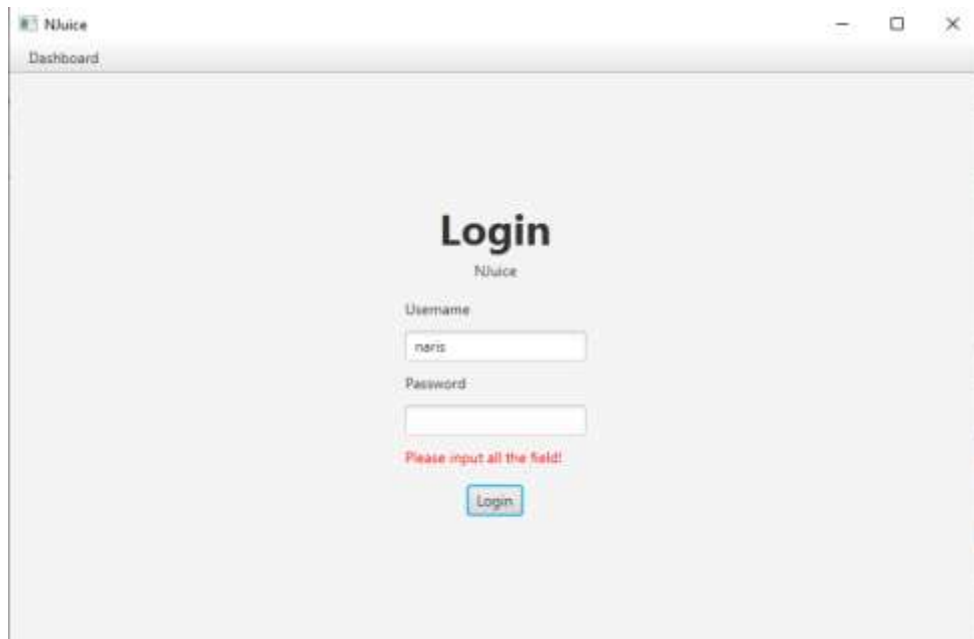
*Figure 1. Landing Page Navigation Bar*

This landing page navigation bar contains 'Dashboard' menu (menu) with 'Login' menuItem (loginMenu) and 'Register' menuItem (registerMenu). If the user clicks the loginMenu, the user will be directed to the login scene. However, if the user clicks the registerMenu, the user will be directed to the register scene.

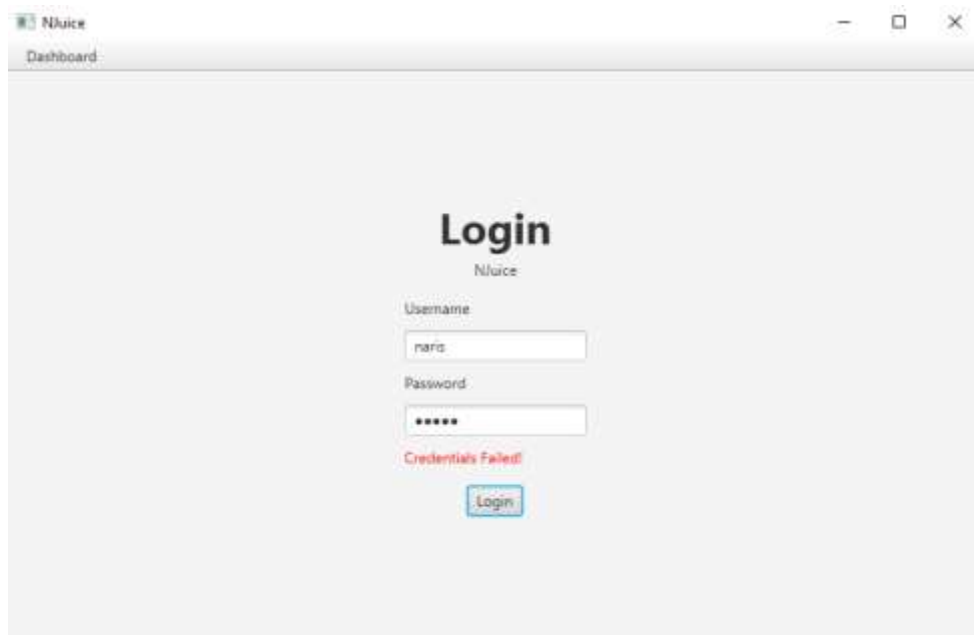
### 2. Login Scene



*Figure 2. Login Scene*



*Figure 3. Login Scene Error Label for Input Field*



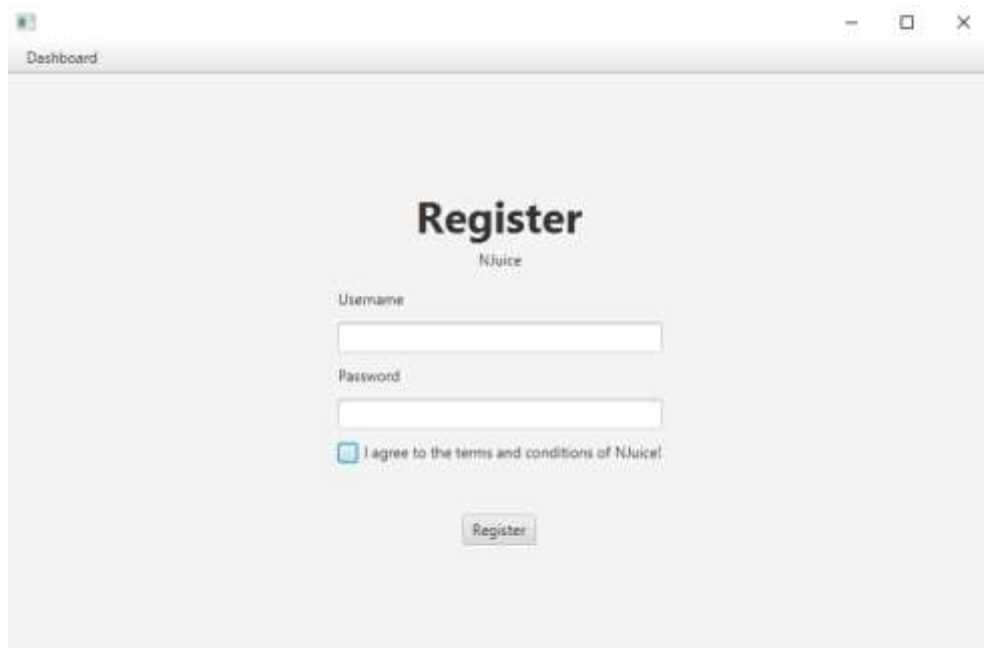
*Figure 4. Login Scene Error Label for Failed Credential*

This login scene contains several components using the layout manager such as `BorderPane`, `GridPane`, and `VBox`. The `GridPane` (`gp`) contains `usernameLbl`, `passwordLbl`, `usernameField`, `passwordField`, and `errorLbl`. The `VBox` (`vb`) will align the components vertically containing `loginLbl`, `njuiceLbl`, `GridPane`, and `loginBtn`. Then, the `BorderPane` (`bp`) positions the `VBox` at the center and the `menuBar` with `loginMenu` and `registerMenu` at the top.

The event handler is implemented in the `loginBtn`. If the user logs in as a customer and clicks the 'Login' button (`loginBtn`), the `checkRole()` method will be called to determine the

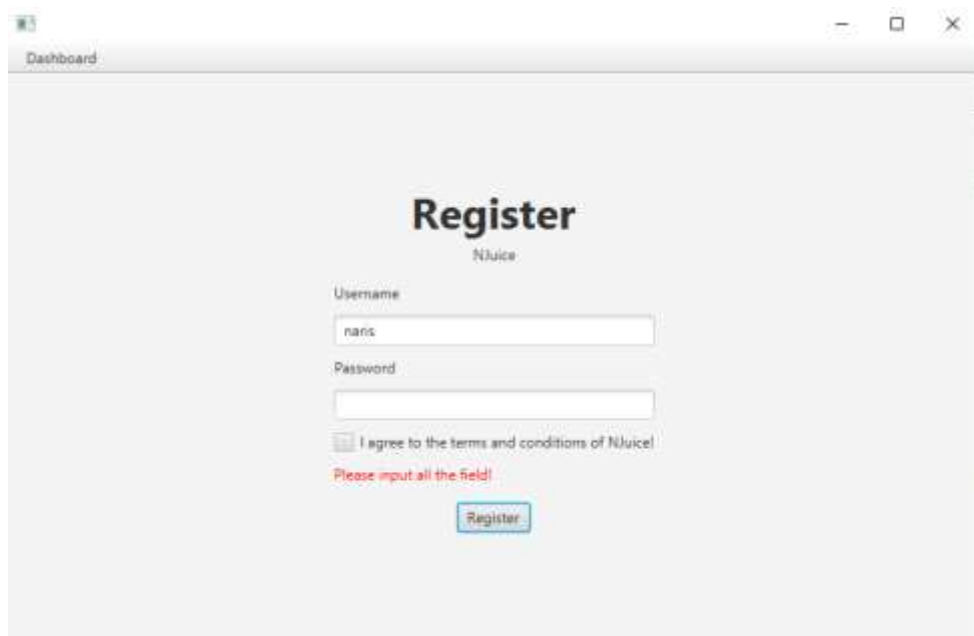
user's role as a customer and they will be directed to the customer home scene. However, if the user logs in as an admin and clicks the 'Login' button (loginBtn), they will be directed to the admin view transaction scene.

### 3. Register Scene



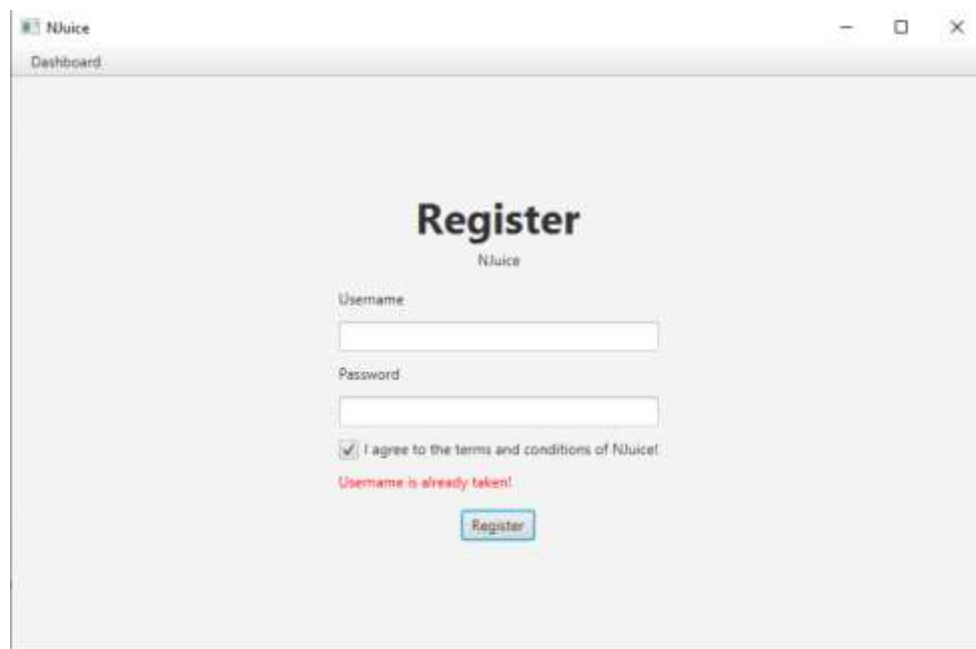
The screenshot shows a web browser window with a title bar containing a maximize button, a close button, and a label 'Dashboard'. The main content area has a light gray background. At the top center, the word 'Register' is displayed in a large, bold, black font. Below it, the text 'NJuice' is centered in a smaller font. There are two input fields: the first is labeled 'Username' and the second is labeled 'Password'. Below the password field, there is a checkbox with a blue square icon and the text 'I agree to the terms and conditions of NJuice!'. At the bottom center, there is a button labeled 'Register'.

*Figure 5. Register Scene*



The screenshot shows the same web browser window as Figure 5, but with an error message. The 'Username' input field now contains the text 'naris'. Below the 'Password' input field, there is a red error message that reads 'Please input all the field!'. The 'Register' button is still present at the bottom center.

*Figure 6. Register Scene Error Label for Input Field*



*Figure 7. Register Scene Error Label for not Unique Username*

This register scene contains several components using the layout manager such as `BorderPane`, `GridPane`, and `VBox`. The `GridPane` contains `usernameLbl`, `passwordLbl`, `usernameField`, `passwordField`, `CheckBox`, and `errorLbl`. The `VBox` will align the components vertically containing `registerLbl`, `njuiceLbl`, `GridPane`, and `registerBtn`. Then, the `VBox` positions the `VBox` at the center and the `menuBar` at the top.

The event handler is implemented at the `registerBtn`. If the user clicks the 'Register' button (`registerBtn`), the program will check whether the conditions are accepted or not and ensure the uniqueness of the username in the database. If the registration is successful, they will be directed to the login scene.

#### 4. Customer Navigation Bar



*Figure 8. Customer Navigation Bar*

This customer navigation bar contains a 'Logout' button (`logoutBtn`). If the customer clicks the `logoutBtn`, the user will be directed to the login scene.

5. Customer Home Scene

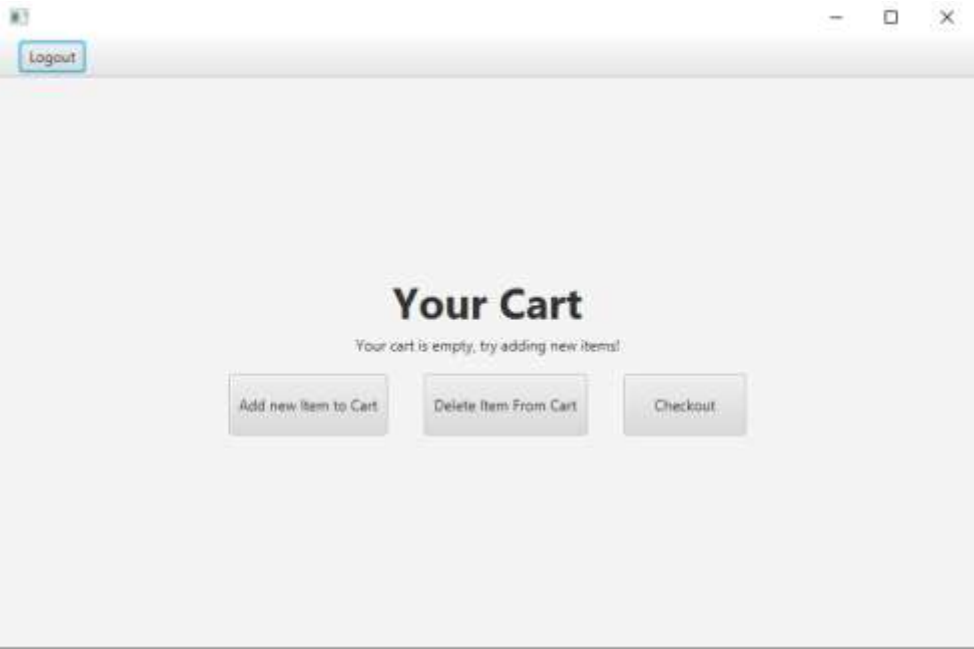


Figure 9. Customer Home

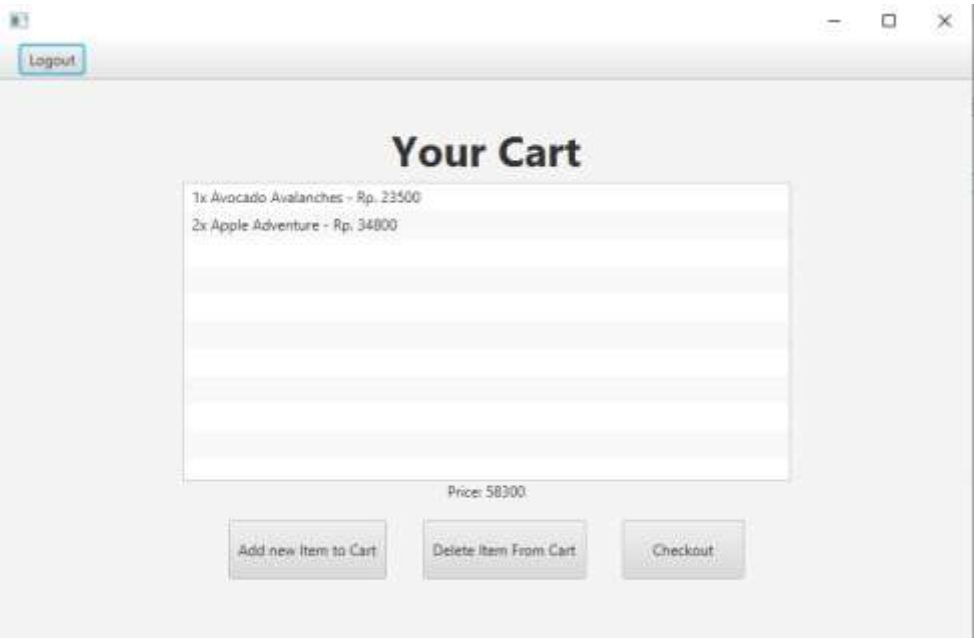
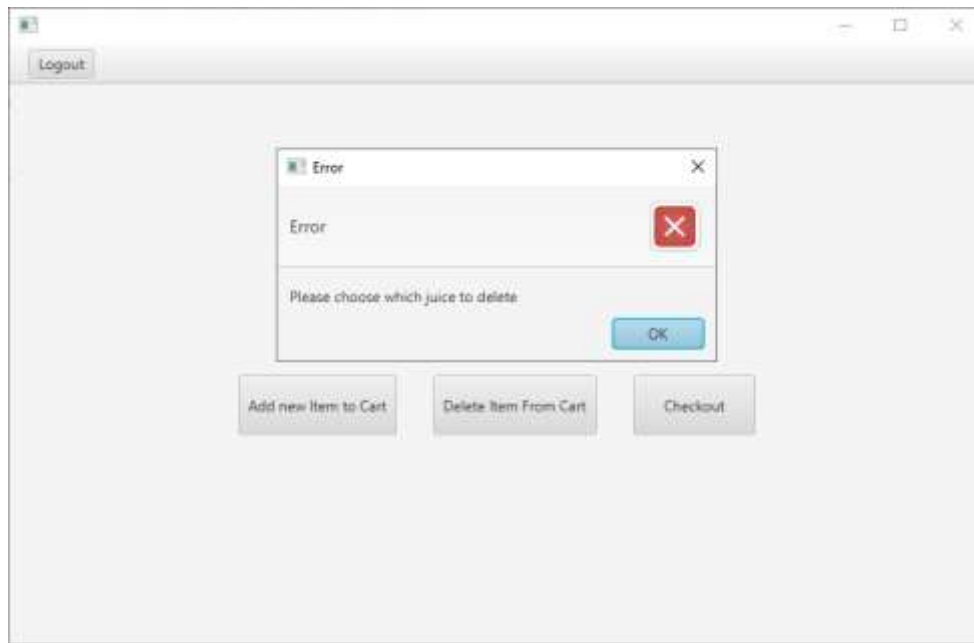
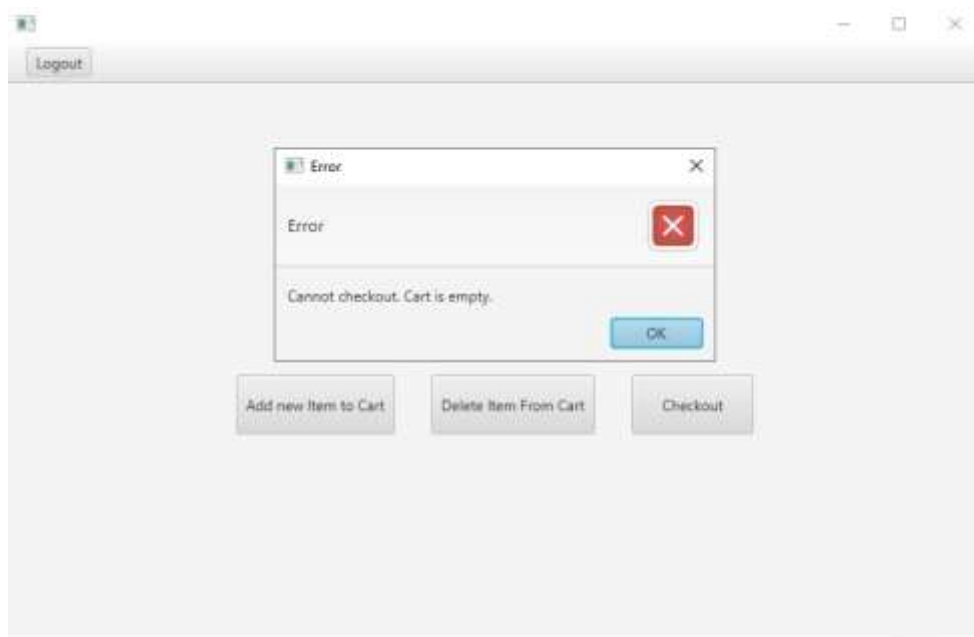


Figure 10. Customer Home after the user filled their cart



*Figure 11. Customer Home Error alert if no juice is selected for delete*

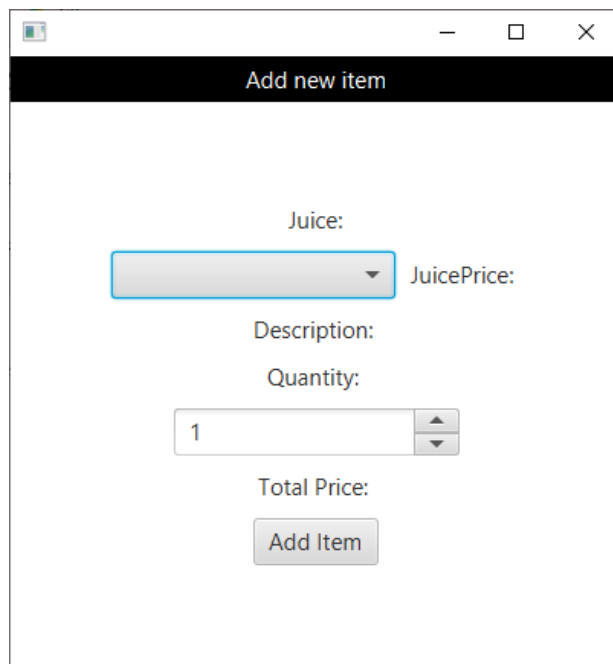


*Figure 12. Customer Home Error alert if no juice in cart for checkout*

This customer home scene contains several components using the layout manager such as `BorderPane`, `GridPane`, and `VBox`. The `BorderPane` (bp) as the main layout container consists of `menuBar` at the top and `VBox` at the center. The `VBox` (vb) aligns the components vertically including `yourCartLbl`, `emptyLbl`, buttons, and `ListView` to display the customer's cart after adding a new item. The `GridPane` (gp) arranges the `newBtn`, `deleteBtn`, and `checkoutBtn` horizontally with specific columns.

The event handlers are implemented in the newBtn, deleteBtn, and checkoutBtn. If the customer clicks the 'Add new Item to Cart' button (newBtn), they will be directed to the customer to add a new item scene. If the customer clicks one of the items and clicks the 'Delete Item From Cart' button deleteBtn, the selected item will be deleted from the cart list. If the customer clicks the 'Checkout' button (checkoutBtn), they will be directed to the customer checkout scene.

#### 6. Customer Add New Item Scene

A screenshot of a software application window titled "Add new item". The window has a black header bar with the title in white. Below the header, the background is white. The form contains the following elements: a label "Juice:" followed by a dropdown menu with a blue border and a downward arrow; a label "JuicePrice:" to the right of the dropdown; a label "Description:" below the dropdown; a label "Quantity:" followed by a text input field containing the number "1" and a spinner control with up and down arrows; a label "Total Price:" below the quantity field; and a button labeled "Add Item" at the bottom center.

*Figure 13. Customer Add New Item Pop-Up*



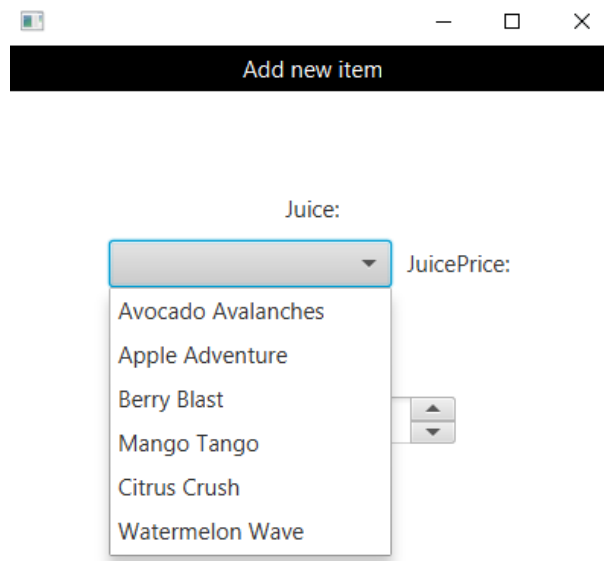


Figure 14. Item Combo Box Options depends on the Product in the Database

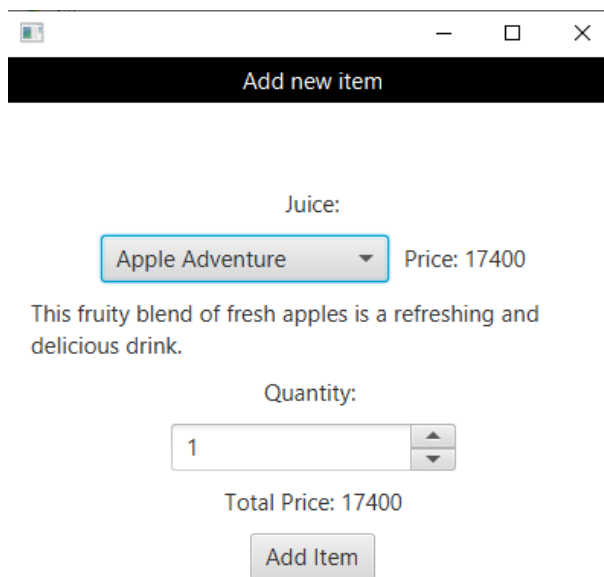
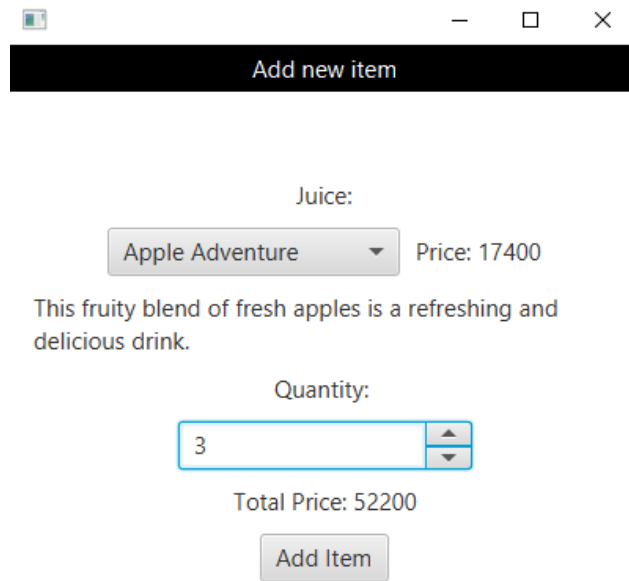


Figure 15. After user choose an option, price, description and total price will be updated



*Figure 16. If the quantity is changed, the total price will also change*

This customer add new item scene contains several components using the layout manager such as `BorderPane`, `FlowPane`, and `VBox`. The `BorderPane` (`bpAddItem`) that contains title bar and label. The `VBox` (`vbAddItem`) is `setCenter` containing `juiceLbl`, `priceLbl`, `descLbl`, `qtyLbl`, `totPriceLbl`, `productBox`, `qtySpinner`, and `addItemBtn`.

The event handler is implemented in the `addItemBtn`. If the customer clicks the 'Add Item' button (`addItemBtn`), the pop windows will be closed and the item will be added to the customer's cart list.

7. Customer Checkout Scene

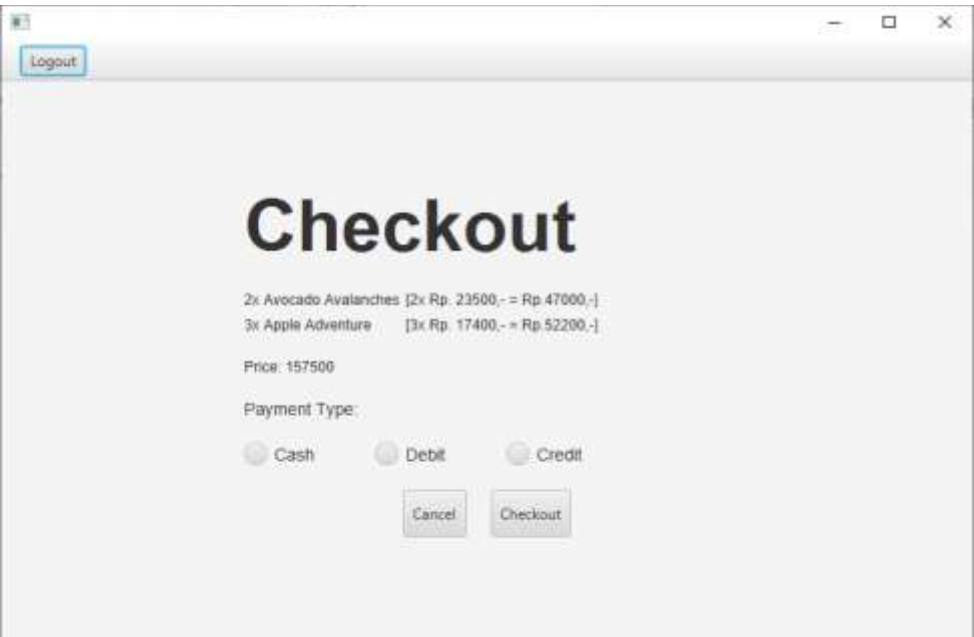


Figure 17. Checkout Scene

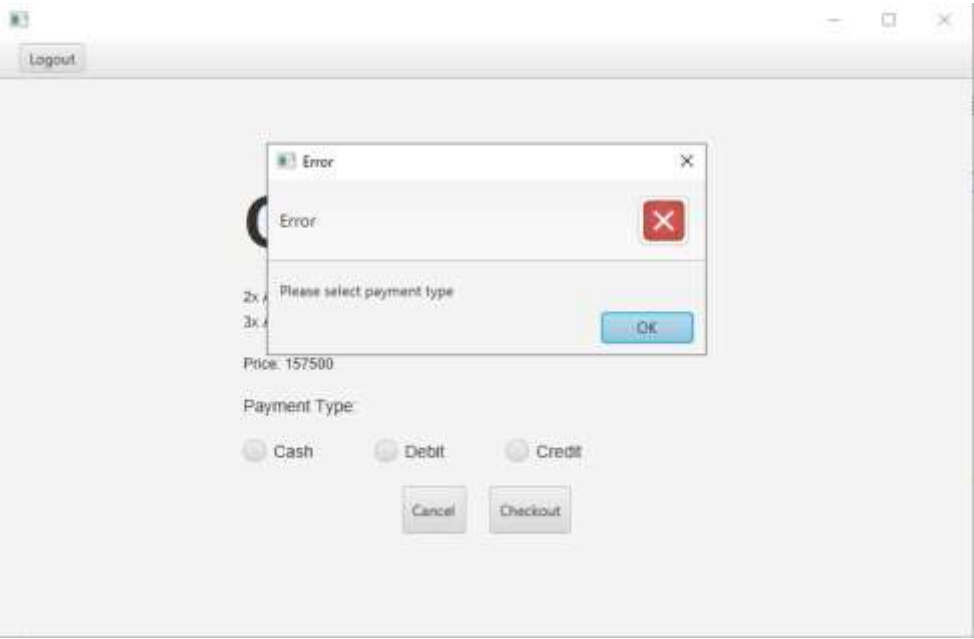


Figure 18. Checkout Scene Error message if payment is not selected

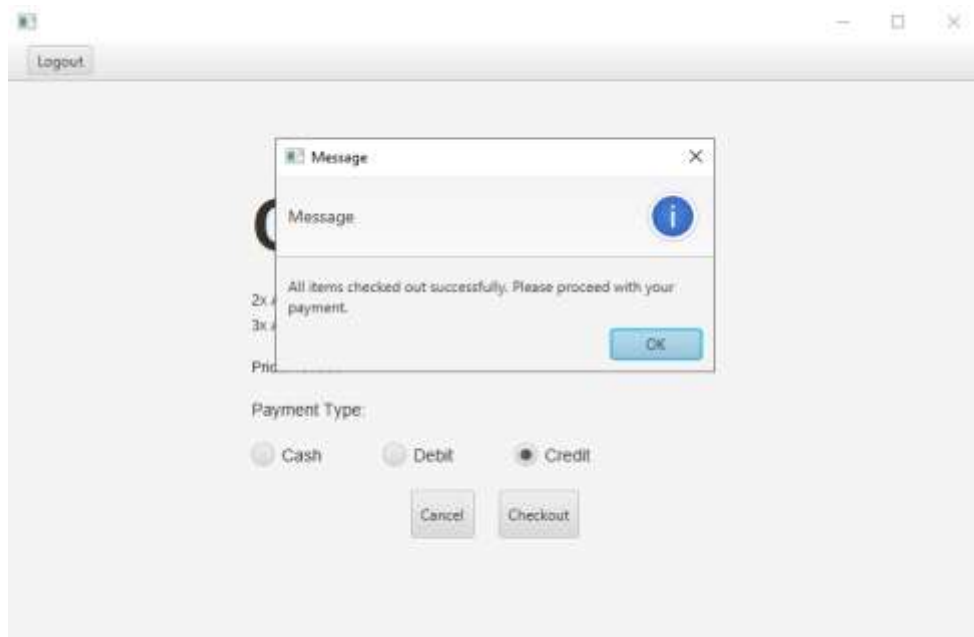


Figure 19. Checkout Scene Information message after successfully checkout all item

This customer checkout scene contains several components using the layout manager such as `BorderPane`, `GridPane`, `FlowPane`, `HBox`. The `BorderPane` contains `menuBar`, `menu`, and `logoutBtn`. The `HBox` contains `cancelButton` and `checkoutButton`. The `FlowPane` contains `cashRadioButton`, `debitCardRadioButton`, and `creditCardRadioButton`. Then, the `GridPane` as the main content contains `titleLbl`, `cartLbl`, `priceLbl`, `typeLbl`, `radioBtnPane`, and `buttonBox`.

The event handlers are implemented in the `logoutBtn`, `cancelButton`, and `checkoutButton`. If the customer clicks the ‘Cancel’ button (`CancelButton`), they will be directed to the customer home scene. If the customer clicks the ‘Checkout’ button (`checkoutButton`), the transaction will be saved to the database. If the customer clicks the ‘Logout’ button (`logoutBtn`), the session will be cleared and open the login scene.

## 8. Admin Navigation Bar

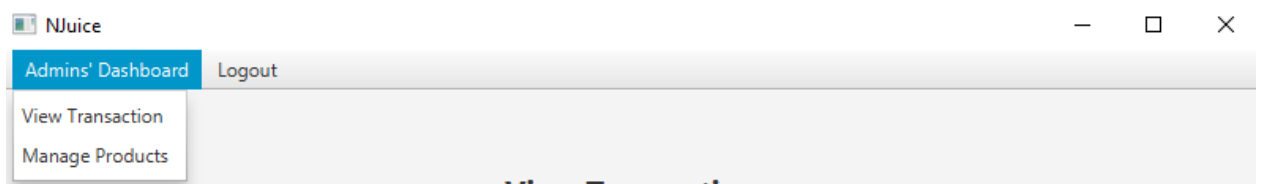


Figure 20. Admin Navigation Bar option if the menu dashboard is selected



Figure 21. Admin Navigation Bar option if the menu logout is selected

This admin navigation bar contains ‘Admin’s Dashboard’ menu (menu) with ‘View Transaction’ menuItem (viewMenu) and ‘Manage Products’ menuItem (manageMenu). If the admin clicks the viewMenu, the admin will be directed to the admin view transaction scene. However, if the admin clicks the manageMenu, the admin will be directed to the admin manage product scene. Also, this customer navigation bar contains ‘Logout’ menu (menu2) with ‘Logout from Admin’ menuItem (logoutMenu). If the admin clicks the logoutMenu, the admin will be directed to the login scene.

## 9. Admin View Transaction Scene



*Figure 22. Admin View Transaction Scene*

TransactionId	PaymentType	Username
TR001	Debit	afnan
TR002	Cash	customer
TR003	Credit	sakhi
TR004	Debit	shanoble
TR005	Cash	vincent

TransactionId	JuiceId	JuiceName	Quantity
TR001	JU002	Avocado Avala...	1
TR001	JU003	Avocado Avala...	2
TR001	JU002	Apple Adventure	1
TR001	JU003	Apple Adventure	2
TR001	JU002	Berry Blast	1

Figure 23. If the transaction is clicked, the detail appears in the detail table

This admin view transaction scene contains several components using the layout manager such as `BorderPane` and `VBox`. The `BorderPane` as the main layout container contains `menuBar` with `viewMenu` and `manageMenu`. The `VBox` (`vb`) is `setCenter` containing `TableView` with `transHeaderTable` and `transDetailTable`.

The event handler is implemented in the `showTransDetail()` method. If the admin clicks on one of the lists in the `transHeaderTable`, the `transDetailTable` containing 'TransactionId' column (`transIdColumn2`), 'JuiceId' column (`juiceIdColumn`), 'JuiceName' column (`juiceNameColumn`), and 'Quantity' column (`qtyColumn`) will be loaded dynamically according to the selected transaction header.

## 10. Admin Manage Product Scene

The screenshot shows the 'Manage Products' interface. At the top, there's a navigation bar with 'Admins' Dashboard' and 'Logout'. Below it, the title 'Manage Products' is centered. A table lists five existing products:

Juice Id	Juice Name	Price	Juice Description
JU001	Avocado Avalanches	23500	Smooth and creamy
JU002	Apple Adventure	17400	This fruity blend of F
JU003	Berry Blast	24500	Bursting with the fla
JU004	Mango Tango	20400	This exotic blend of
JU005	Citrus Crush	21900	Packed with the tan...

Below the table, there's a form to add a new product. It includes a 'ProductID to delete/remove' dropdown menu (currently showing 'JU008'), a 'Price' input field (set to '1000'), a 'Product Name' input field (placeholder: 'insert product name to be created'), and a large text area for 'Product Description' (placeholder: 'insert the new product test description, min 10 and max 100'). To the right of the form are three buttons: 'Insert', 'Update', and 'Remove'.

Figure 24. Manage Product Scene

This screenshot shows the same 'Manage Products' interface as Figure 24, but with an error message overlay. The error message is a dialog box with a red 'X' icon and the text 'Error' and 'Please fill all the fields'. The 'ProductID to delete/remove' dropdown menu is now empty. The 'Price' input field is still set to '1000'. The 'Product Name' input field and the 'Product Description' text area are still present. The 'Insert', 'Update', and 'Remove' buttons are also visible.

Figure 25. Manage Product Scene Error message if the data needed is not sufficient

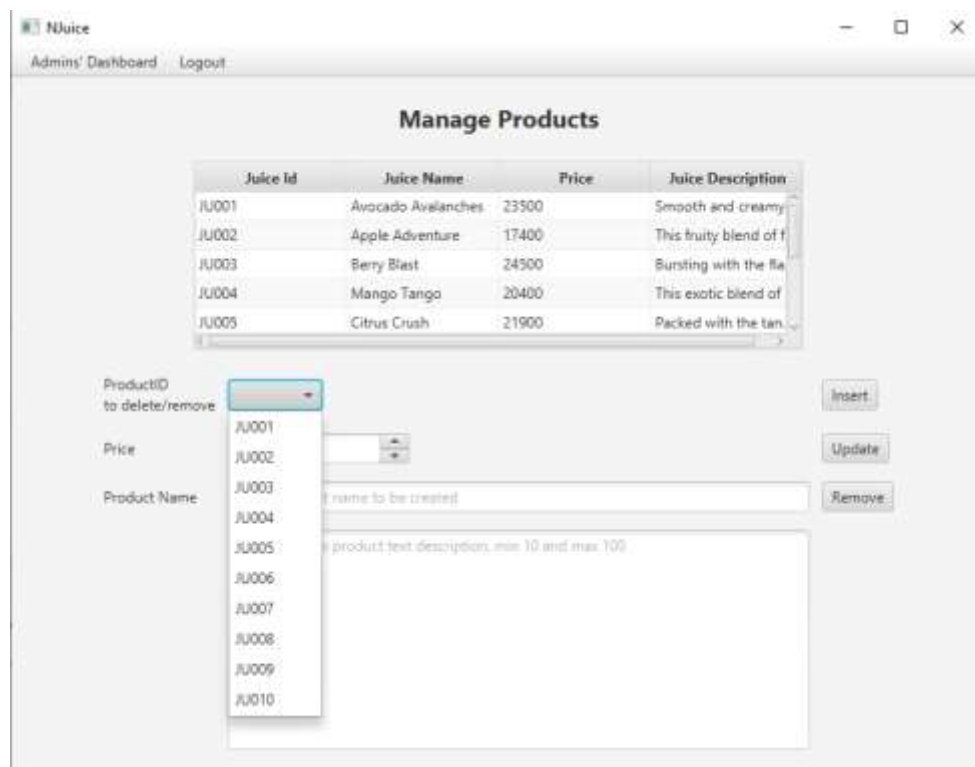


Figure 26. Product Id in the combo box must matches with juices id in the database

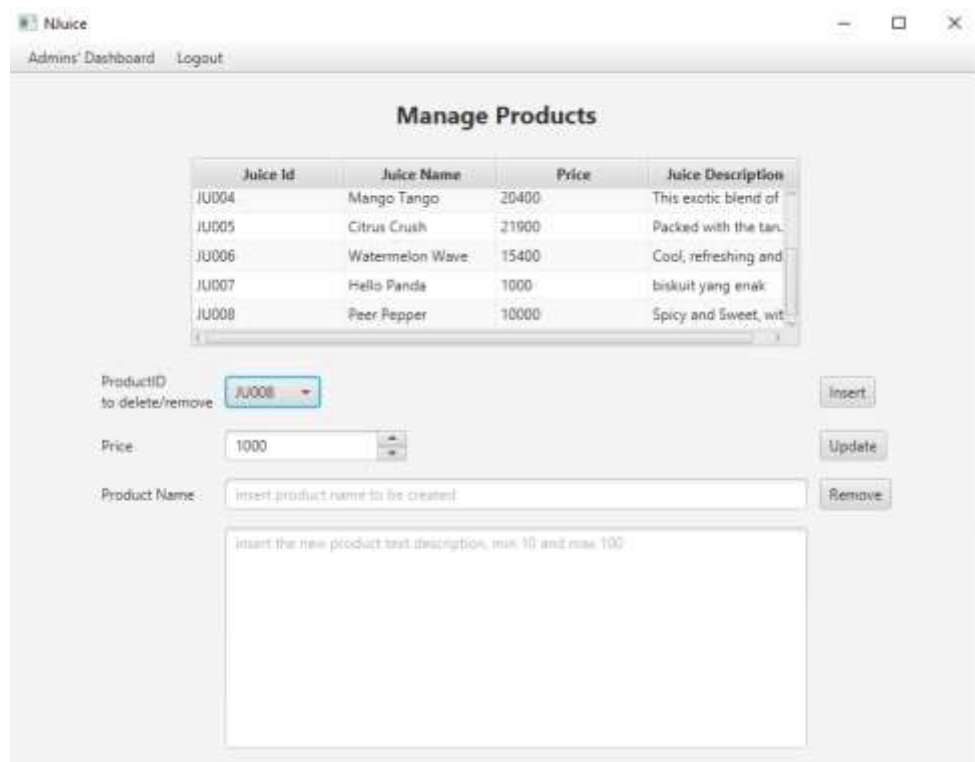


Figure 27. Table example after a new juice is inserted

This admin manage product scene contains several components using the layout manager such as GridPane and BorderPane. The BorderPane is setTop containing a GridPane (titleContainer) to display the title label (titleLbl1). The GridPane (tableContainer) is setCenter



that displays a TableView (msJuiceTable) for managing product information. The other GridPane (gp) is setBottom that consists of mngLbID, mngLbPrice, mngLbPName, idBox, priceSpinner, mngPName, mngDescTf, insertBtn, updateBtn, and removeBtn.

The event handlers are implemented in the insertBtn, updateBtn, and removeBtn. To input a new product to the system the Admin can simply fill in the required details to the fields and then click the 'Insert' button (insertBtn), the input within the fields will be saved in the database and a new JuiceID will be generated. To update data within the table the Admin has to click on one of the entries in the table and it will be displayed in the fields, from there the Admin can make changes and click the 'Update' button (updateBtn) when the adjustment is correct. Then the updated data will be saved in the database. To remove products from the table the Admin can click on one of the entries then click the 'Remove' button (removeBtn) and the product will be removed.

- **Reference**

- [https://www.tutorialspoint.com/javafx/javafx\\_event\\_handling.htm](https://www.tutorialspoint.com/javafx/javafx_event_handling.htm)
- <https://www.tutorialspoint.com/how-to-implement-actionevent-using-method-reference-in-javafx>
- <https://www.geeksforgeeks.org/javafx-combobox-with-examples/>
- <https://docs.oracle.com/javase/8/javafx/api/javafx/scene/control/ToggleGroup.html>

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