Graphical User Interface

The first step we took for creating the desktop application for *AirVia Ltd*. was to create the Graphical User Interface (GUI). It is a crucial component of a software as it is impacting the user's experience directly. Our goal was to create a user-friendly and good-looking interface that would not only allow the users to easily navigate through the application to complete different tasks, but also would be visually satisfying.

In the following parts, we will present in detail the process of implementing the GUI.

After analysing the requirements of *AirVia Ltd*., we made a plan of how the GUI should look like. We decided to use Apache NetBeans IDE 17 to design our idea.

We started by choosing the colours and the images that should be included in order to give the application a beautiful look.

Colours:

- *RGB [153,153,153]* – for the background on the left side of the pages
- *RGB [204,204,204*] – for the background on the right side of the pages,
- *RGB [217, 141,141]* – for the Log Out buttons in the menu pages for each type of user
- *RGB [243,191,173]* – for the Log In page and the Loading Page (when opening the app)

We chose to mostly use grey as it is part of the corporation's branding colours and we thought it will go well with the first pages of the application.

Images:

- this is the brand's logo and we used it in the loading page, log in page and in the menus

- this is the logo of the development team and it's visible at the bottom of the loading page and log in pages

 - this icon is assigned to a button which is used for the 'Find by' function in Customer Information

 - this image appears in the log in page to give it a nicer look.

Swing Palette

To see the implementation of each element, please, check the next section: Source Code

Swing Controls:

 *Buttons* – plays a very important role in this application. They trigger actions for different purposes, the most common ones being: Navigate, Save/Update, Add, Delete, Back and Edit, but there are more actions for which they are used.

 *Labels* – helps the user understand the context of the elements displayed and we used them to organize the information. Moreover, the images have been inserted into the pages through labels.

 *Combo Boxes* – are used for selecting data from a drop-down list, mostly for filtering data.

 *Text Field* – are an essential part of an application by allowing the users to input data with scopes, such as: filling in forms and searching data.

 *Password Field* – as the name says, it is used to input passwords. It is only used for the login and for registering a new staff member.

 *Progress Bar* – is used to indicate that the application is loading, and it shows the user how much of it has loaded, leaving him to anticipate how long it might take until the process is completed. We considered that this improves the user experience visually by creating a sense of excitement as the progress bar fills up.

 *Tables* – play a significant role in this app as well. Most of the data is generated in tables and the users can directly interact with them in order to make the desired actions.

Swing Containers:

 *Panels* – for the background style, to separate the left side which usually contains more buttons and acts like a menu from the right side.

Swing Windows:

 Dialog – used to display messages for actions that were successful or for errors. It enhances the usability and functionality of the application and improves the user experience by providing feedback about the status of a task.

 File Chooser – allows the user to browse and select a file from the system. It is used for the 'Restore' option.

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Page Design

The next step we took was to design the pages to illustrate our idea by using the palette presented above.

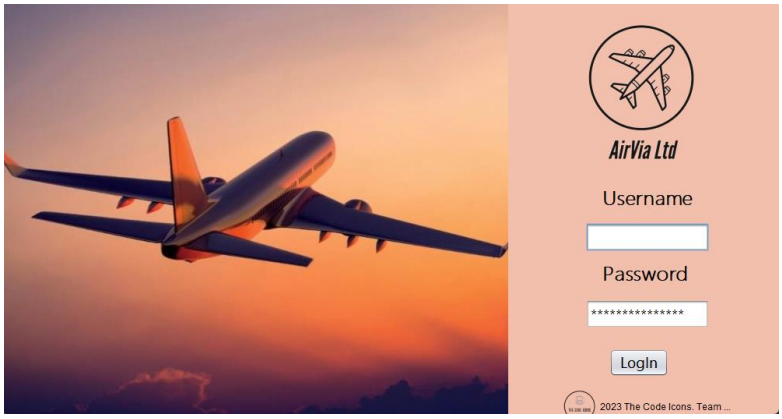
For points 3, 4, 5 and 6 we will go into more detail about the graphics, when we will explain the functionality and implementation.

1. Loading

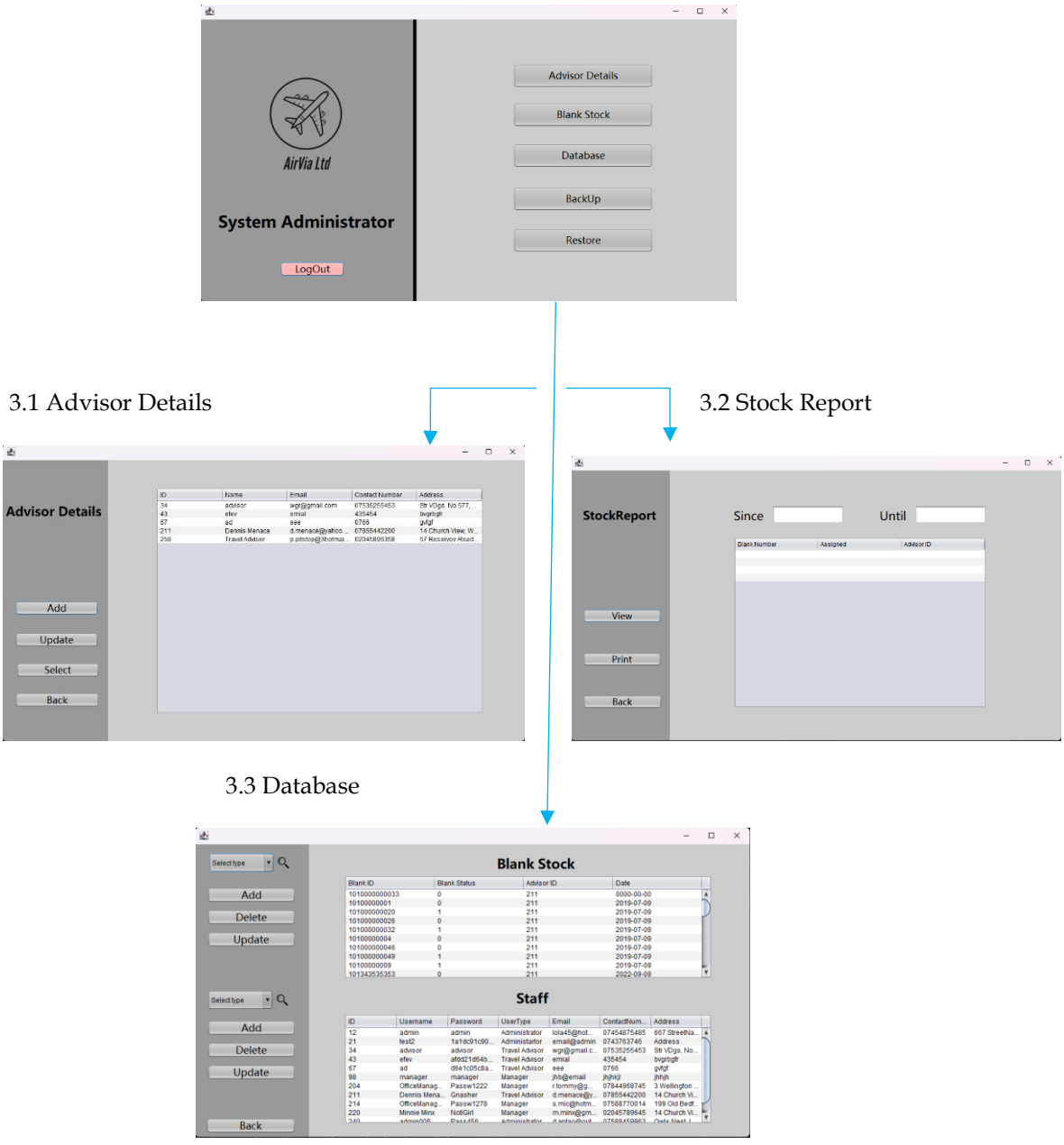
The user can see the logo of *AirVia Ltd*. and a progress bar which shows the loading progress of the application. At the bottom, we attached our team's logo along with the name and the team's number.

2. Login

This page includes Labels for Username and Password, followed by a Text Field and respectively, a Password Field. The user must input right details in order to access the menu specific to its role, such as System Administrator, Travel Advisor or Manager. We also added the logos and an image to attract the user's attention.



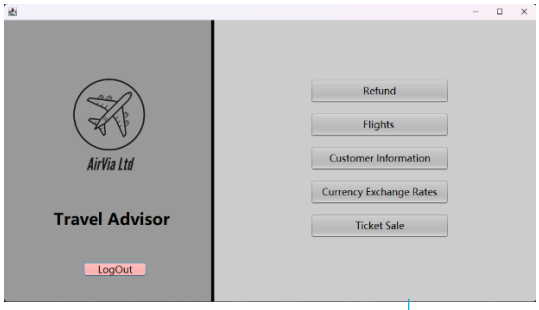
3. System Administrator
   After the first two pages, we continued by creating a menu for the administrator, then we designed the appropriate pages for this user type, in the order shown below.



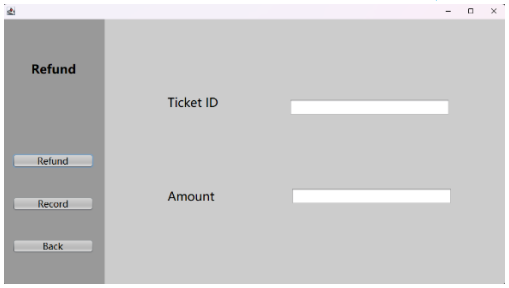
For Backup and Restore we did not add any additional page, the corresponding actions can be done by clicking on the buttons.

4. Travel Advisor

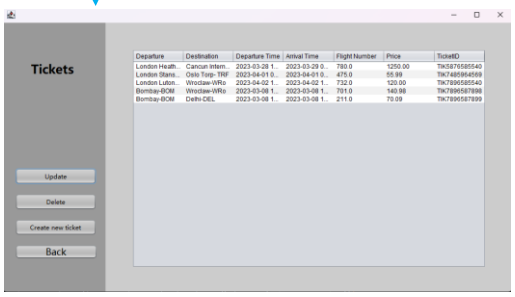
After adding the last page for System Administrator (3.3), we continued by adding the menu for the advisor and the pages related.



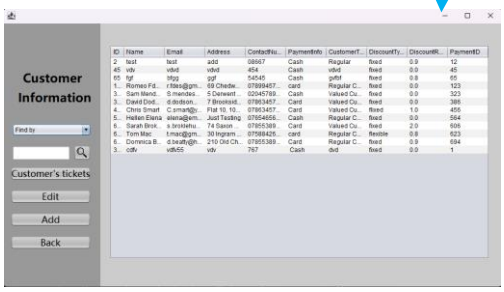
4.1 Refund



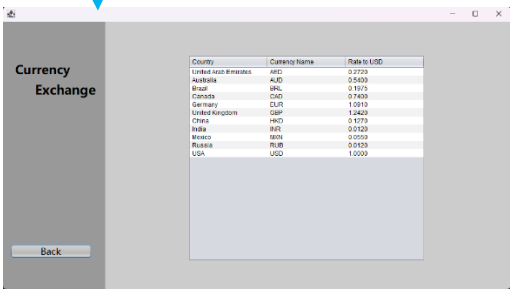
4.2 Tickets



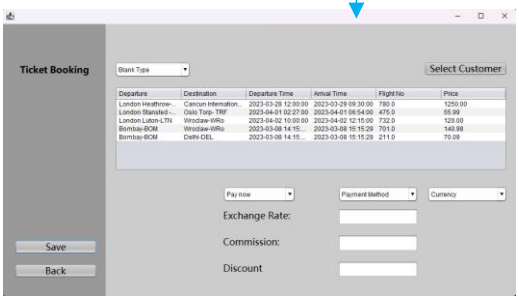
4.3 Customer Information



4.4 Currency Exchange

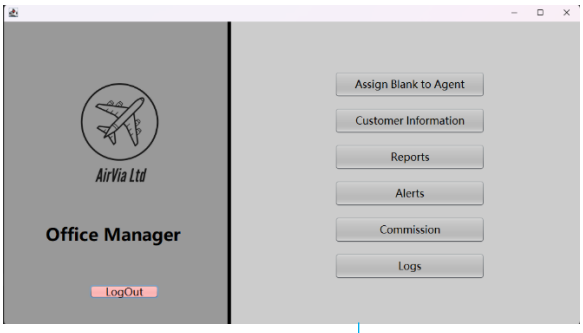


4.5 Ticket Booking

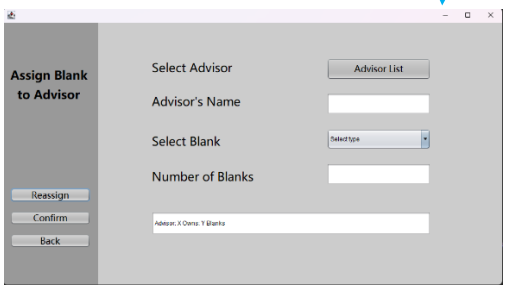


5. Manager

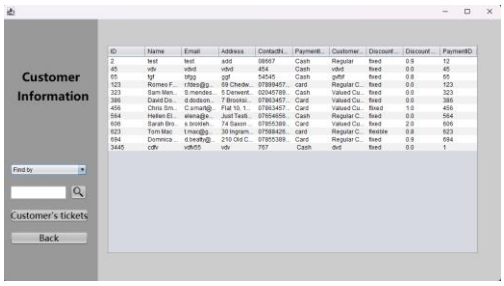
This is the third and last user type. After designing the main parts of the other user types (see above), we started designing the menu for the manager, followed by the pages that should be linked to it.



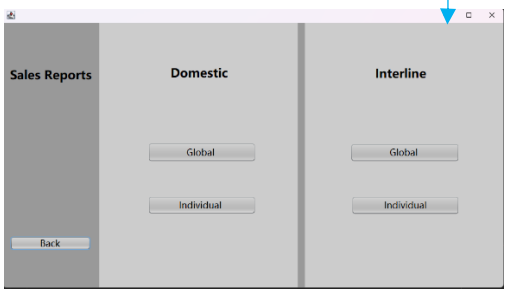
5.1 Assign Blank to Advisor



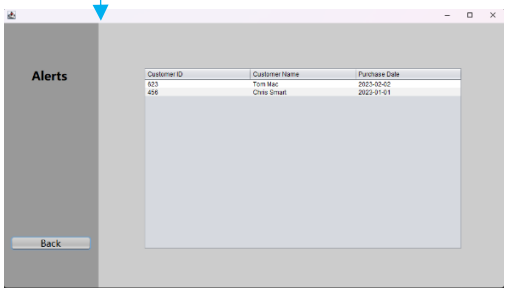
5.2 Customer Information



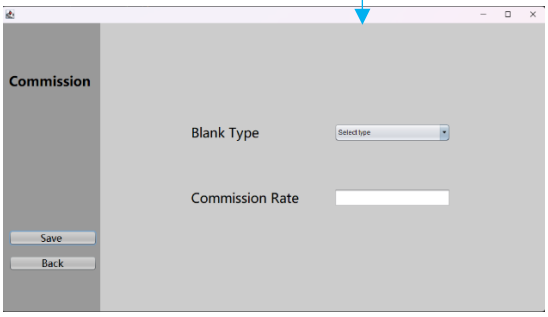
5.3 Sales Reports



5.4 Alerts



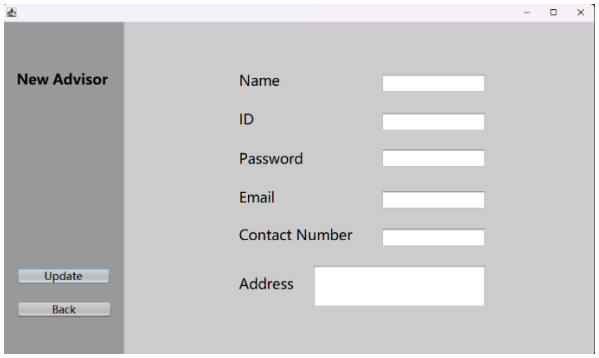
5.5 Commission



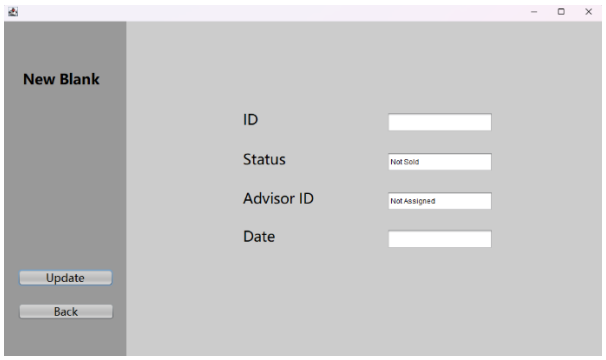
6. Additional Pages

In order to get some actions done, there will be other pages popping up. Here is a list in the order of designing them.

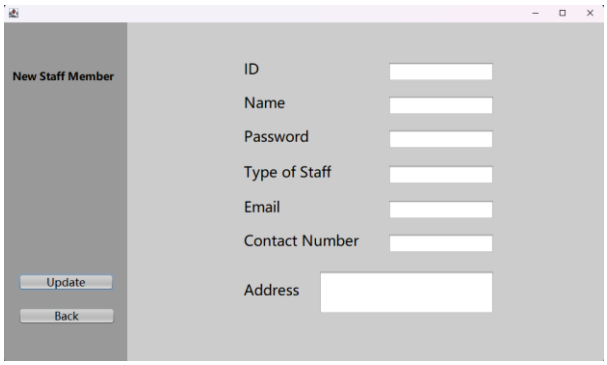
6.1 New Advisor
(Administrator -> Advisor Details -> Add)



6.2 New Blank
(Administrator -> Database -> Blank Stock Add)



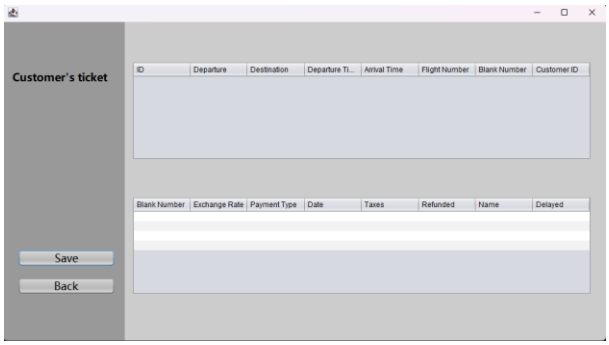
6.3 New Staff Member
(Administrator -> Database -> Staff Add)



6.4 Customer's Tickets

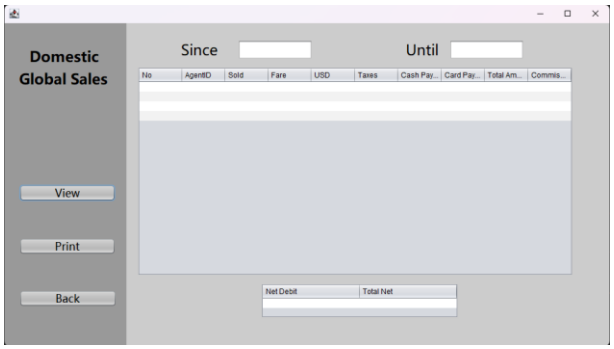
(Advisor -> Customer Information -> Customer's Tickets)

(Manager -> Customer Information -> Customer's Tickets)



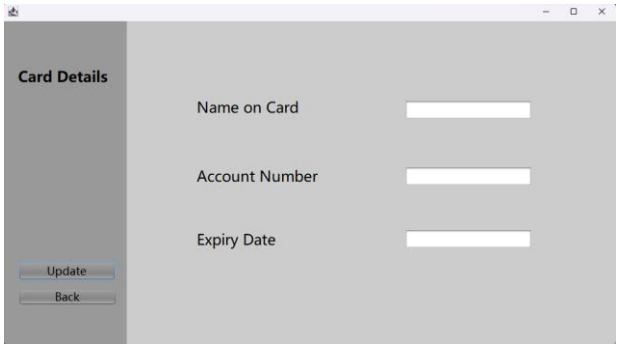
6.5 Domestic Sales Report

(There are 4 types of reports, all of them can be accessed from Manager -> Reports)



6.6 Card Details

(Advisor -> Ticket Booking -> Card (payment method) -> Card Details)



Overall

In this section, we presented the first steps that we took when we started working on the application. More details about each of the controls will be found in the next section, where the code will be explained.

We had a good experience with NetBeans, it was easy to use, and what we liked the most was the fact that although we were writing the code in IntelliJ, any update we were doing on one side or the other, always corresponded.

We did not encounter any issues with the graphical user interface implementation.