

COMP2211: Software Engineering Group Project - Runway Redeclaration Tool Help Documentation

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Contents

1	Introduction	2
2	General UI Breakdown	2
3	User Login	2
4	Import XML Data Files	3
5	Airport Settings	4
5.1	Loading Airports	4
5.2	Adding Obstacles	5
5.3	Runway Data Calculations	7
5.4	Visualisation	8
6	Administrator Management	9
7	Notification	13

1 Introduction

Welcome to the help documentation for the **Runway Redeclaration Tool**. Runway personnel have developed this tool for commercial UK airport runways. In the event of an obstacle obstruction on a runway, it gives users an effective computed breakdown, redeclaration of runway dimensions, and visualization of the redeclared runway. Using its results, this tool enables its users to make better decisions, reducing their stress levels. (The tool's computations and procedure for redefining runway parameters adhere to the guidelines set forth by the Civil Aviation Authority.)

2 General UI Breakdown

The tool's main window is shown below, with numbered annotations showing the different sections of the main window.

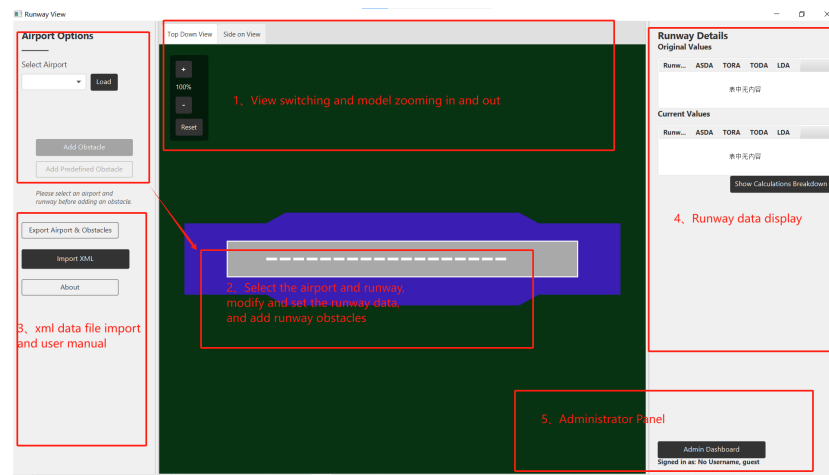


Figure 1: Runway Redeclaration Tool Main Window

- (1) **Visualisation:** When the user selects a runway, they can click to switch between the runway view, top-down view, or side-on view. The user also can rotate and zoom the view of the runway in this area.
- (2) **Users select airports and configure the runway data area:** Upon initialisation, a default UK airport is displayed here. Select a new airport from the drop-down menu, then click the “Load” button to configure settings. This will also display the runway selection box, where you can configure runway data and add runway obstacles.
- (3) **XML data file import and export:** Users can import XML data files to add new airports or obstacles.
- (4) **Track data display:** Displays real-time data for the runway selected by the user. Clicking the button lets you view each data item’s detailed calculation process.
- (5) **Administrator Management:** Administrator users can use this button to query and modify user data and register new users.

3 User Login

Users can log in by clicking the login button on the program’s home page, entering their account password, and then clicking **”Login.”** Alternatively, they can log in as guests.

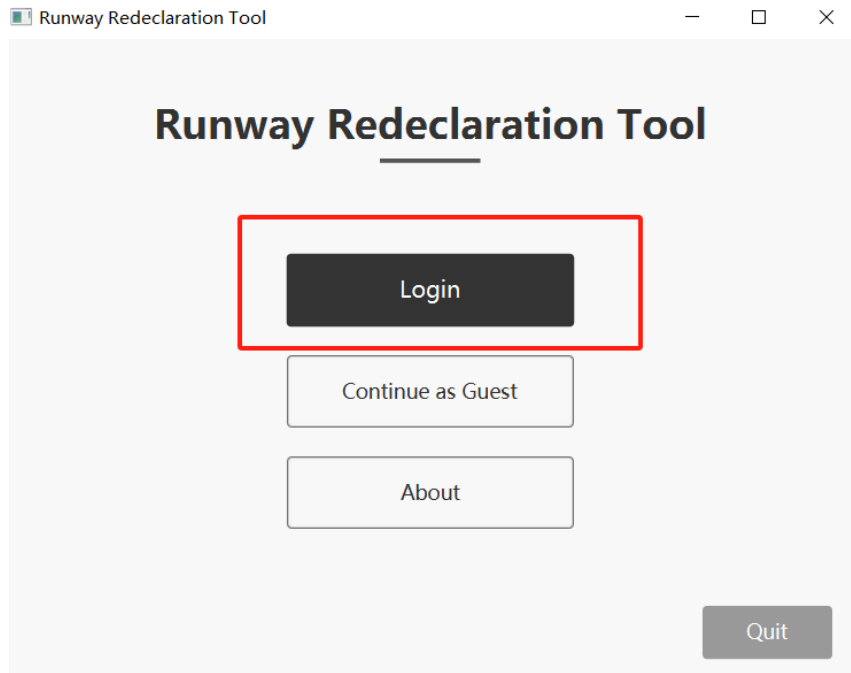


Figure 2: Program Login Button

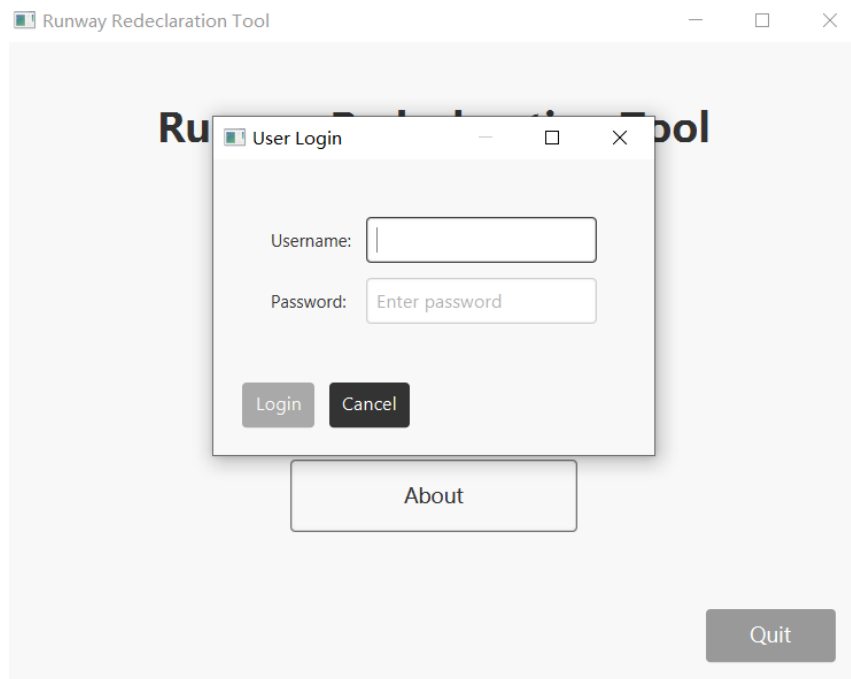


Figure 3: Login Page

4 Import XML Data Files

Users can click the “**Export Airport & Obstacles**” button on the homepage to select data files. The importable file types include airport data files and obstacle data files.

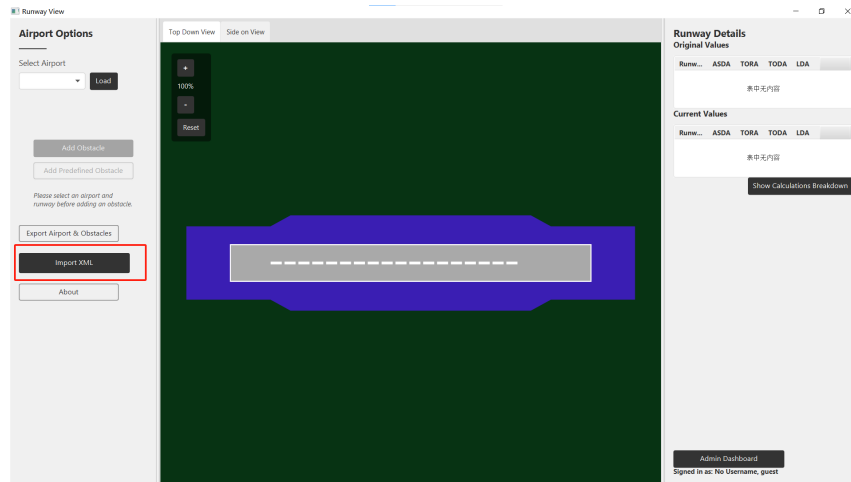


Figure 4: Importing XML Data Files Button

5 Airport Settings

5.1 Loading Airports

Users select the airport to load in the first dropdown menu on the homepage, then select the specific runway of the airport in the second dropdown menu to load. Users can add new airport data configurations by selecting the **“Add New Airport”** option, clicking the option box, and then clicking the **“Settings”** button. After choosing the airport and runway, clicking the **“Load”** button will generate the data map and display the runway data in the table on the right - hand panel.

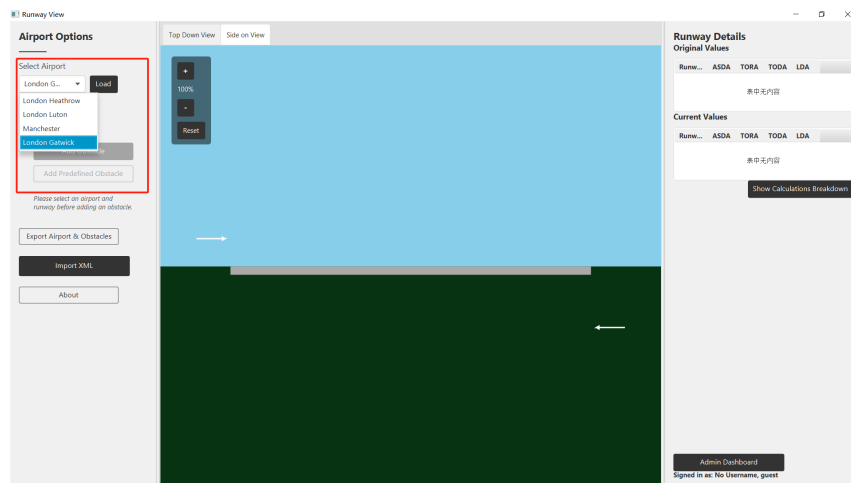


Figure 5: Selecting Airport Page

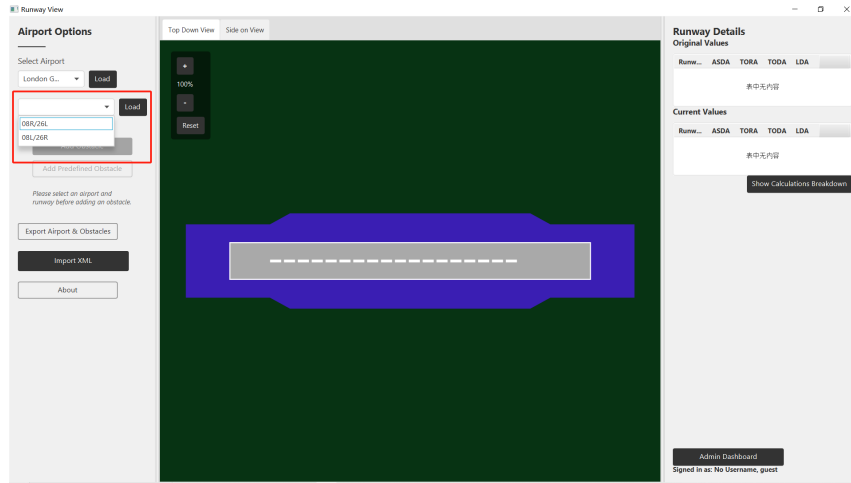


Figure 6: Selecting Runway Page

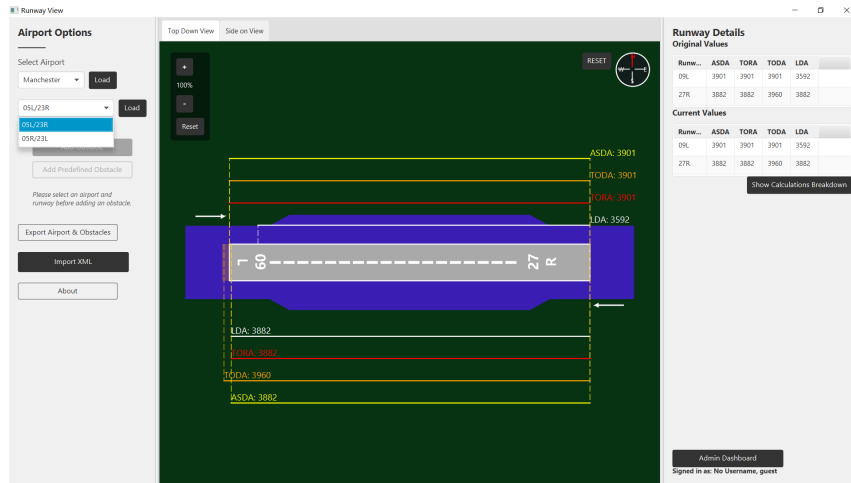


Figure 7: Runway Data Display Page

5.2 Adding Obstacles

After the user selects the airport and runway and clicks **“Load Success,”** the user can click the **“Add Obstacle”** and **“Add Predefined Obstacle”** buttons on the home page to add obstacles or anticipated obstacles to the airport.

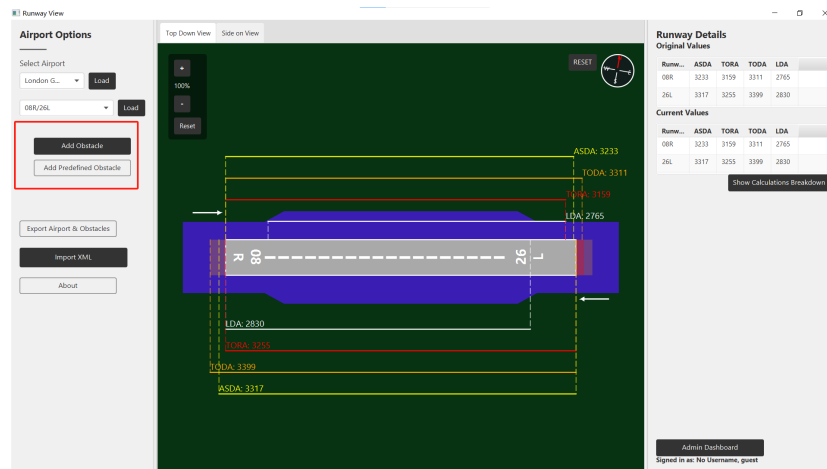


Figure 8: Adding Obstacle Button

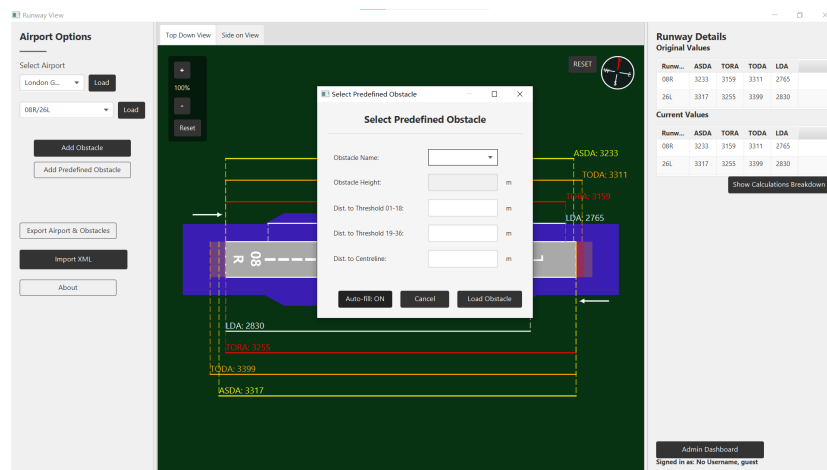


Figure 9: Predefined Obstacle Data Input Page

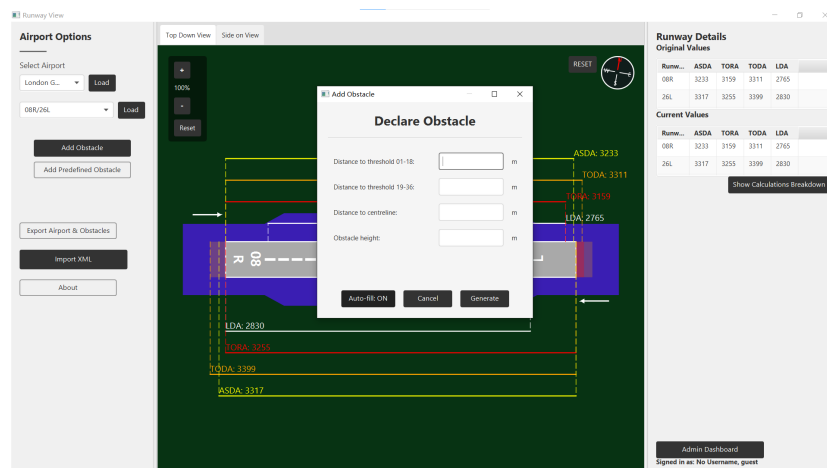


Figure 10: Obstacle Data Input Page

5.3 Runway Data Calculations

Users can see the specific data for the selected runway on the right side. Click the **“Show Calculation Breakdown”** button to view the detailed calculation process. When viewing the calculations, the **“Export Calculation as PDF”** button lets users import detailed data processes into a PDF file.

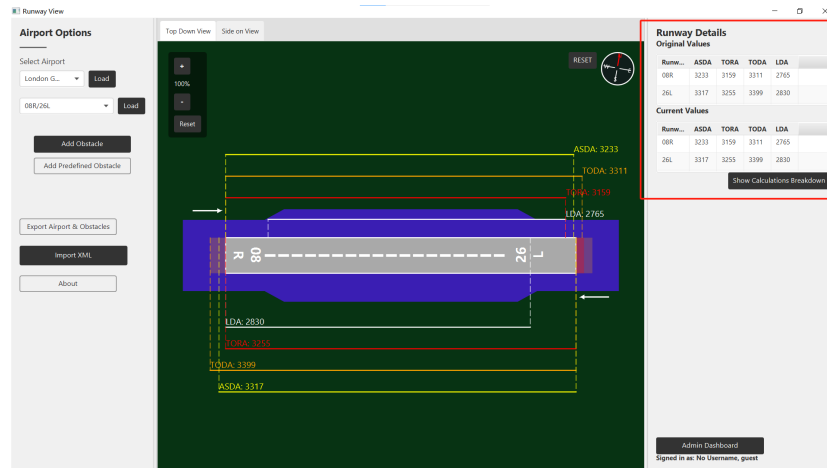


Figure 11: Runway Data Display Page

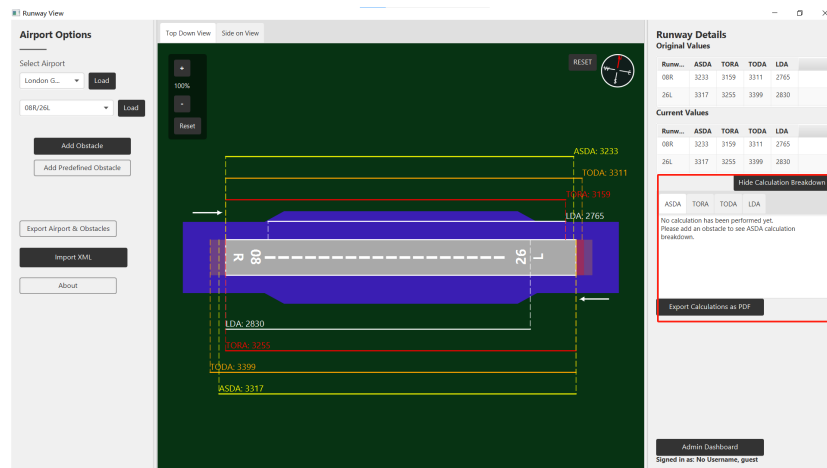


Figure 12: Runway Data Calculation Process and Export Calculation as PDF Button

5.4 Visualisation

You can use the top - down view and side - on view buttons to determine which layers are displayed, top view or side view. It also allows the user to control the equal zoom in and zoom out of the model by using the plus and minus buttons on the top left side of the model and to control the rotation angle of the model by using the top right side.

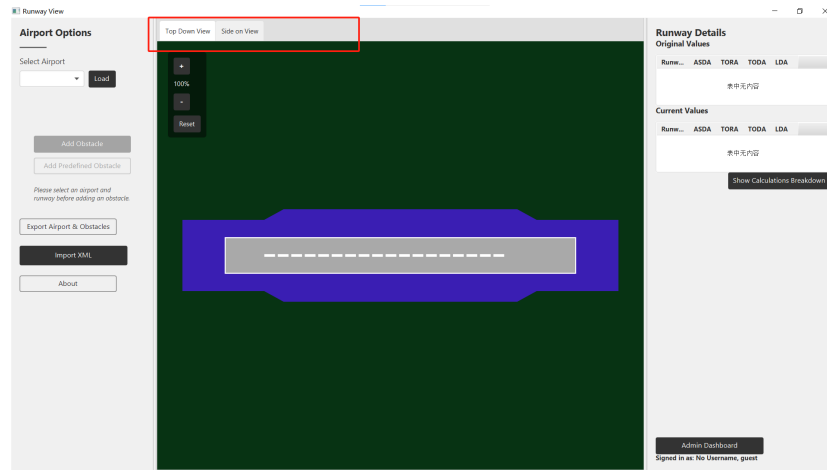


Figure 13: Runway Top - Down View

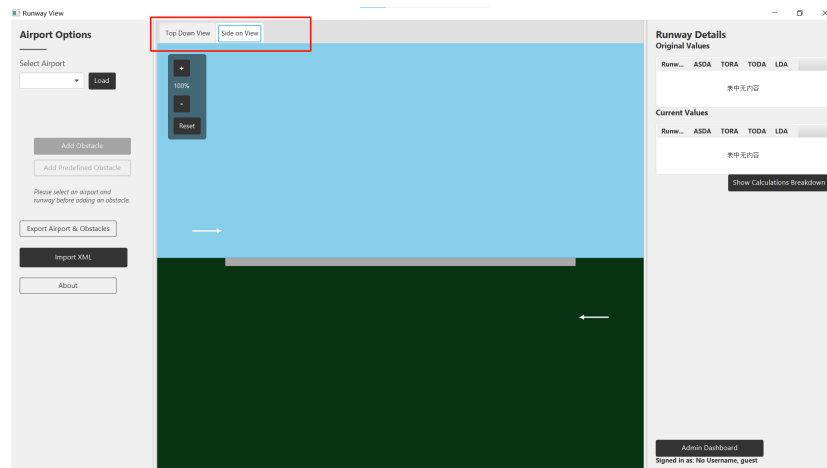


Figure 14: Runway Side-On View

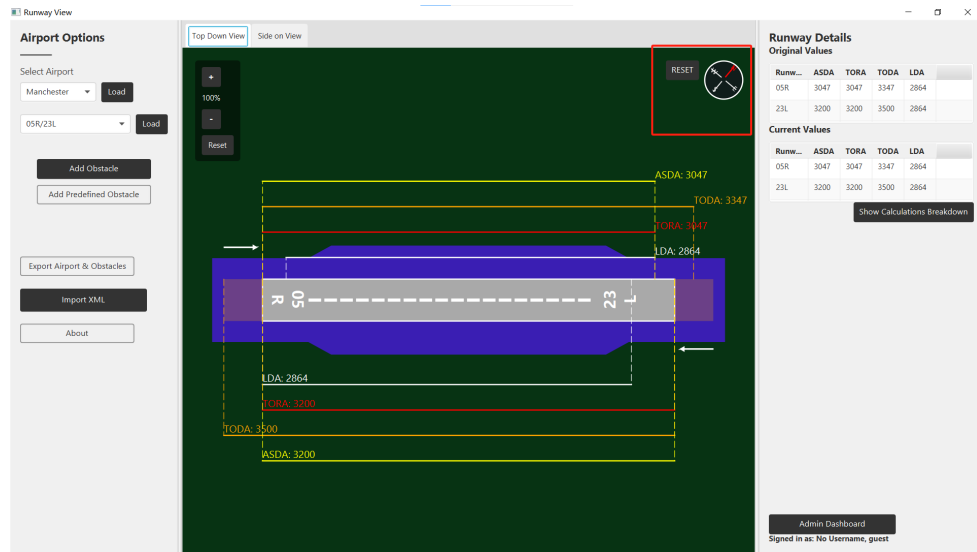


Figure 15: Rotation Button

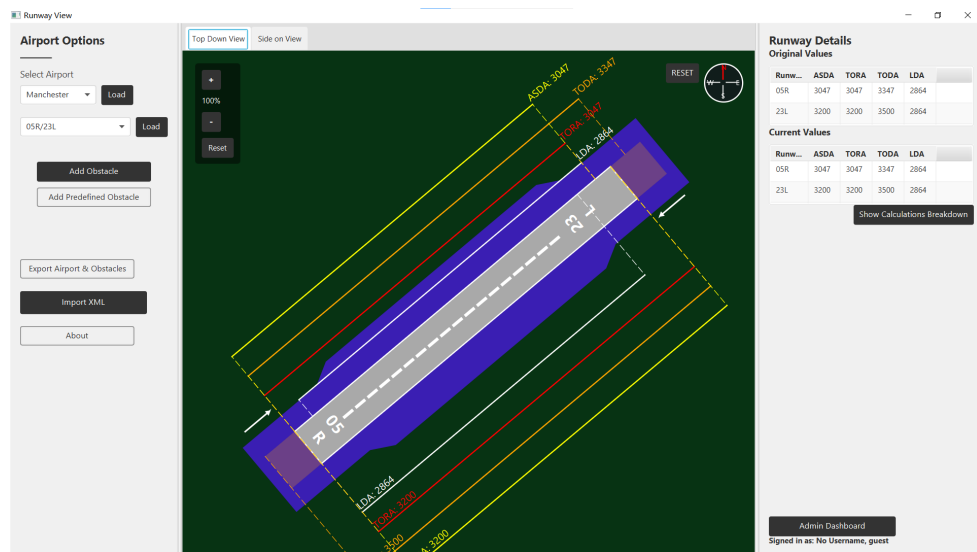


Figure 16: Rotated Effect

6 Administrator Management

If your user level is Admin, clicking the **“Admin Dashboard”** button will open the admin panel to modify and add user accounts. After clicking on the Modify page, you will select the username, then select the modified user information, and finally enter the new information and click on the Submit button to complete the modification. To add a user, enter the user information and click submit to add successfully. Click **“Add Airport”** to bring up the Airport Data Filling Panel, fill in the data and click Add to add a new airport.

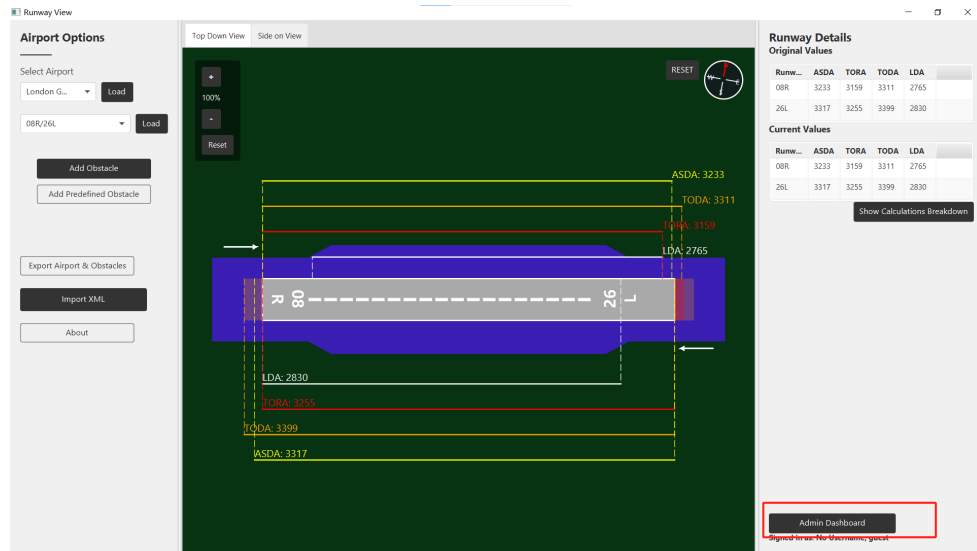


Figure 17: Home Administrator Panel Button

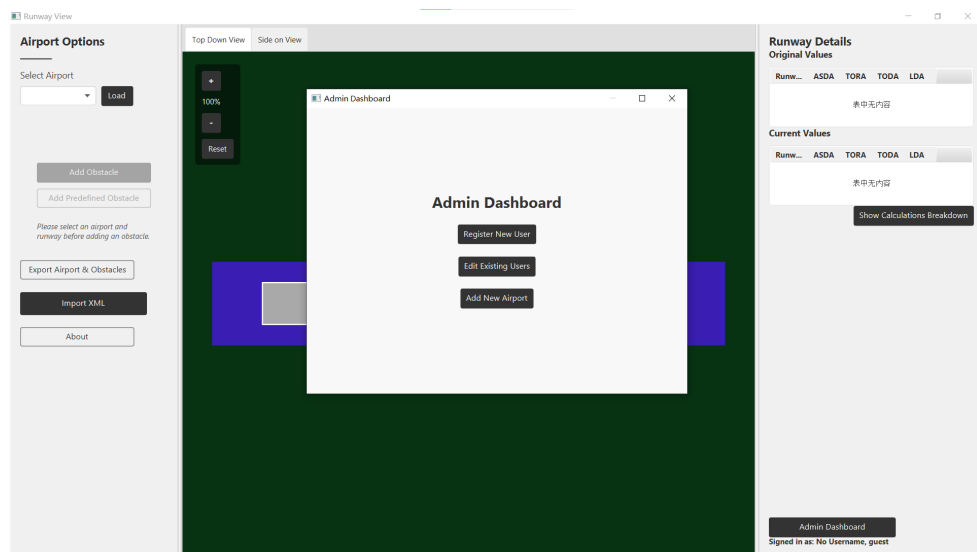


Figure 18: Administrator Panel Home Page

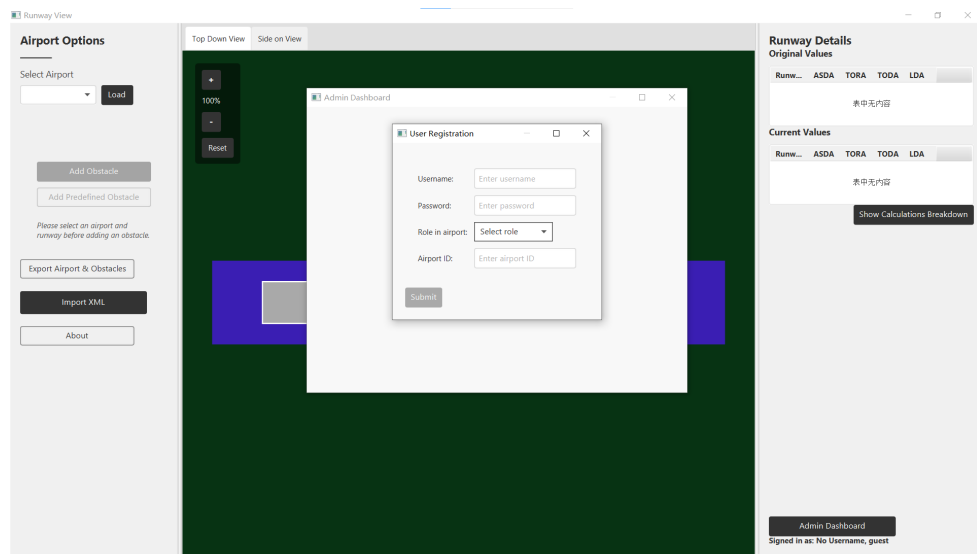


Figure 19: Register User Page

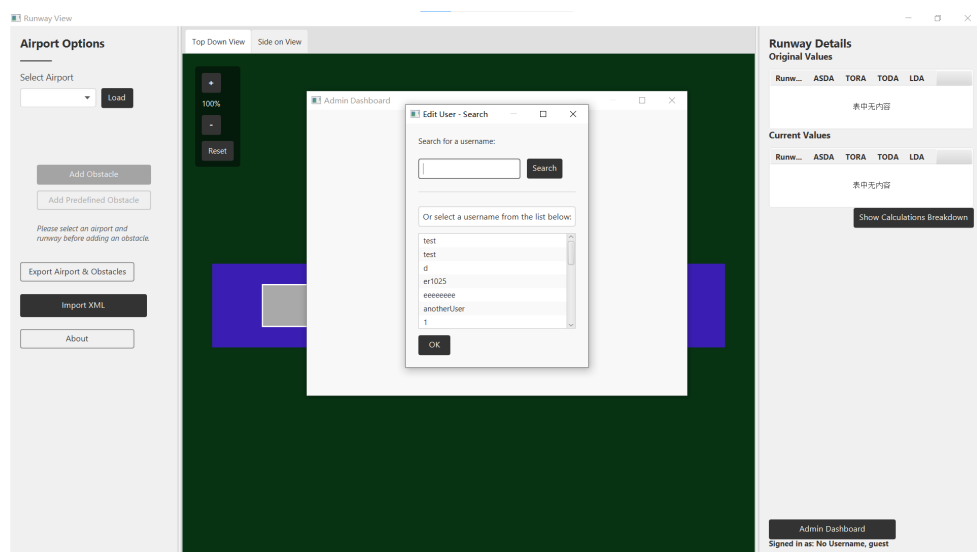


Figure 20: Selecting a User ID to Modify

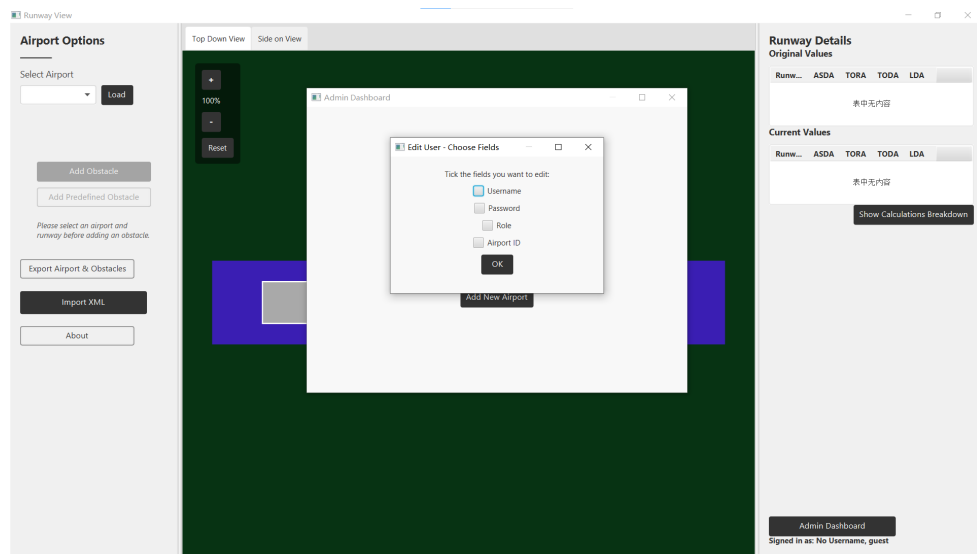


Figure 21: Selecting Modified User Information

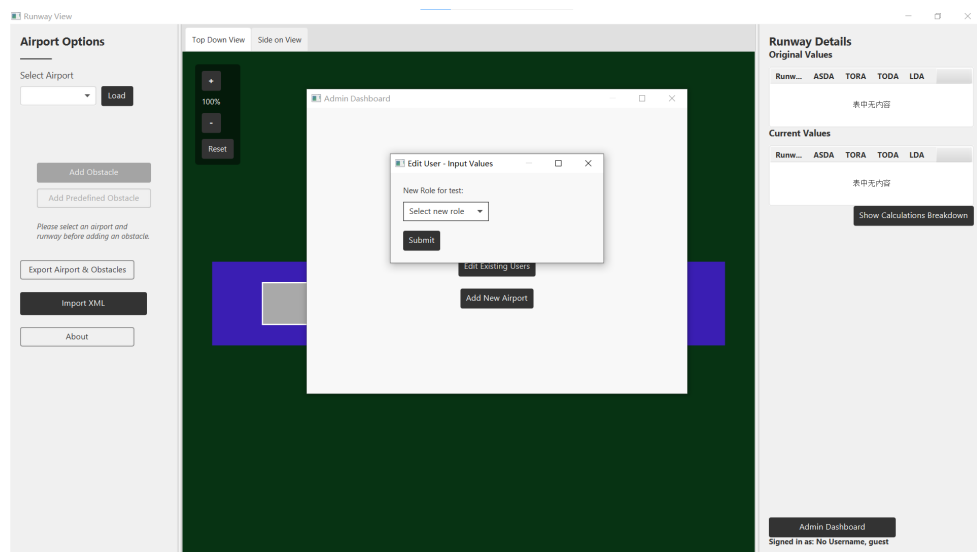


Figure 22: Modifying User Account Privileges Page

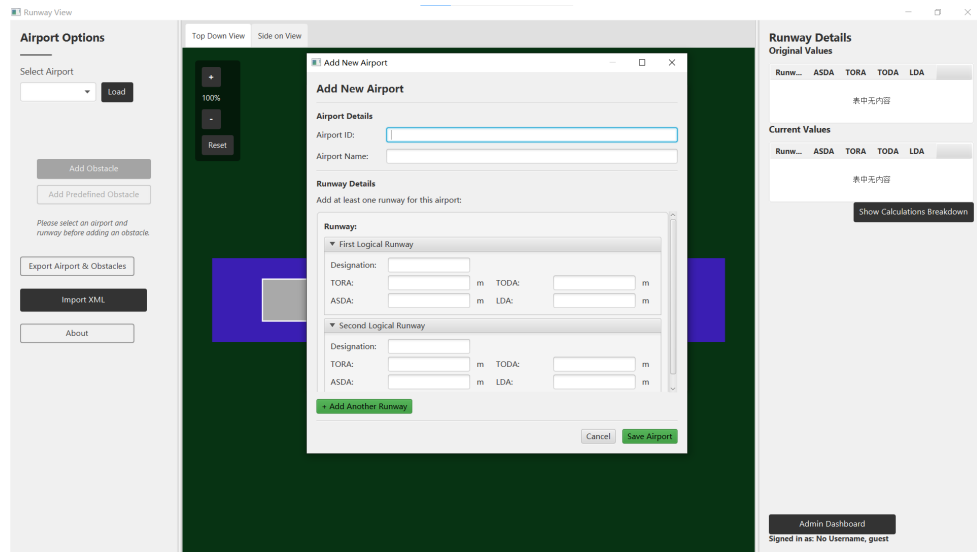


Figure 23: Adding New Airport Information Page

7 Notification

For example, users must fill in a string of characters of a specified length when registering. Otherwise, the program will pop up a notification box reminding users that their input is incorrect.

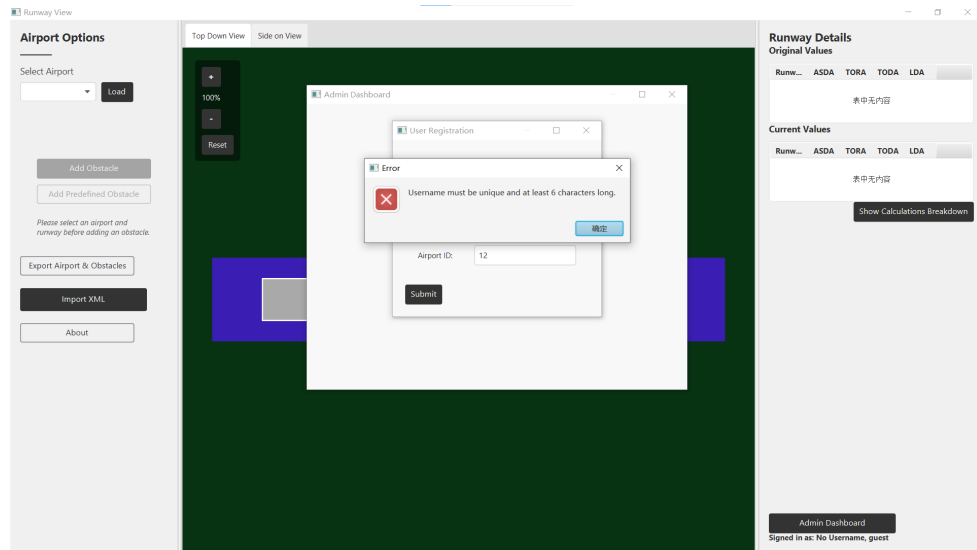


Figure 24: User Input Data Does Not Meet Requirements Error Notification