

Group 23: Deliverable 4: User Guide

COMP2211: Software Engineering Group Project

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Introduction

This document details a user guide for the 'Runway Re-declaration' project produced by Group 23. The guide is presented in the form of questions and answers from the user's point of view, and aims to provide a demonstration of all of the application features as well as answer some frequently asked questions.

1 Running The Application

How can I run the application?

- The application is bundled as two '**.jar**' files, one for Windows systems, and one for MacOS.
 - **Windows.jar**
 - **Mac.jar**
- Run the '**.jar**' file for your corresponding operating system by manually clicking it, or by using the '**java -jar [jar-file-here]**' command
- The '**.jar**' files contain all of the needed programs to run the application, and will create a Resources directory where the application is run to store application files for persistence (airports, obstacles and notifications).

2 Adding Objects

2.1 Adding Airports

How can I add an Airport into the application?

- Select the **File** menu from within the application **Toolbar**.
- Within the **File** menu, select the **Add Airport** sub-menu.
- The **Add New Airport** window will be displayed.
- Enter the airport details into the provided text fields.
- Use the **Add New Runway** to add the necessary number of runways to this airport.
- When the airport details have been provided, and the runways have been added, press the **Submit** button in the **Add New Airport** window.
- If the details are valid, the new airport will be created within the application.
- If the details are invalid, an error alert will be displayed explaining why this is the case.

2.2 Adding Obstacles

How can I add an obstacle into the application?

- Select the **File** menu from within the application **Toolbar**.
- Within the **File** menu, select the **Add Obstacle** sub-menu.
- The **Add New Obstacle** window will be displayed.
- Enter the obstacle details into the provided text fields.
- Submit the obstacle using the **Submit** button.
- If the details are valid, the new obstacle will be created within the application.
- If the details are invalid, an error alert will be displayed explaining why this is the case.

3 Removing Objects

3.1 Removing Airports

How can I remove an airport from the application?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Airport** sub-menu.
- The **Edit Airport** window will be displayed.
- Use the airport selection choice-box to select the airport to be removed.
- Use the **Delete** button (trash-can icon) to delete the selected airport.
- An alert will be displayed asking you to confirm this action.
- If the action is confirmed, the selected airport will be removed from the application.

3.2 Removing Runways

How can I remove a runway from an existing airport?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Airport** sub-menu.
- The **Edit Airport** window will be displayed.
- Use the airport selection choice-box to select the airport that the runway belongs to.
- Use the runway selection choice-box to select the runway to be removed.
- Use the **Delete** button (trash-can icon) to delete the selected runway.
- An alert will be displayed asking you to confirm this action.
- If the action is confirmed, the selected runway will be removed from the selected airport.

3.3 Removing Obstacles

How can I remove an obstacle from the application?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Obstacle** sub-menu.
- The **Edit Obstacle** window will be displayed.
- Use the obstacle selection choice-box to select the obstacle to be removed.
- Use the **Delete** button (trash-can icon) to delete the selected obstacle.
- An alert will be displayed asking you to confirm this action.
- If the action is confirmed, the selected obstacle will be removed from the application.

4 Editing Objects

4.1 Editing Airports

How can I edit an existing airport?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Airport** sub-menu.
- The **Edit Airport** window will be displayed.
- Use the airport selection choice-box to select the airport to be edited.

- Use the text fields to edit the airport's details, the **Add New Runway** button to add a new runway to the selected airport or the runway selection choice-box to remove a selected runway from the airport.
- Select **Submit** to submit the edit.
- If the updated details are valid, the airport will be edited within the application.
- If the updated details are invalid, an error alert will be displayed explaining why this is the case.

4.2 Editing Runways

How can I edit an existing runway?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Airport** sub-menu.
- The **Edit Airport** window will be displayed.
- Use the airport selection choice-box to select the airport that the runway to be edited belongs to.
- Use the runway selection choice-box to select the runway to be edited.
- Select the **Edit Runway** button (pencil icon) to edit the selected runway.
- The **Edit Runway** window will be displayed.
- Use the text fields to edit the runway's details.
- Select **Submit** to submit the edit.
- If the updated details are valid, the runway will be edited within the airport.
- If the updated details are invalid, an error alert will be displayed explaining why this is the case.

4.3 Editing Obstacles

How can I edit an existing obstacle?

- Select the **Edit** menu from within the application **Toolbar**.
- Within the **Edit** menu, select the **Edit Obstacle** sub-menu.
- The **Edit Obstacle** window will be displayed.
- Use the obstacle selection choice-box to select the obstacle to be edited.
- Use the text-fields to edit the selected obstacle's details.
- Select **Submit** to submit the edit.
- If the updated details are valid, the obstacle will be edited within the application.
- If the updated details are invalid, an error alert will be displayed explaining why this is the case.

5 Performing Revisions

5.1 Performing a Revision

How can I perform a runway revision?

- Navigate to the **Calculation Panel** within the application **Dashboard**.
- Select the **Airport** being revised.
- Select the **Physical Runway** being revised.
- Select the **Logical Runway** being revised.
- Enter the **Distance From Threshold** into the text-field.
- Enter the **Distance From Centre-line** into the text-field.
- Select the **Flight Method** being considered.
- Press the **Perform Revision** button
- The results of the revision will be displayed in the **Runway View** and **Calculation Breakdown** panels.

5.2 Viewing the Side-on Perspective

How can I view the side-on perspective of a revision?

- Perform a revision using the **Calculation Panel**.
- Navigate to the **Runway View** panel.
- Select the **Side-On** tab.
- The **Side-On** tab will display the results of the runway revision from a side-on perspective.

5.3 Viewing the Top-Down Perspective

How can I view the top-down perspective of a revision?

- Perform a revision using the **Calculation Panel**.
- Navigate to the **Runway View** panel.
- Select the **Top-Down** tab.
- The **Top-Down** tab will display the results of the runway revision from a top-down perspective.
- The **Show Legend/Hide Legend** toggle button can be used to show/hide a legend that explains the meaning of the different colours used in the graphic.
- The **Rotate Heading** button can be used to rotate the graphic to match the heading of the revised runway.
- The **Normalize Heading** button can be used to 'un'-rotate the graphic back to it's original display.
- You can **Click, Hold and Drag** the graphic to rotate it manually (this feature can be disabled/enabled by selecting the **Lock Rotation/Unlock Rotation** toggle button).

5.4 Viewing the Side-on and Top-Down Perspective Simultaneously

How can I view the side-on and top-down perspectives of a revision simultaneously?

- Perform a revision using the **Calculation Panel**.
- Navigate to the **Runway View** panel.
- Select the **Simultaneous** tab.
- The **Simultaneous** tab will display the results of the runway revision from a both the side-on and top-down perspectives.
- All of the features available when viewing the individual perspectives are also available when viewing both perspectives simultaneously (e.g., can still rotate top-down perspective to match runway heading).

5.5 Viewing the Calculation Breakdown

How can I view the calculation breakdown of a revision?

- Perform a revision using the **Calculation Panel**.
- Navigate to the **Calculation Breakdown** panel.
- The **Calculation Breakdown** panel provides a breakdown of the calculations involved in the runway revision, contained within a scroll pane.

6 Notifications

6.1 Notification Details

What information does a notification display?

- Notifications are displayed in the **Notifications Panel** of the application dashboard.
- Each notification contains:
 - The **Time** the event that triggered the notification took place.
 - A **Description** of the event that triggered the notification.

6.2 Notification Triggers

What actions trigger a notification?

- Adding an **Airport** into the application.
- Adding an **Obstacle** into the application.
- Removing an **Airport** from the application.
- Removing an **Obstacle** from the application.
- Editing an **Airport** within the application.
- Adding a **Runway** to an existing airport.
- Editing a **Runway** within an existing airport.
- Editing an **Obstacle** within the application.
- Performing a **Runway Revision**.

6.3 Notification Types

What are the different types of notification?

- There are four different types of notification.
 - **ADD**: The action of adding an object into the system, displayed in **GREEN**.
 - **EDIT**: The action of editing an object within the system, displayed in **ORANGE**.
 - **REMOVE**: The action of removing an object from the system, displayed in **RED**.
 - **REVISION**: The action of performing a runway revision, displayed in **BLUE**.

6.4 Clearing Notifications

How can I clear the notifications (i.e., remove them)?

- Navigate to the **Notifications Panel** within the application Dashboard.
- Select the **Clear** button in the top-right corner of the panel.
- An alert window will be displayed asking you to confirm this action.
- If the action is confirmed, the notifications will be permanently removed from the system.

7 Importing Data

7.1 Importing Airports From XML

How do I import airports into the application?

- Select the **Import** menu from within the application **Toolbar**.
- Within the **Import** menu, select the **Import Airport** sub-menu.
- The **Import Airport** window will be displayed.
- Select to import the airport(s) from a file, or from text.
- Provide the XML text into the text area, or select an XML file to be imported (more than one airport can be imported in one operation).
- Select to **Append** or **Replace** the new airport(s) into the application. **Append** will add the new airport(s) into the application, while **Replace** will replace the existing airport(s) with the airport(s) currently being imported.
- Select to **Submit** the import.
- If the XML is valid, the new airport(s) will be added to the application according to the selected loading method.
- If the XML is invalid, the new airport(s) will not be added, and an error alert will be displayed explaining why this is the case.

7.2 Importing Obstacles From XML

How do I import obstacles into the application?

- Select the **Import** menu from within the application **Toolbar**.
- Within the **Import** menu, select the **Import Obstacle** sub-menu.
- The **Import Obstacle** window will be displayed.
- Select to import the obstacle(s) from a file, or from text.
- Provide the XML text into the text area, or select an XML file to be imported (more than one obstacle can be imported in one operation).
- Select to **Append** or **Replace** the new obstacle(s) into the application. **Append** will add the new obstacle(s) into the application, while **Replace** will replace the existing obstacle(s) with the obstacle(s) currently being imported.
- Select to **Submit** the import.
- If the XML is valid, the new obstacle(s) will be added to the application according to the selected loading method.
- If the XML is invalid, the new obstacle(s) will not be added, and an error alert will be displayed explaining why this is the case.

8 Exporting Data

8.1 Exporting Airports to XML

How can I export airports out of the application?

- Select the **Export** menu from within the application **Toolbar**.
- Within the **Export** menu, select the **Export Airport** menu item.
- The **Export Airports** window will be displayed.
- Select the airport(s) you would like to export using the provided tick-boxes.
- Multiple airports can be selected at once by holding the 'SHIFT' key whilst selecting.
- Select the **Submit** button.
- A **File-Chooser** dialog will be displayed.
- Chose the location of the export and provide a filename (if the initial filename is not suitable).
- Select the **Save** button.
- A new XML file will be created at the chosen location that contains the selected airports in XML form.

8.2 Exporting Obstacles to XML

How can I export obstacles out of the application?

- Select the **Export** menu from within the application **Toolbar**.
- Within the **Export** menu, select the **Export Obstacle** menu item.
- The **Export Obstacles** window will be displayed.
- Select the obstacle(s) you would like to export using the provided tick-boxes.
- Multiple obstacles can be selected at once by holding the 'SHIFT' key whilst selecting.
- Select the **Submit** button.
- A **File-Chooser** dialog will be displayed.
- Chose the location of the export and provide a filename (if the initial filename is not suitable).
- Select the **Save** button.
- A new XML file will be created at the chosen location that contains the selected obstacles in XML form.

8.3 Exporting Runway Revisions

How can I the results of a revision out of the application?

- Select the **Export** menu from within the application **Toolbar**.
- Within the **Export** menu, select the **Export Revisions** sub-menu.
- You will be presented with four options:
 - **Export Side-On View**: Select to export the side-on view of the runway revision as an image.
 - **Export Top-Down View**: Select to export the top-down view of the runway revision as an image.
 - **Export Simultaneous View**: Select to export the simultaneous view of the runway revision as an image.
 - **Export Calculation Breakdown**: Select to export the calculation breakdown of the runway revision as an image.
- Select the revision data you would like to export.
- A **File-Chooser** dialog will be displayed.
- Chose the location of the export, provide a filename (if the initial filename is not suitable) and select a file type. You can chose to export the revision data as a JPEG, PNG or GIF file.

8.4 Exporting Notifications

How can I export the notifications out of the application?

- Select the **Export** menu from within the application **Toolbar**.
- Within the **Export** menu, select the **Export Notifications** menu-item.
- A **File-Chooser** dialog will be displayed.
- Chose the location of the export and provide a filename (if the initial filename is not suitable).
- Select the **Save** button.
- A new text file will be created at the chosen location that contains the system notifications as text. The format of the saved notifications is the same format that is used within the notifications panel.

9 Frequently Asked Questions

How is the application data stored?

- Your data is **saved** as XML files in a **Resources** folder.
- The **Resources** folder is created when the application is run for the first time and contains three files:
 - **Airports.xml**: Contains the airports stored into the system.
 - **Obstacles.xml**: Contains the obstacles stored into the system.
 - **Notifications.xml**: Contains the notifications stored in the system.
- Whenever application data relating to either an airport, obstacle or notification is changed, these changes are updated within the relevant XML file.
- When opening the application, the system controller loads in the data from the XML files in the **Resources** directory. This puts you back in the same position you were in when the application is closed.
- If the resources folder is **removed**, the application will create a new instance when it is next opened, but the data contained in the previous folder will be lost.

Can more than one obstacle/airport be imported at the same time?

- **Yes** - The import airport/obstacle forms allow for XML data to be input that contains any number of objects. These objects will then be added to the application according to the provided loading method.

Can I import anything other than airports and obstacles into the application?

- **No** - only airports (and their corresponding runways) and obstacles can be imported into the system.

Can I save a runway revision into the application?

- **No** - The only way runway revision data can be saved is if it is exported out of the application in the form of images (see Exporting Data).

Can I 'undo' an action?

- **No** - It is not possible to undo an action. Confirmation alerts are used to mitigate this risk and ensure that actions cannot be performed by mistake. However, it is possible to edit airports/obstacles through the 'Edit' menu, which may allow for you to undo a particular action relating to the details of these objects (e.g., remove an airport runway that was added by mistake).