User Manual

Affinity Finder Application

Programming Project subject
Group 13.2 – Delivery 3.0

AFFINITY FINDER

Eduardo Hernández
edu.hernandez

Oriol Valencia
oriol.valencia

Álex Manzaneda
alex.manzaneda

Sara Vidal
sara.vidal

December 2025

Contents

1   How To Execute

1.1   System Requirements

Before executing the Affinity Finder application, ensure:

- **Java 11 or higher** installed on your system

- **Operating System:** Windows, macOS, or Linux

- **Disk Space:** At least 500 MB

- **Internet Connection:** Required for the first run if running with gradle

To verify Java is installed, run: `java -version`

1.2   Obtaining the Project

Clone or download the project repository to your local machine. The project uses Gradle as its build system, so no additional setup is required beyond Java.

1.3   Running the Application

Navigate to the /EXE directory in the project folder.
You have two main options to execute the application:

- Running the application directly from the JAR file. In this option you won't have acces to view the graphics generated when executing the K-Means algorithm as an administrator.

- Using the provided scripts based on your operating system. You have to use the terminal/command prompt to navigate to the project directory and execute the corresponding script. In this option you will have access to view the graphics generated when executing the K-Means algorithm as an administrator.

  - **Windows:** Use `./run.bat`
  - **macOS:** Use `bash run.sh`
  - **Linux:** Use `./run.sh`

Alternatively, you can run the application directly using Gradle. Open a terminal in the /FONTS project directory and execute: `./gradlew run`

2   Initial View

When the application is launched, the first window that appears is the Login or Create new user window, as shown in Figure 1.
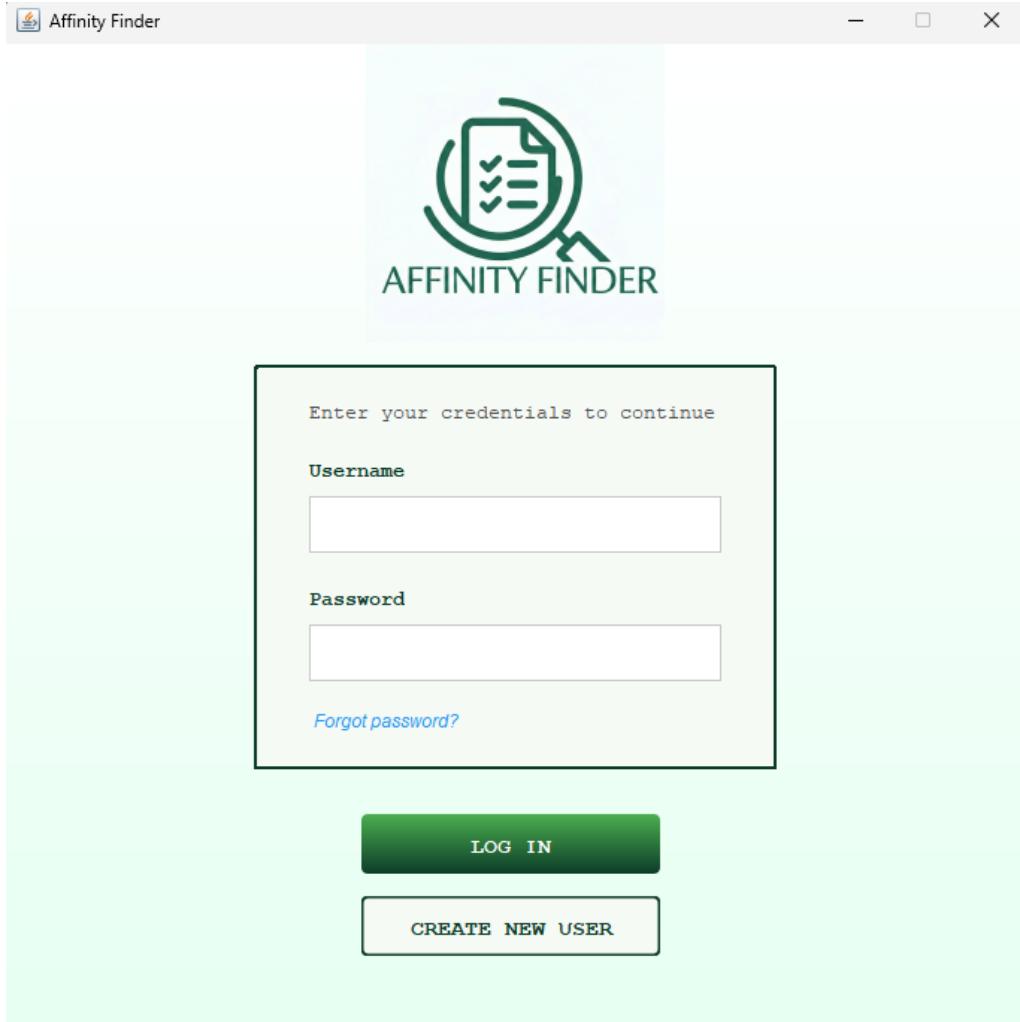

Figure 1: Login window

The Login window provides two access options: logging in as an Administrator, if the corresponding credentials are available, or accessing the system as a regular user. The available options are described below.

2.1   Log in

If the user already has an existing account, the *[Username]* field must be filled with the corresponding username and the *[Password]* field with the user password. After filling both fields, the **LOG IN** button must be pressed.

If the username and password exist and are correct, the system grants access to the specific user menu associated with that account.

2.2 Create New User

If the user does not have an existing account or wishes to access the system with a new one, the desired credentials must be entered in the *[Username]* and *[Password]* fields. Once the fields are completed, the **CREATE NEW USER** button must be pressed.

If the chosen username does not already exist, the user account is created successfully. After this, the user can log in using the newly created username and password, following the same process described for an existing regular user.

2.3 Administrator Log in

To log in as an Administrator, the *[Username]* field must be filled with the word `admin` and the *[Password]* field must also be filled with the word `admin`. Once these fields are completed, pressing the **LOG IN** button automatically grants access to the administrator options menu.

It is not possible to create a new user using the **CREATE NEW USER** button when logging in as an administrator.

3   Main Menu for Regular Users

The first thing we see after logging in as a regular user is the main menu window, which can be seen in the image 2. From this menu, the user has access to the following options:

- Press the door icon (top left) to **log out**.

- Press the person icon (top right) to manage the user **profile options**.

- Press the button [Form Management] to **create**, **manage**, or **view** forms.

- Press the button [Answer Form] to **answer** a form, either by importing answers or filling it in manually.

- Press the button [Affinity Groups] to **view** affinity groups among users who have answered forms created by this profile.
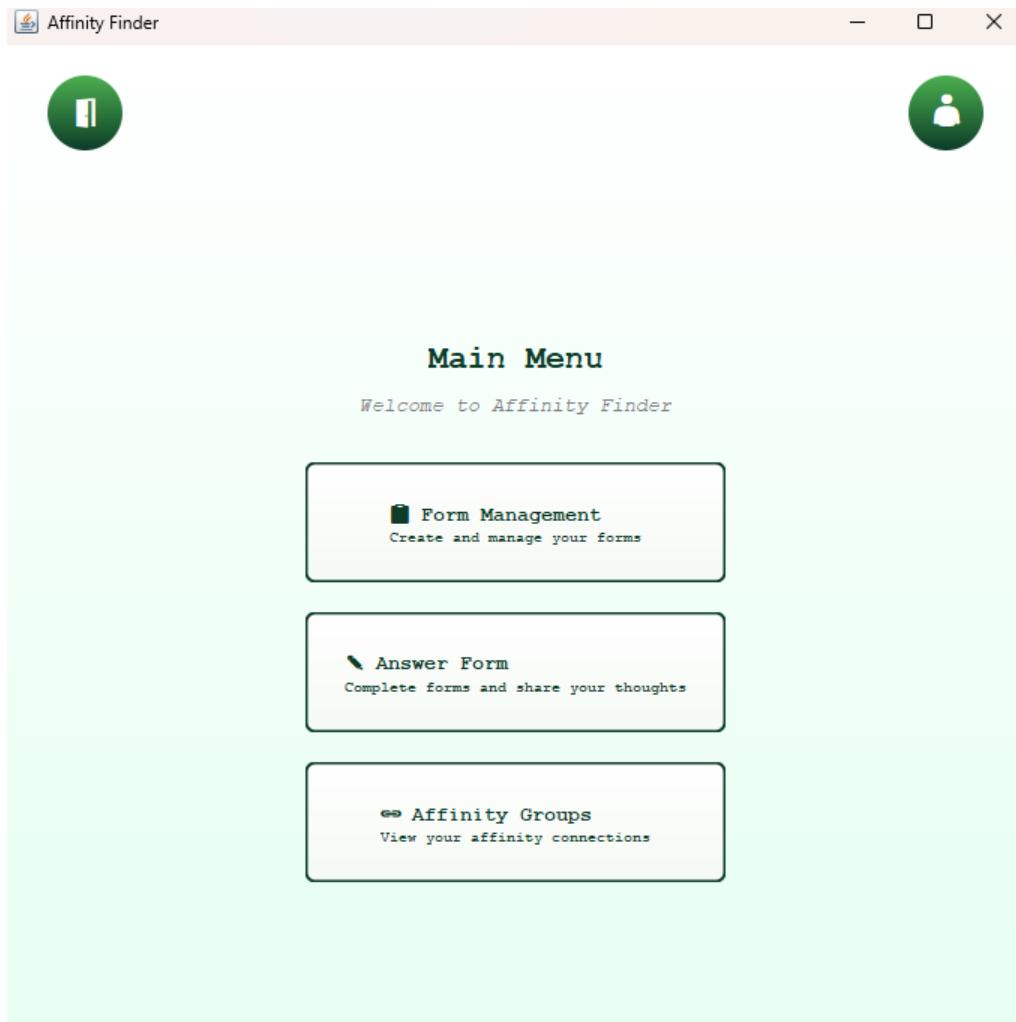

Figure 2: Regular user main menu

4   Profile Management

4.1   User Options

In this window (see Figure 3), you can view the current user's details and access options to modify or delete the profile.

First, the username and description are displayed. To edit these fields or change the password, simply click the pencil icon to the right of each item.


Figure 3: Top profile options

Below these settings (Figure 4), the system displays the total count of forms created and answered. Detailed lists of these forms are also available in this section.

Finally, there are two main actions available:

- The *[Log Out]* option, which closes the current user session while saving all changes made by the user, returning to the initial menu.

- The *[Delete Profile]* option, which permanently deletes the user profile, including all answers and created forms, as well as the login credentials.

Figure 4: Bottom profile options

5   Form Management

When accessing the [**Form Management**] section (Figure 5), the following options are displayed as buttons:

- **Create Form**: This button allows you to import an existing form or create a new form from scratch.

- **Manage My Forms**: This button is used to operate on forms created by the current user. It allows editing questions, title, description, or even deleting the entire form.

- **View Existing Forms**: This button allows you to access all existing forms in the application, view their questions, and export them.

- **View Answered Forms**: This button allows you to see which forms you have answered, view the submitted answers, and modify or delete them.
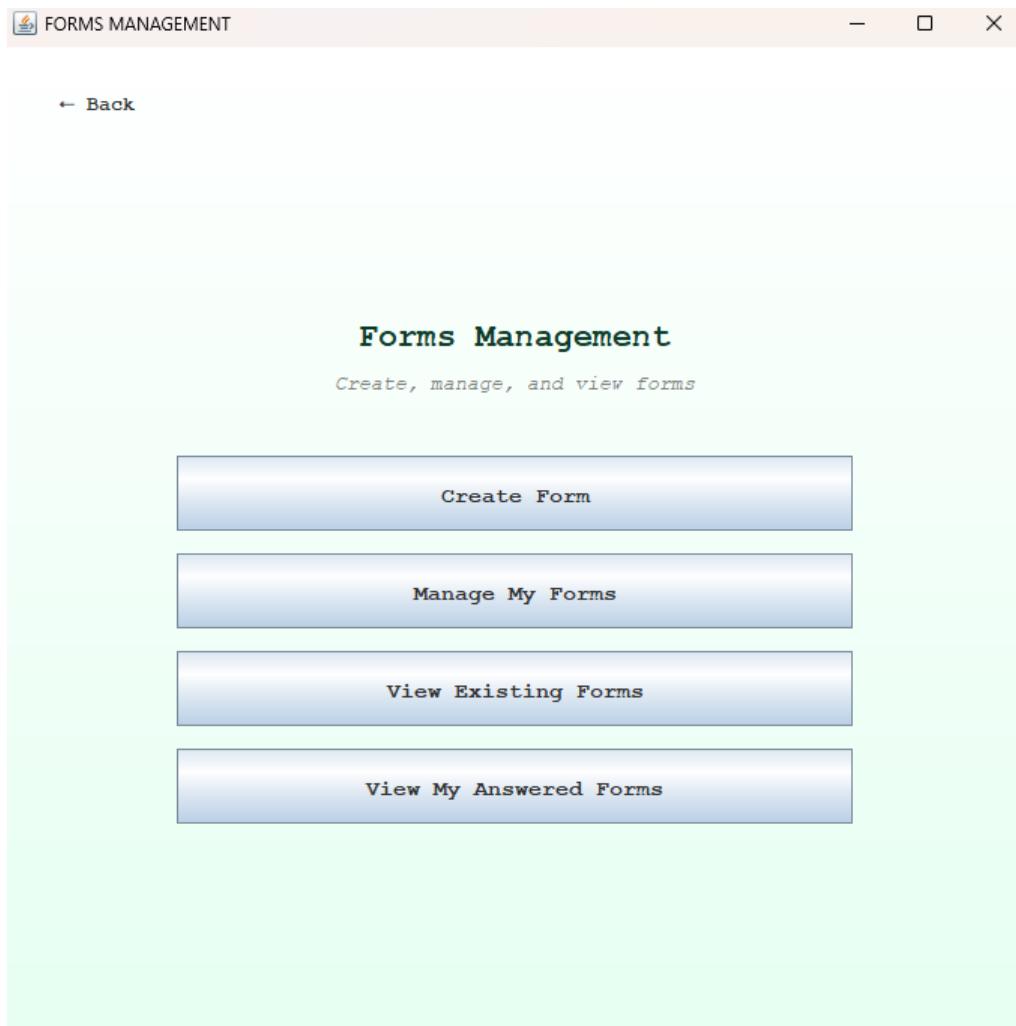

Figure 5: Form Management menu options

5.1   Create Form

When accessing the [**Create Form**] option, two main possibilities are available, as shown in Figure 6.

- By pressing the *[Import Form]* button, we can browse the system to select a `.json` file. Once selected, the form is imported into the application.

- Alternatively, we can manually create a form by entering a title and a description in the corresponding text fields and then pressing the *[Create Next]* button.
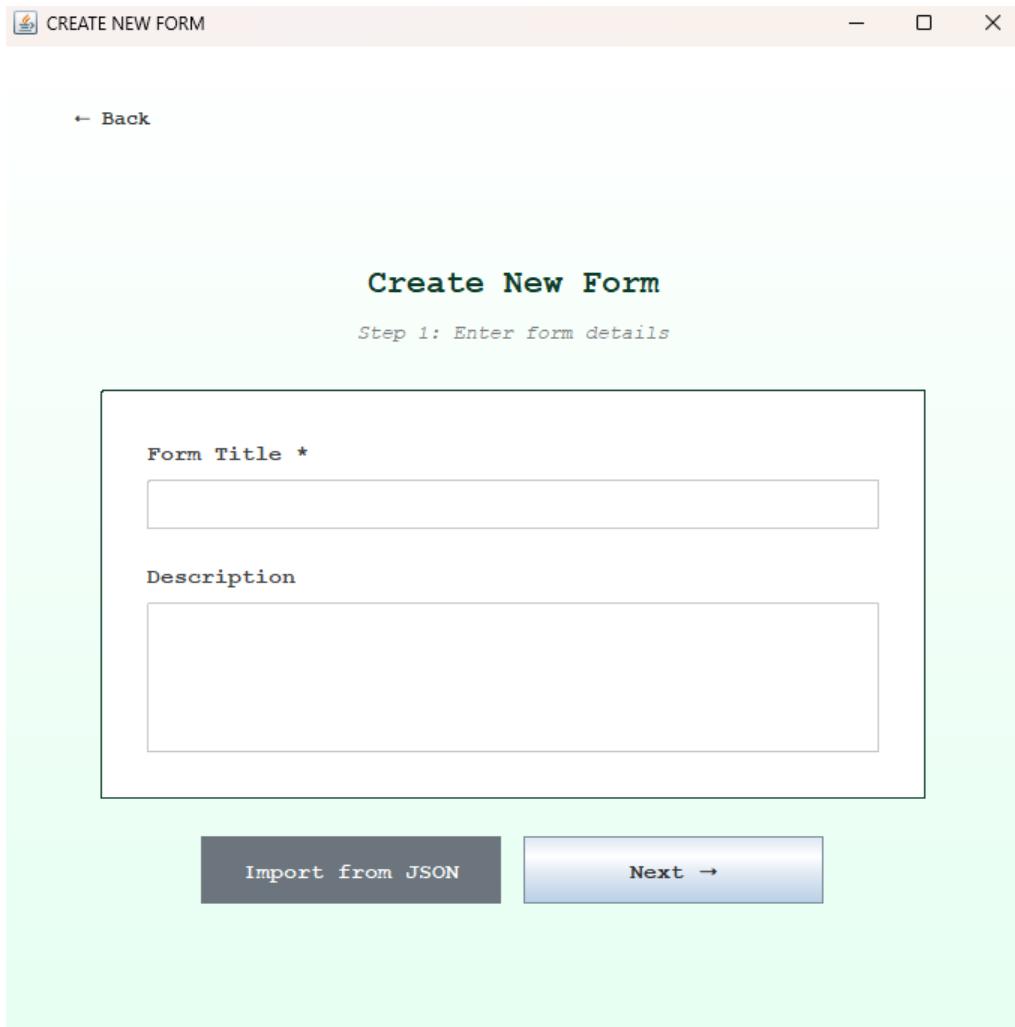
Figure 6: Initial Create Form menu

At this point, the form is created and the application automatically opens the question creation window. In this view, multiple types of questions can be added. For every question, the question text must be filled in, and depending on the selected question type, additional fields must be completed. (Explained in Section **??**)

5.1.1   Add Question

The application supports three different types of questions, each with specific requirements:

Open Ended   (Figure 7)
No additional fields are required apart from the question text.

Figure 7: Create Open Ended question

Multiple Choice   (Figure 8)
The available choices must be entered separated by commas. The user can also select whether the answers should be ordered or not. Additionally, the maximum number of choices that the respondent can select must be specified. This value cannot exceed the total number of available choices. Note that if the question is marked as ordered, the maximum number of selectable choices is automatically set to 1.

Figure 8: Create Multiple Choice question

Numeric   (Figure 9)
The valid range of answers must be defined by setting a minimum value in *Min Bound* and a maximum value in *Max Bound*. The maximum value must always be greater than the minimum value.

Figure 9: Create Numeric question

All the question types share the following fields:

Figure 10: Finish or Save options

After filling in the required fields for a question, it is added to the form by pressing the *[Save]* button. This process can be repeated to add as many questions as desired. Finally, pressing the *[Finish]* button closes the question creation process and completes the form creation.

5.2   Manage My Forms

By pressing the [**Manage My Forms**] button, a view is displayed showing all forms created by the currently logged-in user (Figure 11). From this list, a form can be selected by hovering over it and pressing the *Manage* button that appears (see the image below).
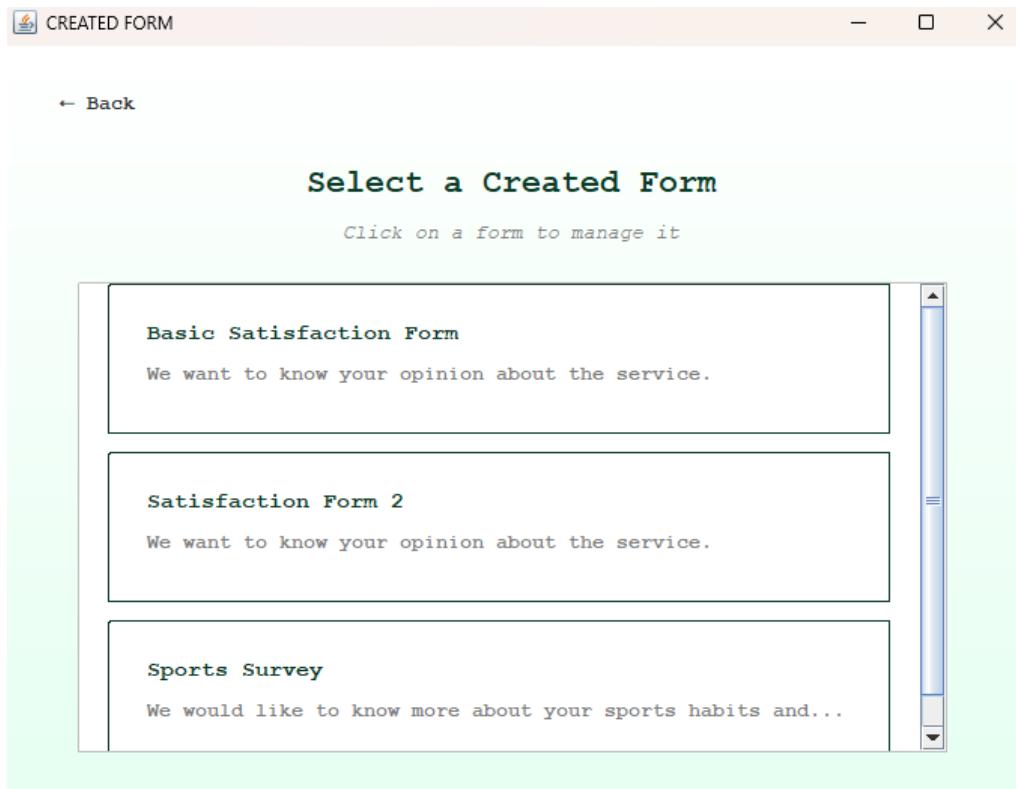

Figure 11: Form selection in Manage My Forms

Once a form is selected, a new menu opens (Figure 12), allowing the following operations:

- **Add Question**: Adds a new question to the form (see the previous Add Question section).

- **Modify Question**: Allows modifying the text of an existing question.

- **Change Title**: Opens a window to introduce a new title for the form.

- **Change Description**: Opens a window to modify the existing description.

- **Delete Question**: Deletes a selected question from the form.

- **Delete Form**: Displays a confirmation dialog and, if accepted, deletes the form along with all answers submitted by other users.
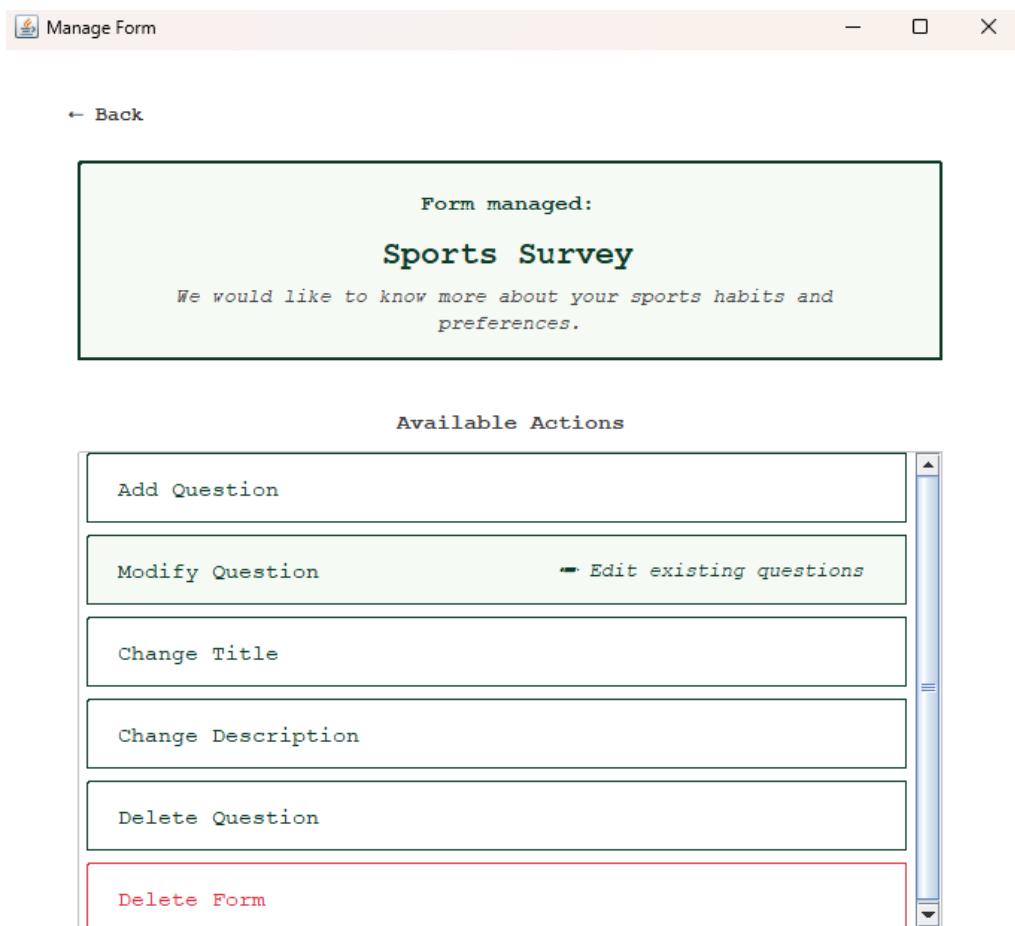

Figure 12: Operations available for a selected form

5.2.1   Modify Question

This option allows modifying the text of a question in the form. The user selects a question, enters the new text in the *New Question Text* field, and presses the *Modify Question* button to save the changes. Figure 13 shows an example of this window.

Figure 13: Modify Question window

5.2.2   Delete Question

This option allows deleting a question from the form. A window is displayed where the user selects the desired question and presses the *Delete Selected Question* button to remove it. An example of this window is shown in Figure 14.


Figure 14: Delete Question window

5.3   View Existing Forms

When pressing the *View Existing Forms* option, a new menu is displayed where we can select which of the existing forms we want to view, the view is the same as shown in Figure 11 but instead of the created Forms, existing forms are displayed.

By placing the cursor over a form and pressing the *View* button, we access another view where all the questions of the selected form are displayed, together with its creator and description (Figure 15). In this view, a button labeled *[Export Form]* appears at the bottom center of the screen.

This button allows us to export the selected form in `.json` format to a directory of our choice on our computer. An example of this view can be seen in the following image.

Figure 15: Detailed view of an existing form and its questions

5.4   View My Answered Forms

By pressing *View My Answered Forms*, a menu is displayed showing all forms answered by the user, the view is the same as shown in Figure 11 but instead of the created Forms, answered forms are displayed.

After selecting a form and pressing *View Answers*, a new view is displayed (Figure 16) with the following information and options:

- The form title and description.

- All questions and the answers provided by the user, displayed in a scrollable view.

- An *Edit Answers* button, which redirects to the answer modification view.

- A *Delete Answers* button, which deletes the user's answers for the selected form.

Figure 16: View of answered form and available options

6   Answer Form

In the *Answer Form* subsection, we can either answer a form or modify the responses to a form in case it has already been answered by the user.

As you can see in the figure 17, we first need to select the form we want to answer from a list of existing forms. Once we find the desired form, we click on the rectangle with the form's name to open it.
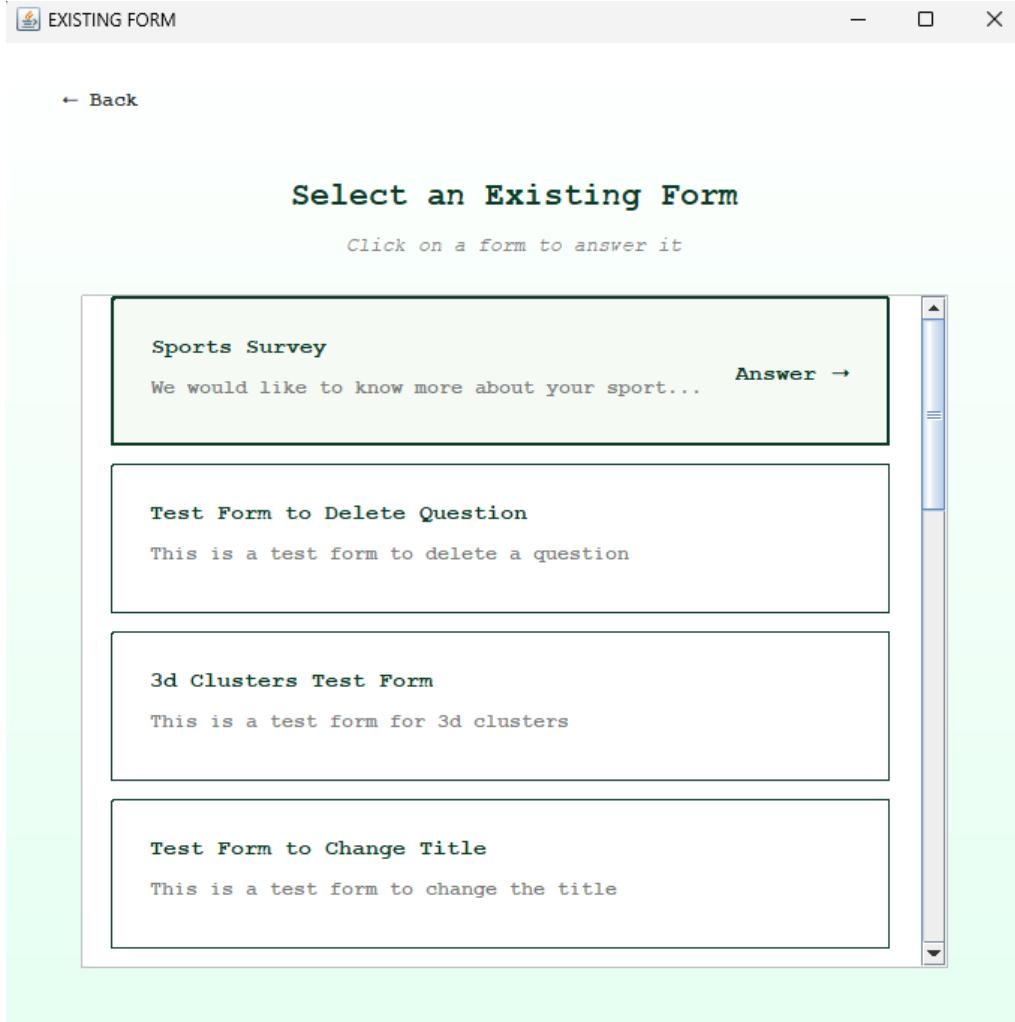
Figure 17: Menu for selecting a form to answer.

6.1   First Response to a Form
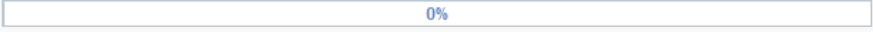
Once the form is selected, a new window appears like the one shown in figure 18, where we can see all the questions that make up the form.

Note that Open Ended questions never expect more than 1000 characters; otherwise, an error will occur. We enter our answers in the response boxes and press `Submit Answers` to assign the user's responses to the form. We can leave some questions unanswered, but we cannot submit if any answer does not meet the required restrictions.

Figure 18: View for answering the form.

6.2   Modifiy Responses to a Form

If we are modifying responses, when you choose the form, a window like the one shown in figure 19 will appear. In this case, the response boxes will already be filled with the previously submitted answers, and instead of `Submit Answers`, the button will be labeled `Update Answers`.
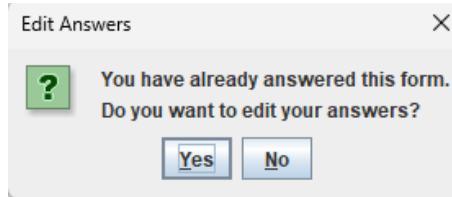
Figure 19: View for answering the form.

6.3   Import Responses from CSV

In any case, we can also import responses into the specific form from a `.csv` file. To do this, we press the import button (seen in figure 18) located at the bottom left of the screen and select the file containing the responses from our computer. Once imported, the responses appear in the boxes, and we must press `Submit/Update Answers` to save them.

7   Affinity Groups Section

After logging in as a regular user, you can access the *Affinity Groups* section from the main menu. This section allows you to view the affinity groups you have been assigned to based on the forms you have answered.

7.1   Select an Answered Form

When you click the *Affinity Groups* button, you will first see a list of the forms you have answered as you can see in Figure 20.
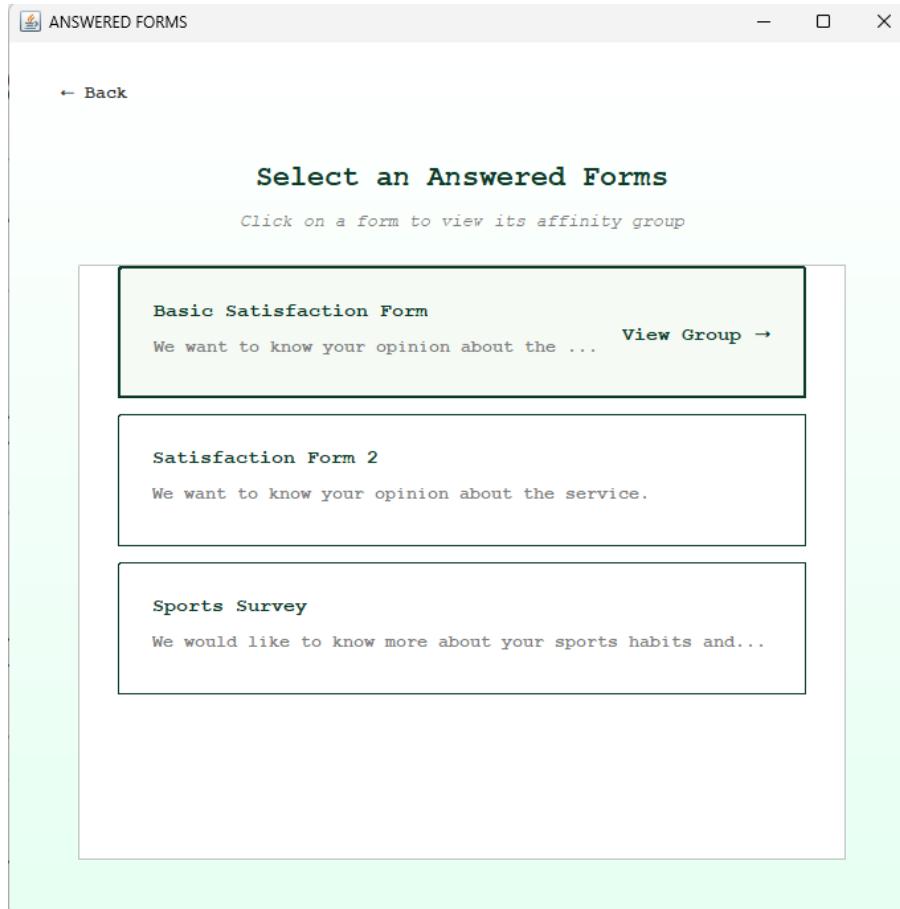
Figure 20: Affinity Groups - Select an answered form

After selecting a form from the list, you will be taken to the affinity groups view for that specific form, as shown in Figure 21.

But it is also possible that **no affinity groups have been created yet** for the selected form. In that case, a message will be displayed indicating that no affinity groups are available for the chosen form. This can happen because the algorithm to create affinity groups has not been executed yet for that form, or because there were not enough users who answered the form to create meaningful groups.

7.2   Affinity Group Menu

In this view, you can see the affinity group you belong to for the selected form, along with the other members of that group.

At the top you can see the **representative** of the group. This profile is the user whose answers are the closest to the average answers of all group members.
Below the representative, you can see the list of all group members, including yourself.
Then you can put your mouse over the different members, if you click on a member, additional information about that member will be displayed as you can see in Figure 22.

Finally, at the bottom of the window, there is a button to export the affinity groups to a JSON file. For more information about this feature, please refer to the *Exporting Affinity Groups* section in this manual.
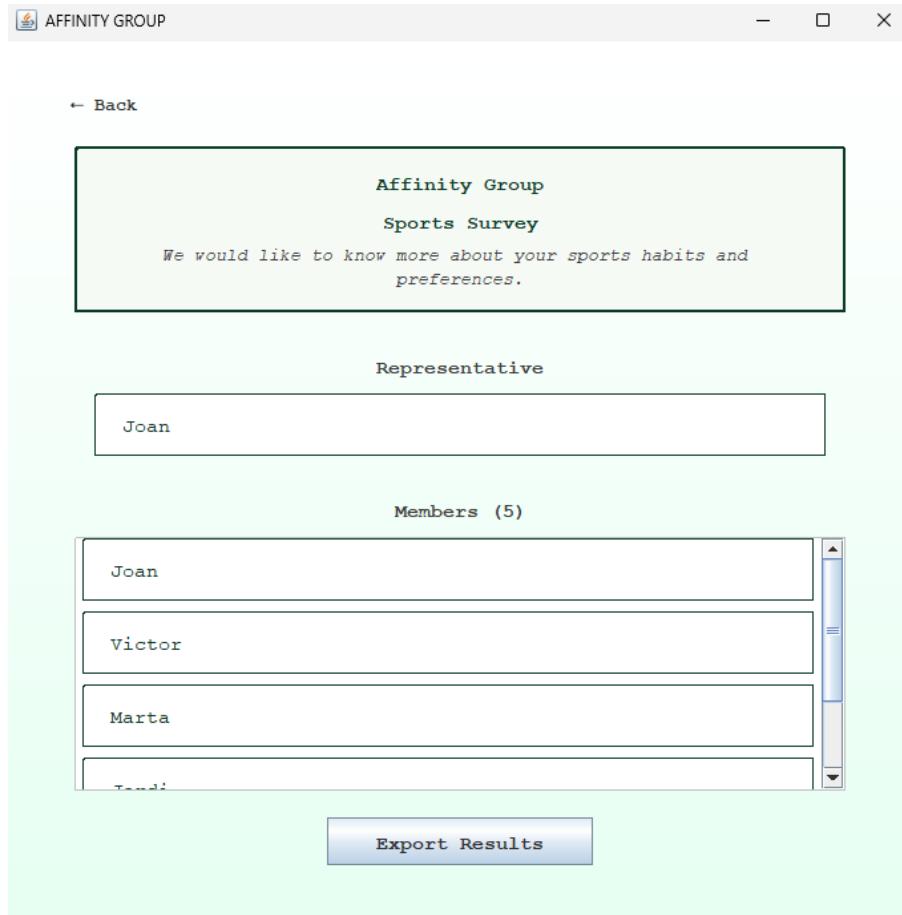

Figure 21: Affinity Groups - View your affinity group for a selected form

7.3   Exporting Affinity Groups

To export the affinity groups to a JSON file, simply click the **Export Results** button located at the bottom of the affinity groups view. This will generate a JSON file containing all the affinity groups for the selected form, including details about each group and its members.
You will be prompted to choose a location on your computer to save the file. Once saved, you can open the JSON file with any text editor or JSON viewer to examine the contents. The exported data can be useful for further analysis or record-keeping purposes.

7.4 Visit Affinity Profile

When you click on a member of your affinity group, a new window will open displaying the affinity profile of that user, as shown in Figure 22. This profile provides detailed information about the user's answers to the form questions.
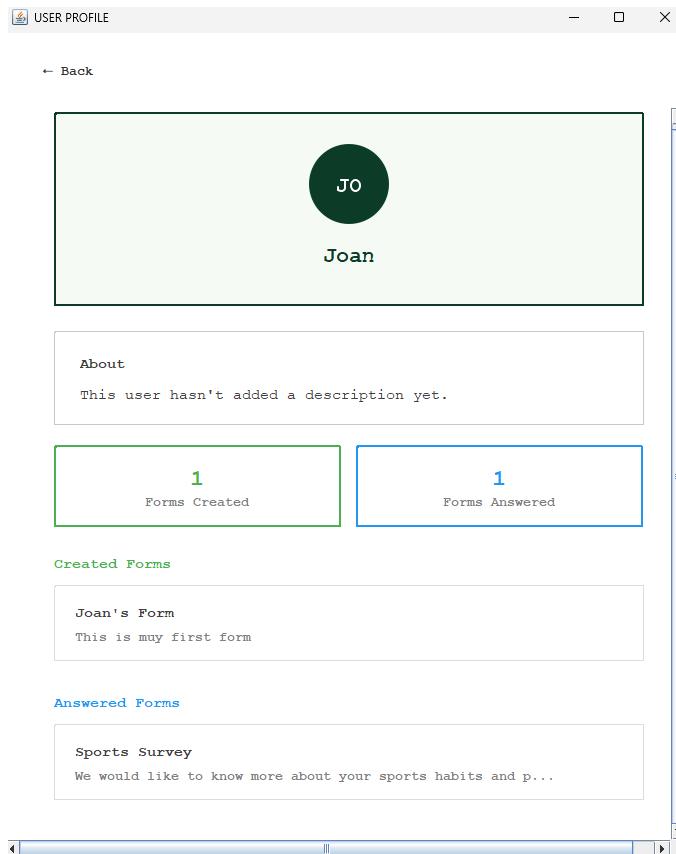

Figure 22: Affinity Groups - Visit a member's affinity profile

In the affinity profile, you can see:

- The user's name at the top.

- The description of the profile.

- The number of forms created and answered

- A list of the user's created forms.

- A list of the user's answered forms.

8   Admin User Section

The application Affinity Finder also includes an admin user role with special privileges. Admin users have the ability to manage the system, including user accounts, forms, and affinity group settings.
To enter as an admin user, you need to login with the next default credentials:

- Username: **admin**

- Password: **admin**

Once logged in as an admin user, you will have access to additional features and functionalities that are not available to regular users. These features are show in the admin menu, as you can see in the figure 23.
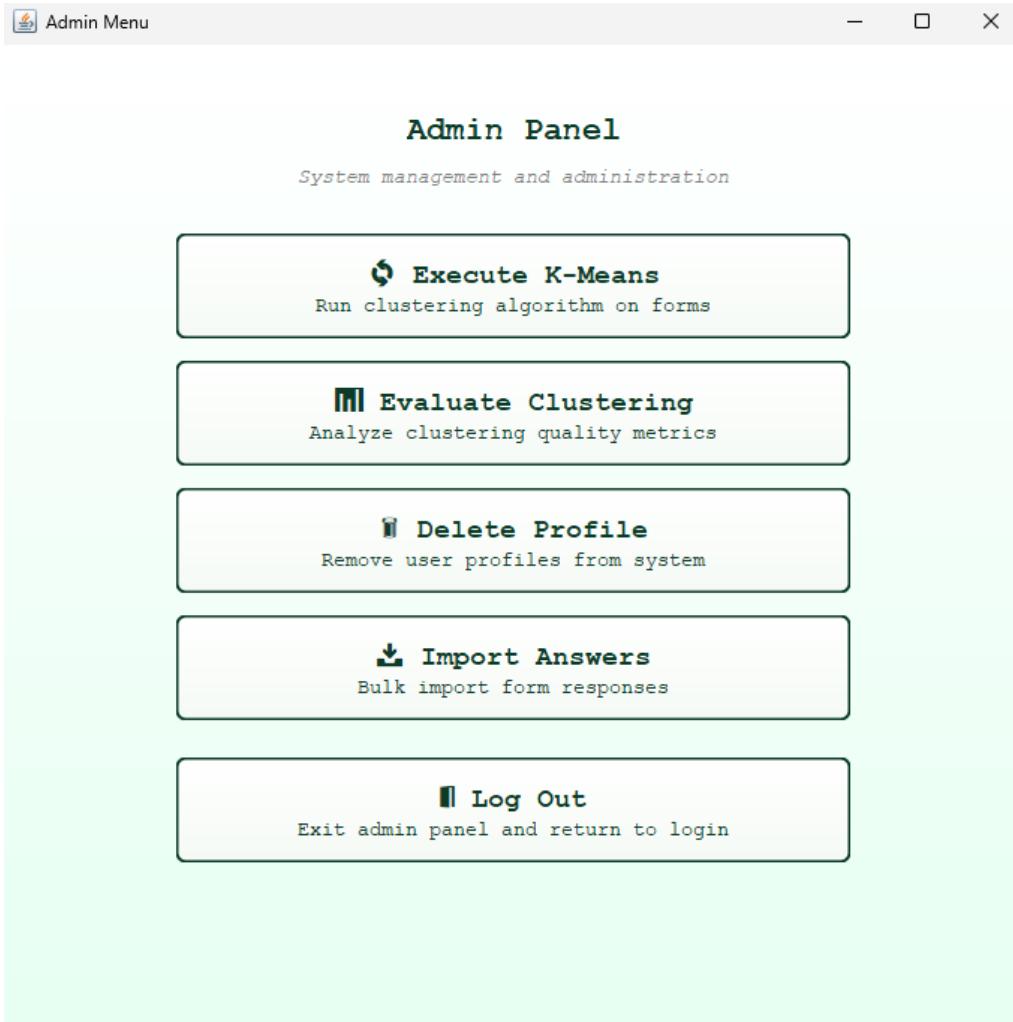

Figure 23: Admin User - Admin menu with additional options

8.1   Execute K-Means Algorithm

One of the key features available to admin users is the ability to execute the K-Means clustering algorithm to create affinity groups based on user responses to forms. To do this, simply click on the *Execute K-Means* button in the admin menu.

This will open a new window where you can select the form for which you want to create affinity groups, as shown in Figure 24.
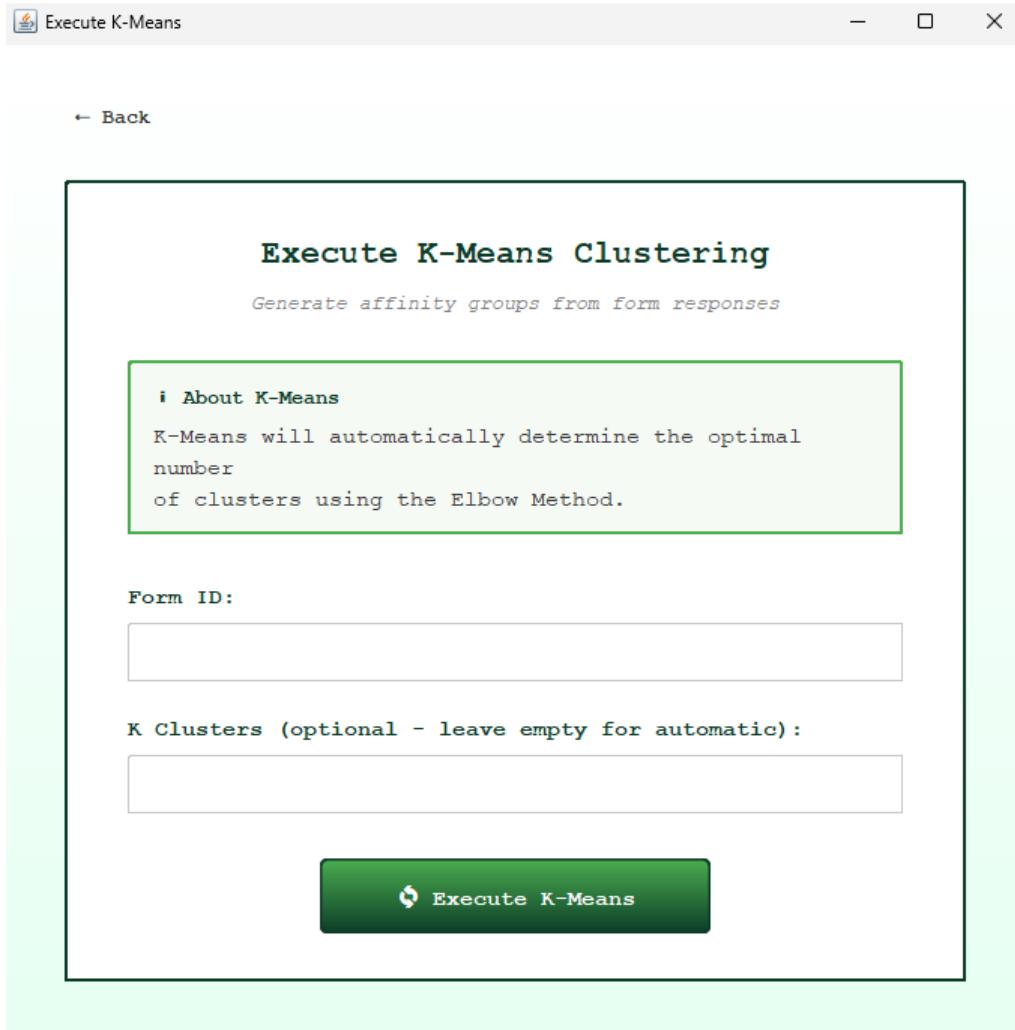
Figure 24: Admin User - Execute K-Means algorithm for a selected form

To execute the algorithm, you have to type the number of the form ID and the number of desired clusters (affinity groups) and then click the **Execute** button. The system will then process the user responses and create the affinity groups accordingly.

Once the algorithm is executed, on Linux and Windows a grafic is provided showing the results on 3D. This functionality of grafic showing is not working on MacOS computers due to architecture.

The number of clusters is optional; if you leave it blank, the system will use the **Elbow Method** to determine the optimal number of clusters automatically.

Inmediately after executing the algorithm, a message will be displayed indicating whether the execution was successful or if any errors occurred during the process. And if successful, a Scatter Plot graph will be shown representing the clustering results. You can see an example of this graph in Figure 25.
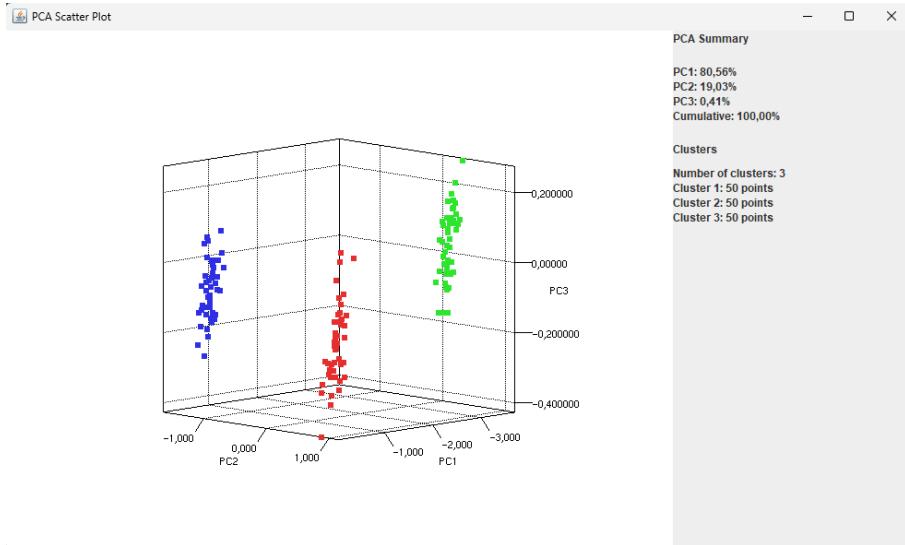

Figure 25: Admin User - Scatter Plot graph showing K-Means clustering results

8.2 Evaluate Clustering Results

After executing the K-Means algorithm, admin users can evaluate the clustering results to assess the quality of the created affinity groups. To do this, click on the *Evaluate Clustering* button in the admin menu. This will open a new window where you can select the form for which you want to evaluate the clustering results, as shown in Figure 26.

Figure 26: Admin User - Evaluate clustering results for a selected form

To evaluate the clustering results, you need to enter the form ID and click the **Evaluate** button. The system will then calculate various clustering metrics and display the results in a new window, as shown in Figure 27.
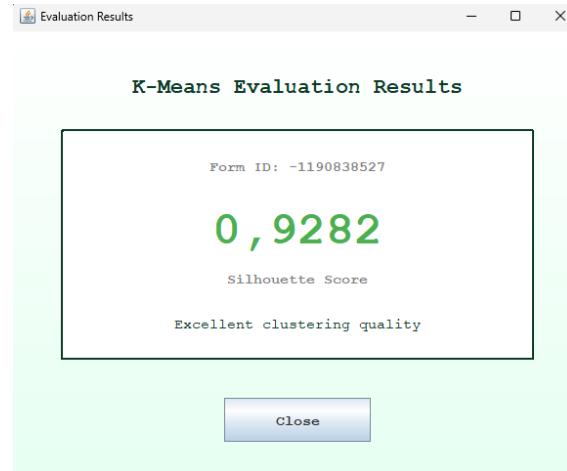
Figure 27: Admin User - Clustering evaluation results showing metrics

8.3 Delete Profile

Another option available to admin users is the ability to delete user profiles from the system. To do this, click on the *Delete Profile* button in the admin menu. This will open a new window where you can enter the username of the profile you wish to delete, as shown in Figure 28.
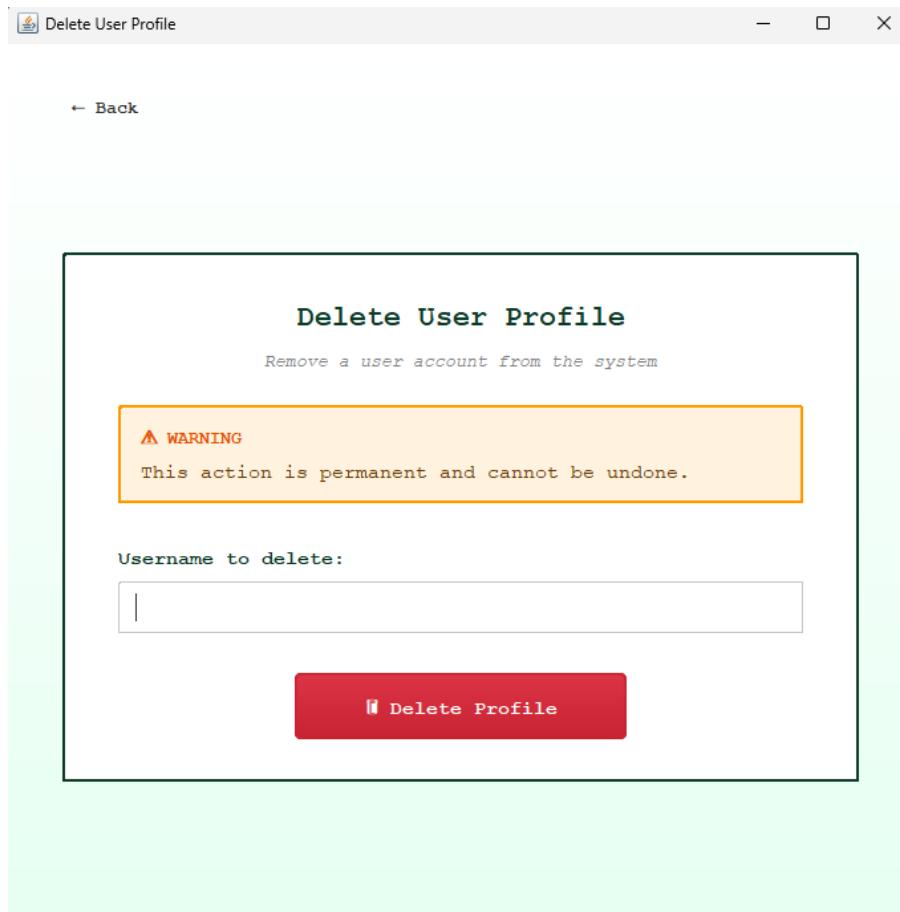

Figure 28: Admin User - Delete a user profile by entering the username

When you enter the username and click the **Delete** button, the system will remove the specified user profile from the database, including all associated data. Please exercise caution when using this feature, as deleting a profile is irreversible and will result in the loss of all associated data.

8.4 Import Many Answers

Admin users also have the capability to import multiple user answers from a CSV file. This feature is useful for bulk data entry and can save time when adding large numbers of responses. To use this feature, click on the *Import Many Answers* button in the admin menu. This will open a new window where you can select the form you want to import answers for and choose it.

Then this will open a new window where you can select the CSV file containing the user answers, as shown in Figure 29.
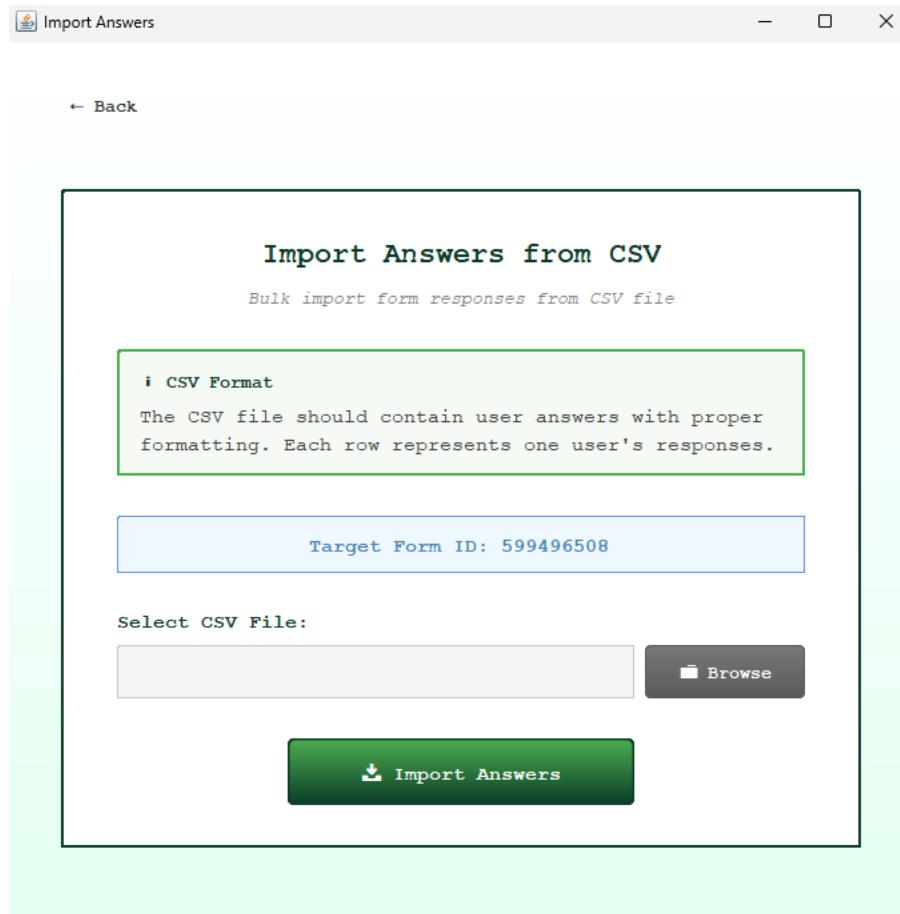
Figure 29: Admin User - Import multiple user answers from a CSV file

To import the answers, simply click the **Import** button after selecting the CSV file. The system will then process the file and add the user answers to the selected form in the database.

It is very important to ensure that the CSV file is formatted correctly according to the application's requirements. If the file format is incorrect, the import process may fail, and an error message will be displayed. The correct format is:

- The first row should contain the headers, which correspond to the questions of the form.

- Each subsequent row should represent a user's answers, with each column corresponding to a specific question.

- The first column should contain the username of the user providing the answers.

8.5 Log Out

Finally, admin users can log out of the application by clicking the *Log Out* button in the admin menu. This will return you to the login screen, where you can either log in again as an admin or as a regular user.