Furnicor Family System

User Manual

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1 - General Layout and Menu Traversal

As this is a console-based application, the layout and menu traversal are very basic. The general method of traversal is through text-based inputs:

```
Welcome to the Furnicor Administrative system.
Please select one of the following options:

1 ) Log into account.
2 ) Exit system.

Option choice: █
```

This is the first menu-option the user gets to see. Simply typing either '1' or '2' and pressing enter will bring the user to a new menu with a selection of different options. As this menu restricts the user's menu options to just '1' or '2', no other inputs are accepted.

This is not the case for all inputs, as some menus allow users to semi-freely give an input of any kind. These free inputs are however strictly bound to the restrictions given to whatever it is the user is inputting. For example:

```
Welcome to the Furnicor Administrative system.
Please provide your login credentials.

Username: hello
Password: HI

Login failed; incorrect username or password
```

As visible here, the user attempted to log into their account. This failed however, as their inputs did not meet the minimal requirements for usernames or passwords nor did their username or password match any registered users in the database.

For testing purposes, there is 1 static user (super admin) registered into the system by default with the following credentials: username = **superadmin** & password = **Admin321!**

2 - Main menu

As this application's userbase are all employees at Furnicor, logging into an account will grant the user access to a diverse set of administrative tools. These range from adding new users and members to the system, to viewing the system's log file.

The first screen a freshly logged-in user gets to see is the main menu:

```
Welcome to the main menu of Furnicor Administrative system (page 1/2).
(logged in as Super Admin - Super Administrator)
Please select one of the following options:

1 ) Change your password.
2 ) Add Member or User account to system.
3 ) Change existing Members' or Users' information.
4 ) Search through existing Members and Users.

x ) Log out.
n ) Navigate to page 2.

Option choice: ▉
```

(Note: If the user's role is Advisor, they will only have access to page 1 of the main menu)

This main menu is divided into 2 pages, with page 1 containing 4 main functionalities, the ability to log out and navigate to page 2. Most functionalities across both pages open into their own sub-menus, in which the user can select more options.

The second page of the main menu is as follows:

```
Welcome to the main menu of Furnicor Administrative system (page 2/2)
Please select one of the following options:

1 ) Delete existing Member or User.
2 ) Reset existing User's password.
3 ) Create database/log back-up
4 ) Restore database/log from back-up.
5 ) View system's log file.

x ) Log out.
p ) Navigate to page 1.

Option choice: ▉
```
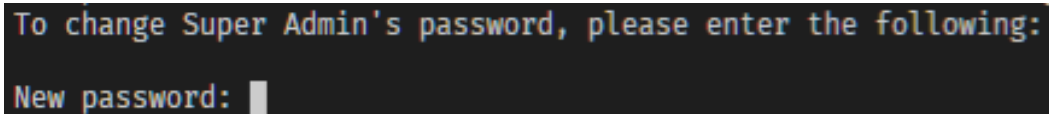
This second page is only accessible by System Administrators and Super Admins, and contains 5 main functionalities, the ability to log out and navigate back to page 1.

3 - The functionalities of Page 1

3.1 - Changing the user's own password

Each functionality listed on page 1 of the main menu is accessible by each of the 3 distinct roles. The functionalities inside their sub-menus, however, are in some cases locked behind a higher role requirement.

The first functionality is changing the user's own password. Selecting this functionality on the main page will bring up the following sub-menu:

```
To change Super Admin's password, please enter the following:

New password: █
```

Here the user will enter their new password, followed by repeating the password they just entered. Their password will only be changed if the password meets certain criteria. The criteria for a valid password are as follows:

- It must contain at least 1 lowercase, 1 uppercase, 1 number and 1 special character.
- It must be at least 8 and at most 30 characters long.
- The repeated password is identical to the initial new password inputted by the user.
- The new password is not already in use by another user in the system.

If the user's inputted password meets these requirements, their password will be changed, and they will be logged out of their account.

3.2 – Adding a member/user to the system

This functionality is the first example of having certain aspects of it locked behind a role requirement.

The sub-menu itself is as follows:

```
Please select which of the following you would like to add to the system.

1 ) Add new Member.
2 ) Add new Advisor.
3 ) Add new System Administrator.

x ) Return to main menu.

Option choice: ▌
```

(Note: If the user is a System Administrator, they cannot see and select option 3. If the user is an Advisor, they cannot see and select option 2 and option 3)

Selecting one of the 3 options will ask the user to input a bunch of information. If they chose to add a member, they would need to enter this new member's:

- First name
- Last name
- Address:
  - Street name
  - House number
  - Zip code
  - City
- Email Address
- Phone Number

(As seen above, inputting the address is done in 4 parts.)

If the user decided to add either an Advisor or a System Administrator to the system, they would also need to input a valid username and password in addition to the other information.

As with passwords, each of these inputs has their own minimum requirements to be considered valid.

For a first or a last name to be considered valid, they would need to meet the following criteria:

- Have a length of more than 0 (obviously)
- Have all of their characters be either lowercase, uppercase or one of the following: ' (single quote) - (dash) or . (dot)

For a username to be considered valid, it would need to:

- Be at least 6 and at most 10 characters long
- Have all of its characters be either lowercase, uppercase, 0-9 or one of the following: _ (underscore) ' (single quote) - (dash) or . (dot)
- Not already be in use by another user in the system

For an address to be considered valid, all 4 of the separate parts used must be valid:

- The street name and house number must:
  - Have a length of more than 0 (obviously)
  - The house number must contain at least 1 number
- The zip code must:
  - Be of the following format: DDDDXX (D are numbers, X are letters)
  - The letter portion of the zip code are forced to be uppercase, regardless of whether the input was all uppercase or not
- The city must:
  - Be one of the following: Amsterdam, Rotterdam, Den Haag, Leiden, Groningen, Utrecht, Middelburg, Dordrecht, Assen or Arnhem (case-insensitive)

For an email address to be considered valid, it would need to:

- Be longer than 1 character (obviously)
- Have exactly 1 '@' character, surrounded by at least 1 letter on either side.
- Have all its non-letter and non-number characters be surrounded with at least 1 letter or number on either side.
- The email prefix (characters before the '@') and email domain (characters after the '@') must start and end with a letter or number
- The email prefix can only contain letters, numbers, and the following special characters: _ (underscore) - (dash) or . (dot)
- The email domain can only contain letters, numbers, and the following special characters: - (dash) or . (dot)
- The email domain must contain at least one '.' character. After the '.' There must be at least 2 non-special characters.
- Not already be in use by another member or user in the system

For a phone number to be considered valid, it would need to:

- Be exactly 14 characters long (including the unchangeable "+31-6-" preceding the user's input)
- Contain only numbers

Since the user must input many different values, the system will continually ask for the same input until it has been evaluated as valid. If the user wishes to exit this loop, they can simply input 'x' as any input. This cancels the current action and redirects the user back to the sub-menu.

```
To add an Advisor to the system, please enter the following credentials.
(If, at any point, you wish to return to the sub-menu, enter 'x' for any input)

First name: Lobster
Last name: Thermidor
Name is valid.

Username: lobsterFan123
Username is of insufficient length or is already taken by another user.

Username: x
--------------------------------------------------------------------------

Please select which of the following you would like to add to the system.

1 ) Add new Member.
2 ) Add new Advisor.
3 ) Add new System Administrator.

x ) Return to main menu.

Option choice: █
```

If the user gives a valid input for every field required, the member or user will be added to the system (no confirmation).

3.3 – Changing an existing member's or user's information

This functionality also has specific options locked behind a role requirement.

Here the user can change certain values of registered members or users in the system. If the user is an Advisor, they will only be able to modify members. If the user is a System Administrator, they will additionally be able to modify Advisors. If the user is a Super Admin, they can modify System Administrators as well.

```
Please select which of the following you would like to modify.

Members:
1 ) [ID: 7257996757] Brandon Silver - Baanhoek 90 7831PP DORDRECHT - bsilver@film-booking.com - +31-6-93821432 - registered at 06-06-22
2 ) [ID: 8034427491] Lobster Thermidor - Lobsterlane 83 8834LB AMSTERDAM - lobster@fanclub.com - +31-6-82730222 - registered at 06-06-22

Users:
3 ) [UserID: 2] Lisa Minelli, registered at 06-06-22 [Advisor]
4 ) [UserID: 3] Fish Bowl, registered at 06-06-22 [System Administrator]

x ) Return to main menu.

Option choice: []
```

This sub-menu will present only the options the currently logged in user is able to perform. For example, if the user was an Advisor, they would not be able to see or select any users. The number of possible options is practically limitless, as it is tied to how many members and/or users are registered in the system.

After selecting one of the options, this sub-menu will appear:

```
Please select which you would like to modify (Current choice = Brandon Silver).

1 ) Change first name.
2 ) Change last name.
3 ) Change address.
4 ) Change email address.
5 ) Change phone number.
6 ) Update registration date to today.

x ) Return to previous member & user overview.

Option choice: █
```

Here the user can choose which specific piece of information they wish to change. Note that it is not possible to choose a user and change their username or password. Selecting one of the numbered options here will ask the user to input a new value, which will then need to be validated according to the same rules mentioned above. Just as with adding a member or user, the system will ask for a new input until the user inputs a valid input or the user cancels the process by entering 'x'.

If the user has inputted a valid input, they will be asked to confirm their action:

```
To modify Brandon Silver's First name, please enter the following:
(If, at any point, you wish to return to the sub-menu, enter 'x' for any input)

New First name: David
Name is valid.

Are you sure you wish to update Brandon Silver's First name?

1 ) Yes, proceed with modification.
2 ) No, end process of modification.

Option choice: █
```

If the user inputs '1', their target's information will be updated with the new input. Otherwise, the action will be cancelled, and the user redirected back to the list of members and users.

The only exception to this process is if the user chooses to update the registration date. As this option requires no input, they will only need to enter the confirmation input to successfully change their target's registration date.

3.4 – Searching through existing members and users

This is the final function on page 1. When selected, it will first ask the user to give a search parameter. This search parameter will then act as a filter, printing out any members and/or users it has a match with.

This search parameter will be considered a substring. As such, any entry in the system that contains it at any location within specific columns will be considered a match. This means that if the user gives an empty input, every entry within the system matches.

There are however some restrictions to the search parameter, namely:

- The search parameter can only match with Advisors if the user is a System Administrator or higher
- The search parameter can only match with System Administrators if the user is a Super Admin.

Additionally, the search parameter will only be able to match with specific columns. These are as follows:

For members:

- First name and Last name (Separately)
- Address
- Email address
- Phone number
- Registration date
- Membership ID

For users:

- First name
- Last name
- Role name (Advisor, System Administrator etc.)
- Registration date
- ID

After the user inputs a search parameter, they will receive their results:

```
Search-parameter: ste
The following results matched your input:

Members:
[ID: 8034427491] Lobster Thermidor - Lobsterlane 83 8834LB AMSTERDAM - lobster@fanclub.com - +31-6-82730222 - registered at 06-06-22

Users:
[UserID: 3] Fish Bowl, registered at 06-06-22 [System Administrator]

x ) Return to main menu.
r ) Search again using a new parameter.

Option choice: █
```

After receiving their results, the user has the option to either return to the main menu or continue searching by entering a different search parameter.

4 - The functionalities of Page 2

4.1 – Delete an existing member or user

As with the rest of the page 2 functionalities, they are reserved for System Administrators and Super Admins only.

Selecting this option will bring up a list of every member and user registered in the system (excluding System Administrators if the user is one themselves), prompting the user to select one of them to delete.

```
Members:
1 ) [ID: 7257996757] Brandon Silver - Baanhoek 90 7831PP DORDRECHT - bsilver@film-booking.com - +31-6-93821432 - registered at 06-06-22
2 ) [ID: 8034427491] Lobster Thermidor - Lobsterlane 83 8834LB AMSTERDAM - lobster@fanclub.com - +31-6-82730222 - registered at 06-06-22

Users:
3 ) [UserID: 2] Lisa Minelli, registered at 06-06-22 [Advisor]
4 ) [UserID: 3] Fish Bowl, registered at 06-06-22 [System Administrator]

x ) Return to main menu.

Option choice: █
```

Like when modifying information, the system will ask the user for confirmation. This behaves the same as before, except that when the user selects '1', their chosen member or user is deleted from the system.

```
Are you sure you wish to delete
[ID: 7257996757] Brandon Silver - Baanhoek 90 7831PP DORDRECHT - bsilver@film-booking.com - +31-6-93821432 - registered at 06-06-22

1 ) Yes, proceed with deletion.
2 ) No, end process of deletion.

Option choice: ▯
```

4.2 – Reset an existing user's password

Selecting this option will allow the user to reset another user's password. Again, this user must be of a lower role than the user (i.e., a System Administrator can only reset the passwords of Advisors).

Resetting a password means setting the target's password as another, temporarily. This means that, after resetting the target's password, the target can log in to their account using their original password or their temporary password. Upon logging in, this temporary password is erased, meaning this user cannot use this temporary password as a login again.

```
Please choose one of the following users to temporarily reset their password.

Users:
1 ) [UserID: 2] Lisa Minelli, registered at 06-06-22 [Advisor]
2 ) [UserID: 3] Fish Bowl, registered at 06-06-22 [System Administrator]

x ) Return to main menu.

Option choice: █
```

This temporary password must also qualify as a valid password to be able to successfully reset a user's password. Just like with any free-form input, the system will keep asking for the new password until the input is valid or is cancelled by entering 'x'.

4.3 – Back up the database or log file

This option allows the user to create a back-up of either the database or log file, at any valid location.

Selecting this option will bring up this sub-menu:

```
Please choose which one of the following you would like to back up.

1 ) Back up database.
2 ) Back up log file.

x ) Return to main page.

Option choice:
```

Choosing either one will ask the user where they would like to store the back-up

This input must be:

- A valid and existing directory (can also be a relative path, like "../../")
- Not a file! Must be a directory

If it is considered valid, the system will show the absolute path where the back-up will be stored (derived from the user's input) and ask the user for their confirmation.

If the user enters '1' for the confirmation. A copy of the current database/log file will be placed in the target directory. Otherwise, the action is cancelled, and the user redirected to the main page.

4.4 – Restore a back-up of the database or log file

This option allows the user to restore an existing back-up of the database or log file. This does require the user to have already backed up the file they wish to restore.

Like the option above, the user is asked whether they would like to restore a back-up of the database or log file:

```
Please choose which one of the following you would like to restore.

1 ) Restore database.
2 ) Restore log file.

x ) Return to main page.

Option choice: █
```

Choosing either one will prompt the user to input a path to the relevant back-up file. This input must be:

- An existing path to a file (can also be a relative path, like ../../database.db)
- Must be a file, as in [path]/[file].[file extension]

If it is considered valid, the system will ask for confirmation. If the user does not input '1' to continue the process, the process is cancelled, and the user is redirected back to the main menu.

If the user decided to go through with restoring the back-up, the system will take the back-up file and **overwrite** the file currently in use. When it comes to restoring the database, the system will not make sure the newly restored database is of the same exact structure. It will, however, block access if the wrong file is restored. The system does **not** offer any recovery possibilities, so make sure you are restoring the correct file.

After the file is restored, the user is logged out of their account. This is done to make sure the system does not break in the event the wrong file was restored by the user.

4.5 – Viewing the system's log file

This option allows the user to view the system's log file. By normal means, the user is not able to view this file properly, as its contents are encrypted. Through this menu, however, any System Administrators and Super Admins can view its contents.

Selecting the option brings up the following sub-menu:

```
Please choose one of the following actions regarding the log file.

v ) View the entire log file.
e ) Erase the log file's contents.
x ) Return back to the main page.

Option choice:
```

Selecting 'v' will print out every single line of the log file in the console. This means that if this file is very long, it will likely span multiple screens-worth of text.

```
[49]: Performed by: superadmin │ 06-06-22 - 13:24:53 │ User's search parameter returned at least 1 result │ At least 1 member/user in the system matched the parameter │ Not Suspicious
[50]: Performed by: superadmin │ 06-06-22 - 15:11:51 │ User's search parameter returned at least 1 result │ At least 1 member/user in the system matched the parameter │ Not Suspicious
[51]: Performed by: superadmin │ 06-06-22 - 16:09:36 │ Authorized reading of log file │ Log file has been decrypted and it's contents printed to the console. │ Not Suspicious

Option choice:
```

A single log entry contains the following information:

- Log ID (the line it's on)
- Who performed the action that was logged
- The date and time this action was logged
- A description of the action that was logged
- Extra information about this action
- Whether this action is considered suspicious or not

Many scenarios will trigger the logging of the action that was performed. Some examples include:

- Logging into an account
- Accessing a menu without meeting the proper authorization requirements
- Performing any of the actions located on the main page successfully
- Unauthorized attempt at any database manipulation

After printing the log file's contents, the user can select any of the 3 options listed above. Selecting 'e' will erase the log file's contents in its entirety, **without any confirmation**. This action can however be effectively reverted by restoring a back-up of the log file, but this change is otherwise irreversible.