

Software Requirements Specification

Design your furniture software (DYF)

Group members:

Fatimah Al-Zahrani	444006628
Farah Alhazmi	444002659
Ayah Fallatah	444002530
Maram Al-Huthali	444002586
Fidaa Filmban	444006581

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1.Introduction:

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

1.1 Purpose:

The purpose of this document is to give a detailed description of the requirements for the “Design Your Furniture” (DYF) software. (DYF) is an application which people are given the freedom to creatively design their furniture in the style they like by providing a smooth and professional drawing environment and other features such as the ability to change the shape of ready-made furniture, choose the type of materials to be used in its manufacture, its size, and more. This SRS document will illustrate the purpose and provide a complete declaration for the development of the system. It will also explain system constraints, interfaces, interactions, and target groups and their respective roles in the program, the types of services and features provided. This document is primarily intended to be proposed to a customer for its approval and as a reference for developing the first version of the system for the development team.

1.2 Scope:

The “Design Your Furniture” software helps people design their own furniture or modify old furniture through drawing, It also provides "consultation" service where the user can ask a design expert for a specific design or about the types of materials suitable for the design, etc. The application should be free to download from either a mobile phone application store or similar services.

Factorys receive customer orders using the web-portal, then price the product for them and determine the approximate manufacturing and delivery time. The customer's account shows a list on the web-portal including the price of the product for each factory with details on how to contact the factory and its location, In addition to The factory rating from other customers who have previously ordered from the factory. The customer then chooses from this list what suits them. The furniture can be received directly from the factory or via the delivery service, if there are no factories that accept the customer's design request, the service cannot be completed.

The software needs Internet to start designing and receiving offers from factories. It also needs access to the camera if the user wants to modify a ready-made furniture so that the software can determine the shape of it and then display it to the user to add modifications. Also the software needs the user's location information intended to benefit from the delivery service. And there are fees for additional features such as “consultation” and “delivery” services.

1.3 Definitions, acronyms, and abbreviations:

<i>FDR / Furniture designer</i>	A user refers to an individual or entity utilizing the application or web portal to access features, submit design requests, communicate with advisors or factories, and engage in various activities related to furniture design and procurement.
<i>Web Portal</i>	Our web portal serves as an online platform accessible via a web browser, allowing users to interact with the system's features and functionalities. It provides a user-friendly interface for submitting design requests, comparing prices, viewing factory ratings and reviews, accessing advisory services, and managing various aspects of the furniture design and procurement process.
<i>Factory</i>	In our software, a factory denotes a manufacturing facility responsible for producing customized furniture designs based on user specifications. Factories interact with the system through the web portal to receive design requests, provide price quotes, manage manufacturing processes, arrange delivery services, and communicate with users and advisors.
<i>Design Furniture</i>	Is a feature in the software allowing users to create custom furniture designs. It offers tools to customize dimensions, shapes, materials, colors, and styles according to user preferences. Users can save, modify, share, and order their designs for manufacturing or further customization.
<i>Consultation</i>	Consultation refers to the advisory services offered through the software, where users can seek expert guidance, recommendations, and assistance from qualified advisors during the furniture design and procurement process. Advisors provide personalized consultations, address user queries, offer design suggestions, and facilitate communication between users and factories to ensure a satisfactory design experience.

1.4 references:

[1] Shelved, “We make modular storage furniture – furniture designed by you”, UK, Published in May 2021.

<https://www.shelved.co.uk/pages/design-your-own>

1.5 Overview:

This document consist of 7 chapters.

The first chapter presents the purpose of the document, and the main idea of the software. In addition to its features and the limitations and the features that the software does not include. as well as a table contains the meanings of abbreviations and definitions of difficult words.

Chapter 2 consists of six parts that describe the components of software and the hardware associated with application, as well as how they interact with each other. It also includes a description of the users and the features available to them. Additionally, it outlines the conditions that must be met for the software to function, as well as certain assumptions and limitations that define its operation.

Chapter 3 consists of 5 sections that explain user interfaces, icons, their uses, and details of each interface. It also summarizes and explains software and hardware interfaces, as well as how system components interact with each other.

Chapter 4 consists of 4 sections describing the general functional requirements, in addition to the specific to each user type.

Chapter 5 is composed of 8 sections that describe the available use cases in the system, which encompass all possible scenarios that may occur.

Chapter 6 consists of 2 sections that describe the performance constraints that must be met to ensure high system performance.

Chapter 7 is composed of 5 sections that identify the characteristics that should be present in the system to ensure high quality and efficiency.

2. Overall description

This section will give an overview of the whole system. The system will be explained in its context to show how the system interacts with other systems and introduce the basic functionality of it. It will also describe what type of stakeholders that will use the system and what functionality is available for each type. At last, the constraints and assumptions for the system will be presented.

2.1 Product Perspective

This system will consist of two parts: one application and one web portal. The application will be used to design the home furnitur and other features while the web portal will be used for managing all services provided and the system as a whole.

The application will need to communicate to a GPS application within the device, which in turn communicates with a physical GPS device to find the location of the user. The drawing application provides a professional integrated design environment with the ability to transfer and save the design within the application, where later precise data is added to the design information. The camera application provides the ability to photograph the furniure to change its shape by converting it to a sketch.

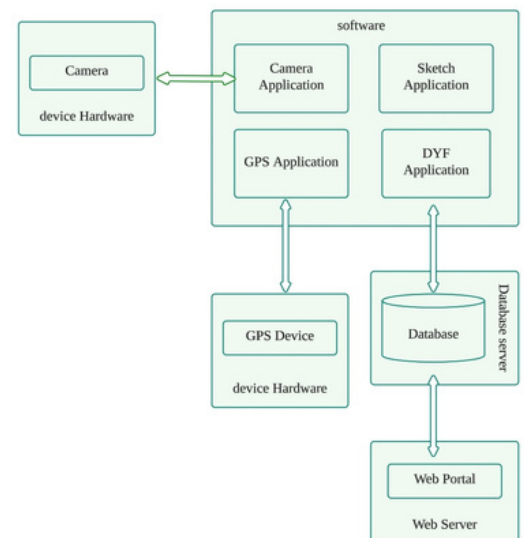


Figure 1 - Block diagram

This is a data-driven product, so it will need a place to store the data. Therefore, a database will be used. Both the application and the web portal will communicate with the database, but in slightly different ways. The application will use the database to retrieve and add data, while the web portal will also add, modify, and delete data. All database connections will be made online.

The application has some restrictions regarding the use of the application. To avoid problems, make sure that the device provides a large amount of storage space and that the operating system and version of the device meet the requirements to run the application.

2.2 Constraints

Internet Access: Users need a stable internet connection to access the web portal, submit design requests, compare prices, view ratings and reviews, and communicate with advisors and factories effectively

Camera Access: Permission to access the device's camera is essential for users to capture and modify ready-made furniture sketches within the application.

User Location Information: The program relies on access to user location data to facilitate delivery services accurately. This information helps factories determine delivery distances and associated fees.

Advisor Consultation Fees: Users should be aware of and prepared to pay consultation fees for advisory services provided through the portal.

Delivery Service Charges: Factory managers must transparently communicate any additional charges related to delivery services to users during the order confirmation process to prevent misunderstandings and ensure a smooth transaction experience.

2.3 Product Functions:

By using the DYF program, the user can design furniture, and they have full control over the final result as they desire. Additionally, they can seek assistance from the "consultation" to achieve their goal.

In the design section, there are two ways for designing furniture: either by drawing on a blank canvas or by capturing pre-made furniture and making adjustments to it. Afterwards, the user has the option to either save the design for later modifications or confirm the design.

If the user confirms the design, the factory will respond with the prices and the estimated time to start and complete the design. This information will be displayed in "My Orders", and the user must confirm their acceptance or rejection.

There is also a section for rating and reviewing the factory and the product, allowing other users to benefit from those reviews.

2.4 User Characteristics:

The system caters to three types of users: Furniture designs requester, advisors, and factory managers.

Users requesting designs utilize the web portal to submit their design requirements, compare prices from different factories, view factory ratings and reviews, and contact factories for inquiries. They can also modify ready-made furniture using the camera feature.

Advisors, on the other hand, access the portal to review design requests, offer recommendations, communicate with customers and factories, and provide consultation services for a fee.

Factory managers utilize the portal to receive design requests, assess specifications, provide price quotes, determine manufacturing and delivery times, and offer delivery services with associated fees.

Overall, the system requires internet access for design and offer retrieval, camera access for furniture modifications, and user location information for delivery services. Additional features such as consultation and delivery services incur extra charges.

2.5 Assumptions and Dependencies:

Other assumptions about software are that it can be used on various devices such as computers, tablets, and mobile phones. However, the drawing feature may not be available on mobile phones due to the inability to run sketch (the software's drawing application) on them. Nevertheless, it is still possible to benefit from other services such as consultation, communication with factories and delivery service.

Also, disallow the software from accessing GPS or camera features will not directly affect the functionality of the software itself. However, it will deprive the user of accessing services that could enhance their experience.

In addition, the software interface will change according to the type of user who logs into the software. For example, when a factory owner logs in, the software interface will consist of user requests, along with their locations and notes. They won't have a section for drawing or consulting, unlike a user who wants furniture design. The requests from other users won't be displayed, but the rest of the services, such as drawing, consultation, and delivery will be available to them.

3. Specific requirements

This section contains all of the functional and quality requirements of the system. It gives a detailed description of the system and all its features.

3.1 External interface Requirements

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.

3.1.1 User interfaces

When the user enters the DYF application, they will find the main interface in front of them. In Figure 3, the login page will appear when the user click 'Start Design' in Figure 2 and he/she must log-in or create an account to be able to use the DYF application.

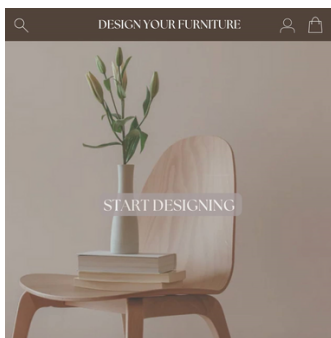


Figure 2 - Start Page

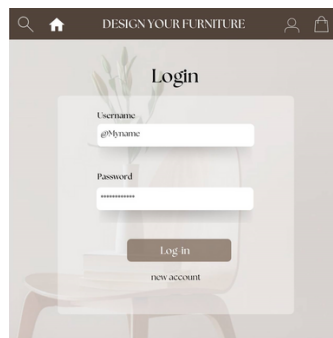


Figure 3 - Login Page

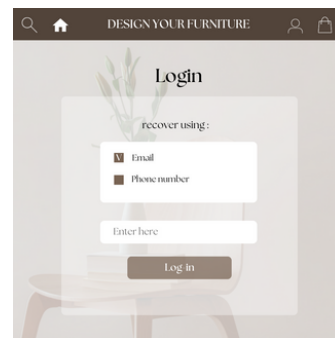


Figure 4 - Recover Password Page

The first-time user of the software will see the software's interface when they open the app or the webpage. See Figure 2. users are able to loge-in if an account already exists See Figure 3, or creating a new account after selecting the type of service that thay want on the 'type' box See Figure 10, if user forgot password. see Figure 4. user can recover password by selecting way by email or by phone number.

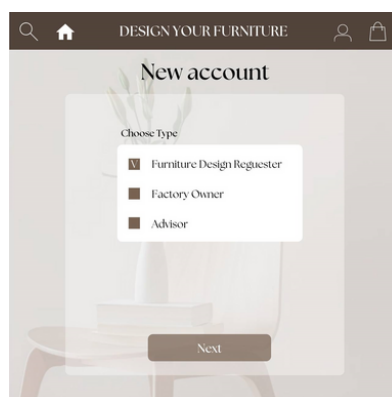


Figure 10 - selecting type Page

Depending on the type of user selected, a registration interface will appear for the new account.

For "**Furniture Design Requester**" there will be fields for personal information, location, and preferences attached.

For "**Factory Owner**" there will be fields for the factory's location, specialization, and documents.

For "**Advisor**" there will be fields for social media information, certificates, and experiences.

In addition to the username, email, and password for all types of users.

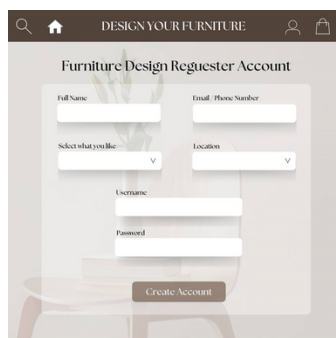


Figure 11 - create Furniture Design Requester account Page

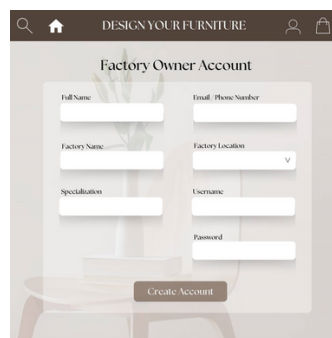


Figure 12 - create Factory Owner account Page

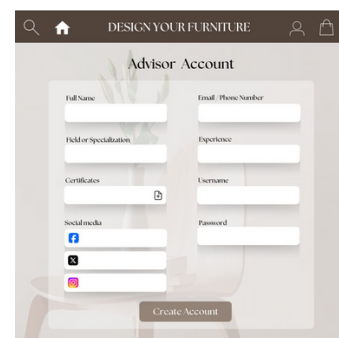


Figure 13 - create Advisor account Page

In Figure 5, 6 and 7, when a 'Furniture Design Requester' user logs into the application/webpage, they will see 6 options:

1. '**New Design**': The user can design furniture from scratch and select the materials used.
2. '**Pre-made Furniture**': This option allows the user to upload a photo of pre-made furniture and make modifications to it.
3. '**Consultation Service**': The user can choose an advisor based on their expertise and ratings to request a new design or inquire about any needs. Additionally, users have another option where they can post brief questions in public option, and advisors can answer these questions without any cost.
4. '**Manufacturers**': This section displays manufacturers along with their ratings, locations, and their specialized field.
5. '**Under Construction**': This section includes the accepted requests from the factories, along with contact information for communication with the factory.
6. In Figure 7 '**My Rating**', It contains the user's opinions and ratings on his experience with the application, and he can share this to help other users in making their decisions and also to benefit the manufacturer in developing and fixing bugs.

After the "Furniture Design Requester" completes the design, the next step is '**payment**' in Figure 14 . In this step, he fills in his card information and confirms the payment.

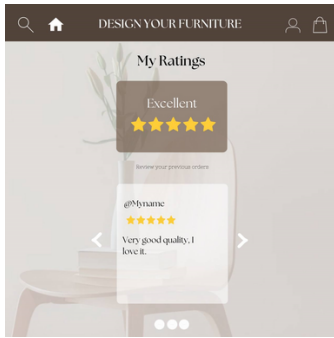


Figure 7 - My Ratings Page

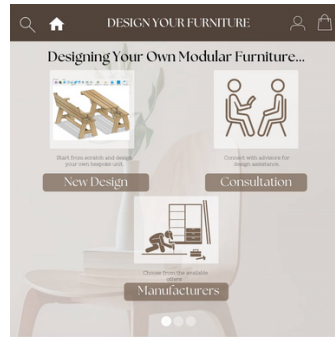


Figure 5 -Furniture Design Requester' Page

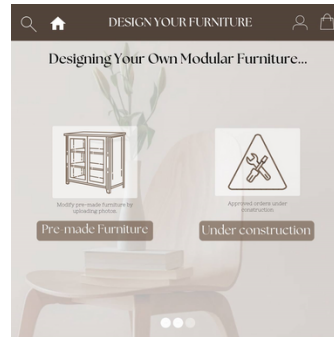


Figure 6 -Furniture Design Requester Page

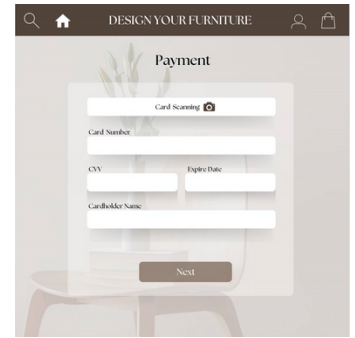


Figure 14 - Payment Page

In Figure 8, when a 'Factory Owner' user logs in, they will see three sections:

1. '**Design Requests**': This section displays design requests created by 'Furniture Design Requesters'. The factory owner can view the design, required materials, notes, and the user's location.
2. '**Accepted Requests**': When the factory accepts a request, it automatically moves to this section. It includes contact information for direct communication with the user.
3. '**Ratings**': In this section, the factory owner receives comments, reviews, and ratings from users whose requests have been completed.

In Figure 9, when a 'Adviser' user logs in, they will see two sections:

1. '**Consultation Requests**': This section displays questions that users have posted for the public. The adviser can see these questions and provide their services.
2. '**User Design Requests**': In this section, the consultant can access design requests submitted by other users and communicate with the request owners to offer their services.

In addition to a section for live chat with users

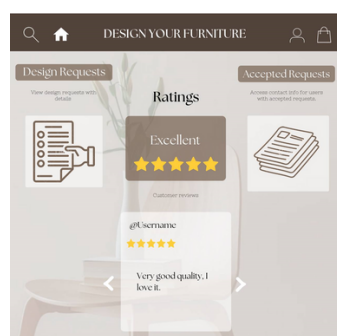


Figure 8 - Factory Owner Page



Figure 9 - Adviser Page

3.1.2 Hardware interfaces :

Computers, Tablets, and Mobile Phones: Users access the web portal and application from these devices. They need sufficient storage space to run the application smoothly.

Communication between the application and the device's camera: The application communicates with the device's camera to allow the user to take pictures of furniture and then convert them into detailed sketches and store them within the application for the designer to make edits.

3.1.3 Software interfaces :

Communication between DYF application and Sketch application: The DYF application establishes a connection with the sketch application to obtain the designer's drawings by transferring and storing the designs to the DYF application by importing them from the database later.

Communication between the application and GPS: The DYF application communicates with the GPS application to obtain geographical information about the user's home location and saving it on the database for future uses. The information will be stored during the account creation process, and if the user modifies their geographical location, this modification is saved to the database and the previous location data is deleted.

The web portal consists of reading, modifying, deleting, and adding data, while the connection between the database and the device application involves all portal operations with limitations.

3.1.4 Communications interfaces :

Communication between different parts of the system is important because they rely on each other. Therefore, the application needs to connect to the Internet in order for the application services to be activated and for users to be able to communicate with each other and use key services such as manufacturers communicating with customers or designers with consulting support.

However, users can still use the application without connecting to the Internet with limited availability of services. For example, all operations that require communication between each other will not be available, but the drawing environment for designers will be open with its tools and the design will be saved within the drawing environment, knowing that the process of transferring the design to the application will not be activated until the Internet connection is restored.

4. Functional requirements

This section includes the requirements that specify all the fundamental actions of the software system.

4.1 General Features

4.1.1 Functional requirement 1.1

ID: FRQ 1.1

INTRO: Download application

IN: click the install button.

DESC: A user should be able to download the mobile application through either an

application store. The application should be free to download.

OUT: The software appears on the device.

DEP: None.

4.1.2 Functional requirement 1.2

ID: FRQ 1.2

INTRO: Install the updated version of the software.

IN: Click on the update button

DESC: When a new/updated version or release of the software is released. To get the updated version of the software, the user must follow one of the following methods:

- The user manually checks for it, which can be done from the store by clicking on the update button, which is the same button used for downloading the application(FRQ 1.1).
- The user activates automatic updates, which can be done by enabling this permission from the store settings.

OUT: Get the updated version of the software.

RR: FRQ 1.1

4.1.3 Functional requirement 1.3

ID: FRQ 1.3

INTRO: create an account for users

IN: account creation information

DESC:

1. The user clicks on the 'Start Design' icon.
2. The user is presented with a login field and a create new account field.
3. After clicking on 'Create New Account', the user will be provided with a list of types of users to choose from
 - a. Furniture design requester
 - b. Adviser
 - c. Factory owner
4. After choosing the type the user will be provided with several fields for the required information to complete the account creation.
5. After filling in the fields, the user clicks on the 'Create Account' icon.

OUT: The account will be created, and the user will be logged into the program, displaying the user interface according to the selected user type. Additionally, the account information will be stored in the software's database for future use.

RR: None

4.1.4 Functional requirement 1.4

ID: FRQ 1.4

INTRO: Login

IN: Text containing the username/password.

DESC: After creating the account (FRQ 1.3), the user must log in to be able to use the application.

How to implement this:

1. Write the user name in the appropriate field
2. Write the password in the other box
3. Click on “Log in”

OUT: The home page will appear according to your user type.

RR: FRQ 1.3

4.1.5 Functional requirement 1.5

ID: FRQ 1.5

INTRO: recover forgotten password

IN: Username and password.

DESC:

1. The User Enter the 'DYP'.
2. Enter your "Username".
3. if you forget your password:
 - a. click on "forget password" icon.
 - b. you can choose receive it either on your:
 - email
 - phone number
5. click on "Log-in" icon.
6. now you can use your account again.

OUT: Re-open the old account for the application.

RR: None

4.1.5 Functional requirement 1.6

ID: FRQ 1.6

INTRO: Add certificates

IN: Downloading a file.

DESC:

1. Enter the profile.
2. Find “Certificates”.
3. Click on “Add file”.
4. Choose the files you want.
5. When finished, click “Open”.

OUT: New testimonials will be published and placed on your profile for people to see.

RR: None

4.2 User Class 1- The Furniture Designer

4.2.1 Functional requirement 2.1

ID: FRQ 2.1

INTRO: create Furniture design requester account

IN: name, email-phone number, user name, password, location, and preferences.

DESC:

1. After the creating new account steps (FRQ 1.11)
2. And the user will fill the creation information fields with name, email-phone number, user name, password, location, and preferences.

OUT: created account (FRQ 1.3)

RR: FRQ 1.11, FRQ 1.3

4.2.2 Functional requirement 2.2

ID: FRQ 2.2

INTRO: Design a new furniture.

IN: A digital drawing device/tablet, a digital pen.

DESC: The user must use drawing tools such as:

- Digital pen for iPads and similar devices.
- Drawing tablets for laptops or PCs.

The user goes through two stages in the design process: the first is in the drawing environment where they sketch their furniture design, and the second is related to the furniture specifications but with more precision and detail.

1. Drawing Stage: Here, the designer starts drawing their furniture from scratch, meaning the interface opens a blank page for them to start drawing everything themselves.
2. Furniture Specifications Stage (FRQ 2.4).

OUT: Sketch of the furniture, furniture specifications.

RR: FRQ 2.4

4.2.3 Functional requirement 2.3

ID: FRQ 2.3

INTRO: Redesign ready-made furniture.

IN: Picture of the furniture, A digital drawing device/tablet, a digital pen.

DESC: The user must grant access to the camera of their device in order to use this feature. For devices where using the camera is not as easy as PCs or laptops, the user must follow the following steps:

1. Take a picture of their furniture using the camera of their phone.
2. Save the picture on the application by clicking on the "Save Confirmation" button.
3. The user imports the image from the application's private photo library where all captured images are saved.
4. Then click on the "Convert" button to turn the image into a sketch so that they can then edit the furniture by redesigning or modifying it.
5. Then proceed to add detailed specifications for the furniture, where more precise details are added (FRQ 2.4)

OUT: Sketch of the furniture, furniture specifications.

RR: FRQ 2.4

4.2.4 Functional requirement 2.4

ID: FRQ 2.4

INTRO: Furniture Specifications.

IN: Materials, Size and Colors.

DESC: In this stage, more detailed specifications are added to the furniture such as: the type of materials to be used in furniture manufacturing, specifying the dimensions of each part, and choosing colors.

OUT: Save furniture specifications.

RR: None.

4.2.5 Functional requirement 2.5

ID: FRQ 2.5

INTRO: Requesting private Consultation

IN: A text containing the request/question presented to the 'advisor'.

DESC: A furniture design requester can submit a consultation request to "Advisors" based on their features through the following steps:

1. Click on the "Consultation" icon located on the main interface.
2. The user will be presented with a list of "Advisors" and an icon for "public Consultation", in addition to a section for real life chat with 'Advisors'
3. The user can choose from multiple advisors by clicking on the advisor's name.
4. A list will appear containing consultation price, contact information, social media contacts, specialization, experience, and qualifications of the selected advisor.
5. The user can then write a brief text explaining their requests/questions in the designated "Text" field.
6. Finally, click on the "Confirm" icon to confirm sending the request.

OUT: The request will be present in the 'Consultation' field while it is being processed, awaiting confirmation (FRQ4.2) or rejection (FRQ4.3) by the 'advisor'.

RR: FRQ4.2, FRQ4.3

4.2.6 Functional requirement 2.6

ID: FRQ 2.6

INTRO: Posting a public question to advisors

IN: A text containing the question/request for the advisors.

DESC: Instead of choosing a "private consultation" (FRQ 2.5), users can post a public question to the advisors at no cost by following these steps:

1. Click on the "Consultation" icon.
2. an icon for "public Consultation" will appear and a list of advisors, in addition to a section for real life chat with 'Advisors'
3. When clicking on "public Consultation," a field labeled "Text" will appear for writing the question/request, along with a field for adding a design.
4. Clicking on the "Publish" icon confirms the post.

OUT: The public request will be published to advisors and when a response arrives (FRQ4.4), it will appear in the real life chat with 'advisors' section

RR: FRQ 4.4, FRQ 2.5

4.2.7 Functional requirement 2.7

ID: FRQ 2.7

INTRO: Payment to the advisor.

IN: Camera to scan the card information/ Card number/expiry date/ security code/ name on a bank card.

DESC: After the chosen consultant accepted the user request (FRQ 2.5), and the advisor answered in agreement, the furniture design requester must pay before discussing with the advisor :

1. Click on the "Consultation" on the home page.
2. An acceptance message will appear, click "Pay".
3. Click on the camera image to copy the card information or fill in the card information manually.
4. After completing, click "Next".
5. Enter the confirmation code in the "Code" field.
6. Press "Finish"

OUT: A message confirming the status of the payment process, whether it is complete or an error has occurred.

RR: FRQ 2.5

4.2.8 Functional requirement 2.8

ID: FRQ 2.8

INTRO: Choosing an offer from the manufacturers (factory owners)

IN: Nothing

DESC: After the user submits their design to the factories (FRQ 2.2), (FRQ 2.3), the user can select from the offers provided by 'manufacturers' through the following steps:

1. Clicking on the 'Manufacturers' icon.
2. A list of available offers with prices will be displayed to the user.
3. By clicking on an offer, a menu will appear containing the manufacturer's name, contact information, location, specialization, and ratings from other users.
4. After selecting the suitable offer, the user can confirm the order by clicking on the 'Confirm Order' icon.

OUT: The request will appear in the "Under Construction" section

RR: FRQ 2.2, FRQ 2.3

4.2.9 Functional requirement 2.9

ID: FRQ 2.9

INTRO: Payment to the factory

IN: Camera to scan the card information/ Card number/ expiry date/ security code/ name on a bank card.

DESC: After completing the design (FRQ 2.2) or (FRQ 2.3) and the furniture design requester accept the offer from factory (FRQ2.8) the furniture design requester must pay in order for the furniture manufacturing to begin:

1. After receiving the acceptance message, click "Pay".
2. Click on the camera image to copy the card information or fill in the card information manually.
3. After completing, click "Next".
4. Enter the confirmation code in the "Code" field.
5. Press "Finish".

OUT: A message confirming the status of the payment process, whether it is complete or an error has occurred.

RR: FRQ2.2, FRQ 2.3, FRQ 2.8.

4.2.10 Functional requirement 2.10

ID: FRQ 2.10

INTRO: This feature enables users to submit their ratings and opinions with a simple click while using the application

IN:

- User's clicking on stars to assign a rating
- Optionally, user's opinion or description of experience in the provided textbox.

DESC:

1. Encounter the "My Rating" section.
2. Click on the designated area to provide your rating (star rating).
3. Optionally, provide a brief description of your experience in the provided textbox.
4. Click the "Submit" or equivalent button to finalize your feedback.

OUT:

- Confirmation message upon successful submission.
- Secure storage of user's feedback in the application's database.
- Users may see their feedback reflected in the application's overall rating or improvement updates based on user feedback.

RR: None

4.3 User Class 2 - The Factory Owner

4.3.1 Functional requirement 3.1

ID: FRQ 3.1

INTRO: create Factory owner account

IN: name, email-phone number, user name, password, factory's location, specialization, and documents.

DESC:

1. After the creating new account steps (FRQ 1.3)
2. And the user will fill the creation information fields with name, email-phone number, user name, password, factory's location, specialization, and documents.

OUT: created account (FRQ 1.3)

RR: FRQ 1.3

4.3.2 Functional requirement 3.2

ID: FRQ 3.2

INTRO: provideing offers for User Requests

IN: The factory owner clicks on the user platform in the Factory Owner interface and selects the design they want to create and confirm it

DESC:

1. Factory owner click on 'user design requests'
2. They generate an offers for any request

The offer includes:

- a. Prices for each offer.
 - b. Delivery times for each offer.
 - c. Any additional relevant information.
3. The factory owner presents the offer to the user by clicking on 'confirm' button

OUT: the offer will be available in the manufacturers section in the furniture design requester user interface, Once the user selects an offer (FRQ 2.8), they can start manufactureing the order. The request will then move to the "Under Construction" section for furniture design requester user, and in 'Acceped Requests' section for factory owners, indicating that the manufacturing process has started.

RR: FRQ 2.8

4.3.3 Functional requirement 3.3

ID: FRQ 3.3

INTRO: add the certificates

IN: files-images

DESC: the factory owner can add the certificates to add to there profile after creating the account (FRQ 3.1).

And then fallow the steps of adding the certificates (FRQ 1.6)

OUT: Output of (FRQ 1.6)

RR: FRQ 3.1, FRQ 1.6

4.4 User Class 3 - The Advisor

4.4.1 Functional requirement 4.1

ID: FRQ 4.1

INTRO: create Adviser account

IN: name, email-phone number, user name, password, social media information(Instagram, Facebook, X), certificates, and experiences.

DESC:

1. After the creating new account steps (FRQ 1.3)
2. And the user will fill the creation information fields with name, email-phone number, user name, password, social media information(Instagram, Facebook, X), certificates, and experiences.

OUT: created account (FRQ 1.3)

RR: FRQ 1.3

4.4.2 Functional requirement 4.2

ID: FRQ 4.2

INTRO: Acceptance of User Request by Advisor

IN: Nothing

DESC: Upon selecting a user request for acceptance, the advisor is directed to the virtual chat page to engage with the user directly.

1. As an advisor, navigate to the "Design Requests" section.
2. Review available user requests (FRQ 2.5).
3. Select a request for acceptance.
4. Click the 'Accept' button.
5. Upon acceptance, automatically transfer to the virtual chat page for communication with the user.

OUT:

- Automatic transfer to the virtual chat page for communication.
- Confirmation of request acceptance.

RR: FRQ 2.5

4.4.3 Functional requirement 4.3

ID: FRQ 4.3

INTRO: Rejection of User Request by Advisor

IN: Nothing

DESC: Upon rejecting a user request, a notification is sent to the user informing them of the rejection.

1. As an advisor, navigate to the "Design Requests" section.
2. Review available user requests (FRQ2.5)
3. Select a request for rejection.
4. Click the 'Reject' button.
5. Upon rejection, send a notification to the user stating that their request has been rejected.

OUT:

- Notification sent to the user regarding the rejection of their request.

RR: FRQ 2.5

4.4.4 Functional requirement 4.4

ID: FRQ 4.4

INTRO: Advisor – Public Questions Response

IN: The advisor answers public questions submitted by furniture design requesters (FRQ2.6)

DESC:

1. The Advisor Enter to his platform in "consultation Requests" icon
2. Click on "Public questions" icon to choose a question from the furniture design requester
3. After that he click on "answer" icon
4. Now he can answer and communicate with the user

OUT: furniture design requester will receive answer for his question

RR: FRQ2.6

4.4.5 Functional requirement 4.5

ID: FRQ 4.5

INTRO: Advisor - Giving consultation offers to users through their design requests

IN: The advisor enters the user's platform, selects a design, and communicates with the user based on that chosen design.

DESC: The Advisor can access user designs and offer there services, communicating with the user to assure them that they can provide any required assistance through,

1. 'The advisor' clicks on the 'User requests Design' icon.
2. Then, selects the design request for which they would like to provide a consultation offer to its owner.
3. The information of the design requester, including their name, design, and contact details, will be displayed.
- 4- then advisers can provides tailored solutions and assistance based on their specific requirements and needs.

OUT: furniture design requester users receive a message from adviser if they contact with the user.

RR: None

4.4.6 Functional requirement 4.6

ID: FRQ 4.6

INTRO: add the certificates

IN: files-images

DESC: the advisor can add the certificates to add to there profile after creating the account (FRQ 4.1).

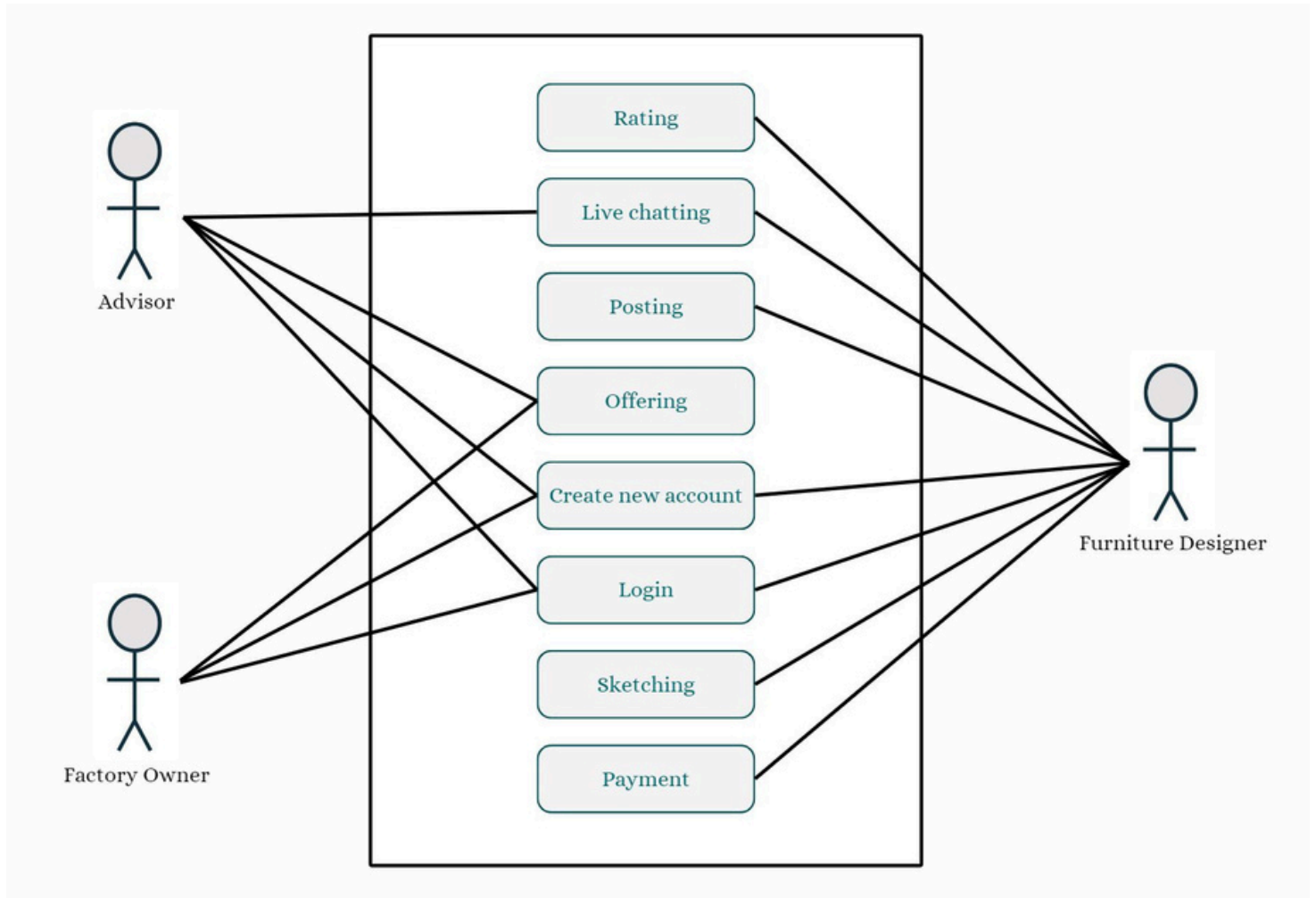
And then fallow the steps of adding the certificates (FRQ 1.6)

OUT: Output of (FRQ1.6)

RR: FRQ 4.1, FRQ 1.6

5. Use Case:

This section represents the use cases of the system and describes them and how actors accomplish these use cases. The database is implicit in the system.



5.1 Design Your Furniture Use Case: Create a new Account

Use-Case: create a new account

Actors: Furniture designer, Advisor and Factory Owner.

Summary: Allows a user to create a new account in the 'DYF' system.

Description:

This account will let the user access to the system's functionalities and features. The registration process includes providing basic information and selecting a user type.

Steps:

1. The user enters their email address.
2. The user selects a unique username.
3. The user sets a password.
4. The user selects their user type from the available options: (Furniture Design Requester, Factory Owner, or Advisor).
5. Based on the selected user type, the user is presented with additional fields specific to their role.
 - a. For Furniture Design Requester, the additional fields include:
 - o personal information
 - o location
 - o and preferences.
 - b. For Factory Owner, the additional fields include
 - o factory location
 - o factory name
 - o specialization
 - c. For Advisor, the additional fields include:
 - o social media information
 - o certificates
 - o experiences.
6. The user fills in all the required information in the displayed fields.
7. The user click on 'create account' button.

Preconditions: None.

Exception Paths:

1. Existing Username or Email:
 - o If the user chooses a username or email address that is already taken by another account in the 'DYF' system, an error message is displayed.
 - o The user is prompted to select a different, unique username or email for their account creation.
2. Invalid or Missing Information:
 - o If the user provides incomplete or invalid information during the account creation process, an error message is displayed.
 - o The user is prompted to correct the information and resubmit the account creation form.

5.2 Furniture Your Design Use Case: Log-In

Use-Case: Login

Actors: Furniture designer, Advisor and Factory Owner.

Summary: Allows the user to login to the 'DYF' and access to the system and its features.

Description: The login use-case enables registered users access the 'DYF' system. By logging in, users can utilize various functionalities and features available within the system.

Steps:

1. User enters their username.
2. User enters their password.
3. User clicks on the 'Log In' button.

Preconditions:

- The user must have a account in the 'DYF' system to login

Exception Paths:

- No Account: If the user does not have an account, they are prompted to create one.
- Invalid Username or Password: If the user enters incorrect login credentials, they receive an error message and are prompted to re-enter the correct information.


5.3 Design Your FurnitureUse Case: Sketching.

Use-Case: Sketching.

Actors: Furniture designers.

Summary: The Furniture Designer design and add furniture's details.

Description: After the designer transitions to the drawing environment, he can design his furniture by choosing one of the two methods:

1. Design from scratch:
 - 1.1 - The designer creates a new design by clicking on the "New Design" icon.
 - 1.2 - An interface opens with a blank white page, and then the design process begins.
 2. Redesign ready-made furniture:
 - 2.1 - Takes a picture of the furniture by clicking on the camera icon .
 - 2.2 - Saves the picture on the application by clicking on the "Save Confirmation" button.
 - 2.3 - The user imports the image from the application's own photo library.
 - 2.4 - Then clicks on the "Convert to sketch" button and makes the necessary adjustments.
- After completing one of the two methods, the designer saves it by clicking on "Save Confirmation" to store the design in the designer's account on the application.
 - Then the designer moves to the "Add Details" interface: In this step, detailed specifications are added to the furniture such as the type of materials to be used in furniture manufacturing, specifying the dimensions of each part, and selecting colors.

Preconditions: in the second method, the designer must grant access permission to the device's camera.

Exception Paths: None.

5.4 Design Your Furniture Use Case: Live Chating

Use-Case: Live Chating

Actors: FDR, Advisor

Summary: The advisor provides consultation to the Furniture design requester through live chating.

Description: After the FDR submits a consultation request to the advisor from 'consultation' icon, and the request is accepted by the advisor.

First the cost is paid by the FDR.

After that both parties start communicating through the chat available in the live chat section for the advisor and in the consultation section for the FDR.

Preconditions: Accepting the request by the advisor.

Exception Paths: If the advisor rejects the request, communication through the live chat is not available.

5.5 Design Your Furniture Use Case: Offering

Use-Case: Offering

Actors: Factory owner, Advisor

Summary: The advisor can offer their services to the FDR, and the factory owner can offer furniture manufacturing for designs created by the FDR.

Description: Submitting offers to the FDR:

- 1- enter the User Design Requests section in Adviser or factory owner interfaces.
- 2- Select the desired design to make an offer for.
- 3- Depending on the type of offer, fill in the required information:

- The factory owner offers furniture manufacturing, including price, delivery time, and available materials.
- The advisor offers their services, including price, provided services, and available consultation time.

- 4- post the offer by 'confirm' icon

Then the offer is published to appear in the FDR's interface in the Manufacturers section for design offers, and in the consultation section for consultation offers.

Preconditions: There are design requests available for the FDR to choose from.

Exception Paths: None

5.6 Design Your Furniture Use Case: Posting

Use-Case: Posting

Actors: Furniture designer

Summary: The furniture design student can post public questions to the advisors.

Description: The public questions can be accessed by all advisors, and it is not necessary to select a specific advisor before posting the query.

- 1- Through the Consultation section in FDR interface.
- 1- Select the public Questions option.
- 2- Write the question in the designated field.
- 3- Click on the 'Publish' icon.

The post will be displayed in the Public Questions section within the Consultation Requests section in the advisor's interface.

Preconditions: None.

Exception Paths: None.

5.7 Design Your Furniture Use Case: Payment

Use-Case: Payment

Actors: Furniture designer

Summary: The Furniture design pays in order to proceed to the next step.

Description: The designer can make payments to both the advisor and the factory owner.

1. After the process of:

- requesting consultation from the advisor
- sending the design to the factory

the designer waits for acceptance and the prices to be provided.

2. If the price is agreed upon, the designer makes the payment using a credit card.

3. Once the transaction is successful, a confirmation message appears.

4. The designer can :

- discuss with the advisor.
- track the status of their order until the furniture is delivered.

Preconditions: The furniture designer must send the consultation request to the advisor / finish the furniture design and send it to the factory.

Exception Paths:

- If incorrect credit card information is entered, an error message will be displayed.
- The user will be prompted to re-enter the card information.

5.8 Design Your Furniture Use Case: Rating

Use-Case: Rating

Actors: Furniture designer

Summary: Allow users to rate and provide comments on the service provided by the system.

Description:

- 1- The user clicks on the “Rating ” icon
- 2 - The sign (★) appears from 1-5, with 1 being the lowest and 5 being the highest.
- 3 - A text box will appear allowing the user to add a comment with an (optional) rating, meaning he can just rate the stars and ignore putting comments.
- 4 - Click on the (submit) icon to confirm publishing the evaluation and saving it on the application’s storage memory so that the rest of the users can view the evaluation and interact, as well as developers, consultants, and factory owners to benefit from any feedback and improve and develop the services.

Preconditions:

1. The user must have used the service provided by the system.
2. The user must be logged in to their account to submit a rating.

Exception Paths:

1. If the user is not logged in, they will be prompted to log in before they can submit a rating.
2. If the user tries to submit a rating without using the service, the system will display an error message indicating that they cannot rate a service they have not used.
3. If the user provides a rating outside the valid range (1-5), the system will display an error message asking the user to enter a valid rating.

6. Performance requirements

6.1 Response time

TAG: ResponseTime

GIST: The fastness of requests posting-arrival

SCALE: The response time of requests posting-arrival per second

METER: Measurements obtained from 1000 requests during testing.

MUST: No more than 2 seconds 100% of the time.

WISH: No more than 1 second 100% of the time.

6.2 System dependability

TAG: SystemDependability

GIST: The fault tolerance of the system.

SCALE: If the system loses the connection to the Internet or the system gets some strange input, the user should be informed.

METER: Measurements obtained from 1000 hours of usage during testing.

MUST: 100% of the time.

7. Software system attributes

7.1 Reliability

TAG: SystemReliability

GIST: The reliability of the system.

SCALE: The system's reliability is demonstrated by accurate order processing, service delivery, and provision of up-to-date information.

METER: Measurements obtained from 1000 design requests during testing.

MUST: More than 98% of the searches.

PLAN: More than 99% of the searches.

WISH: 100% of the searches.

7.2 Availability

7.2.1 System Availability

TAG: System Availability

GIST: Ensure the system is available 24/7 without any downtime.

SCALE: Average system availability with full availability of application services (without taking into account network failures).

METER: Measurements obtained from 5000 hours of usage during testing.

MUST : The system must have an availability of more than 95%

PLAN: Aim to achieve a system availability of 99%.

WISH: Availability 100% of the time.

TITLE: Internet Connectivity

DESC: The application requires an internet connection for most features, but Sketching is available offline.

RAT: The Sketching feature can be used without an internet connection.

DEP: None

TITLE: GPS Connection

DESC: The application needs a GPS connection to accurately retrieve the location of customers/clients and provide location-based services.

RAT: The GPS connection is essential for accurate location tracking and provision of location-based services.

DEP: None

TITLE: Camera Access for Design Capture and Editing

DESC: The application requires access to the user's device camera to capture and edit designs.

RAT: Access to the camera is necessary for the application to enable users to capture images of designs or make modifications to existing designs.

DEP: None.

7.3 Security

7.3.1 CommunicationSecurity

TAG: CommunicationSecurity

GIST: Security of the communication between the system and server.

SCALE: The messages should be encrypted for log-in communications and payment, so others cannot get the user-name, password, and credit card information from those messages.

METER: Attempts to get user-name and password through obtained messages on 1000 log-in session during testing.

MUST: 100% of the Communication Messages in the communication of a log-in and payment session should be encrypted.

Communication Messages: Defined: Every exchange of sensitive information between client and server.

7.3.2 DesignerCreateAccountSecurity

TAG: DesignerCreateAccountSecurity

GIST: The security of creating account for designer of the system.

SCALE: There are two path in creation an account:

- If a designer tries to create an account for the application / web portal with a non-existing account and the desired user name is occupied, the user should be asked to choose a different user name.
- If a designer tries to create an account for the application / web portal with an existing account, then the designer should not be created. The designer should be notified about the creation-account failure, then show a message that this account is already registered and that the user must go to the login page.

METER: Measurements obtained on 1000 hours of usage during testing.

MUST: 100% of the time.

7.3.3 AdvisorCreateAccountSecurity

TAG: AdvisorCreateAccountSecurity

GIST: The security of creating account for advisor of the system.

SCALE: There are two path in creation an account:

- If an advicor tries to create an account for the application / web portal with a non-existing account and the desired user name is occupied, the user should be asked to choose a different user name.
- If an advisor tries to create an account for the application / web portal with an existing account, then the advicor should not be created. The advicor should be notified about the creation-account failure, then show a message that this account is already registered and that the user must go to the login page.

METER: Measurements obtained on 1000 hours of usage during testing.

MUST: 100% of the time.

7.3.4 FactoryOwnerCreateAccountS

TAG: FactoryOwnerCreateAccountSecurity

GIST: The security of creating account for factory onwer of the system.

SCALE: There are two path in creation an account:

- If a factory owner tries to create an account for the application / web portal with a non-existing account and the desired user name is occupied, the user should be asked to choose a different user name.
- If a factory owner tries to create an account for the application / web portal with an existing account, then the designer should not be created. The factory owner should be notified about the creation-account failure, then show a message that this account is already registered and that the user must go to the login page.

METER: Measurements obtained on 1000 hours of usage during testing.

MUST: 100% of the time.

7.3.5 DesignerLoginAccountSecurity

TAG: DesignerLoginAccountSecurity

GIST: Security of accounts.

SCALE: If a designer tries to log in to the application / web portal with a non-existing account then the designer should not be logged in. The designer should be notified about log-in failure.

METER: 1000 attempts to log-in with a non-existing user account during testing.

MUST: 100% of the time

7.3.6 AdvisorLoginAccountSecurity

TAG: AdvisorLoginAccountSecurity

GIST: Security of accounts.

SCALE: If an advisor tries to log in to the application / web portal with a non-existing account then the advisor should not be logged in. The advicor should be notified about log-in failure.

METER: 1000 attempts to log-in with a non-existing user account during testing.

MUST: 100% of the time.

7.3.7 FactoryOwnerLoginAccountSecurity

TAG: FactoryOwnerLoginAccountSecurity

GIST: Security of accounts.

SCALE: If a factory owner tries to log in to the application / web portal with a non-existing account then the factory owner should not be logged in. The factory owner should be notified about log-in failure.

METER: 1000 attempts to log-in with a non-existing user account during testing.

MUST: 100% of the time.

7.4 Maintainability

7.4.1 system testability

TAG: system testability

TITLE: Ensuring Testability of the System

DESC: Test environments should be established to facilitate the testing of various functions within the system.

RAT: To effectively test the system.

DEP: None

7.4.2 system extendibility

TAG: system extendibility

TITLE: Enhancing System Extendibility

DESC: Designing the system to support easy extension and implementation of new functions.

RAT: Facilitating the seamless addition of future functions to the system.

DEP: None

7.4.3 Error Correctability

TAG: Error Correctability

TITLE: Enhancing Error Correctability

DESC: The system should be easy to correct in case of errors or issues.

RAT: Enabling efficient error correction when they occur.

DEP: None

7.5 Portability

Title: Application Portability

Description: The application aims to provide users with a seamless experience across multiple platforms, including iOS and Android devices

Rationale: By ensuring portability across both iOS and Android platforms, the DYF application can cater to a broader user base, accommodating users who prefer different mobile operating systems. This approach enhances accessibility and convenience, ultimately maximizing the application's reach and potential impact

Dependencies: None