

Homestyler Application

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Abstract:

The file discusses the topic of home design using applications like Homestyler, highlighting how these apps facilitate the personal design process. The content includes a review of the features offered by the app, such as the ability to visualize ideas and turn them into realistic designs. It also discusses how the app helps users make informed decisions about furniture and decor, as well as saving time and effort by allowing users to experience designs virtually before implementation

Chapter 1

1.1 Introduction

The field of home design combines creativity and planning. It involves creating spaces that are not only aesthetically pleasing but also practical for everyday life. Home design considers multiple elements such as layout, color schemes, materials, and lighting to create a cohesive environment. As lifestyles and preferences evolve, home design continues to adapt, integrating modern trends and technologies to enhance comfort and sustainability. This field offers endless opportunities for innovation and personal expression, making it an exciting area to explore.

Applications for home design, such as Homestyler, are essential tools in our current era, as they meet individuals' needs for easy and innovative space design and arrangement. These applications help users visualize their ideas and turn them into reality, making it easier for them to make informed decisions about furniture and decor. They also provide a wide range of options and ideas, allowing users to explore different styles and customize their spaces according to their personal taste. Moreover, home design applications save time and effort, as users can experiment with their designs virtually before making purchases, reducing mistakes and unnecessary costs. In the end, these applications play a significant role in enhancing creativity and innovation in home design, making them a valuable tool for anyone looking to improve their living environment. Homestyler application meets the needs of users to design a home by having many tools that users prefer, provides powerful online 3D interior design tools, providing solutions for home and furniture manufacturing and avoiding high-cost problems to improve user experience, figure (27.3)

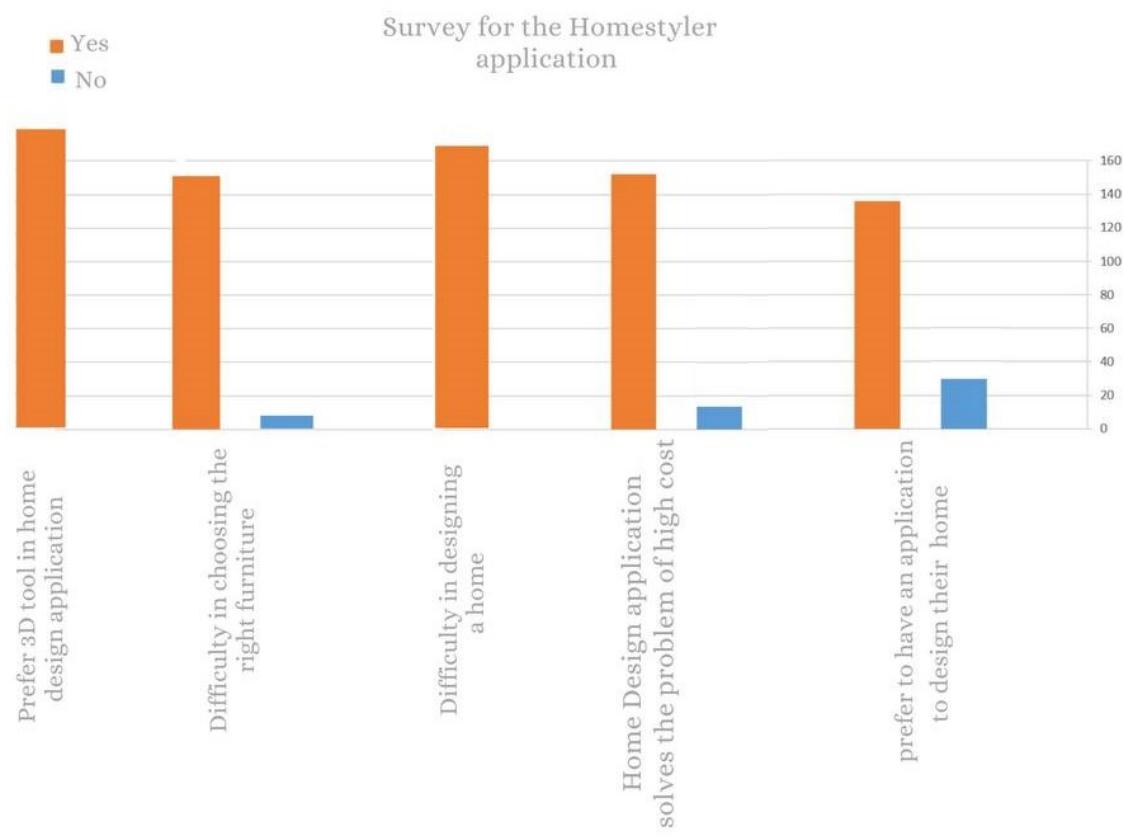


Figure (27.3)

1.2 Purpose

Homestyler is an online home design software which users design their home using furniture from real brands. The platform enables users to build their 2D and 3D floor plans using accurate measurements. The user does not need to master complicated 3D modeling, does not need to spend time drawing floor plans, and does not need to consider cost issues. The platform allows users to view how their space would look like from various angles, to get a better idea of the feeling they will have in their homes once it is finalized. Automatic updates: The system should be able to display new content to the library (such as furniture or decorations) in real time without the need to reload the page.

1.3 Existing Programs

Existing Programs	Advantage	Disadvantage
SketchUp	2D/3D Mode Switching Model Library Architectural material selection 2D Floor Plan to 3D Rooms Model and Material Library Project Collaboration	Unavailability of: Real-time rendering Online design Free use of model packs AI Designer Simplified user interface Export 360° panoramas
Floorplanner	2D/3D Mode Switching Model Library Architectural material selection 2D Floor Plan to 3D Rooms Model and Material Library Project Collaboration	Unavailability of: Upload and Customize Own Model AI Designer and AI Décor High Resolution Renderin –Up to 12K panorama Render Video with Motion Effect Kitchen and Bath Design Feature Design Communities and Challenges Online Tutorials and Videos

1.4 Our Model

Homestyler application is characterized by the availability of many features that are present in it compared to other home design sites and applications, examples of characteristics include:

- 2D Floor Plan to 3D Rooms
- 2D/3D Mode Switching
- Model and Material Library
- Project Collaboration
- Upload and Customize Your Own Model
- AI Designer and AI Décor
- High Resolution Rendering - Up to 12K panorama
- Render Video with Motion Effect
- Kitchen and Bath Design Feature
- Design Communities and Challenges
- Online Tutorials and Videos
- Architectural material selection
- Real-time rendering
- Online design
- Free use of model packs
- Simplified user interface
- Export 360° panoramas

Conclusion:

In this Chapter, we have presented an introduction to the uses and impact of home design applications in general, and it was specifically mentioned the purpose of the Homestyler application, disadvantages and advantages of Existing programs, and in the last Our model

Chapter 2

Introduction

In this chapter we will talk about the functional and non-functional requirements of the Homestyler application.

2.1 Functional Requirements

Log in/ sign up:

- The user should be able to create an account by adding email and password or Login using an Apple, Google, Facebook account

View Profile:

- The user should have access to the profile, manage and modify it, and view his own designs in addition to his preferences

Floor plans:

- The user should be able to create and customize room layouts with various furniture and decor elements

Sharing and Community:

- The user should be able to save their designs and share them with others via social media or direct links, and in the dedicated space within the application

Interaction with users:

- The user should be able to provide feedback or ratings about furniture items or designs, and follow other users' accounts

Instructions for using templates:

- The user should have the ability to access the tutorials and help resources

Three-dimensional design tools:

- The system should provide tools for creating and modifying three-dimensional models of interior spaces, including drag-and-drop tools and viewing designs in 3D mode, with options for switching between different viewing angles.

Furniture and Decoration Library:

- The system should have a library that includes a comprehensive collection of furniture and decor items that users can use in their designs, with different classifications such as living rooms, kitchens, and bedrooms.

Measuring tools:

- The system should provide measurement options to ensure that the elements fit into the dimensions of the selected room.

2.2 Non-Functional Requirements

2.2.1 Responsiveness:

The system should respond well to different screen sizes, ensuring a good user experience on mobile devices.

Responsiveness includes several points:

-React to updates: The system should react quickly to commands, such as adding furniture or changing colors, to create a sense of smooth control.

-Fast loading: The system should be able to update the 3D view instantly without any noticeable delay if the user is modifying a design.

-Multitasking: The system should be able to support simultaneous interaction without any delay or performance issues if multiple users are working on different designs at the same time.

-Automatic updates: The system should be able to display new content to the library (such as furniture or decorations) in real time without the need to reload the page

2.2.2 Ease of use:

-The system should have an intuitive and easy-to-navigate user interface, making it easy for new users to understand how to use the program.

Ease of use includes several points:

-Drag-and-drop interface: The system should allow users to easily add furniture and elements to the design by dragging them from the library and dropping them to the desired location.

-Undo and redo: The system should allow users to easily undo or redo changes, giving them the freedom to experiment without worrying about losing work.

-Interface customization: The system should allow users to customize the application interface based on their preferences, such as changing the size or arrangement of tools.

-Interactive guides: The system should include interactive guides or tips that appear when using new tools, helping users quickly understand how to use them

2.2.3 Updates and Maintenance:

The system should be updated regularly to fix bugs, improve performance, and add new features.

Updates and maintenance include several points:

-Adding new features: The system should be updated to add new design tools, such as the ability to add animated elements or advanced lighting effects.

-Expanding the elements library: The system should make periodic updates to expand the furniture and decoration library, providing more options for users.

-Improving the user interface: The system should update the graphic design of the interface to be more modern and easier to use, while improving the organization of tools.

-Fixing bugs: The system should address bug reports, such as problems loading designs or some tools not responding, to ensure system stability.

-Improving performance: The system should be updated to improve page loading speed and response time, making the user experience smoother.

Security updates: The system should improve security through periodic updates to protect user data from new threats, such as security vulnerabilities.

-Adding support for new languages: The system should be updated to support additional languages, making it available to more users around the world.

2.2.4 Performance:

The system should be able to process designs quickly, while reducing loading times.

Performance includes several points:

-Page loading time: The system should load the user interface in less than two seconds when opening the application or moving between sections.

-Responsiveness of concurrent operations: The system should be able to when the user modifies several elements at once (such as changing the color of the walls and adding furniture), apply these changes immediately without any delay.

-Interaction with the library: The system should be able, when searching for an item in the library (such as furniture or decorations), to display the results quickly so that the user can easily choose.

-Responsiveness to errors: The system should display error messages or notifications to the user in a quick and clear manner in the event of any problem during the design.

2.2.5 Security:

The system should include strong security measures to protect users' data.

Security includes several points:

-Personal data protection: The system should encrypt users' personal data to ensure that it is not hacked or used unauthorized.

-Application permissions: The system should request certain permissions upon installation, allowing users to control what information they want to share.

-Security updates: The system should be updated periodically to fix security vulnerabilities and improve performance.

-Identity verification: The system should require users to create an account and log in, which adds an additional layer of security.

-Privacy policy: The system should have a clear privacy policy that explains how data is collected and used, which enhances transparency and trust.

Conclusion

In this chapter, the functional and non-functional requirements of the Home-styler application are presented.

Chapter 3

Introduction

In this chapter we will talk about the interfaces of the Homestyler application, with an explanation and details for each interface.

3.1 Interfaces

3.1.1 Log in/Sign up

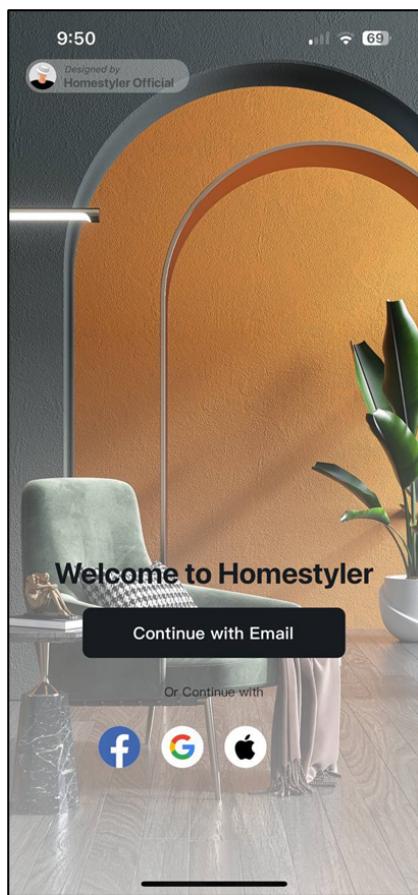


Figure 3.1: The user can log in or sign up by email or one of the following platforms: Apple, Google, Facebook

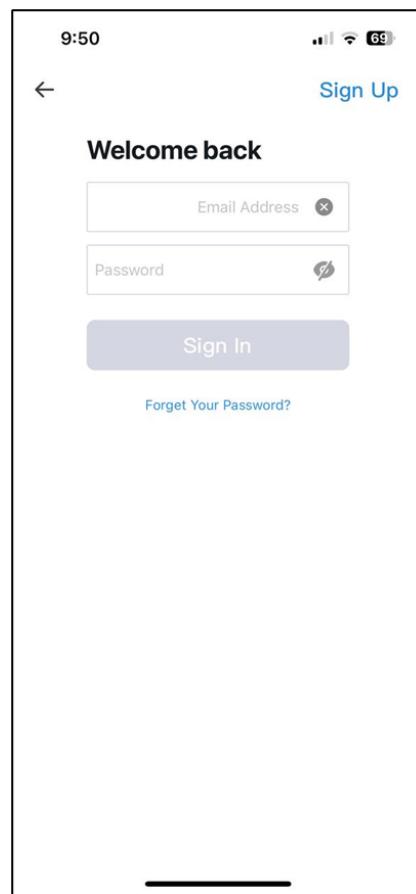


Figure 3.2: Login by adding email and password

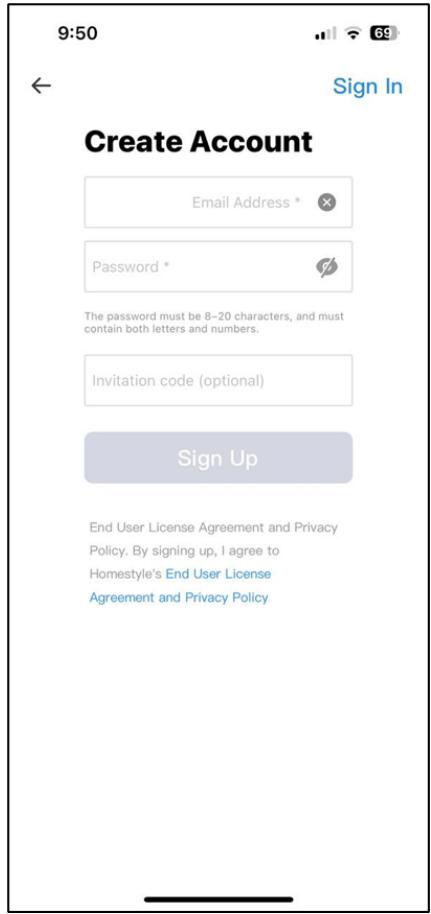


Figure 3.3: Create an account by entering an email and password in addition to the invitation code from another user (if another user sent an invitation to try the application(optional))

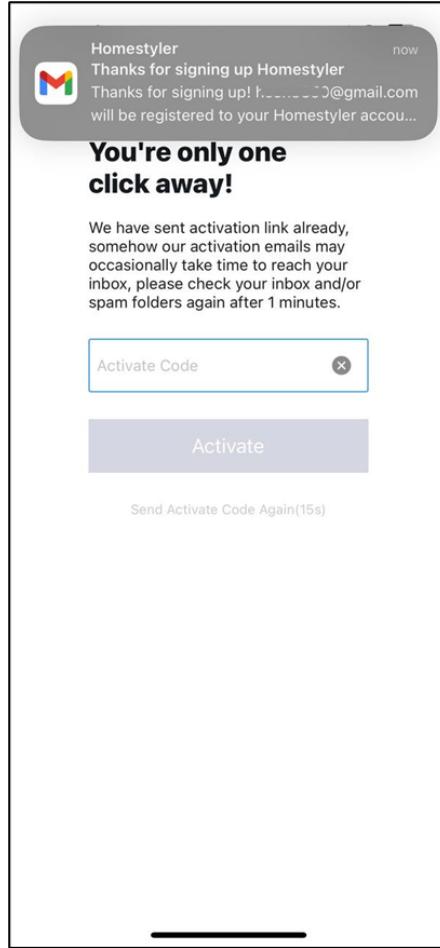


Figure 3.4: The activation code will be sent to the user to validate the email and log in to the application

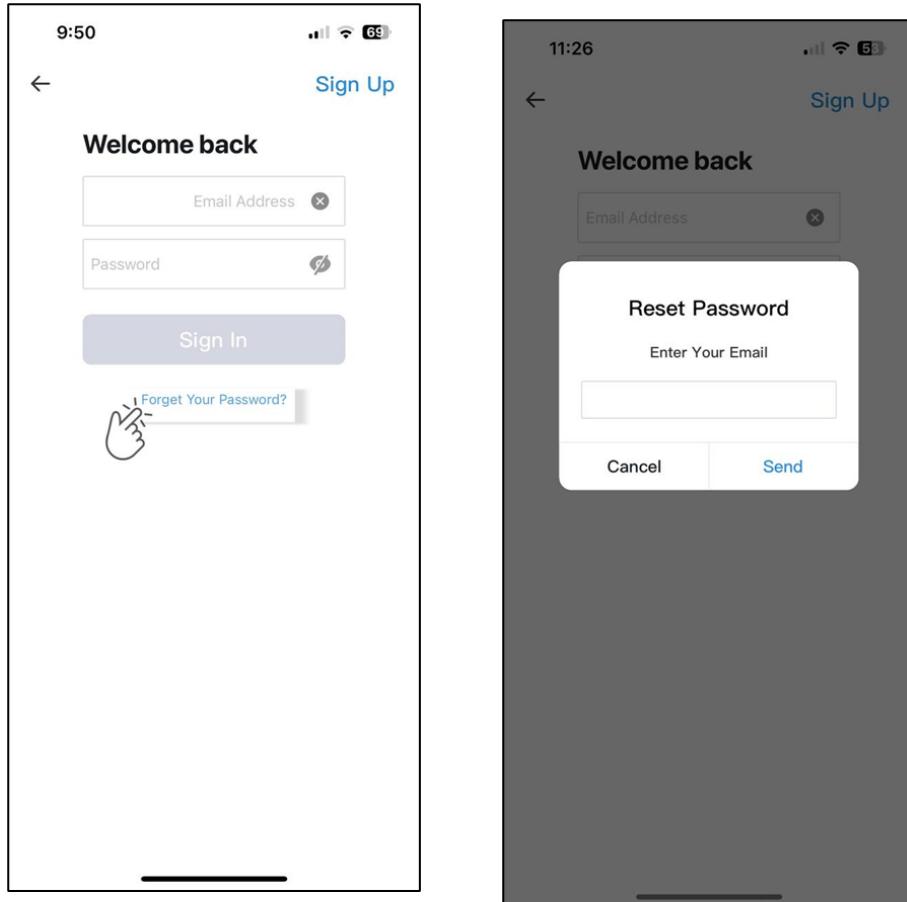


Figure 3.5: In case the user has forgotten the password, the user can reset it by clicking on (Forget Your Password?)

Figure 3.6: The user must enter the registered email in the application to rest the password

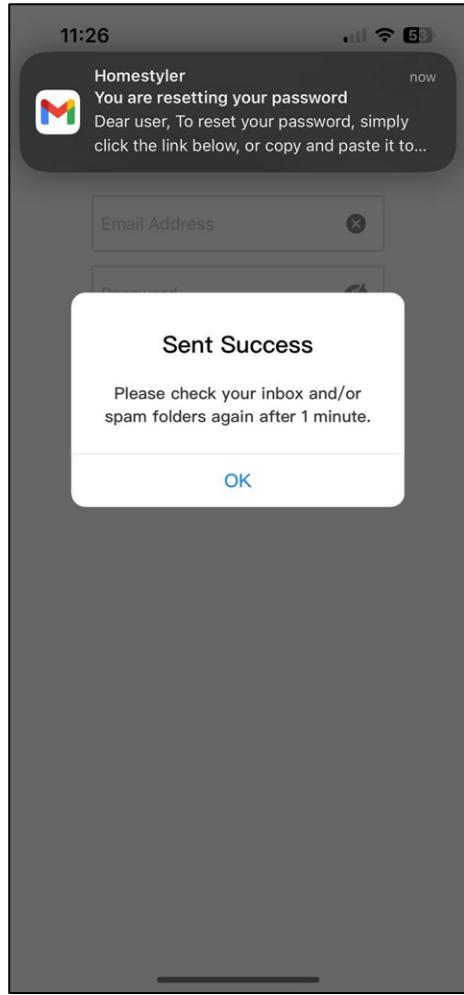


Figure 3.7: The link will be sent to the user's email to reset the password

3.2 Home page

3.1.2 Community

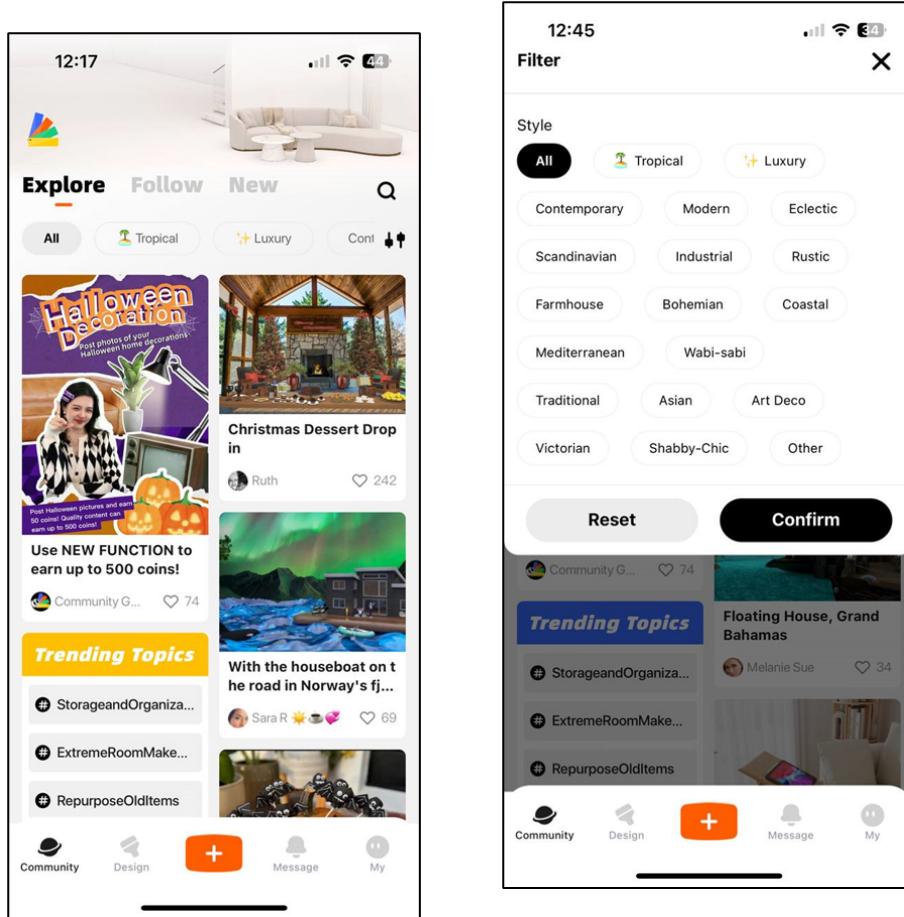


Figure 3.8: Explore: From the Explore menu several designs of other users will be displayed, and trending Topics can be viewed by clicking on it

Figure 3.9: The user can filter the displayed designs by clicking on the (Filter) sign, to be able to choose from many styles and also Rooms and choose from the designs created in the Homestyler application or website

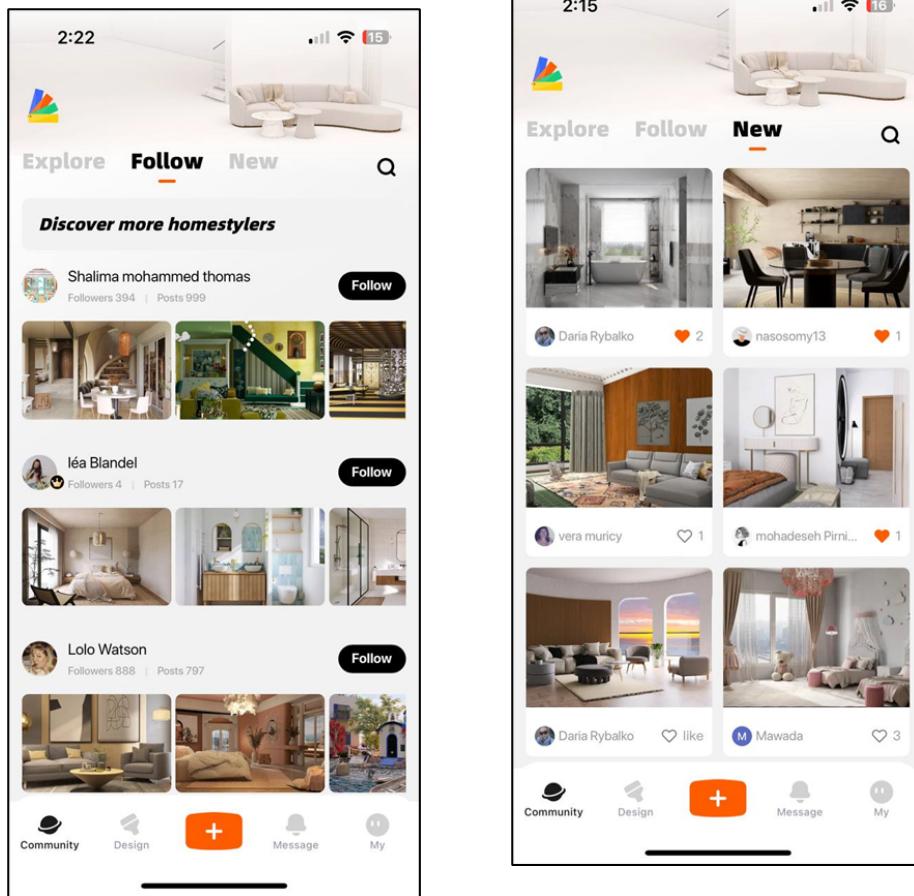


Figure 3.10: Follow: The user can follow and discover many homestyler through the Follow icon

Figure 3.11: The user can comment and put likes to posts of other designers and add them to favorites, also use the resources used in the design

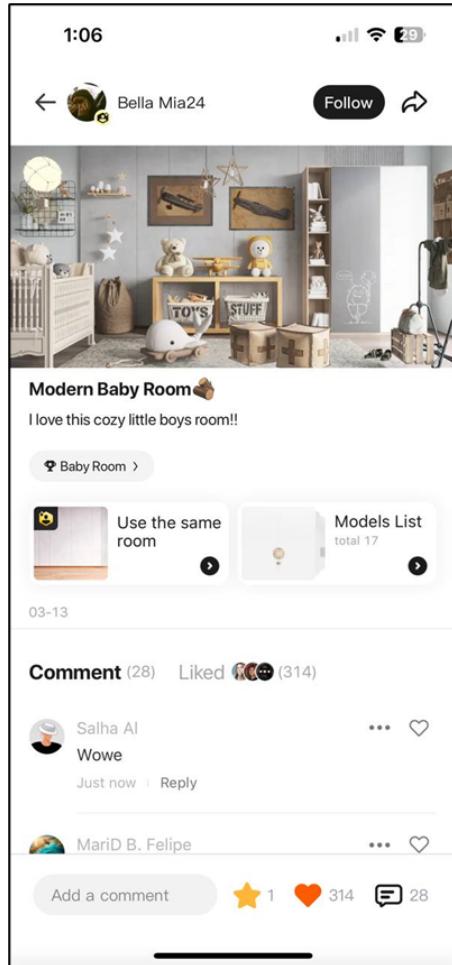


Figure 3.12: The user can comment and put likes to posts of other designers and add them to favorites, also use the resources used in the design

3.1.3 Design Page

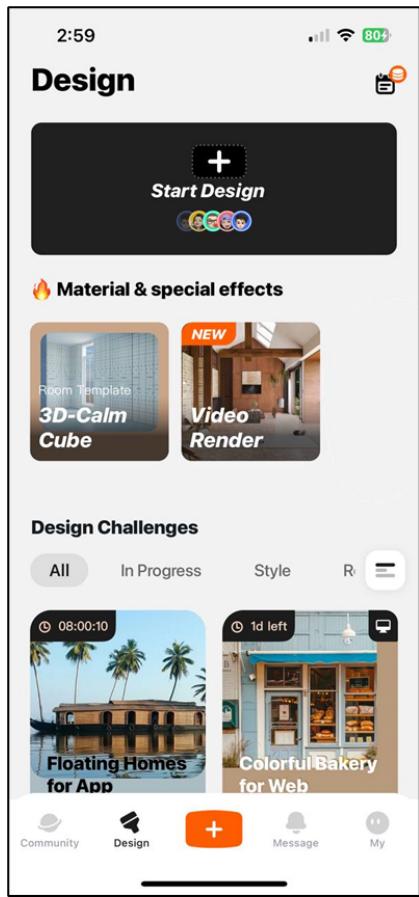


Figure 3.13: The design page displays a lot of options, including (start design) in addition to (Material and special effects), Coins and many design challenges

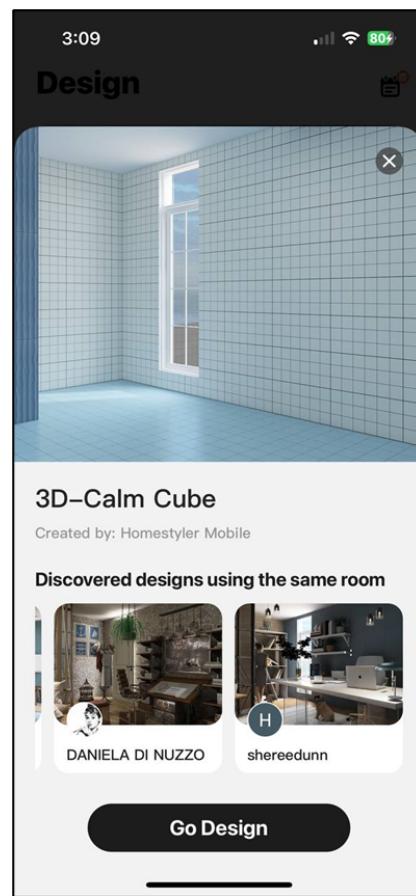


Figure 3.14: Material and special effects: From this icon you can design inside a 3D-Calm Cube and discover many designs

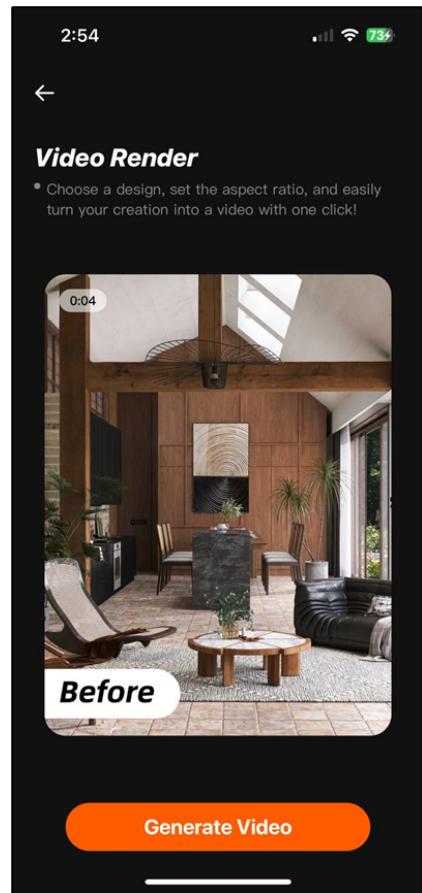


Figure 3.15: Material and special effects (Video Render): The user can choose a design, set the aspect ratio, and easily turn it into a video

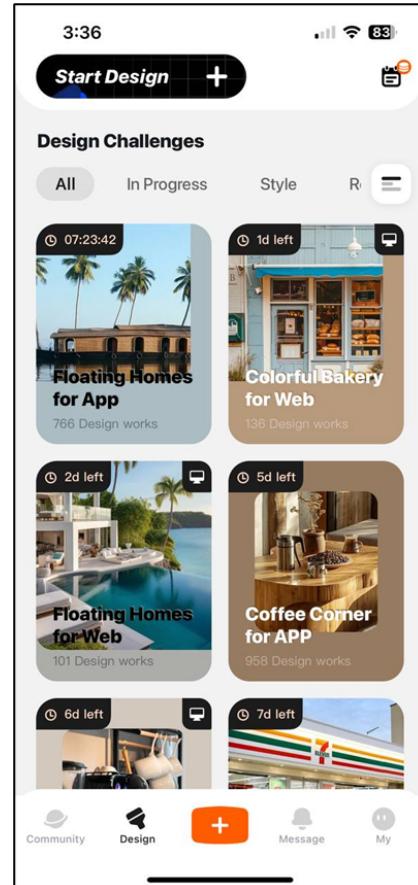


Figure 3.16: Design Challenges: The user can choose many challenges and participate in them, by following specific restrictions such as time and there is also a reward

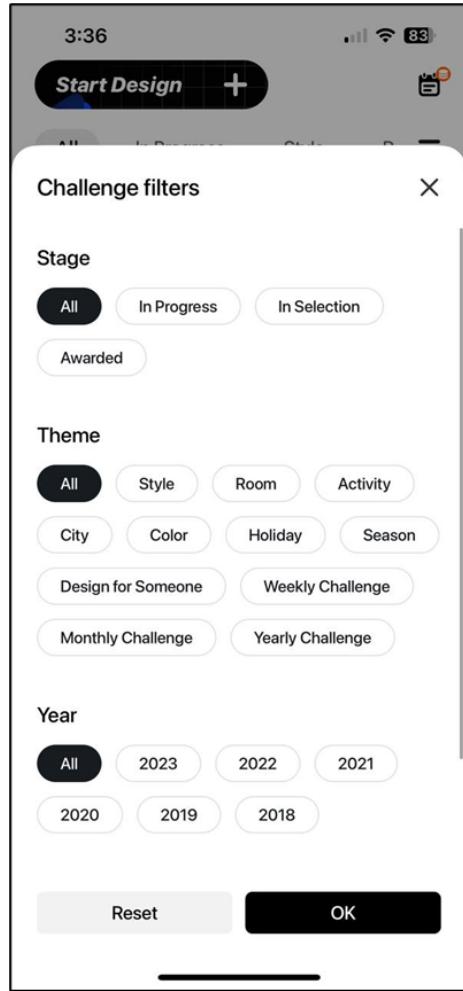


Figure 3.17: The user can filter the challenges through the icon and choose the appropriate Stage, Theme, Year

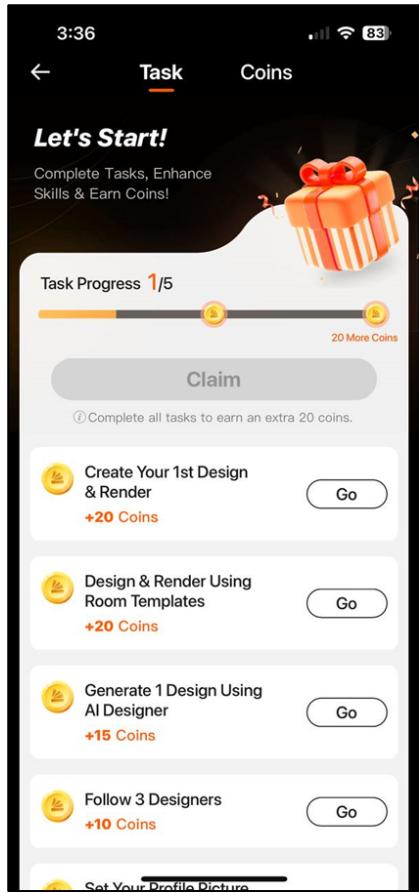


Figure 3.18: From an icon the user can get coins by completing tasks and can also purchase some of the available features

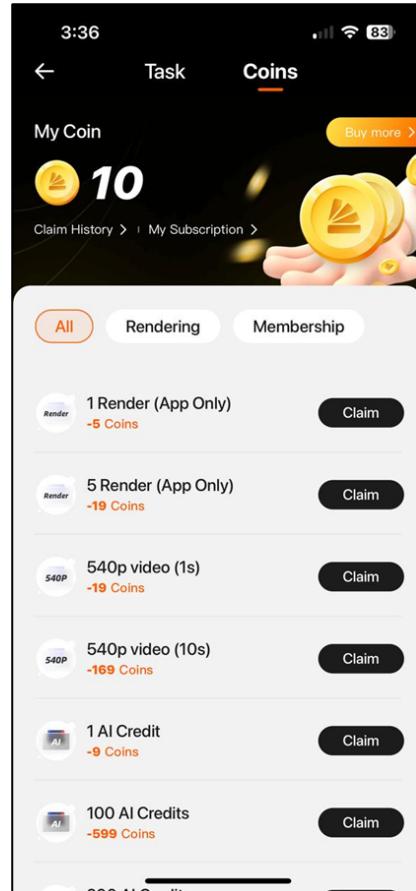


Figure 3.19: The user can also purchase some of the available features

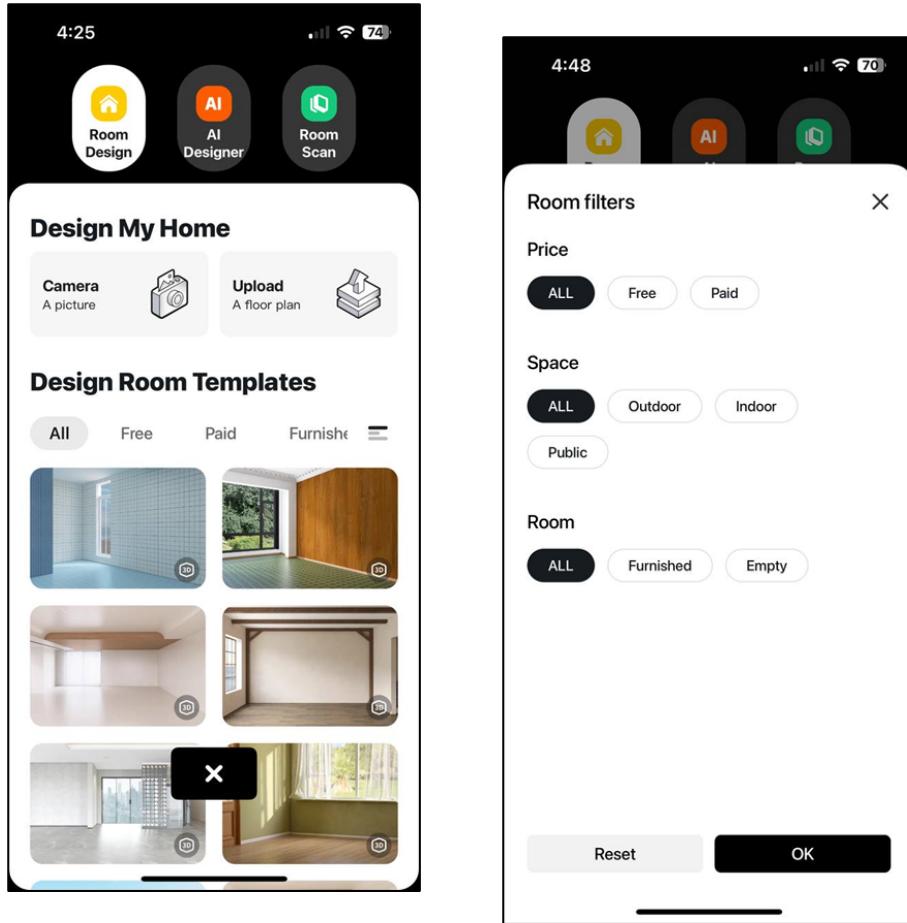


Figure 3.20: Start Design: By clicking on Start Design, the user will be shown a page containing several main icons (Room Design, AI Designer, Room Scan)

Figure 3.21: Design My Home: The user can use the camera or by uploading A floor plan

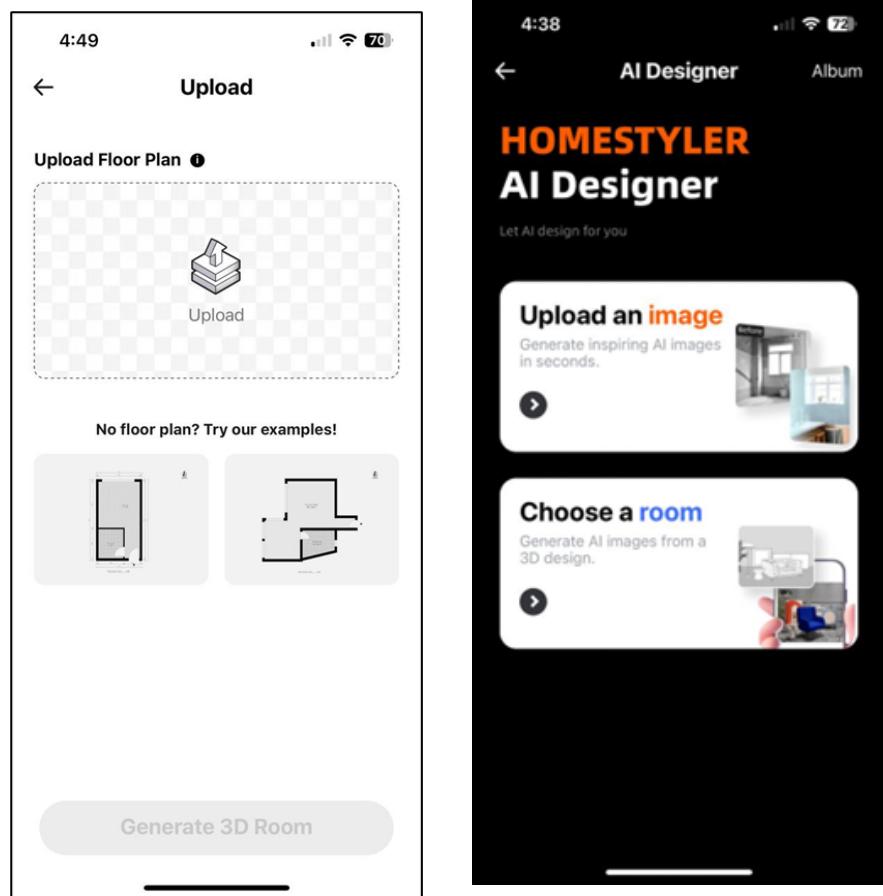


Figure 3.22: Design My Home: The user can use the camera or by uploading A floor plan

Figure 3.23: AI Designer: AI design tool allows AI to design by uploading a photo from the user or choosing a room



Figure 3.24: Scan Rooms: The user can create digital rooms by scanning walls, doors, and windows

3.1.4 Message

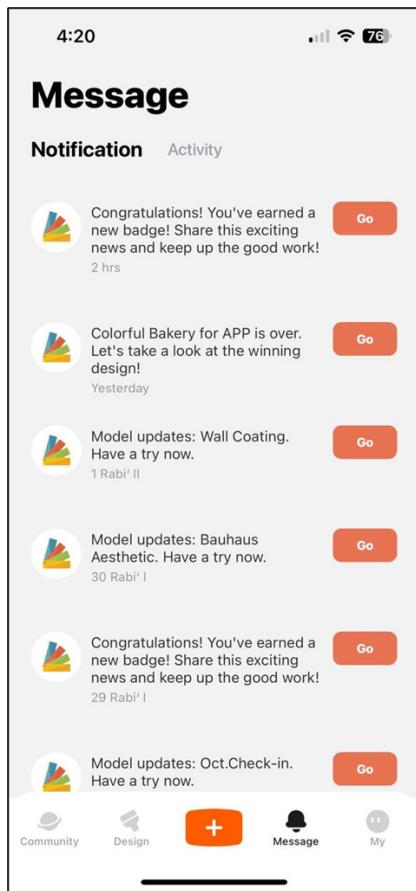


Figure 3.25: Notification: In the messages interface, there are two options. The first is notifications, which appear in notifications when a message or alert arrives from the same application

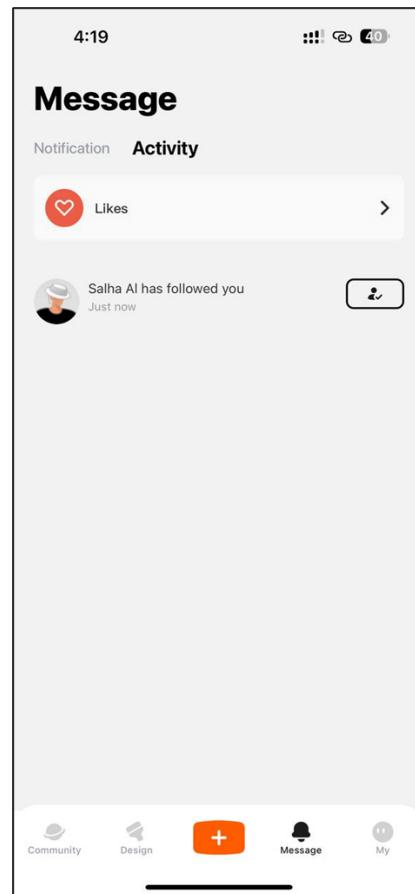


Figure 3.26: Activity: In the activity box, it shows followers, likes for the account, etc

3.1.5 My Account

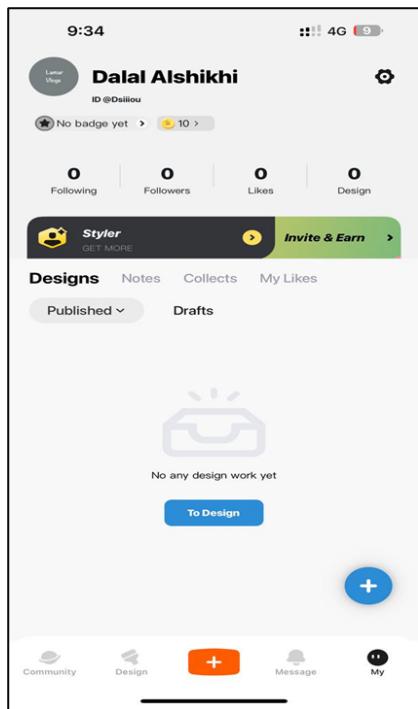


Figure 3.27: My account interface shows me my followers, following, likes and designs, then in the other bar it shows me my design, my notes, my collections, and what I like. When you click on My Designs, two options appear: published and draft, and then the to design icon appears, there is also a settings section in the account interface that contains the application version and language

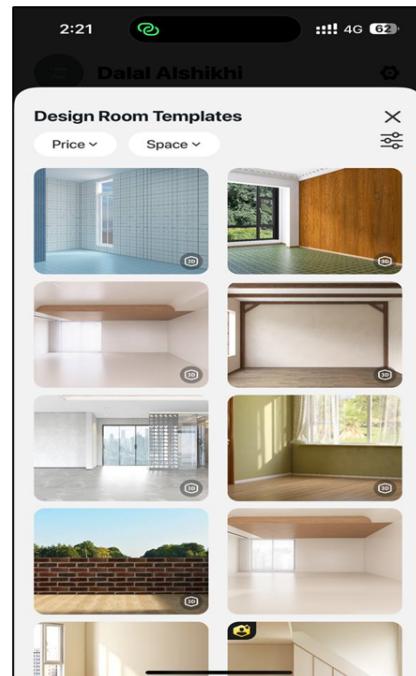


Figure 3.28: When you click on the to design icon, several suggested templates for designs appear

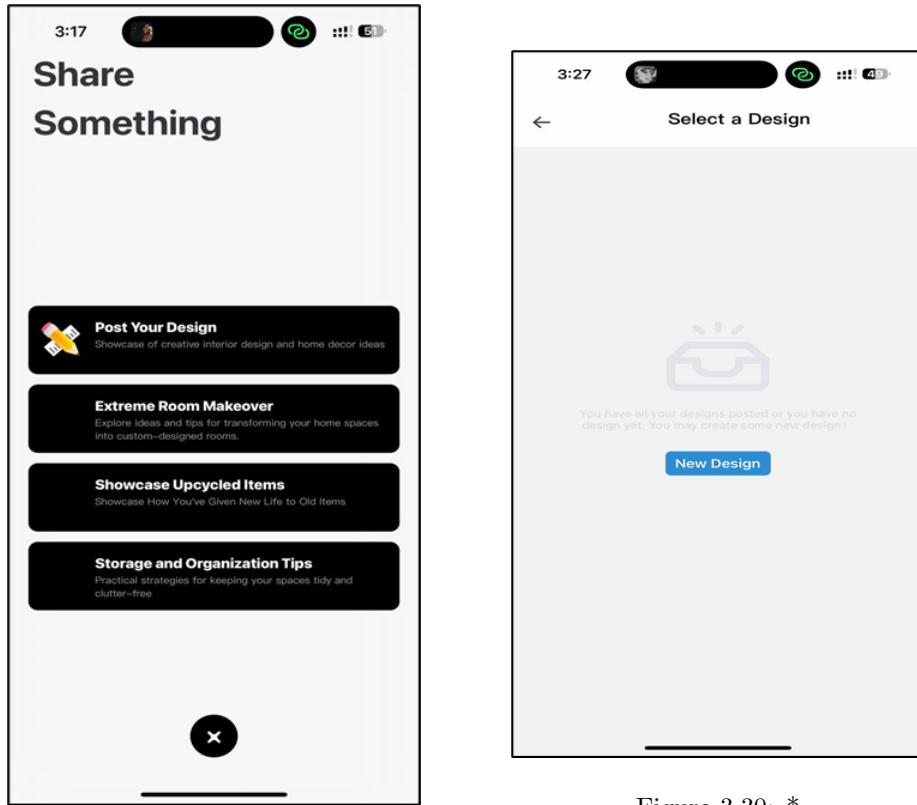


Figure 3.30: *

Figure 3.29: *

Figure 3.31: When you click on the My Notes icon, 4 options will appear. The first is to publish the design and display creative ideas. The second is a radical change to the room, in which other ideas and tips that benefit the user are explored

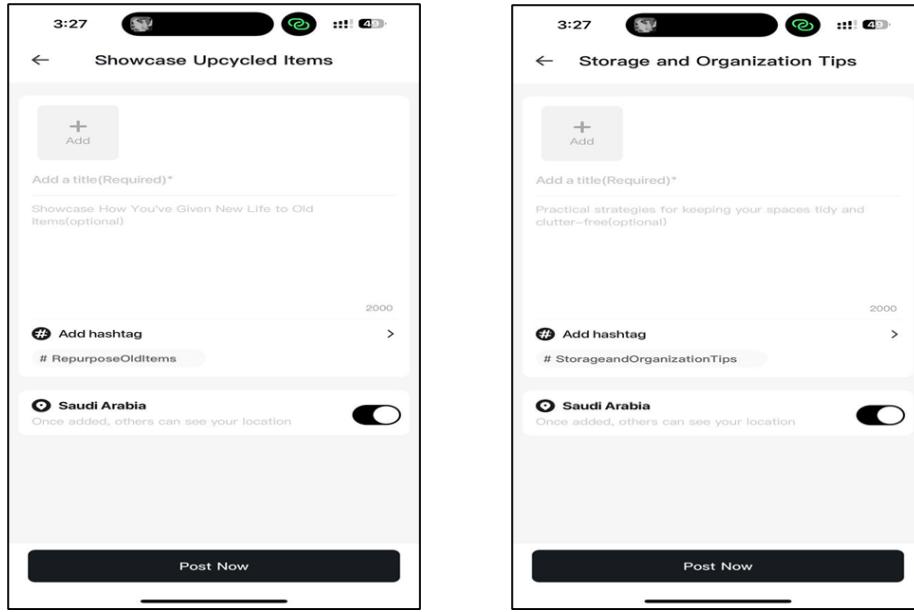


Figure 3.32: *

Figure 3.33: *

Figure 3.34: The third option displays recycled items to show how old items have been given new life, and the fourth option offers storage and organization tips and practical strategies to keep users' spaces tidy and free of clutter

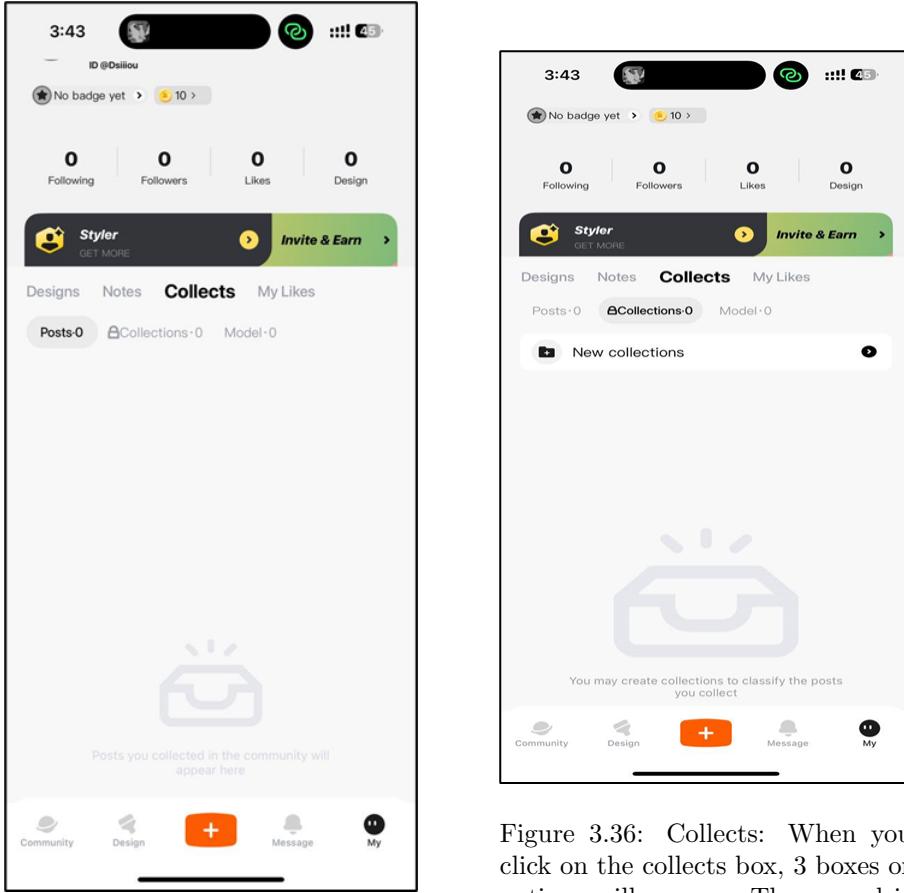


Figure 3.35: Collects: When you click on the collects box, 3 boxes or options will appear. The first is the user's private posts.

Figure 3.36: Collects: When you click on the collects box, 3 boxes or options will appear. The second is collections, in which the name of the community will appear if it exists or if it can be created

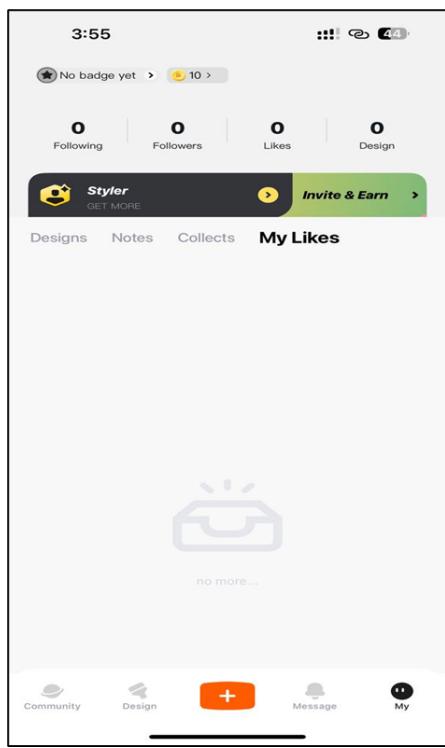


Figure 3.37: My likes: The last box is My likes, which stores the user's likes

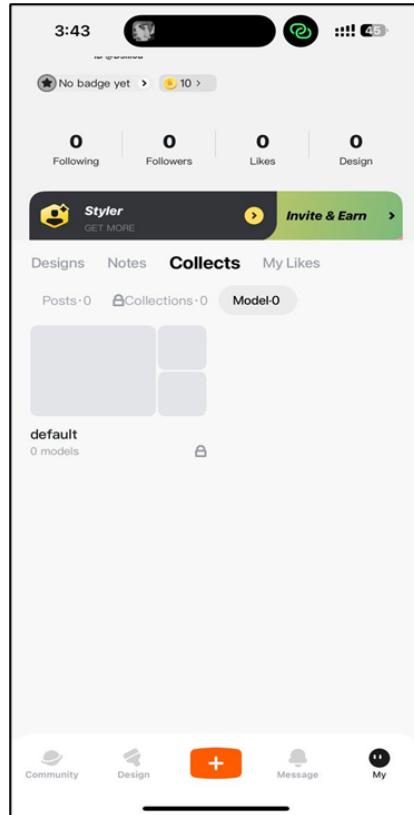


Figure 3.38: Collects: The third option is model, if it does not have any model, a default list will appear to the user

3.3 Data Base

3.2.1 SQL Data base

AccountID	userName	Gender	Email	Password	Created
19171	Salha	Female	sal91@gmail.com	SLAJ5181	2022-27-3
23456	Dalal	Female	Dalal19@gmail.com	D1910	2023-10-7
25177	Dina	Female	dina@example.com	DIN515	2022-04-14
26672	Omar	Male	omar.abdul@gmail.com	OMAR1234	2022-04-01
31415	Salim	Male	salim@example.com	SAL414	2022-04-13
31617	Maya	Female	maya@example.com	MAY909	2022-04-08
35262	Samira	Female	samira@example.com	SAM707	2022-04-06
41718	Nora	Female	nora@example.com	NOR505	2022-04-04
42526	Nabil	Male	nabil@example.com	NAB616	2022-04-15
45262	Faisal	Male	faisal@example.com	FAI212	2022-04-11
45274	Youssef	Male	youssef.hassan@gmail.com	YOUS1234	2022-06-20
52452	Ziad	Male	ziad@example.com	ZIA808	2022-04-07
59175	Amina	Female	amina.khan@gmail.com	AMIN7890	2022-07-30
59181	Rania	Female	rania@example.com	RAN313	2022-04-12
61615	Tariq	Male	tariq@example.com	TAR010	2022-04-09
69515	Khalid	Male	khalid@example.com	KHA606	2022-04-05
72631	Ahmed	Male	Ah62@gmail.com	a72ga	2020-3-9
75511	Hula	Female	huda@example.com	HUD111	2022-04-10
81173	Fatima	Female	fatima.ahmed@gmail.com	FATIM4567	2022-05-15
86262	Ali	Male	ali@example.com	ALI404	2022-04-03

Figure 3.39: Used to store structural data such as user information Figure (u1.2), designs, and projects, databases such as MySQL or PostgreSQL can be suitable for this purpose.

3.4 Programming languages

JavaScript: mainly used to develop interactive user interfaces.

HTML/CSS: used for formatting and designing web pages, Figure (ht.2).

C++ or C: used in the development of three-dimensional models and graphics.

Python: used in some background aspects or data processing.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Homestyler Room Designer</title>
    <link rel="stylesheet" href="styles.css">
</head>
<body>
    <div id="toolbar">
        <button id="addRoomButton">Add Room</button>
        <button id="saveDesignButton">Save Design</button>
    </div>
    <div id="app"></div>
    <script src="app.js"></script>
</body>
</html>
```

Figure 3.40:

Conclusion

In this chapter, we have listed the four main interfaces in the Homestyler application, which are community, design, messages, and my account, and we have mentioned in detail what is inside each interface and present SQL Database, programming language such as: HTML/CSS, JavaScript, C++ or C, python.

References:

Alibaba Group. Homestyler . Easyhome New Retail Group, 2010.nd
<<https://m.homestyler.com/>>

Tasks Table:

ID	Task Name	Start	End	Duration	Progress %	Resources	Color
1	Conduct a Survey or Interview	2024-09-13	2024-09-25	9 days	100	Salha Alzubaidi,Dalal Alshaikhi	
2	Research Existing Programs	2024-09-18	2024-09-20	3 days	100	Salha Alzubaidi,Dalal Alshaikhi	
3	Program's Purpose	2024-09-20	2024-09-23	2 days	100	Salha Alzubaidi	
4	Functional Requirements	2024-09-27	2024-10-01	3 days	100	Salha Alzubaidi	
5	Non-Functional Requirements	2024-09-27	2024-10-02	4 days	100	Dalal Alshaikhi	
6	Interfaces	2024-09-30	2024-10-09	8 days	100	Salha Alzubaidi,Dalal Alshaikhi	
7	Database	2024-10-03	2024-10-10	6 days	100	Salha Alzubaidi,Dalal Alshaikhi	
8	Programming languages	2024-10-07	2024-10-10	4 days	100	Salha Alzubaidi	

