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Software Graduation Project

“IRIS”

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DISCLAIMER

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ABSTRACT

The practice of purchasing and selling jewelry online has been increasingly popular in recent years, especially among astute consumers looking for convenience and high quality. In addition to making shopping easier, this trend delivers substantial time and effort savings.

Our group developed a mobile application and website for gold and diamond jewelry based on our observation of this trend. With a large assortment of jewelry items, including sets, earrings, necklaces, bracelets, rings, and necklaces made of 14k, 18k, 21k, and 24k gold purities.

Our app offers a smooth purchasing experience by letting consumers peruse each piece's thorough description and excellent photos. Clients can easily refine their searches according to criteria including price range, diamond shape, and metal purity.

A crucial feature of our platform is the incorporation of a try-on tool that allows clients to see how various rings will appear on them. Customers may make more educated purchases with the aid of this interactive feature, which improves the online shopping experience.

Furthermore, the online store has a distinct area for custom jewelry orders where users can design pieces that are customized to their own preferences and requirements. Every client will be able to locate or design the ideal piece of jewelry to fit their personal style.

Our platform includes a tool that assists consumers in finding the diamond shape that best fits their finger shape, further personalizing the buying experience. The tool ensures that clients find the ideal fit for their distinctive features by assessing the user's hand shape and size and recommending the most attractive diamond shapes.

In order to improve the credibility and dependability of our platform, all users must first create a profile. Customers can use this system to provide evaluations and comments about their purchases, which promotes openness and trust among the community. Each user's profile includes key details about them, such as past purchases and personal data.

Additionally, a platform administrator oversees the seamless running of every service on the platform. With access to the application's extensive data, the administrator can have a thorough understanding of how users engage with the items. Customers' whole purchasing experience is improved by the constant enhancements made possible by this data-driven strategy.

Unlike other jewelry platforms, our main goal is to give customers looking for fine gold and diamond jewelry a specialized, reliable, and easy-to-use environment. Our method seeks to improve jewelry fans' online buying by making it more secure and personalized.

1. INTRODUCTION

1.1. PROBLEM

Jewelry fans confront a variety of difficulties in the digital age, from locating the ideal piece to guaranteeing the quality and authenticity of their purchases. The unique demands of discriminating jewelry consumers are frequently unmet by traditional internet markets, creating a disorganized and impersonal buying environment. Seeing this need, the project introduces "IRIS", a modern mobile application with a corresponding website that aims to improve and simplify the jewelry-buying experience.

1.2. OBJECTIVE

- **Efficient Jewelry Shopping:** Enabling a smooth and effective jewelry shopping experience is IRIS's main goal. Our goal is to make purchasing fine gold and diamond jewelry easier by offering a specialized platform.
- **Customized Shopping Experience:** IRIS offers a function that assists customers in choosing the diamond shape that most closely resembles the shape of their finger. Customers are guaranteed to find jewelry pieces that precisely complement their distinctive features thanks to this individualized approach.
- **Time and effort savings:** IRIS allow users to browse, choose, and buy jewelry with just a few clicks, saving both. The shopping process is quick and simple thanks to the app's user-friendly interface and intuitive design.
- **Custom Jewelry Orders:** Customers can work with skilled jewelers to create personalized pieces in Jewel Ease's special section for custom jewelry orders. Every client will be able to locate or design the ideal piece of jewelry to fit their personal style thanks to this service.
- **Comprehensive Product Information:** Every jewelry piece on Jewel Ease is accompanied by excellent photos and thorough descriptions that include details about the qualities of the diamond and the purity of the gold. Customers are better able to make educated purchases thanks to this transparency.
- **Administrative Oversight:** An administrator who is in charge of all services on the platform is also privy to extensive data on user interactions. Customers' overall shopping experience is improved by the continuous improvements made possible by this data-driven approach.

1.3. SCOPE OF THE WORK

- Create accounts: IRIS users can create their own accounts to be able to view IRIS products by filling up their personal information.
- Sections: IRIS contains 2 sections of jewelry; one for diamond items and one for gold items.
- Categories: in each section there are 5 categories: rings, bracelets, necklaces, earrings and sets.
- Profile feature: in users' profile, users can view and edit their personal information in addition to viewing their orders. Also, they can delete their account if they want to.
- Chat feature: the user can communicate with IRIS admin if they have any specific questions or if they want further information about anything on the app.
- Notification feature: the users will be notified if any specific event occurred, like sales, back in stock items and so on.
- Search feature: users can search for a specific item based on its name or any part of its description.
- Product details: when the user chooses any product to view, they will be able to see its name, description, sizes and reviews
- Recommended for you feature: under any item there is a section where related products are presented for the user based on the category they are viewing.
- Reviews feature: users can add reviews under any item based on their experience with it and they can give a rating for this item.
- Gemstones feature: a specific page dedicated for info about gemstones, like name, image and description.
- Cart feature: users can add items to cart after specifying the size and the quantity they want.
- Order feature: after adding products to cart, users are able to check out by entering their shipping information and payment info
- Payment feature: since IRIS is a local business, users have 2 methods to pay with; cash or credit card. If they choose credit card method, they need to enter their card's information.
- Order review feature: after specifying the payment method, users are able to view their order one last time before confirming it
- Design your own ring feature: users can design the ring they want based on their own taste and style
- Suitable diamond feature: IRIS can help users find the diamond shape that best suits their hand
- Try ring on feature: users can try the ring on their hand by uploading a picture of their hand and drag the ring on the finger they want

- Admin:
 - Pie charts: admin can view their app statistics in pie charts, like percentage of purchases from each category and from each section
 - Table of in stock items: admin can view the quantity of each in stock item in addition to total amount of in stock.
 - Search: admin can search for a specific item or a specific user
 - Add items: admin can add items easily for each section by entering items information
 - Gemstones: admin can add a new gemstone or edit an existing one.
 - Reviews viewing: when the admin searches for a specific item they can view the items views and they have the ability to delete any.

1.4. IMPORTANCE

The significance of IRIS is found in its capacity to provide a dual-platform solution that comprehensively addresses specific challenges faced by jewelry enthusiasts. Through the use of a mobile application and website, our app streamlines the process of buying and selling jewelry, including gold items of different karats (14k, 18k, 21k, and 24k), encouraging a sense of community and cooperation among jewelry enthusiasts. By offering accessible platforms and cutting-edge services that meet the changing needs of consumers in the digital age, this improves the overall shopping experience. Users can save time, effort, and money by using the mobile application and website simultaneously.

1.5. REPORT AND ORGANIZATION

This report highlights the process of the research and the practical side of

creating “IRIS”. Therefore, the report will consist of the following parts, which are:

- Chapter 1: is the introduction chapter It states the importance of the project, the objectives, the Scope of the project, and its importance.
- Chapter 2: is the literature review, projects, and articles from around the world will be further investigated to learn more about how this project was implemented what were their recommendations, and what enhancement features can be added.
- Chapter 3: is the methodology chapter, which outlines what was followed to create the system, and it discusses the constraints and limitations faced by the project.
- Chapter 4: is the result and discussion, it investigates the final result of the project and what was the outcome.

- Chapter 5: is the conclusion and recommendation, it highlight the conclusion of the project and suggest recommendations for any further research and projects.

2. LITERATURE REVIEW

Similar applications have been researched and examined globally; this chapter looks into a number of literature reviews to determine which mythology was used, what the outcome was, and what suggestions were made.

THE EVOLUTION OF ONLINE JEWELRY RETAIL: FROM PHYSICAL STORES TO MOBILE APPS

2.1. THE EVOLUTION OF ONLINE JEWELRY RETAIL:FROM PHYSICAL STORES TO MOBILE APPS

With an emphasis on mobile applications, the article describes the dramatic transition that the jewelry retail industry has undergone from traditional brick-and-mortar stores to digital platforms. The jewelry shopping experience has been revolutionized by platforms like Blue Nile and Carat Lane, which give customers easy access to a large selection of goods and comprehensive information like diamond certifications and karat levels [1]. With features like virtual try-ons and augmented reality (AR), the move to mobile apps has improved the overall shopping experience in addition to making jewelry more accessible. The jewelry industry can now reach a wider audience, overcome geographic barriers, and provide individualized experiences that are challenging to provide in physical stores thanks to the digital evolution.

2.2. EXPLORING CONSUMER BEHAVIOR IN JEWELRY MOBILE APPLICATIONS: MOTIVATIONS AND DECISION INFLUENCES

With a focus on variables influencing purchase decisions, this study explores the reasons behind consumer behavior in the context of jewelry mobile applications. The study employs consumer value theory to examine user interactions and reviews of well-known jewelry apps. It identifies important motivators like convenience, tailored suggestions, and the opportunity to virtually try on jewelry items through augmented reality technology [2]. The study emphasizes how crucial security and trust are to online transactions because buyers want to be sure that the jewelry, they are purchasing is real and of high quality. Online purchases of expensive goods, such as jewelry, are becoming more and more common. This emphasizes the need for apps to offer thorough product information and safe payment methods in order to earn users' trust.

2.3. SUSTAINABLE CONSUMPTION IN THE JEWELRY MARKET: THE RISE OF ETHICAL SHOPPING

The growing trend of ethical and sustainable jewelry consumption is examined in this article, which is fueled by consumer awareness and environmental concerns. Features that emphasize the ethical sourcing of materials and the environmental impact of jewelry production are becoming more and more common in jewelry mobile applications [3]. These applications address the changing tastes of environmentally conscious customers by offering transparency and comprehensive information about the source of metals and gemstones. The study

highlights the significance of sustainability in the jewelry business and points out that applications that effectively incorporate these principles into their platforms can create a loyal user base and obtain a competitive edge.

3. METHODOLOGY

3.1. TOOLS, TECHNOLOGIES, AND PROGRAMMING LANGUAGES

3.1.1. Tools

- Visual Studio Code: it was used as the primary Integrated Development Environment (IDE), for coding, editing, and debugging purposes. [4]
- Android Studio: it was utilized as an emulator to simulate and test the mobile application across a range of virtual environments. [5]
- GitHub: Collaboration and version control were facilitated through GitHub, which allowed work organization with my partner and efficient tracking of code modifications. [6]
- Firebase: for features like real-time chatting and notifications, Firebase's 'NoSQL' real-time database was chosen for its robustness and scalability. In addition to the validation mechanisms, the platform utilizes Firebase storage to securely store images in the cloud. This ensures efficient management and accessibility of image data across the platform.
- Postman: it was used for testing different APIs, to ensure the reliability of our application, and make different HTTP requests and responses. [7]
- Nodemon: it significantly enhanced the development process by automatically restarting the application upon any file modification in the directory. [8]

3.1.2. Programming Languages

In the implementation of both the mobile application and the website for this project, Flutter was employed as the frontend framework. Flutter is a cross-platform designed for creating high-performance mobile applications, and it does not rely on web view or device OEM widgets but uses its own rendering engine to render view components. In addition, Dart is the programming language used in flutter, which is developed by Google and is known for its capacity to develop large web applications. Widgets play a pivotal role in flutter, which is categorized into two main types stateless widgets and stateful widgets, each serving distinct purposes. [9]

For the backend development, Node.js was used, which offers performance benefits, with a faster interpreter compared to languages like PHP. It keeps server-side applications permanently active, reducing the steps involved in initializing applications each time. This approach contributes to faster response times and improved experience. [10]

In addition, Express.js was used as a third party in Node.js. Express.js is a web framework built on the core of Node.js http module and connect components known as middleware's, which enable high flexibility. It also simplifies parsing HTTP request bodies, managing sessions, and organizing routes, preventing the need for repetitive code. [11]

For the database management, MongoDB was used, as it offers a flexible and scalable NoSQL interface that provides a standardized method for managing document-oriented databases. MongoDB's document model allows for dynamic schema design, enabling the storage of complex and hierarchical data structures. The querying capabilities of MongoDB, facilitated through its powerful query language, allow for efficient data retrieval, manipulation, and analysis. This ensures data integrity and high availability. Unstructured and semi-structured data were effectively managed and manipulated through the leveraging of MongoDB, with data integrity and scalability being ensured for the project. The use of MongoDB also supports horizontal scaling, making it suitable for handling large volumes of data and high-velocity transactions. [12]

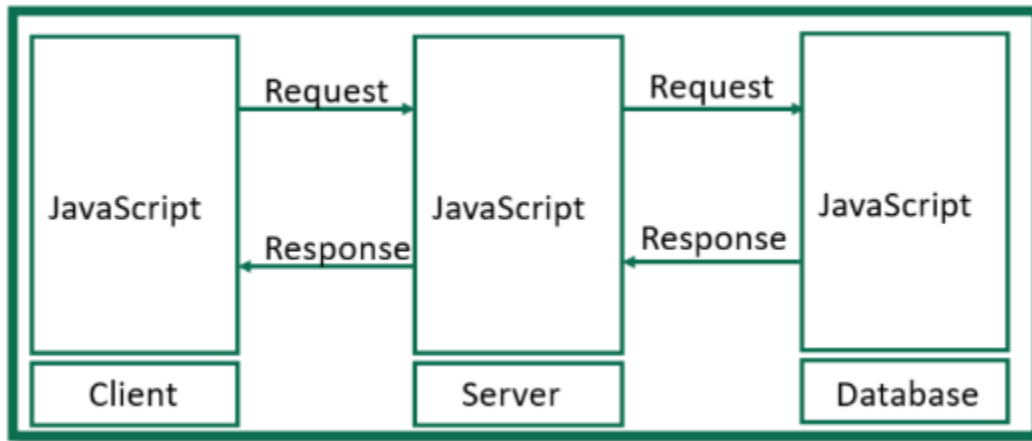


Figure 3:1 JavaScript end-end

3.2. DATABASE IMPLEMENTATION

MongoDB is a document database with the scalability and flexibility that you want with the querying and indexing that you need when we designed the database for our Flutter application, we focused on principles that would ensure efficiency, scalability, and flexibility. We chose MongoDB, a NoSQL document-oriented database, because of its ability to manage unstructured data and its adaptable schema design. Unlike traditional relational databases, MongoDB doesn't require a fixed schema, which allows us to develop and iterate more dynamically.

We adopted data denormalization to boost read performance, embedding related data within a single document where it made sense. This strategy minimizes the need for complex joins,

speeding up data retrieval. For example, embedding user profile data and their related order information in the same document lets us quickly access all necessary details with a single query.

For collections with frequently updated data, like product details in orders, we used referencing to maintain data consistency. We also implemented indexing on fields that are often queried, such as usernames and product names, to optimize performance.

By taking advantage of MongoDB's flexible schema design and robust querying capabilities, we built a database structure that's both powerful and scalable, perfectly suited to meet the evolving needs of our application.

Our database collections:

1. Users collection

- Purpose: to store user information for authentication and profile management and to give the user access to the application and the website.
- Schema:

username (String): The name of the user.

email (String): The user's email address, which must be unique.

password (String): The password for authentication.

phoneNumber (Number): The user's phone number.

- Example document:

_id: ObjectId('66080b999cfaadd356a64c74')

Username: "may"

Email: "may.ahmad@gmail.com"

Password: "\$2b\$10\$EIXDHTL6C63hP1aHV.o5uOCJnR.PmfU3bHZnMV5FhKh2jQhbZ/6N2"

phoneNumber: 0566783456

2. Items collection

- Purpose: to store diamond items with all of their information needed for the application and the website
- Schema:

name (String): The name of the item.

Type (String): Diamond.

Category (String): The category of the item (ring, necklace ... etc).

Price (Number): The price of the item.

Image (String): The image URL of the item.

Description (String): the detailed description of the item.

Quantity (Number): the quantity of in stock items from this item.

Sellers (Number): the amount of sold items from this product.

Date (String): the date of the day when the admin added the item.

- Example document:

_id: `ObjectId('665089e209aadffee4ee1a04')`

Name: "Golden Radiance\diamond Bracelet"

Type: "Diamond"

Category: "Bracelet"

Price: 2000

Description: "Discover the epitome of luxury with our Golden Radiance Diamond Bracelet..."

Image: "https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/i..."

Quantity: 8

Date: "2024-05-24"

3. Gold items collection

- Purpose: to store gold items with all of their information needed for the application and the website

- Schema:

name (String): The name of the item.

Type (String): Gold.

Category (String): The category of the item (ring, necklace ... etc).

Karat (String): 14k, 18k, 21k or 24k.

Weight: the weight of the gold item.

Price (String): The price of the item.

Image (Number): The image URL of the item.

Description (String): the detailed description of the item.

Quantity (Number): the quantity of in stock items from this item.

Sellers (Number): the amount of sold items from this product.

Date (String): the date of the day when the admin added the item.

- Example document:

_id: `ObjectId('6658f3b84913693a25abb02f')`

Name: "Elegance Halo Teardrop Ring"

Category: "Ring"

Carat: "18k"

Price: 1000

Weight: "5"

Description: "Discover the "Elegance Halo Teardrop Ring," exquisitely fashioned in 1..."

Image:

`"https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/i..."`

Quantity: 12

Date: "2024-05-30"

4. Orders Collection

Collection Name: `orders`

Purpose: To store order information for orders made by users.

Schema:

- `order number` (Number): The unique order number.
- `user_id` (String): Reference to the `users` collection.
- `shipping_address` (String): The shipping address for the order.
- `payment_method` (String): The payment method used for the order.
- `items` (Array): List of products included in the order, with quantities and prices and sizes.
- `total_amount` (Number): Total price of the order.
- `order_status` (String): Status of the order (e.g., processing, shipped, delivered).
- `created_at` (Date): The date the order was created.

```
{  
  "_id": ObjectId("60d5fc95bc7c8b3c9c15b4d7"),  
  "order_number": 1001,  
  "user_id": "60d5fbc6bc7c8b3c9c15b4d5",  
  "shipping_address": "Rafedia, Nablus, Palestine",  
  "payment_method": "Credit Card",  
  "items": [  
    {  
      "product_id": "60d5fc25bc7c8b3c9c15b4d6",  
      "product_name": "Diamond Ring",  
      "quantity": 1,  
      "price": 250.00
```

```
    },  
    {  
      "product_id": "60d5fc35bc7c8b3c9c15b4d8",  
      "product_name": "Gold Necklace",  
      "quantity": 2,  
      "price": 150.00  
    }  
  ],  
  "total_amount": 550.00,  
  "order_status": "processing",  
  "created_at": "2023-01-01T00:00:00Z",  
}
```

Relationships: Each order references a user and includes multiple items.

5. Cart Collection

Collection Name: `cart`

Purpose: To store the shopping cart details for users.

Schema:

- `userId` (String): Reference to the `users` collection.
- `items` (Array): List of items in the cart, including product name, quantity, and price.
- `created_at` (Date): The date the cart was created.

Example Document:

```
{  
  "_id": ObjectId("60d5fca5bc7c8b3c9c15b4d9"),  
  "userId": "60d5fbc6bc7c8b3c9c15b4d5",
```

```
"items": [  
  {  
    "productName": "Diamond Ring",  
    "productId": "60d5fc25bc7c8b3c9c15b4d6",  
    "size": 6,  
    "quantity": 1,  
    "image":  
    "https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/items%2Fitem_1717105514193_100.jpg?alt=media&token=4da6b85c-3ec7-485a-87ea-1e97979fb726",  
    "price": 250.00  
  }  
],  
"created_at": "2023-01-01T00:00:00Z",  
}
```

Relationships: Each cart references a user and includes multiple items.

6. Wishlist Collection

Collection Name: `wishlist`

Purpose: To store the wishlist details for users.

Schema:

- `userId` (String): Reference to the `users` collection.
- `items` (Array): List of items in the wishlist, including product details and price.
- `created_at` (Date): The date the wishlist was created.

Example Document:

```

{ "_id": ObjectId("60d5fcb5bc7c8b3c9c15b4da"),
  "userId": "60d5fbc6bc7c8b3c9c15b4d5",
  "items": [
    {
      "productName": "Diamond Ring",
      "productId": "60d5fc25bc7c8b3c9c15b4d6",
      "price": 250.00,
      "image":
      "https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/items%2Fitem_1717105514193_100.jpg?alt=media&token=4da6b85c-3ec7-485a-87ea-1e97979fb726",
      "description": "A beautiful diamond ring"
    }
  ],
  "created_at": "2023-01-01T00:00:00Z", }

```

Relationships: Each wishlist references a user and includes multiple items.

7. Notifications Collection

Collection Name: `notifications`

Purpose: To store notifications for users.

Schema:

- `userId` (String): Reference to the `users` collection.
- `text` (String): The notification text.

Example Document:

```

{ "_id": ObjectId("60d5fcc5bc7c8b3c9c15b4db"),
  "userId": "60d5fbc6bc7c8b3c9c15b4d5",

```

```
"text": "Your order has been shipped.",}
```

Relationships: Each notification references a user.

8. Best Sellers Collection

Collection Name: `bestSellers`

Purpose: To store information about the best-selling items.

Schema:

- `name` (String): The name of the item.
- `category` (String): The category of the item.
- `price` (Number): The price of the item.
- `description` (String): A description of the item.
- `image` (String): URL of the item image.
- `quantity` (Number): The quantity available.
- `date` (String): The date the item was added.

```
{ "_id": ObjectId("60d5fcd5bc7c8b3c9c15b4dc"),
```

```
  "name": "Diamond Ring",
```

```
  "category": "Rings",
```

```
  "price": 250.00,
```

```
  "description": "A beautiful diamond ring",
```

```
  "image":
```

```
  "https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/items%2Fitem_1717105514193_100.jpg?alt=media&token=4da6b85c-3ec7-485a-87ea-1e97979fb726",
```

```
  "quantity": 5,
```

```
  "date": "2023-01-01"} }
```

9. Gemstone Collection

Collection Name: `gemstones`

Purpose: To store information about different gemstones.

Schema:

- **name** (String): The name of the gemstone.
- **description** (String): A description of the gemstone.
- **image** (String): URL of the gemstone image.

Example Document:

```
{  
  
  "_id": ObjectId("60d5fce5bc7c8b3c9c15b4dd"),  
  
  "name": "Ruby",  
  
  "description": "A precious red gemstone",  
  
  "image":  
  "https://firebasestorage.googleapis.com/v0/b/gradprojfb.appspot.com/o/items%2Fitem_1717105514193_100.jpg?alt=media&token=4da6b85c-3ec7-485a-87ea-1e97979fb726"  
  
}
```

10. Shipping Collection

Collection Name: **shipping**

Purpose: To store shipping information for user orders.

Schema:

- **user_id** (String): Reference to the **users** collection.
- **name** (String): The name of the recipient.
- **address** (String): The shipping address.
- **city** (String): The city of the shipping address.
- **state** (String): The state of the shipping address.
- **zipCode** (String): The postal code of the shipping address.
- **phoneNumber** (String): The recipient's phone number.
- **created_at** (Date): The date the shipping information was created.
- **updated_at** (Date): The date the shipping information was last updated.

Example Document:

```
{
  "_id": ObjectId("60d5fcf5bc7c8b3c9c15b4de"),
  "user_id": "60d5fbc6bc7c8b3c9c15b4d5",
  "name": "John Doe",
  "address": "123 Main St",
  "city": "Anytown",
  "state": "CA",
  "zipCode": "12345",
  "phoneNumber": "123-456-7890",
  "created_at": "2023-01-01T00:00:00Z",
  "updated_at": "2023-01-01T00:00:00Z"
}
```

Relationships: Each shipping record references a user.

3.3. FEATURES IMPLEMENTATION

3.3.1. Mobile Application

The mobile application was developed to facilitate viewing jewelry among users for the purpose of buying and selling jewelry products, as well as enabling seamless chatting between users and admin. Additionally, the application includes administrative functionalities to allow monitor and control various actions within the platform. In order to illustrate application features and simplify them a user story will be mentioned.

- **USER STORY:**

Title: viewing IRIS items.

As a new user of the IRIS App,

- User have to create an account if they don't already have one, this involves providing necessary personal information and setting up log in credentials.

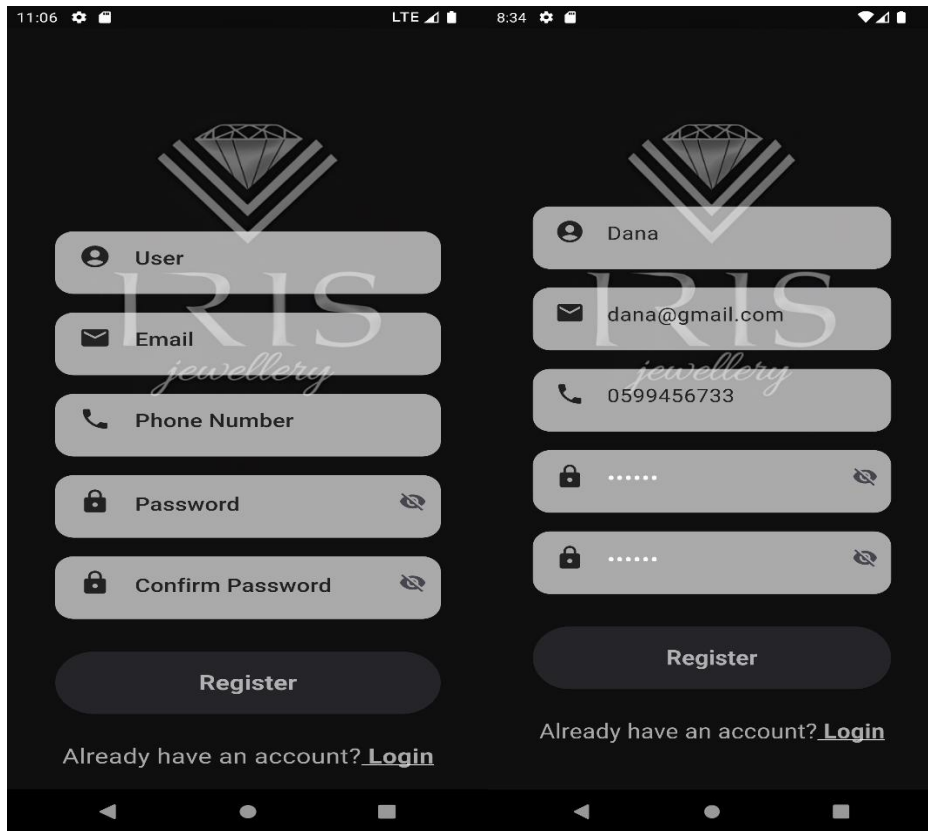


Figure 3:2 Sign up page

- After that the user will be guided to the log in page so that they can log in with their newly created credentials to gain access to its features.

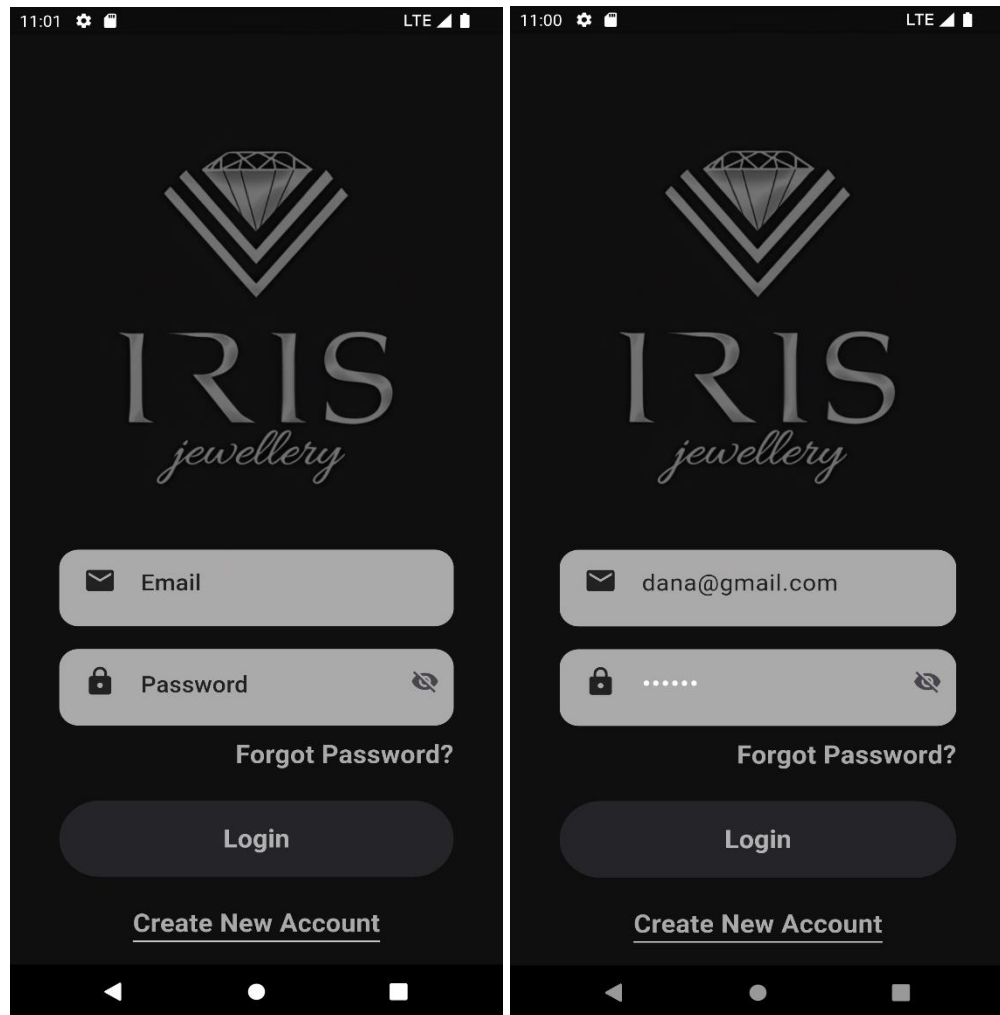


Figure 3:3 Log in page

- Now the user can select which section they want to view.



Figure 3:4 Home Page

- If the user chooses diamond section, they will be guided to the home screen of the diamond section.

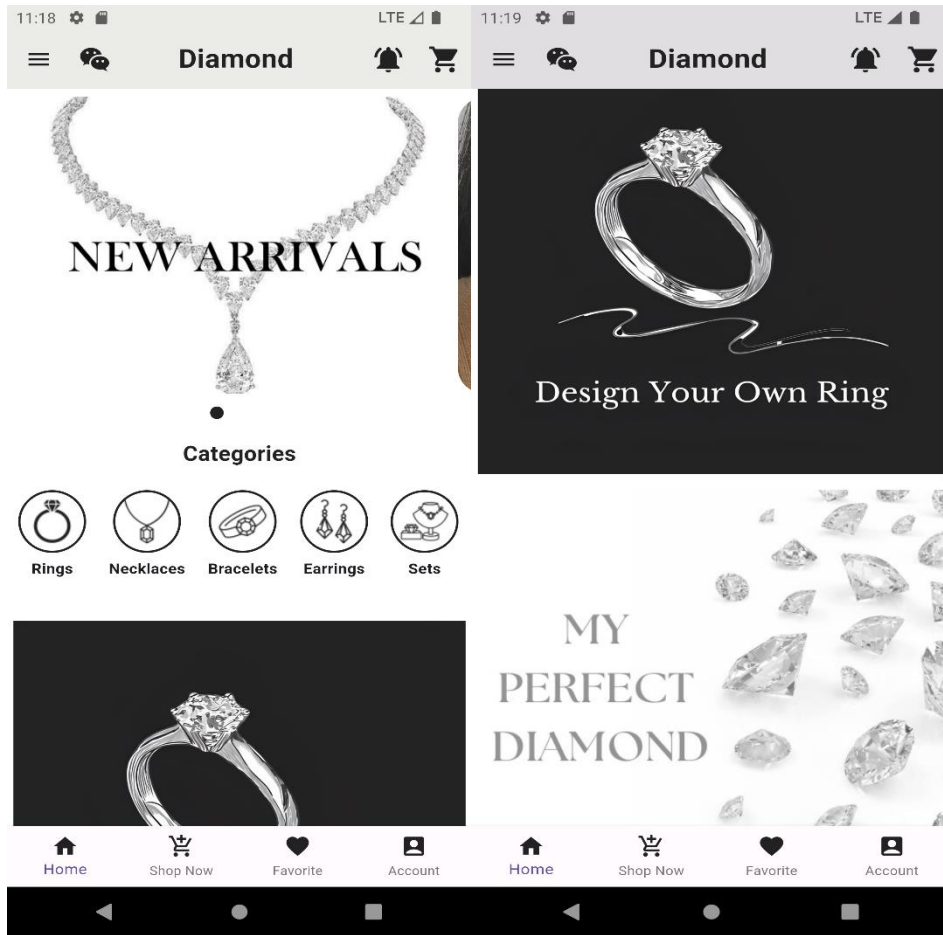


Figure 3:5 Diamond Page

- Now the user is able to view any category they want, if they choose ring category, they will be guided to rings page.

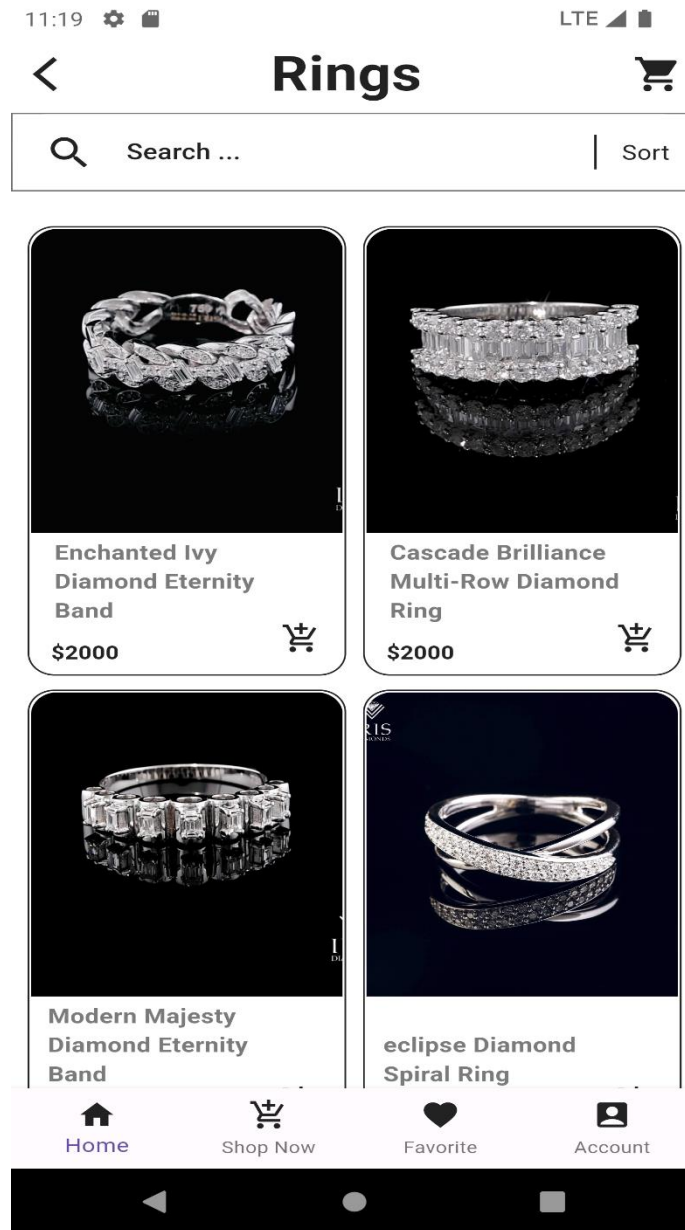


Figure 3:6 Diamond Ring Page

- If they choose necklaces category, they will be guided to necklaces page.

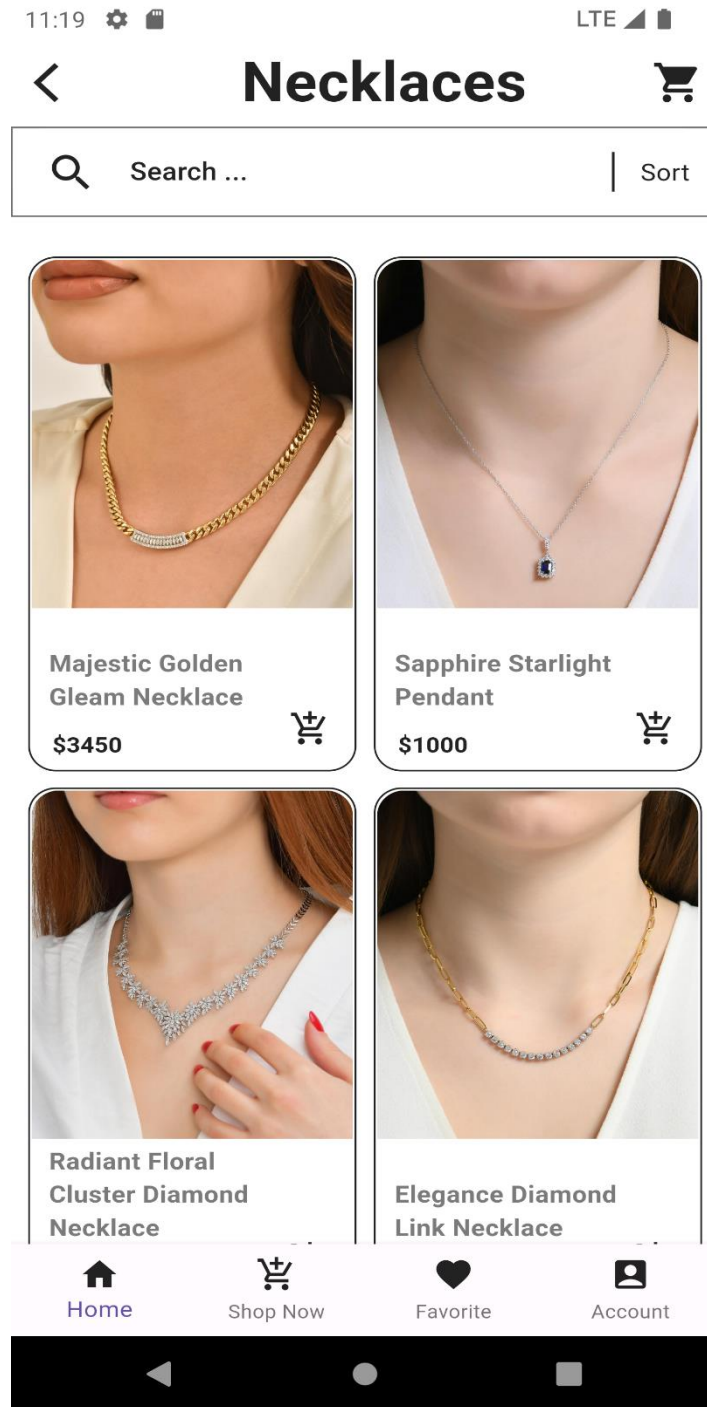


Figure 3:7 Diamond Necklace Page

- If they choose bracelets category, they will be guided to bracelets page.

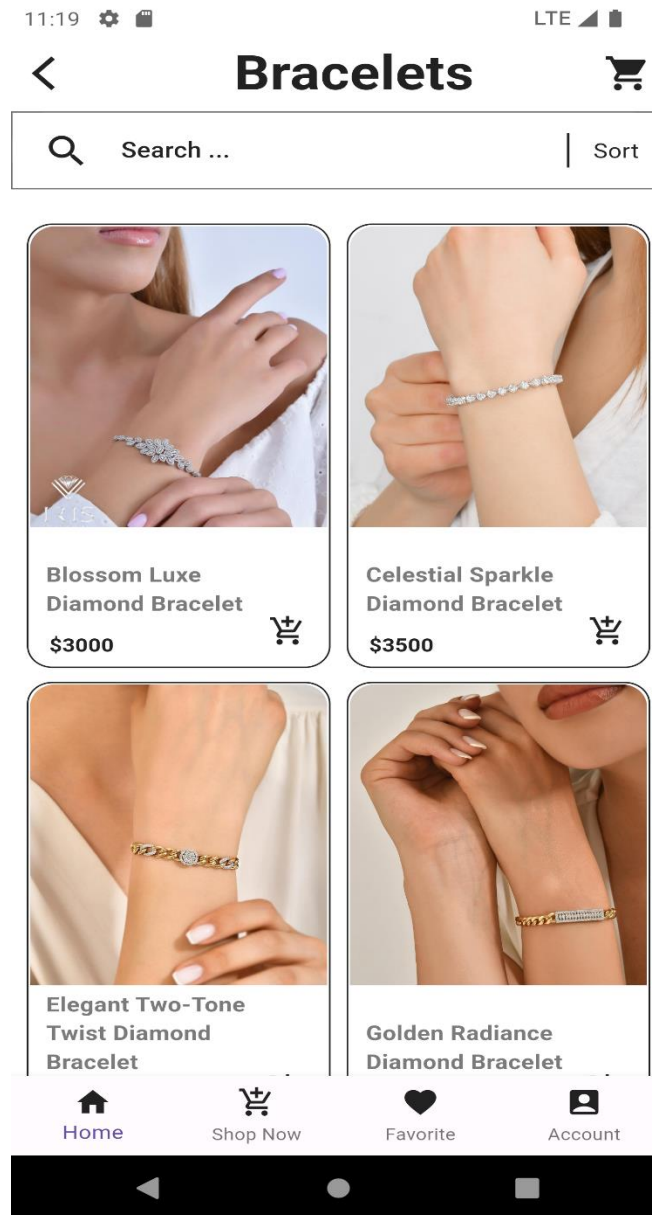


Figure 3:8 Diamond Bracelet Page

- If they choose earring category, they will be guided to earring page.

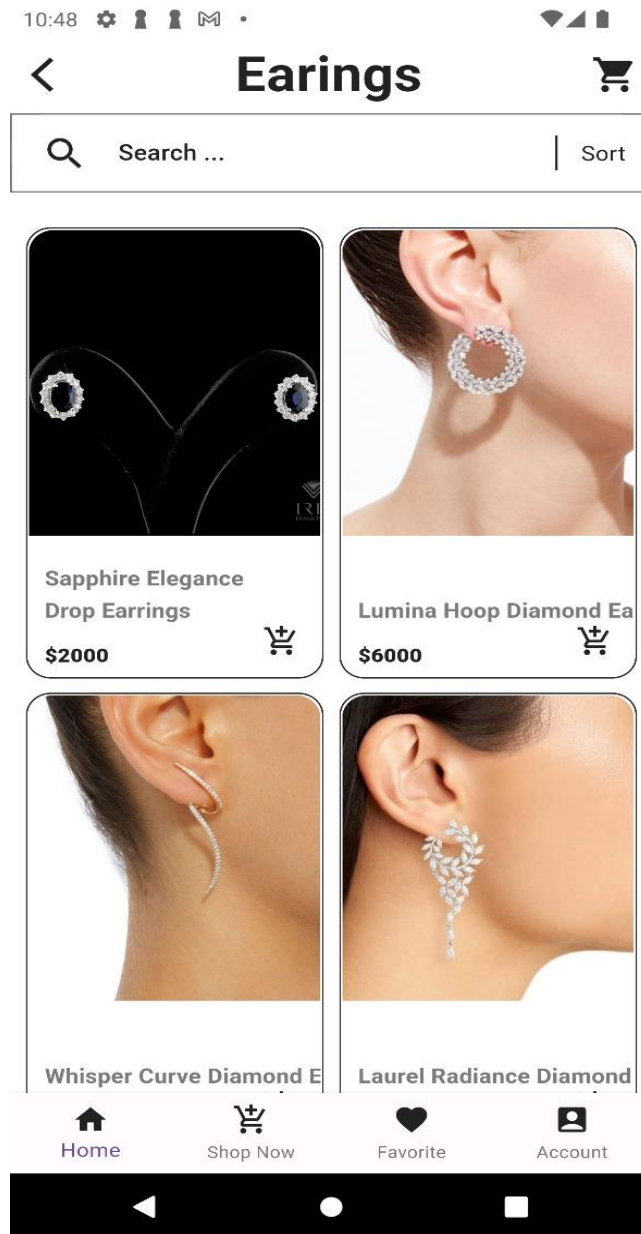


Figure 3:9 Diamond Earring Page

- If they choose sets category, they will be guided to sets page.

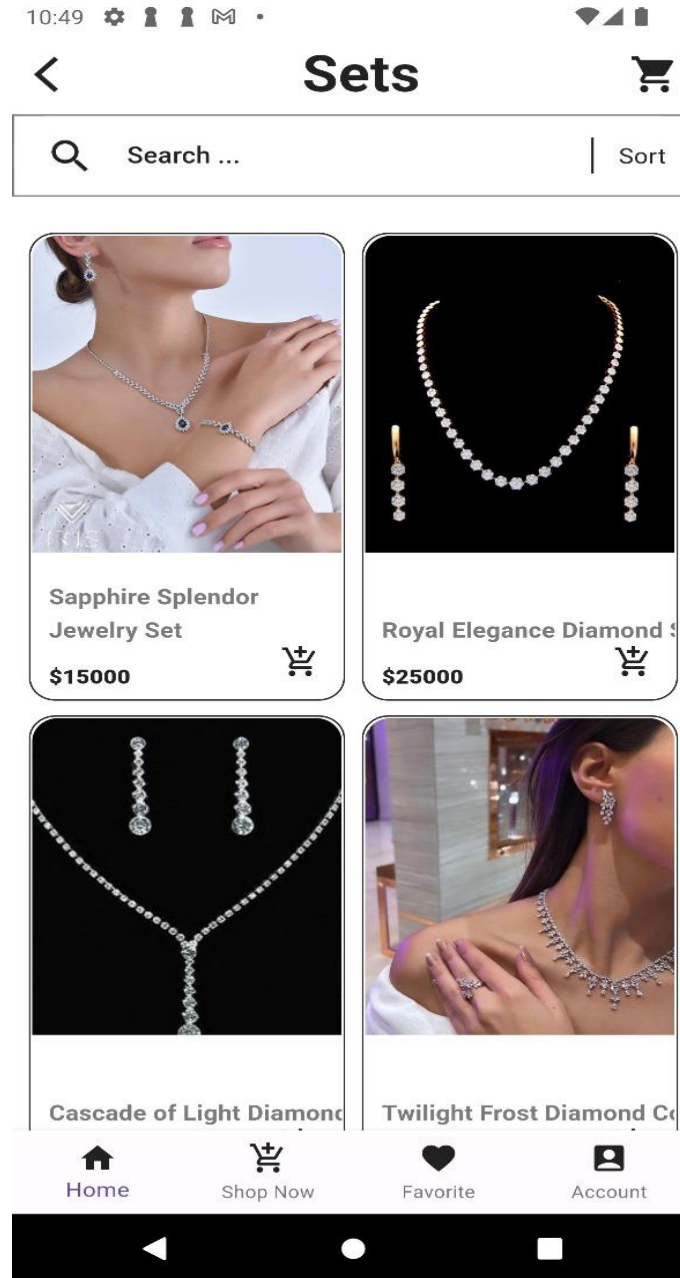


Figure 3:10 Diamond Set Page

- In these pages the user is able to view any item they want and view their details, when the category is Ring, the details that are displayed are name, price, description, size, quantity, and reviews.

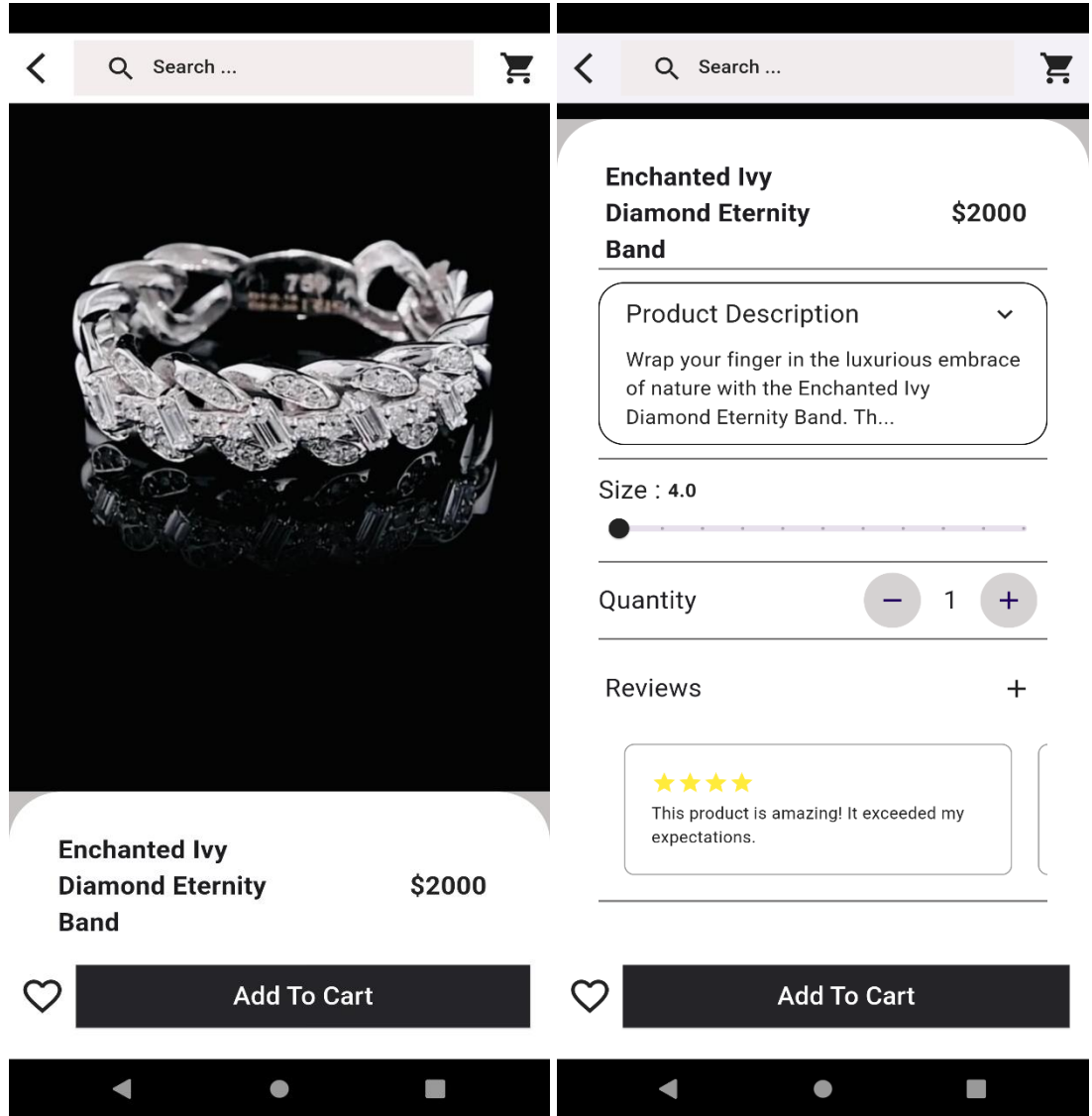


Figure 3:11 Ring Details Page

- Also, in this page the user can try the ring on your hand.

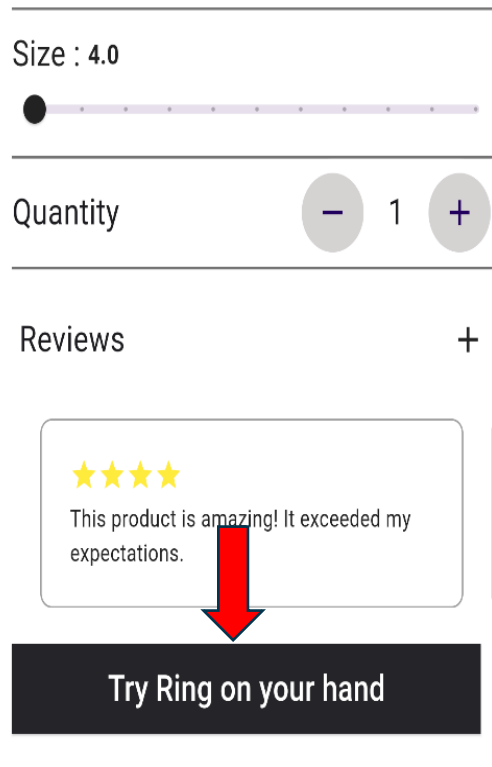


Figure 3:12 Try Ring on Hand 1

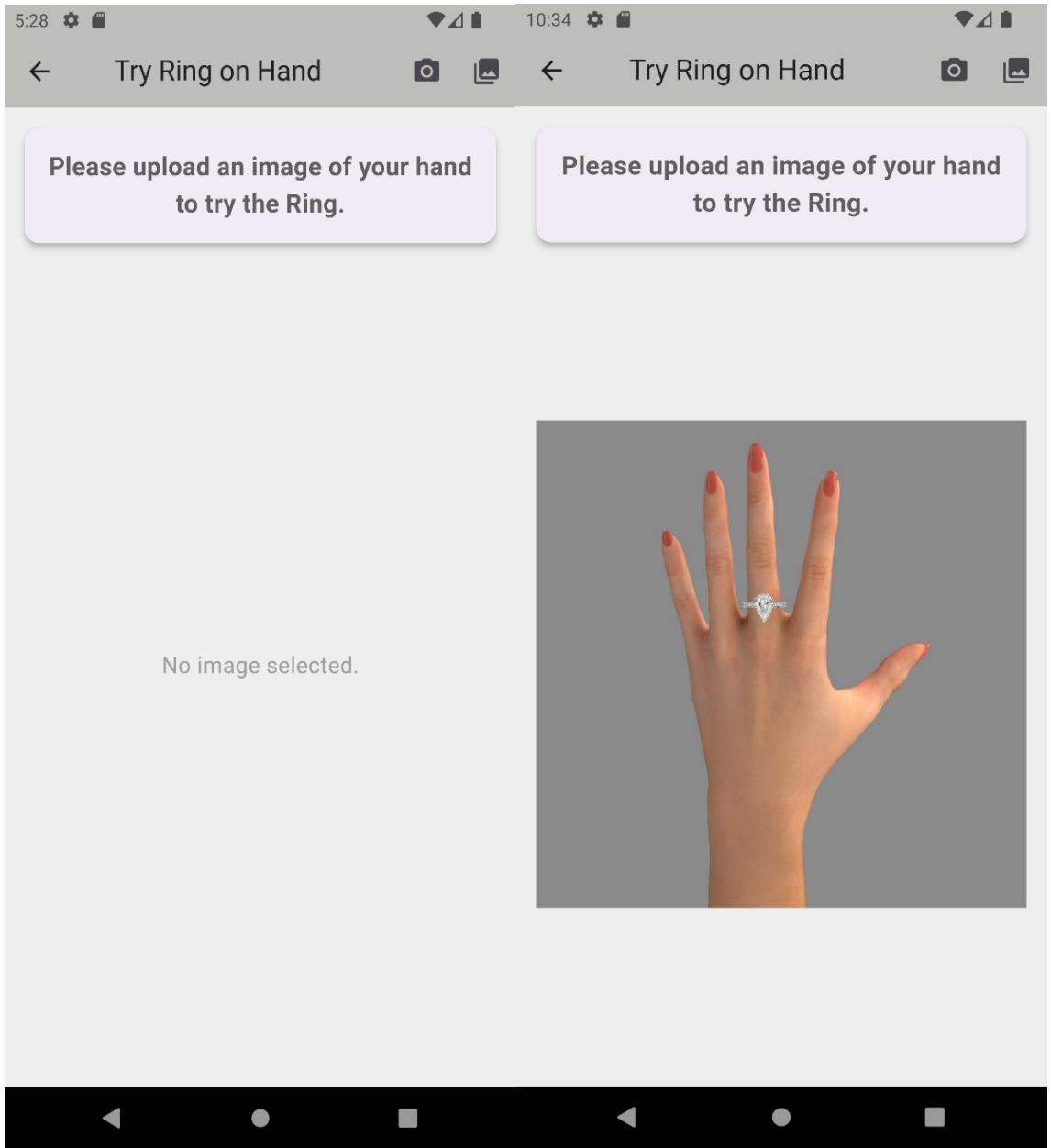


Figure 3:13 Try Ring on Hand 2

- when the category is (Necklace, Bracelet, Earring, and Set), the details that are displayed are name, price, description, quantity, and reviews without size.

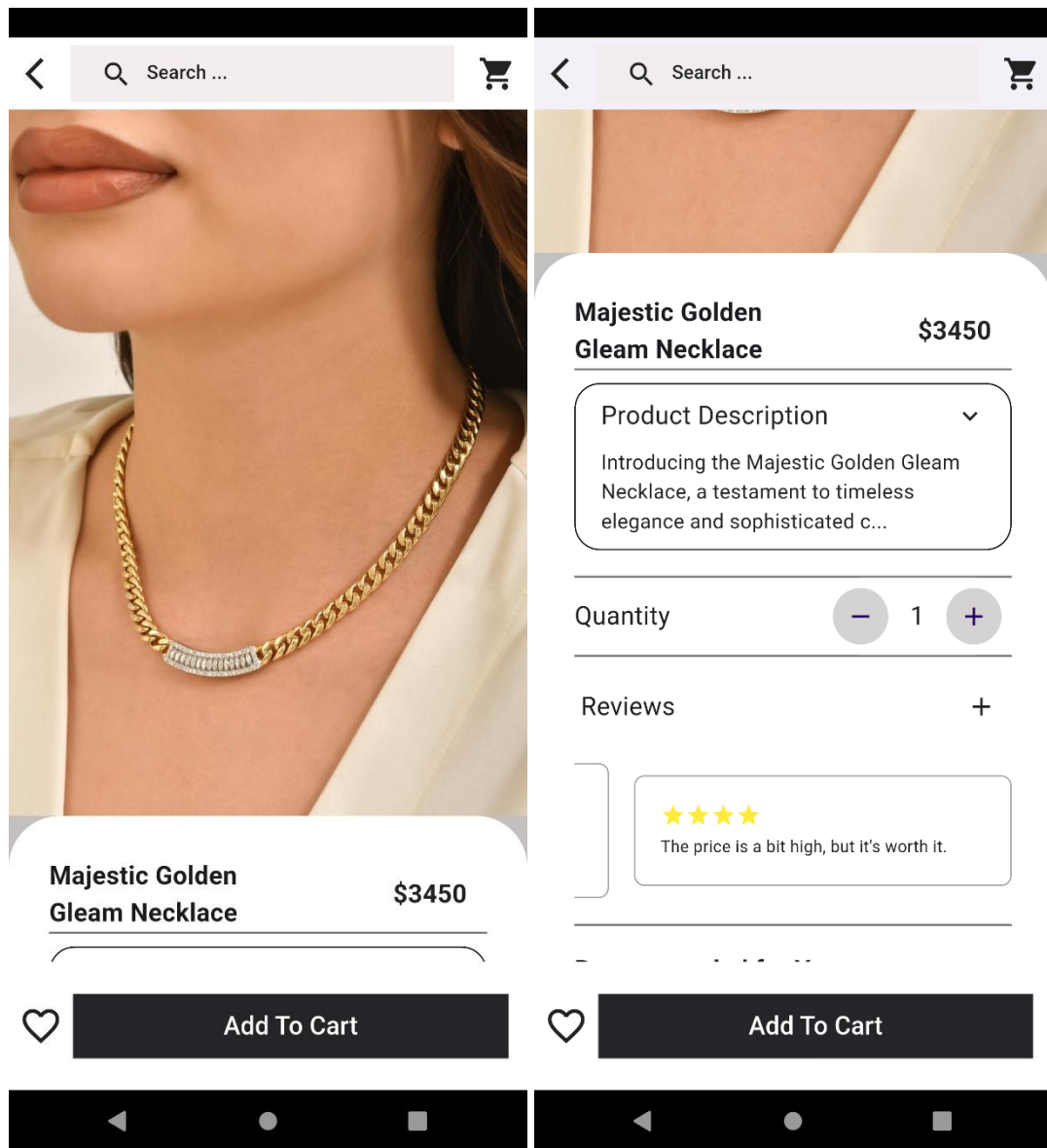


Figure 3:14 Necklace Details Page

- Here the user can write a review and can also brows previous reviews.

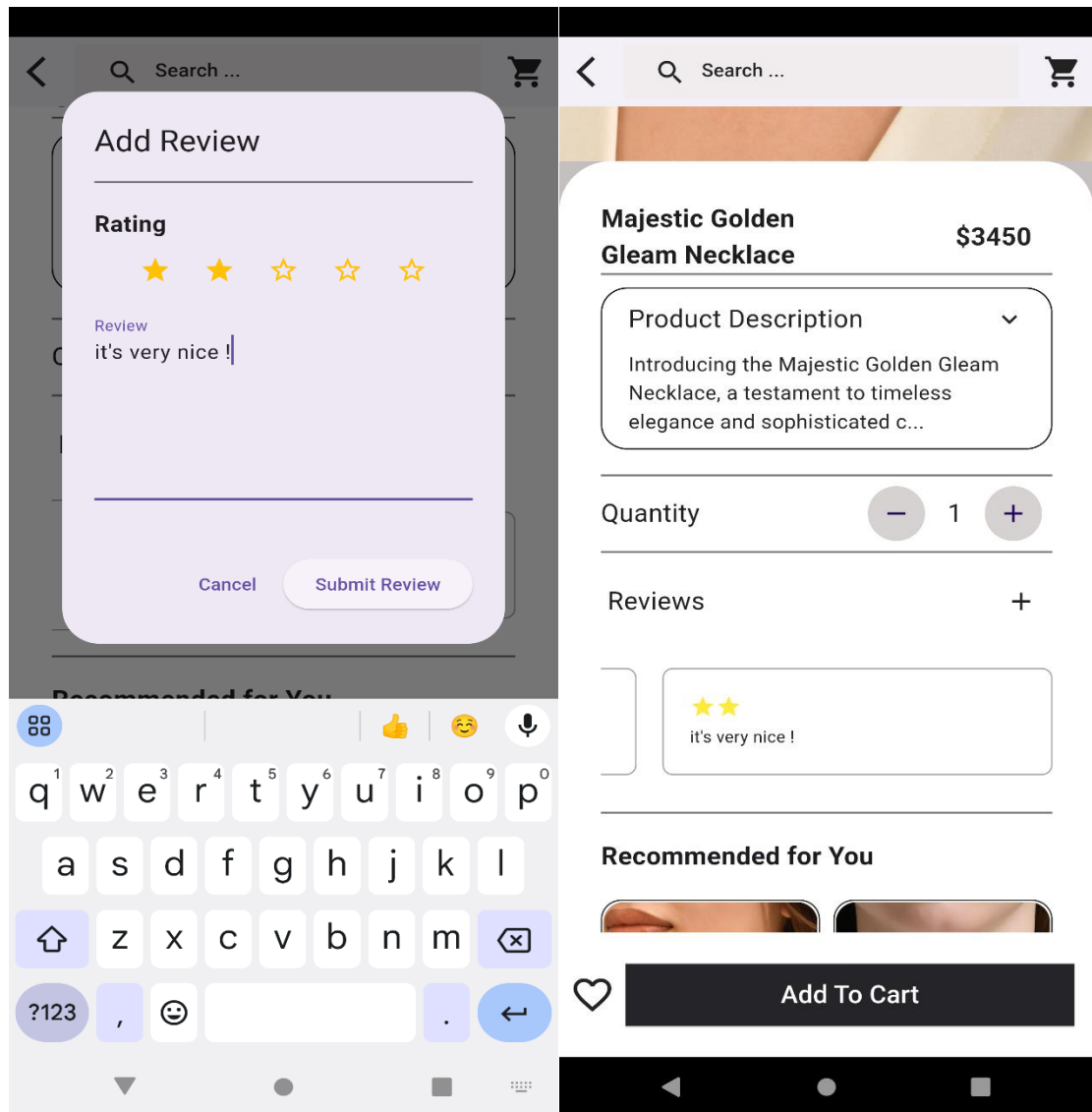


Figure 3:15 Reviews

- In this page the user can add the item they are viewing to the cart after specifying the size and the quantity they want, then press on the Add to Cart button.

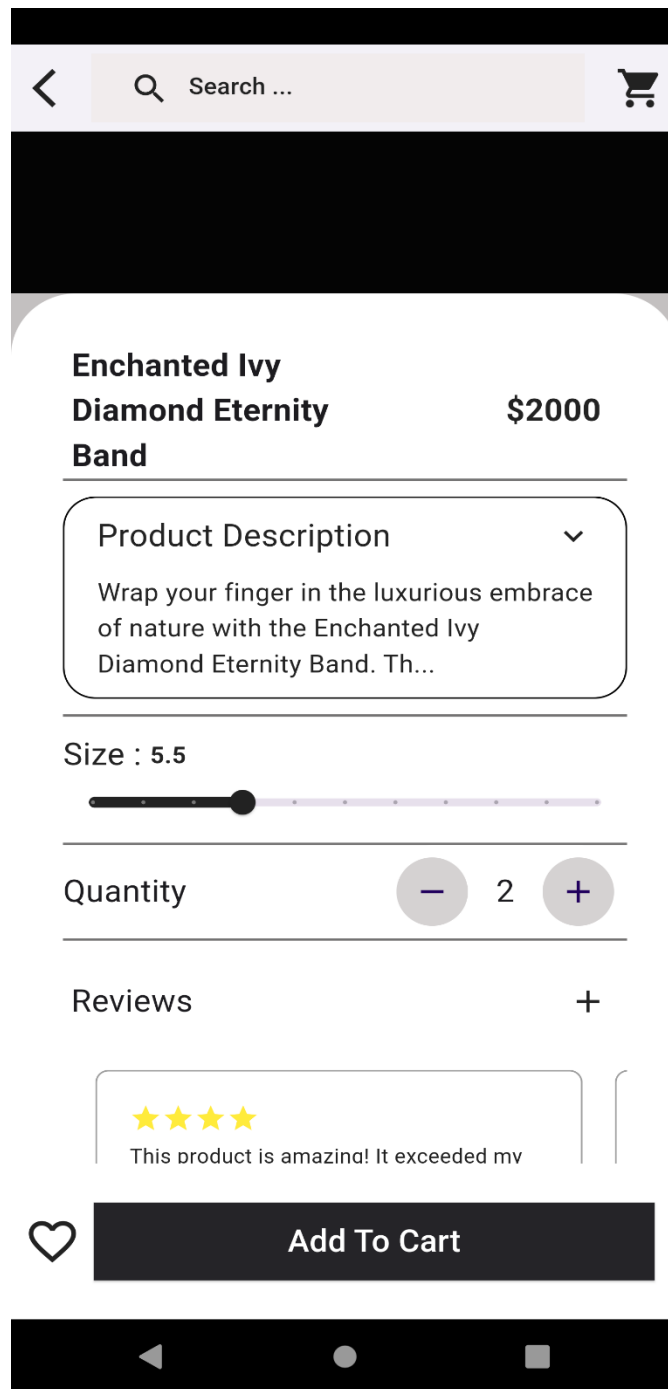


Figure 3:16 Add to Cart

- This is the cart page, the item added by the user will be displayed, while the total price and checkout button for payment will be displayed on this page.

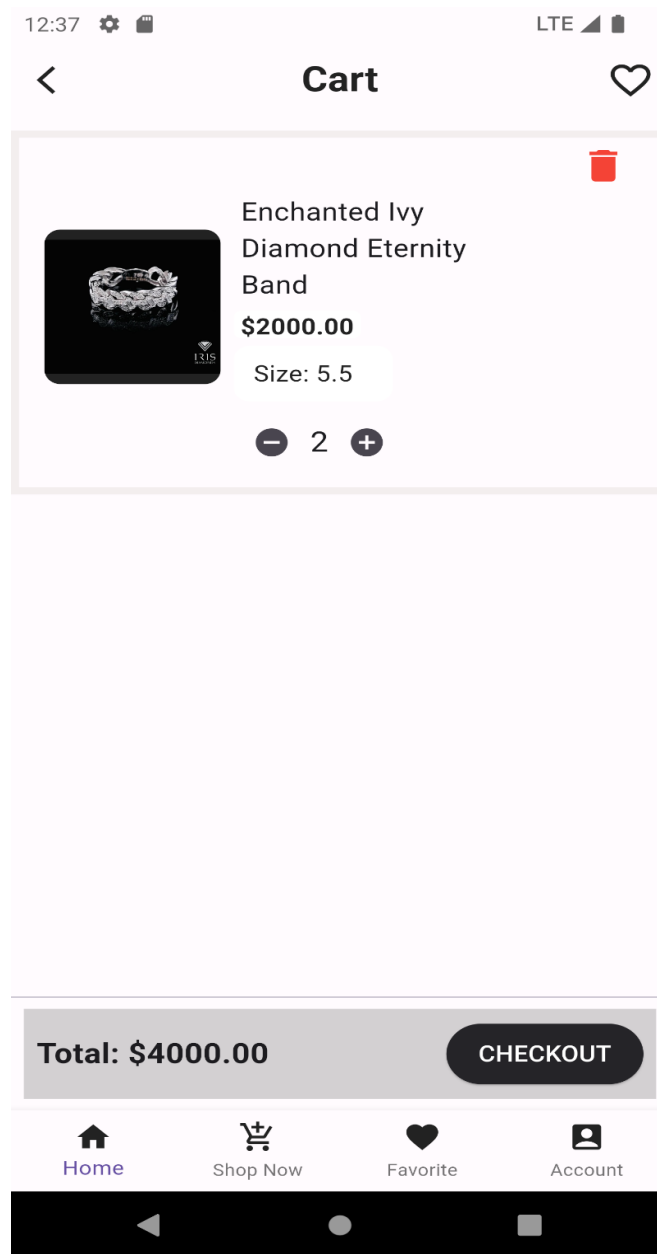


Figure 3:17 Cart Page

- If the user wants to complete the purchase and payment process, they will have to click on the checkout button and move to the payment stage.

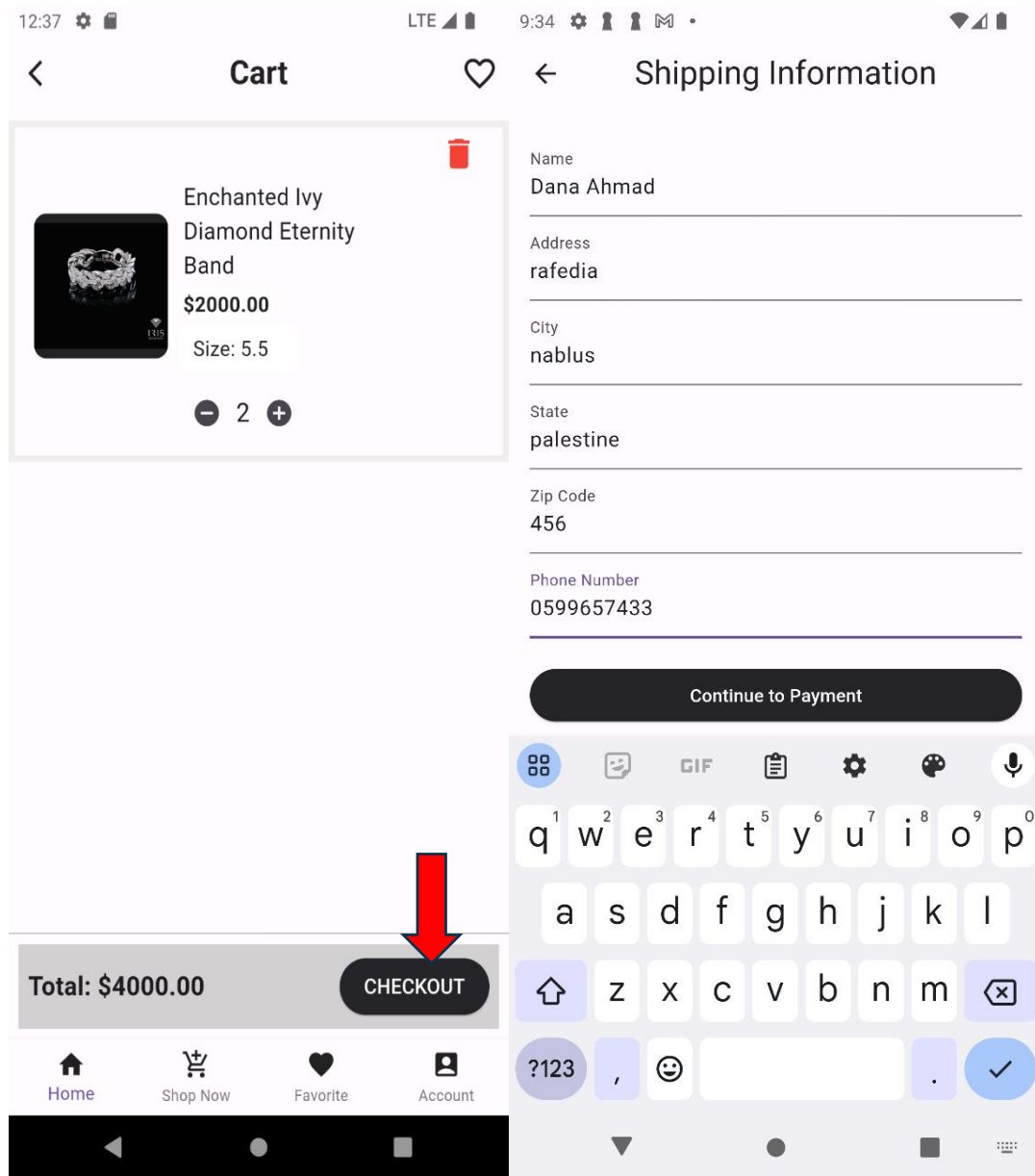


Figure 3:18 Checkout 1

- If the user chooses cash as the payment method.

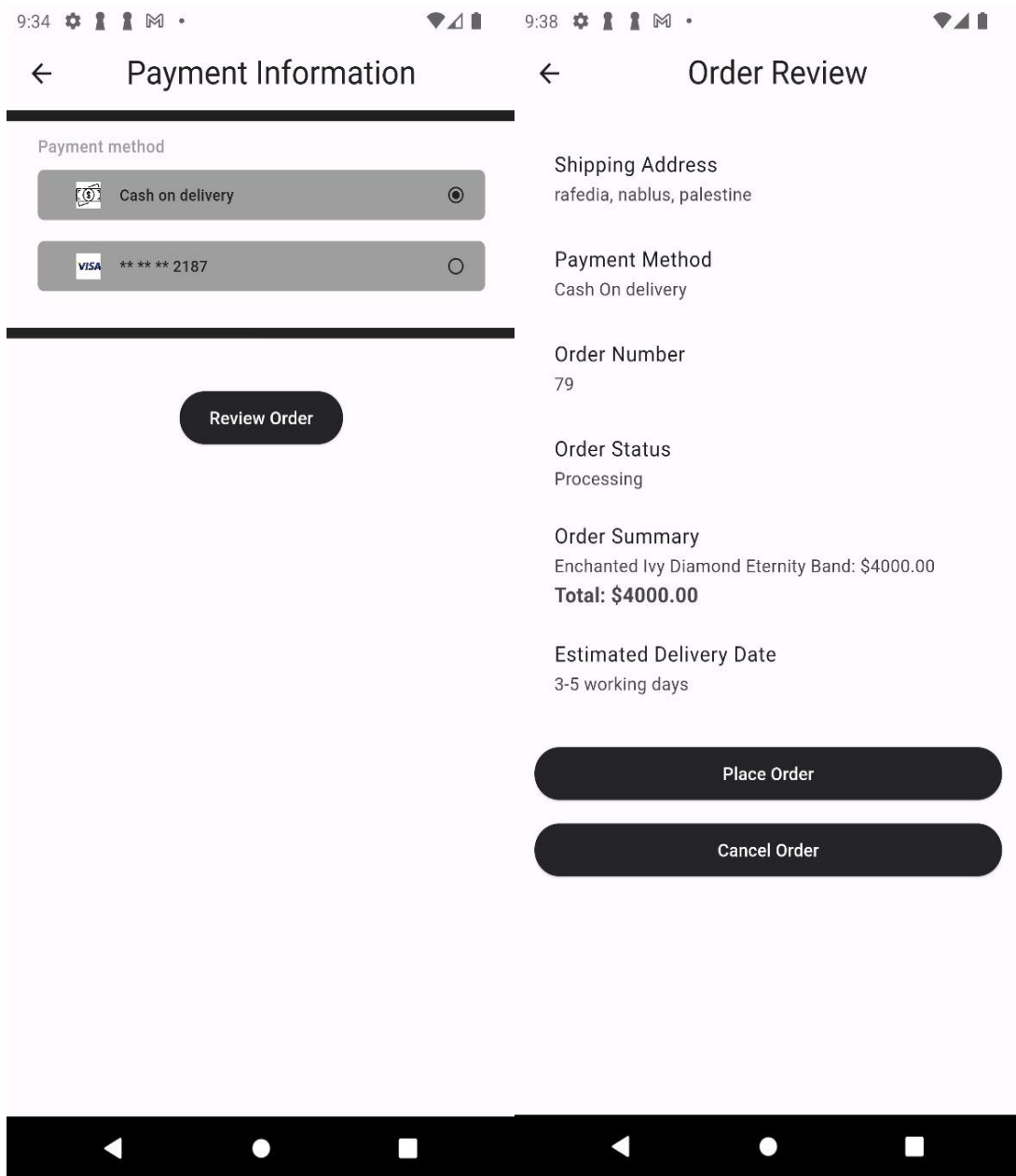


Figure 3:19 Checkout 2

- In this page also the user can add the item they are viewing to the Wishlist by press on the favorite icon.

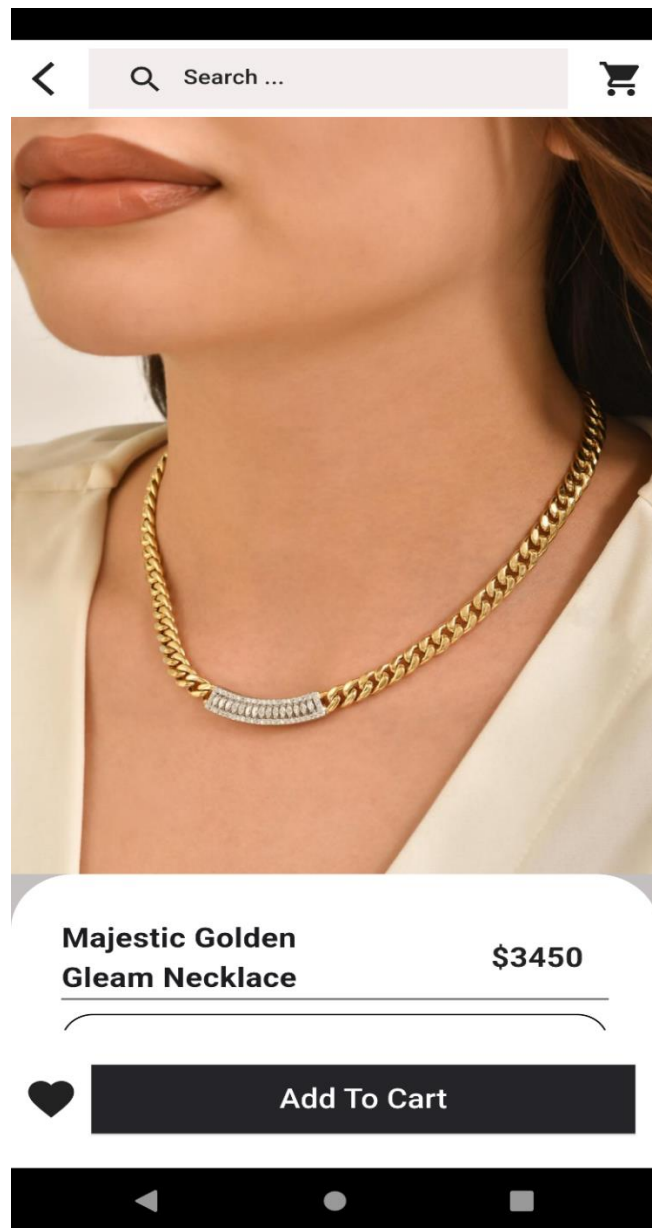


Figure 3:20 Add to Wishlist

- This is the Wishlist page, the item added by the user will be displayed.

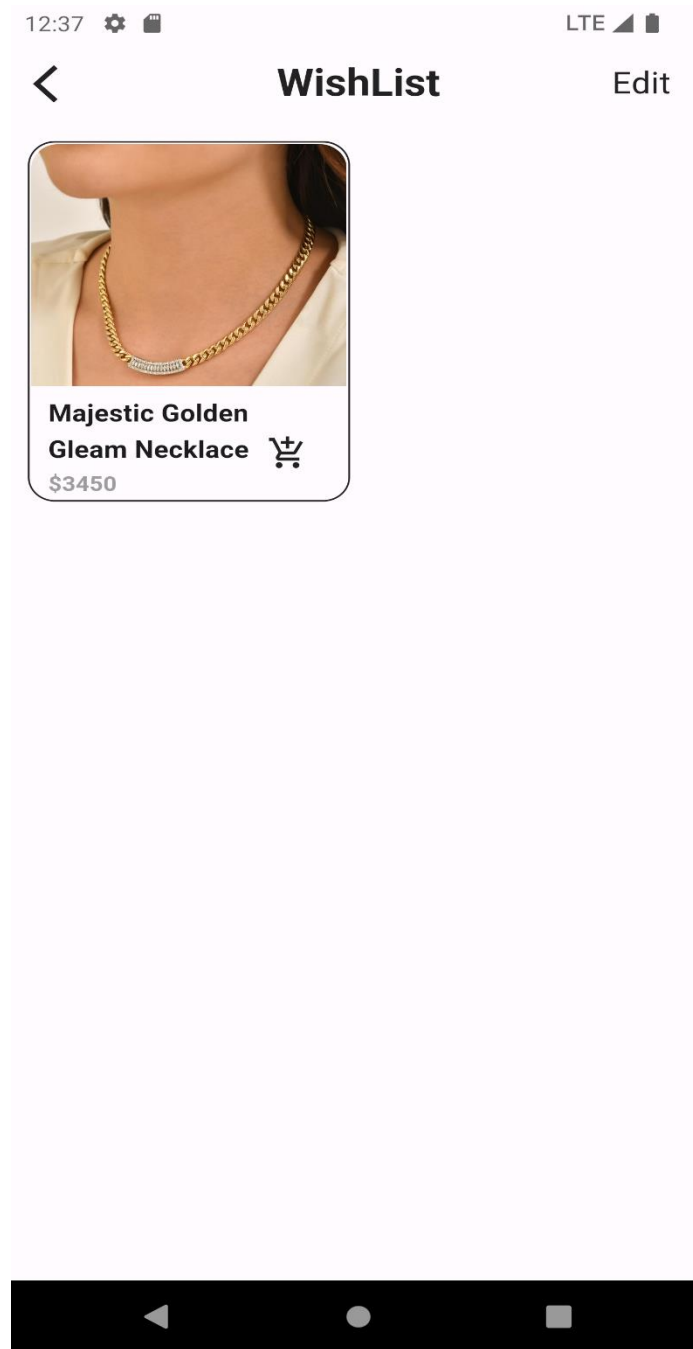


Figure 3:21 Wishlist Page

- Under these details there is a “recommended for you” section that suggests items from the same category the user is viewing currently.

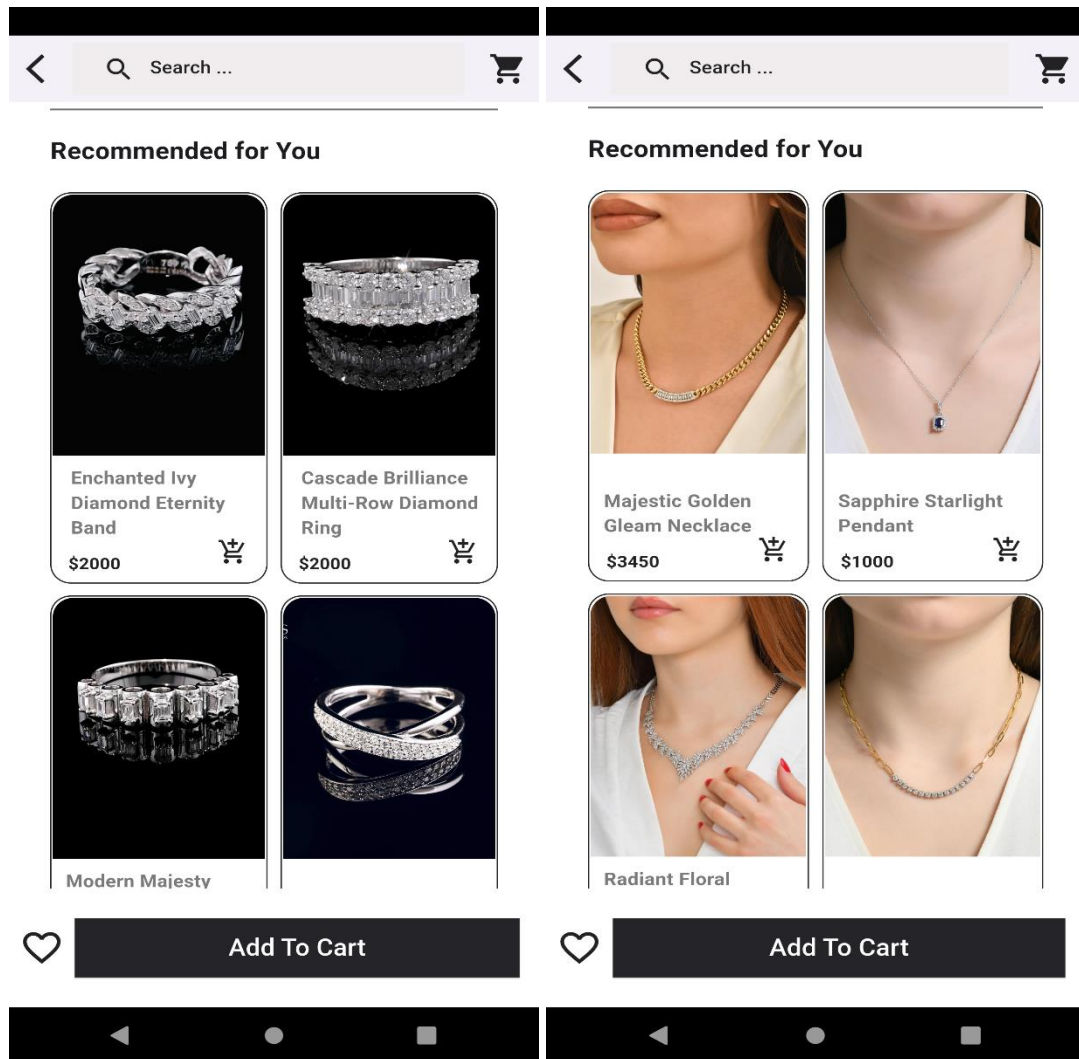


Figure 3:22 Recommended for you section

- The same process goes for all categories.

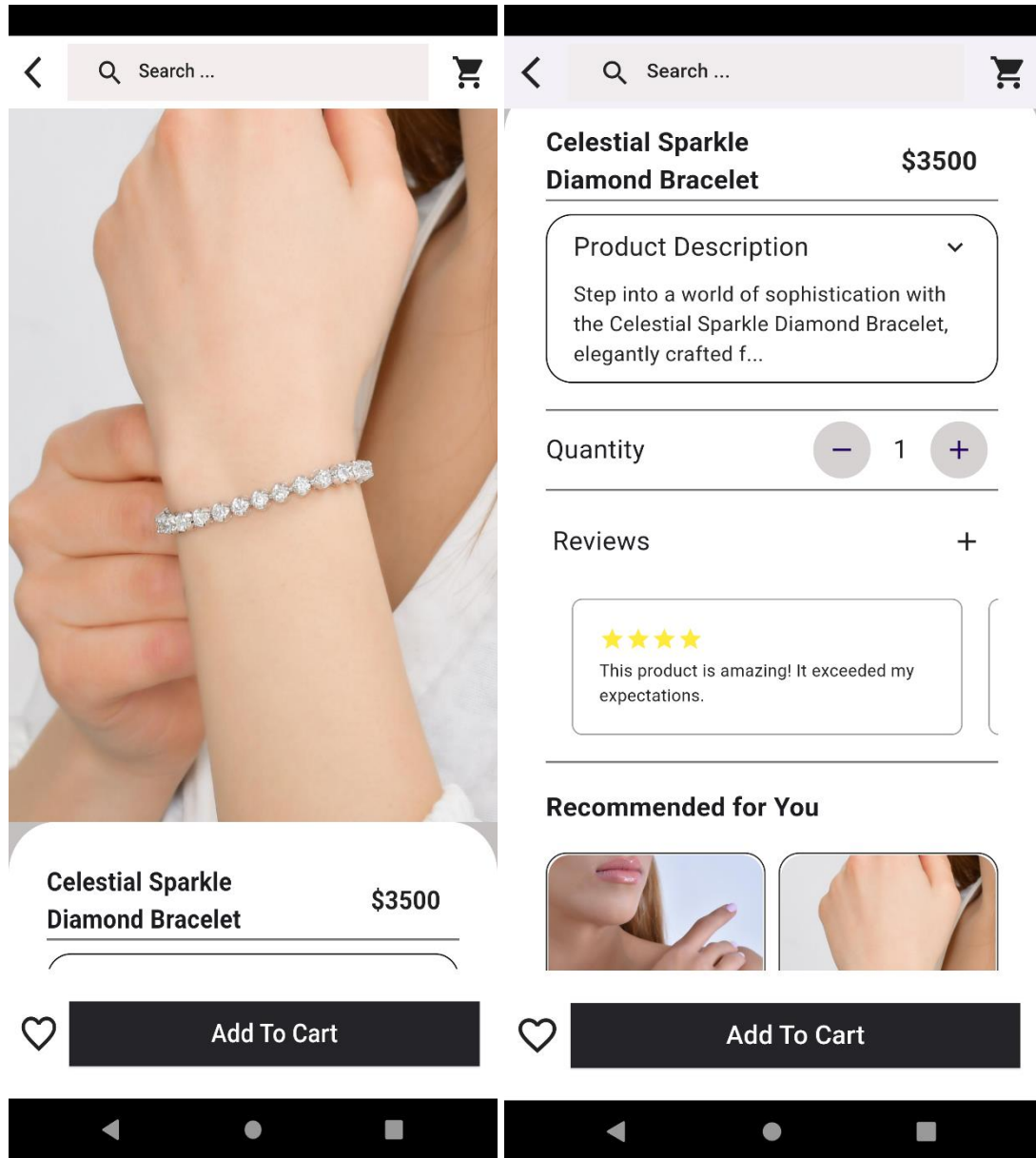


Figure 3:23 Bracelet Details Page

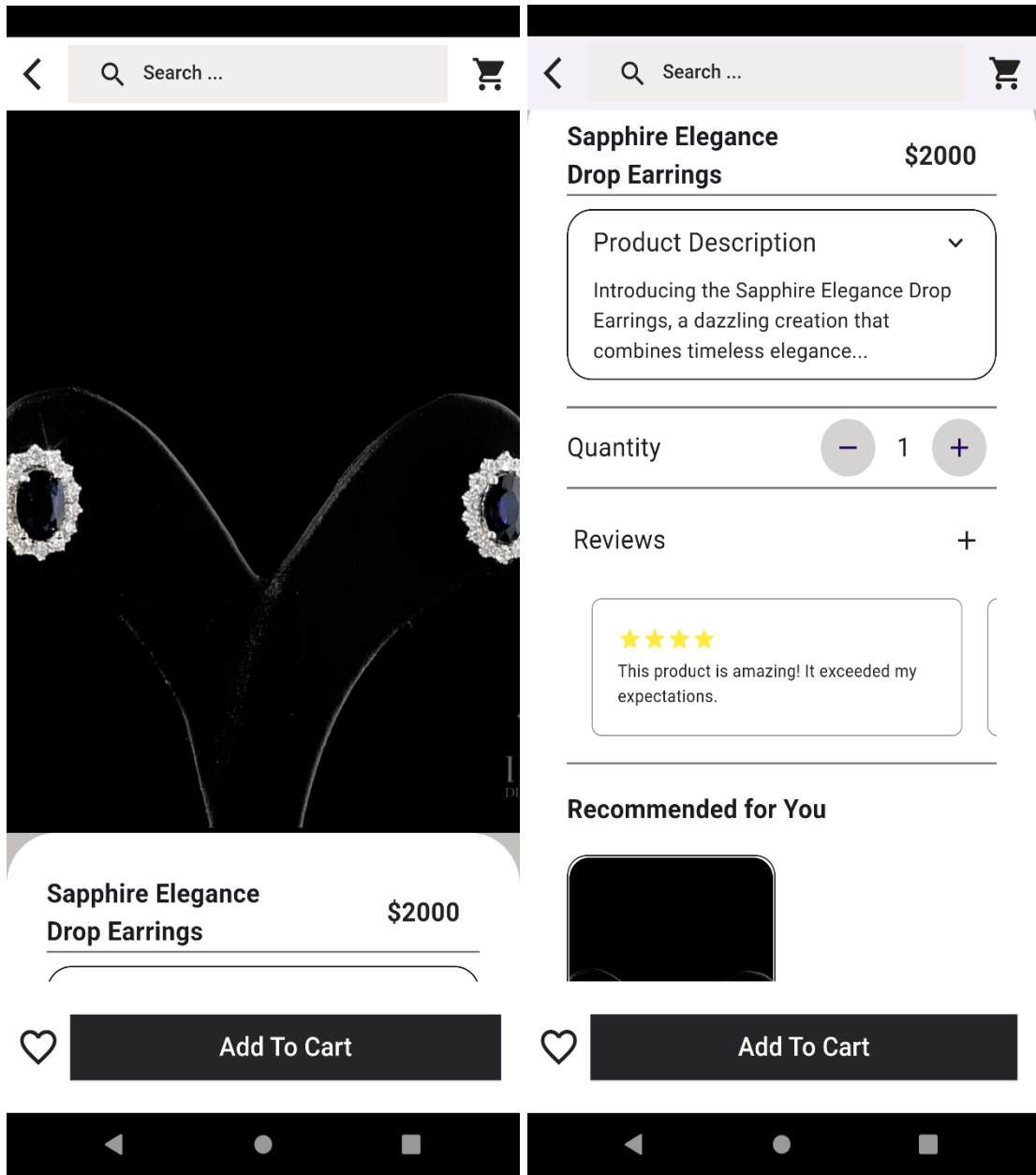


Figure 3:24 Earring Details Page

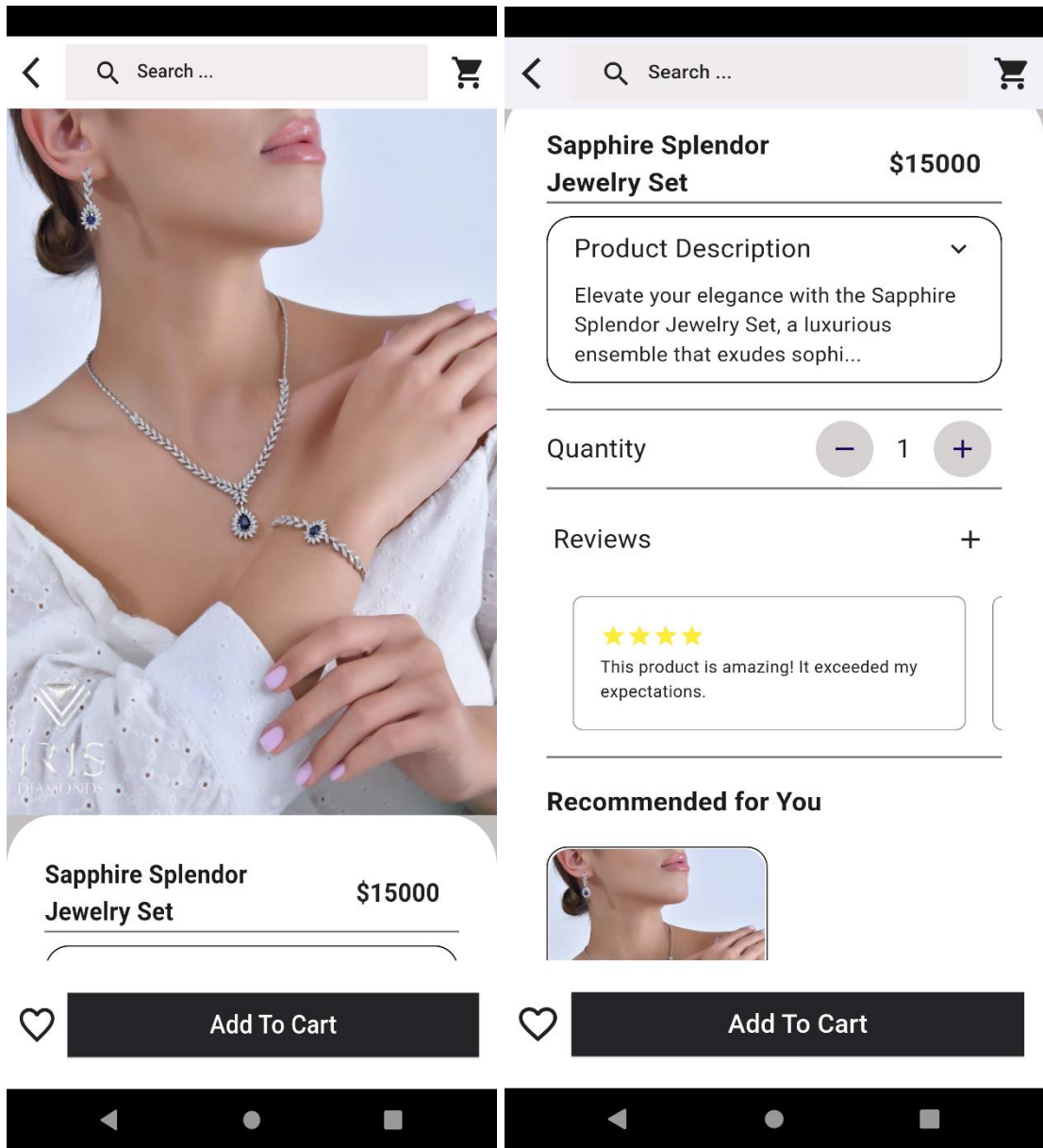


Figure 3:25 Set Details Page

- On the other hand, the user can browse IRIS's special features from the diamond homepage; the first feature called: design your own ring.



Figure 3:26 Design Your Own Ring 1

- In this feature the user can design the ring they want by choosing the diamonds color and its shape.

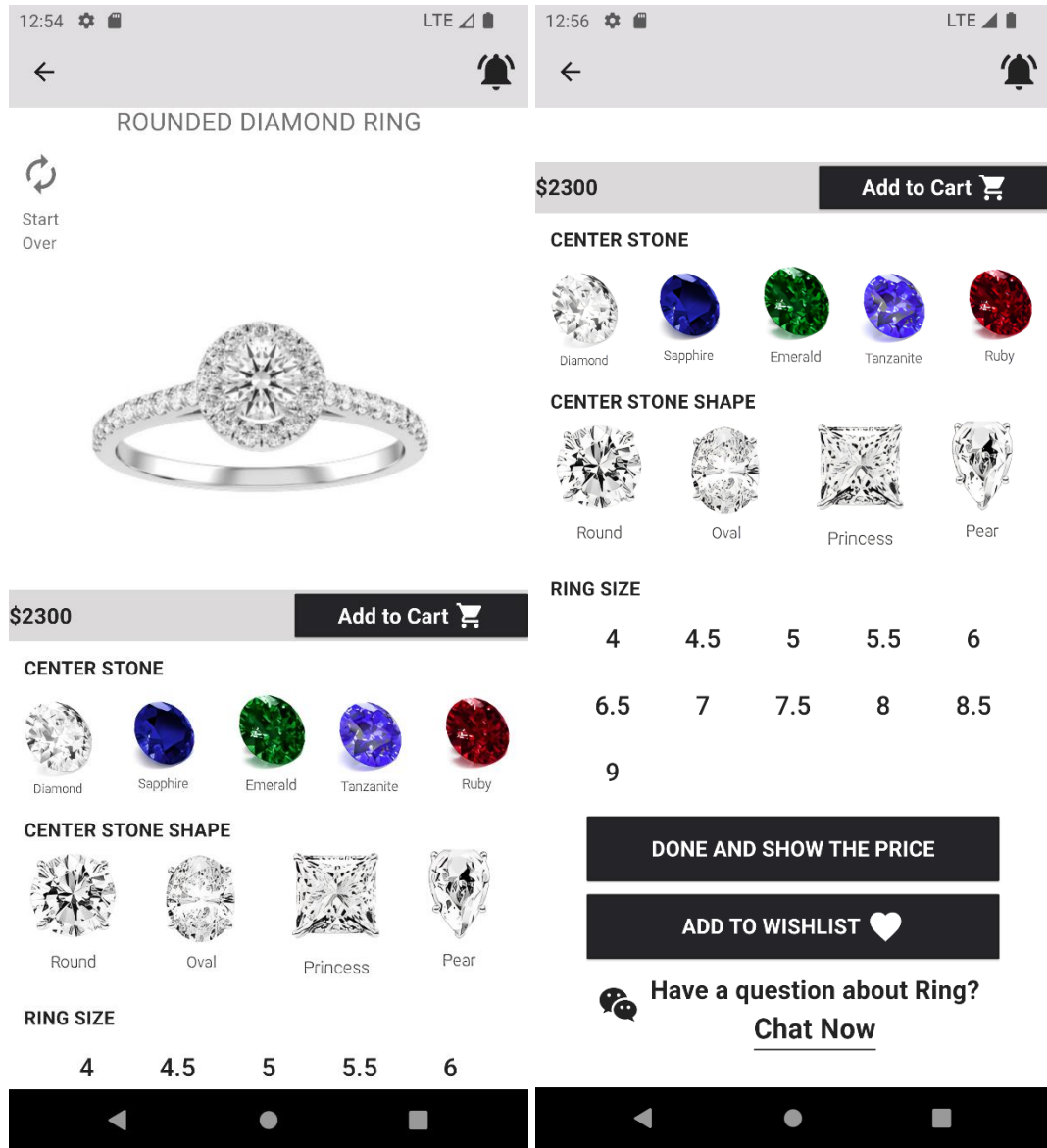


Figure 3:27 Design Your Own Ring 2

- After that the user presses done and show the price so that they can view the image, name and price of the ring they designed.
- In addition to that, user can add this ring to their cart so that they can purchase it after specifying the size they want.

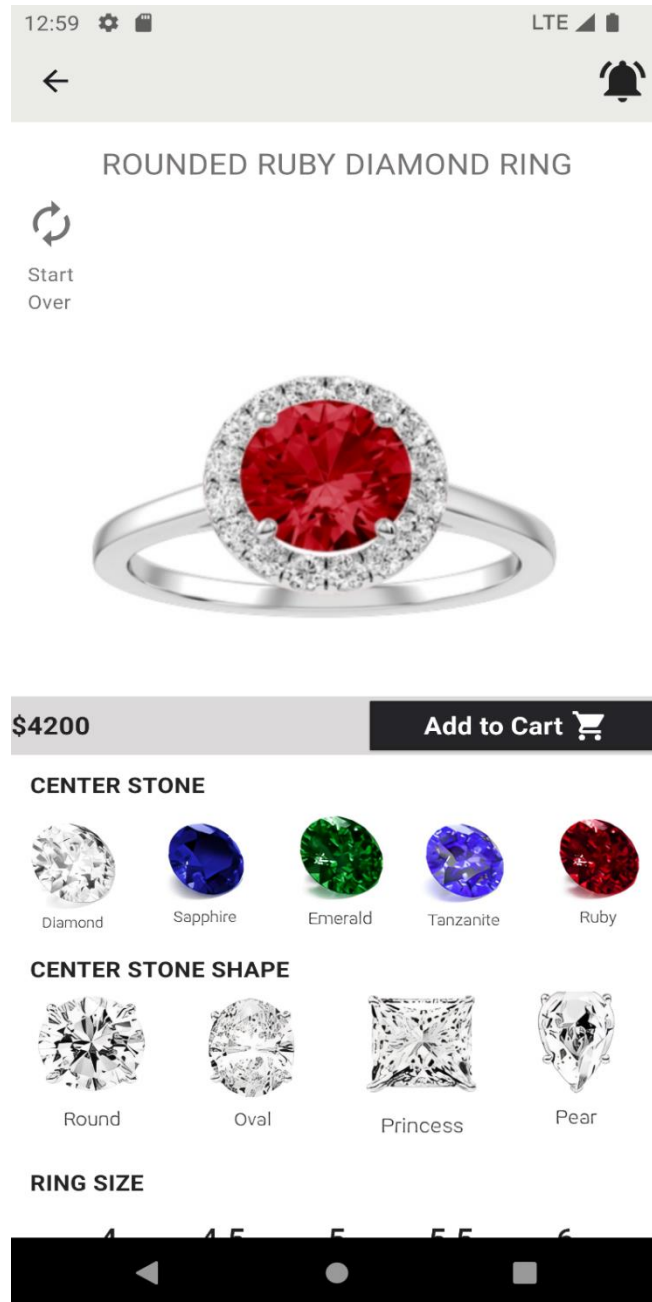


Figure 3:28 Design Your Own Ring 3

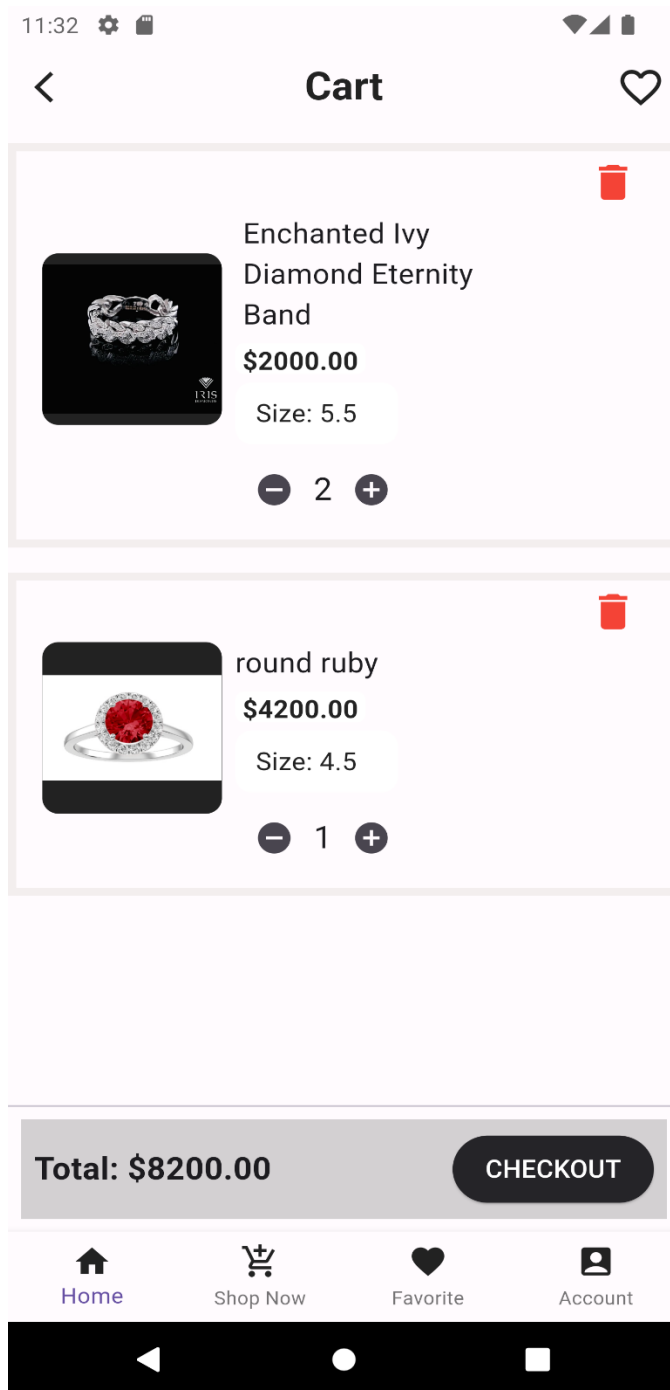


Figure 3:29 Design Your Own Ring 4

- When I press start over, it returns to the default ring, as shown.

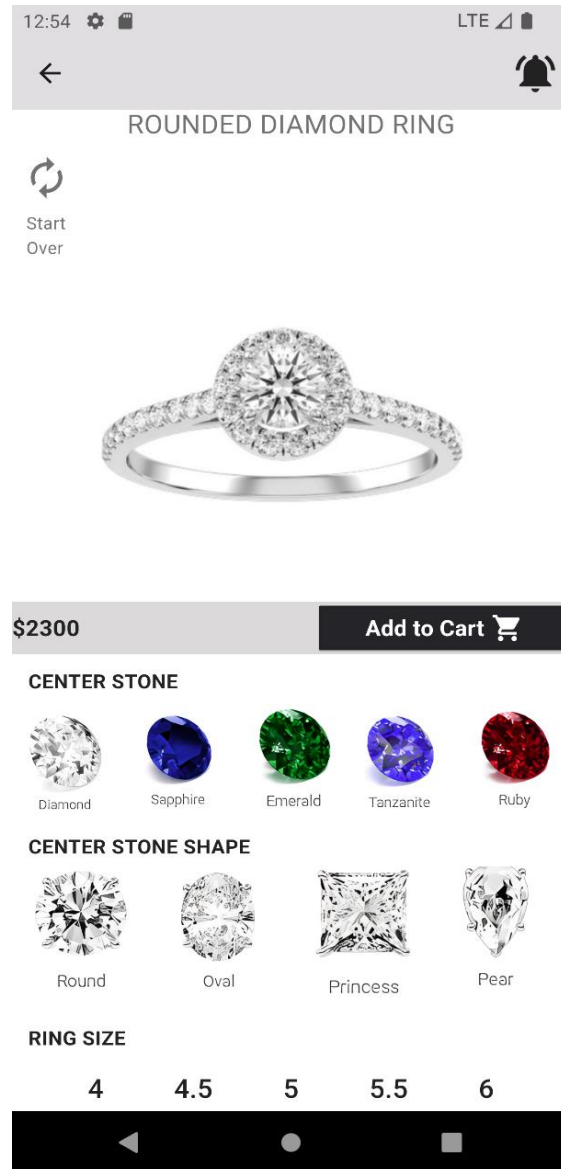


Figure 3:30 Design Your Own Ring 5

- Also, if the user has any specific questions, they can chat with the admin of IRIS, then the admin will see all the messages he receives and will respond.

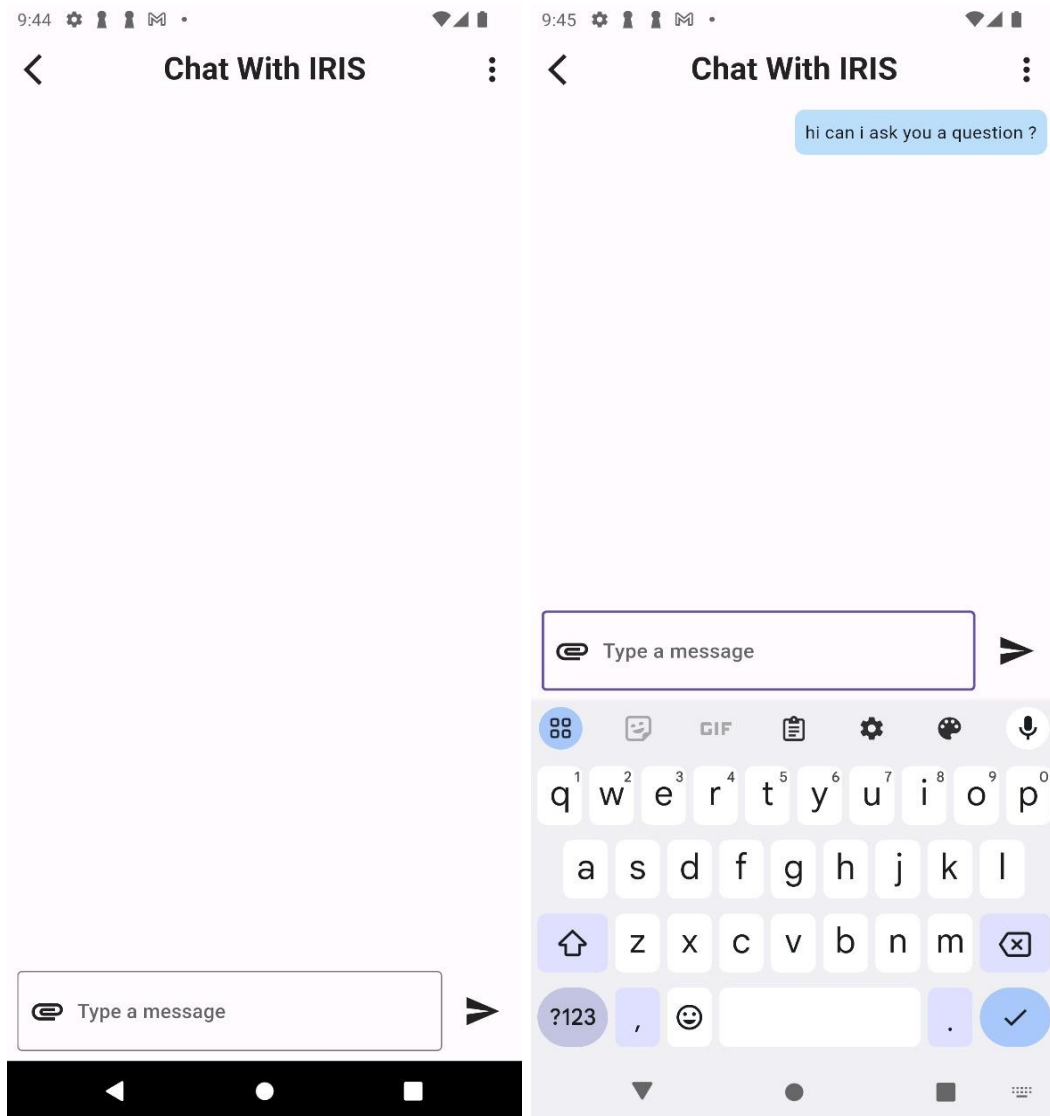


Figure 3:31 Chat at the User

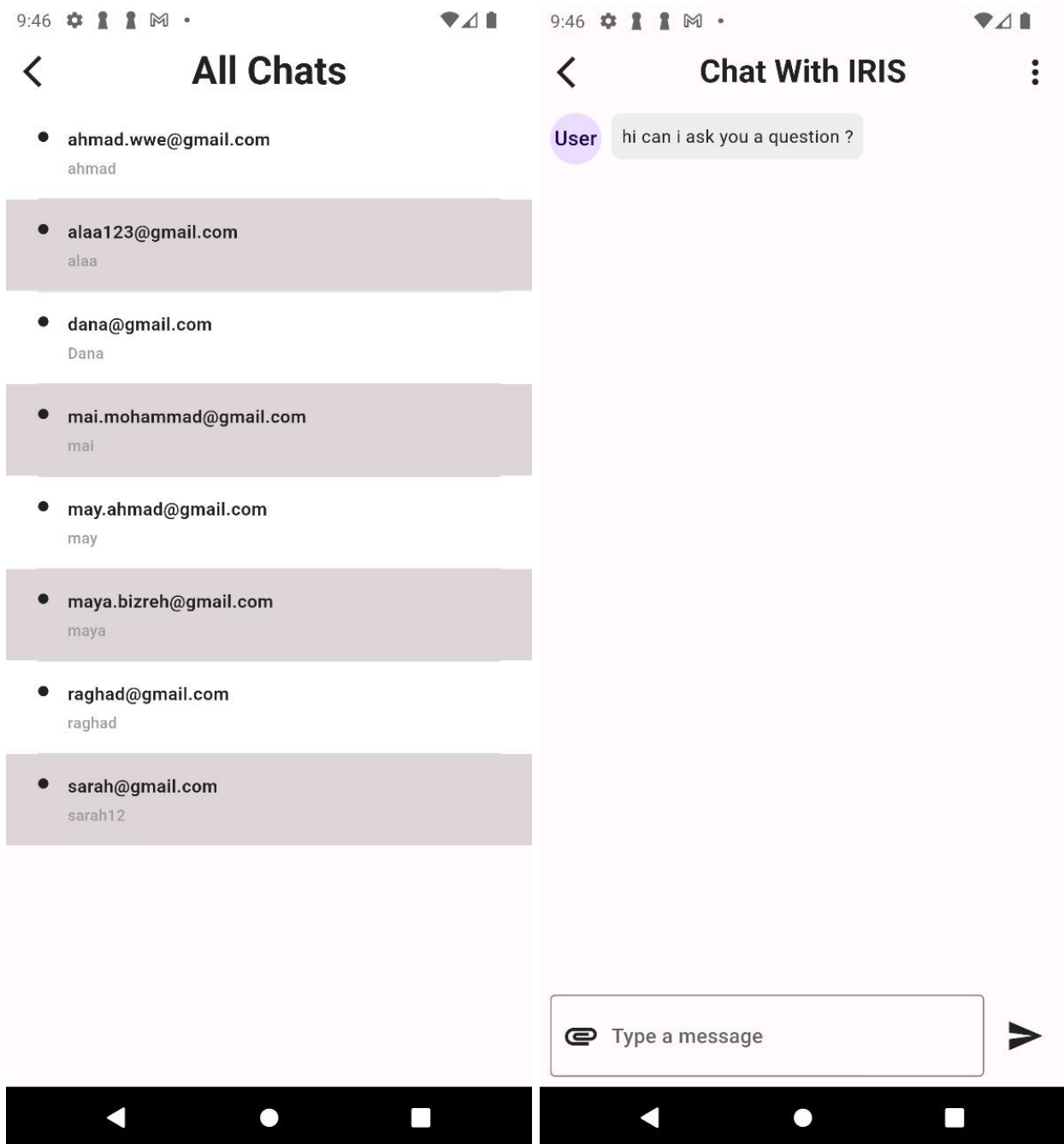


Figure 3:32 Chat at the Admin



Figure 3:33 Chat at the Admin 2

- Going back to the home page the user can browse our best sellers and our new arrivals.

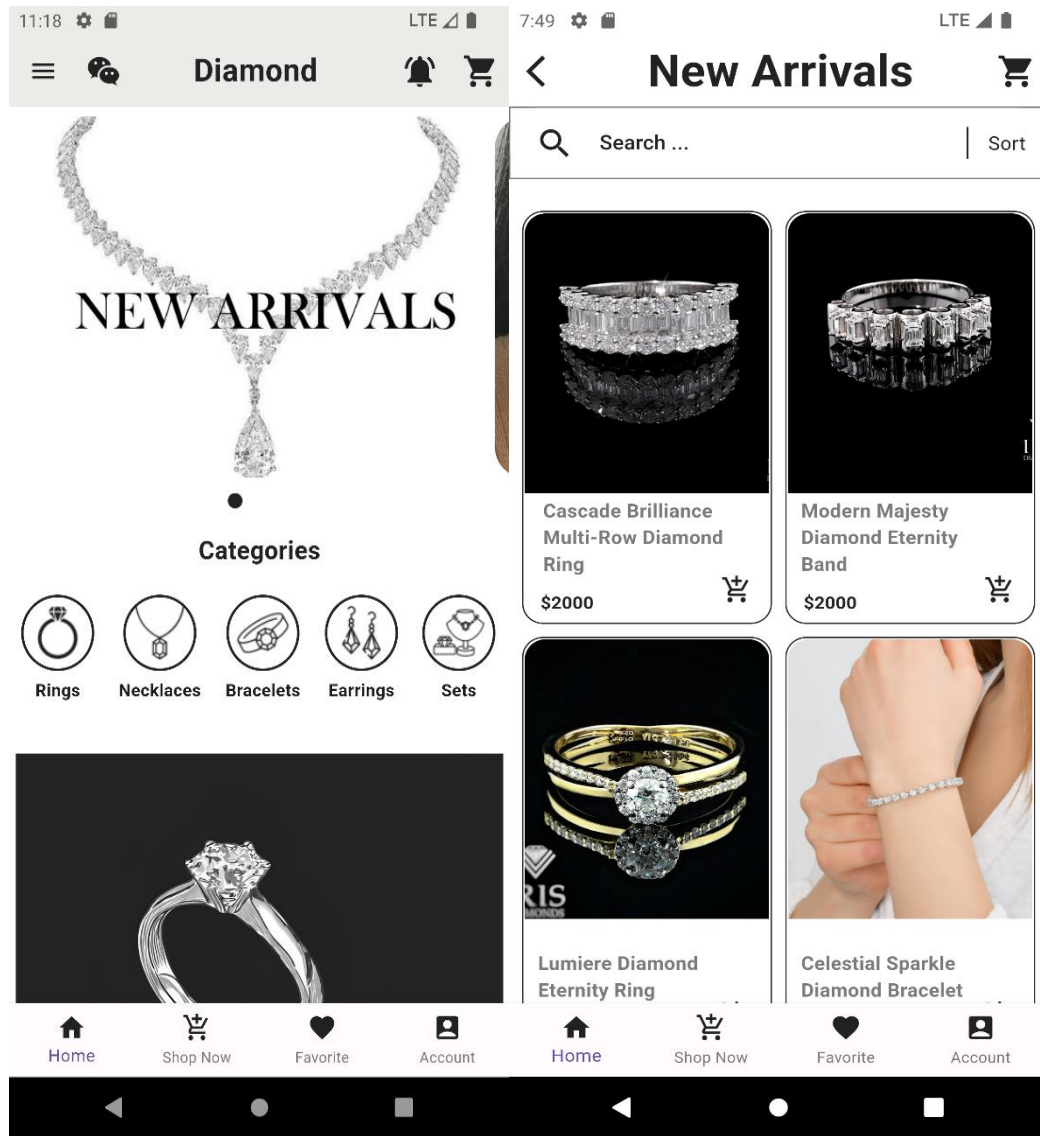


Figure 3:34 New Arrival in the diamond page 1

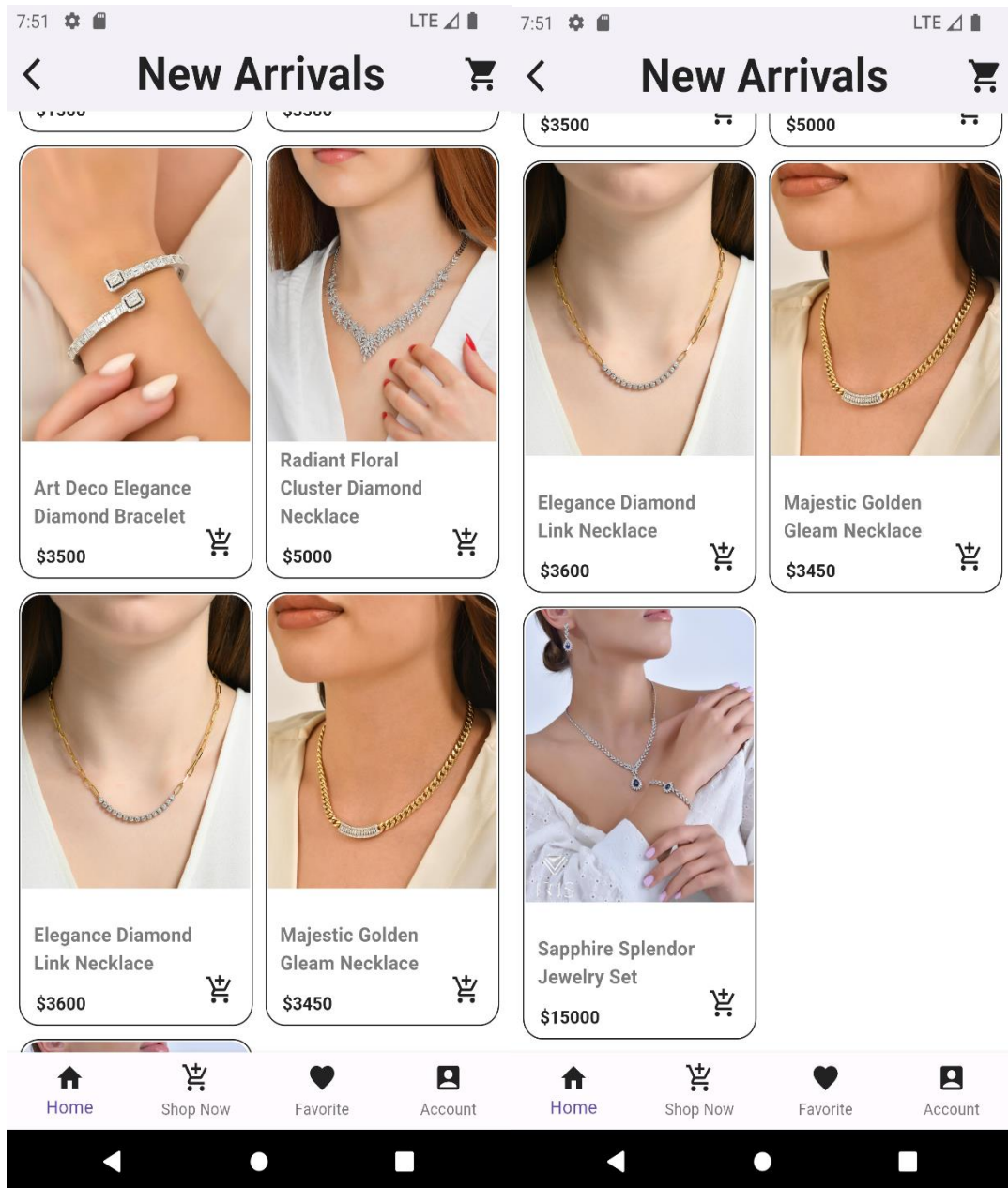


Figure 3:35 New Arrival in the diamond page 2

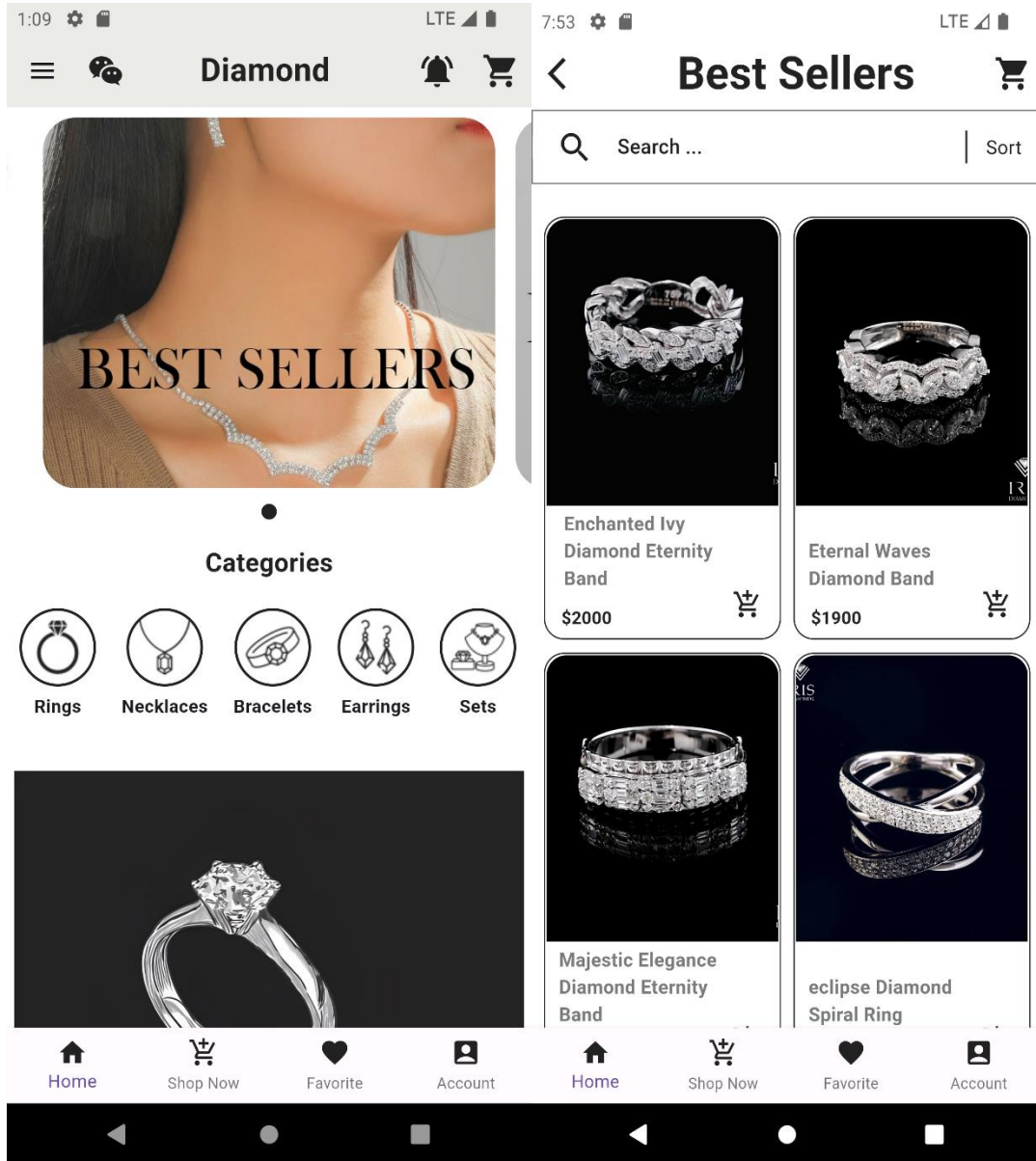


Figure 3:36 Best Seller in the diamond page 1

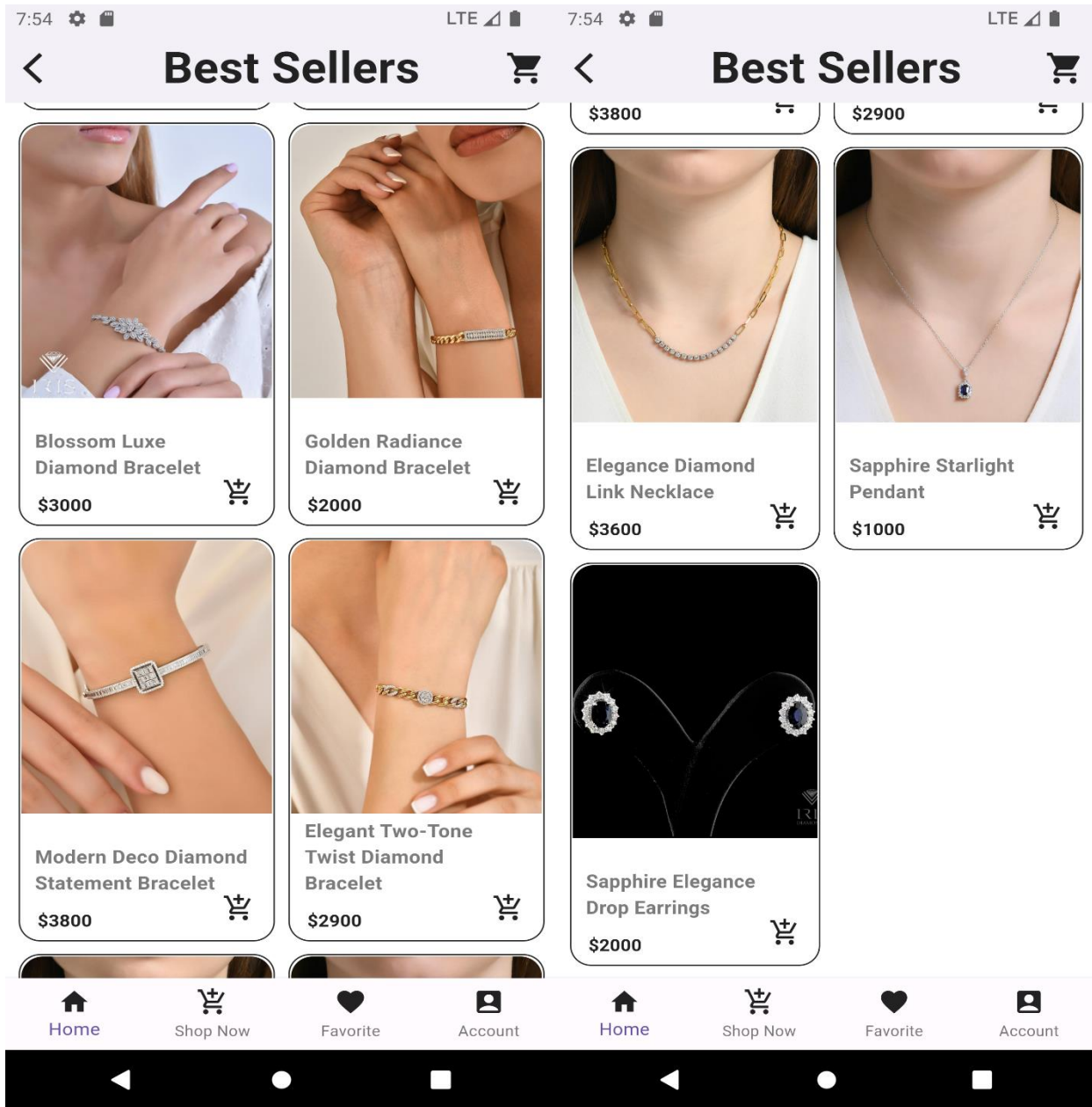


Figure 3:37 Best Seller in the diamond page 2

- Also, from the home page the user can navigate to our special feature which is “My Perfect diamond” here the users can know what is the diamond shape that suits their fingers the most.

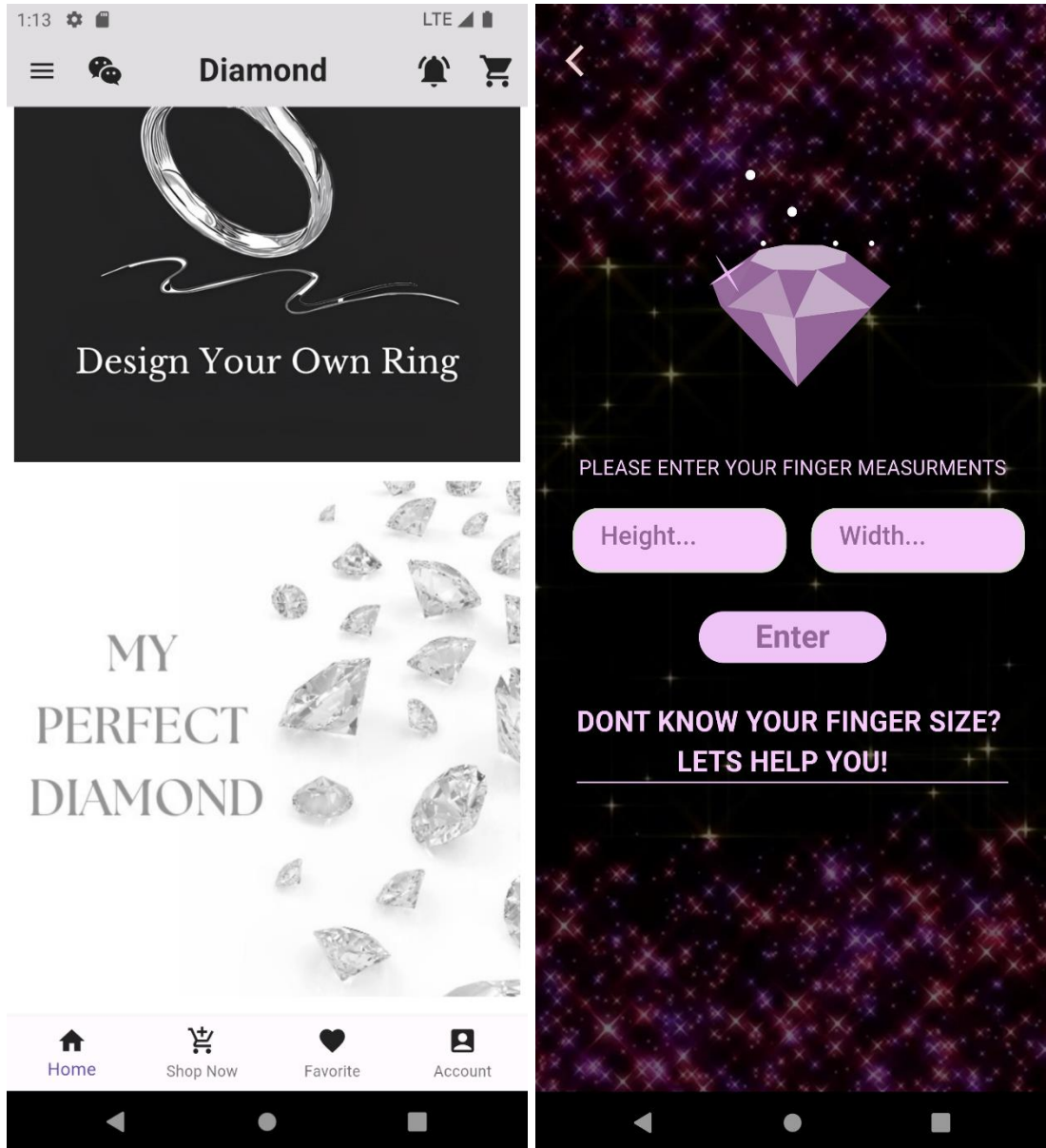


Figure 3:38 Suitable Diamond 1

- The user can choose between 2 ways: they can enter their ring finger measurements, then the diamond shape that fits on her finger appears like this:

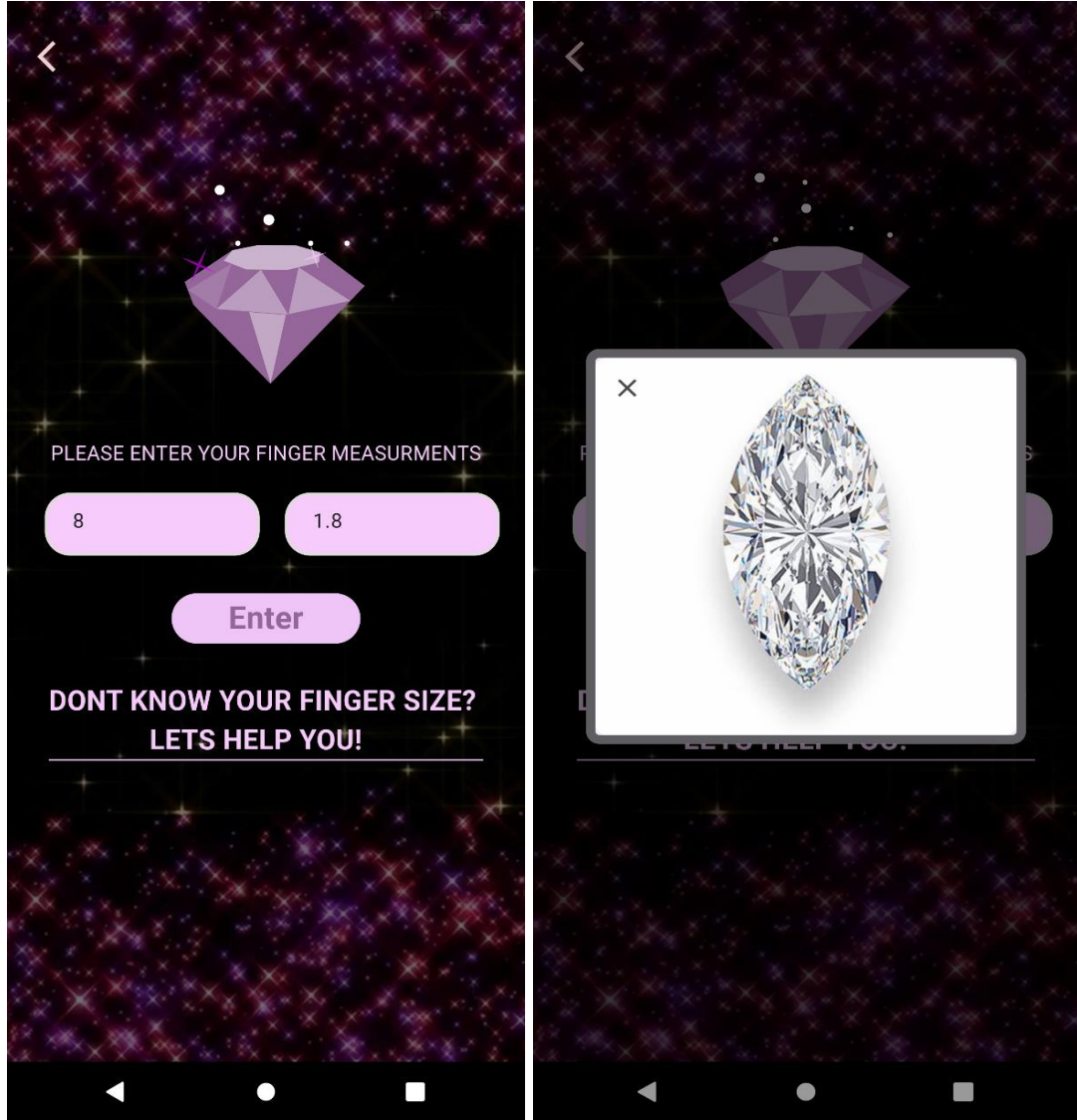


Figure 3:39 Suitable Diamond 2

- Or they can upload a pic of their hand by pressed on (DONT KNOW YOUR FINGER SIZE? LET'S HELP YOU!) and draw a boarder around the finger they want, and the system will calculate the height and the width an suggest the suitable diamond based on the ratio.

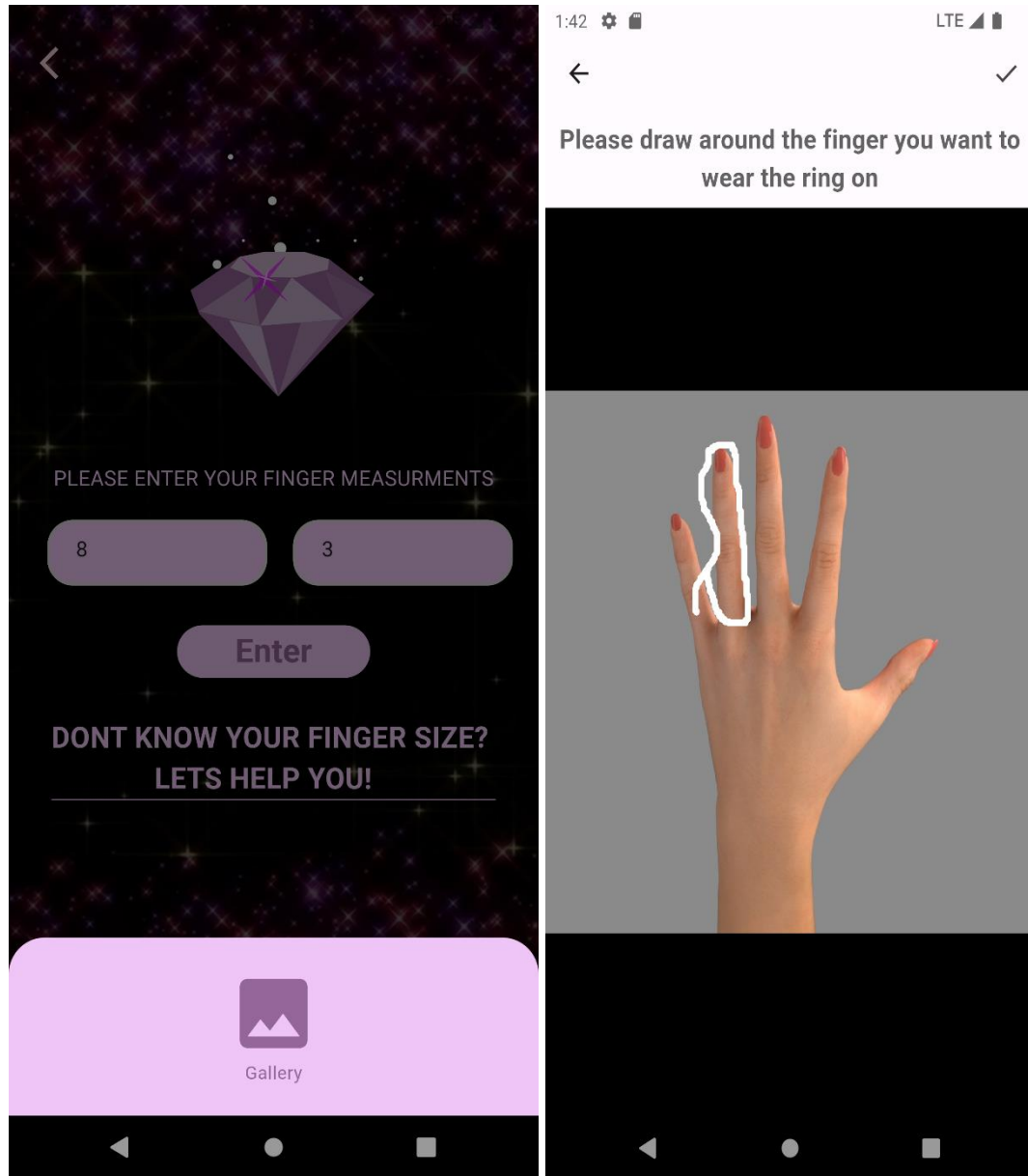


Figure 3:40 Suitable Diamond 3

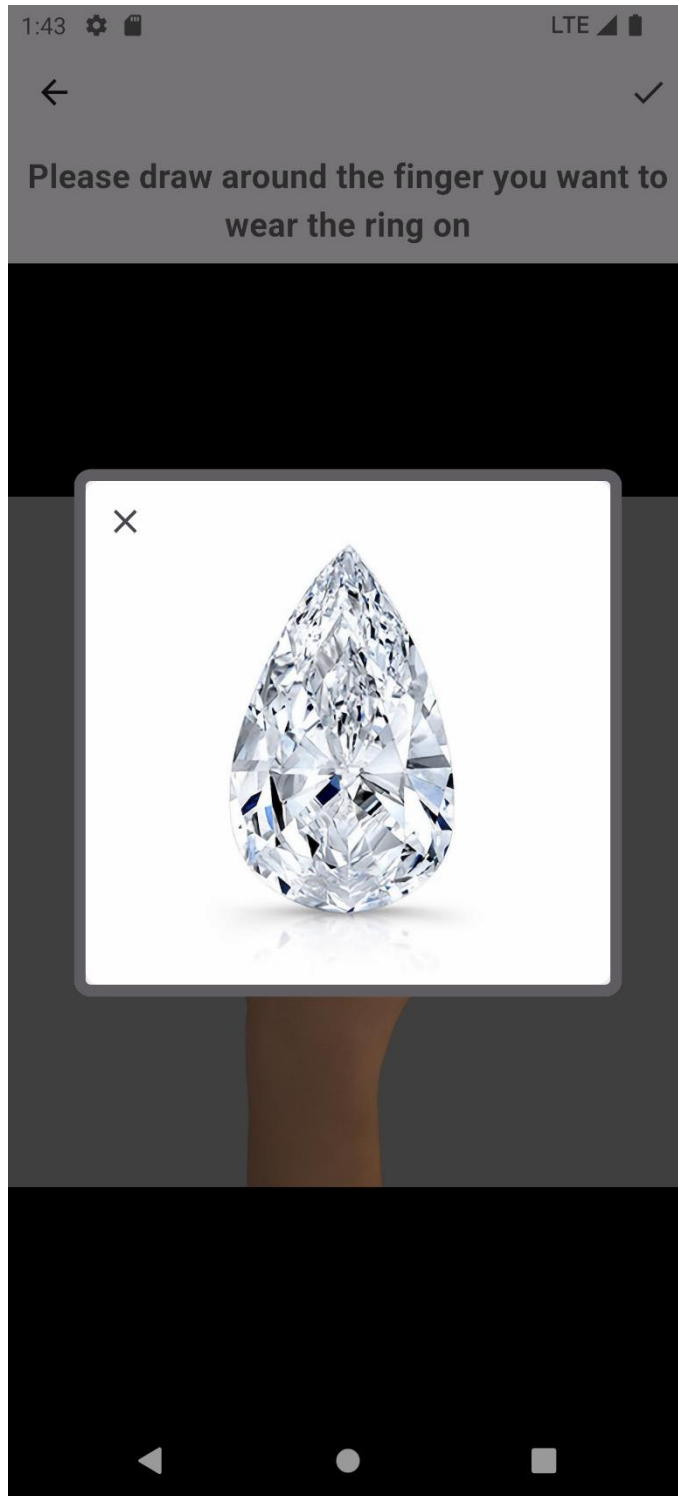


Figure 3:41 Suitable Diamond 4

- The user also can search for a specific item based on the name of this item.

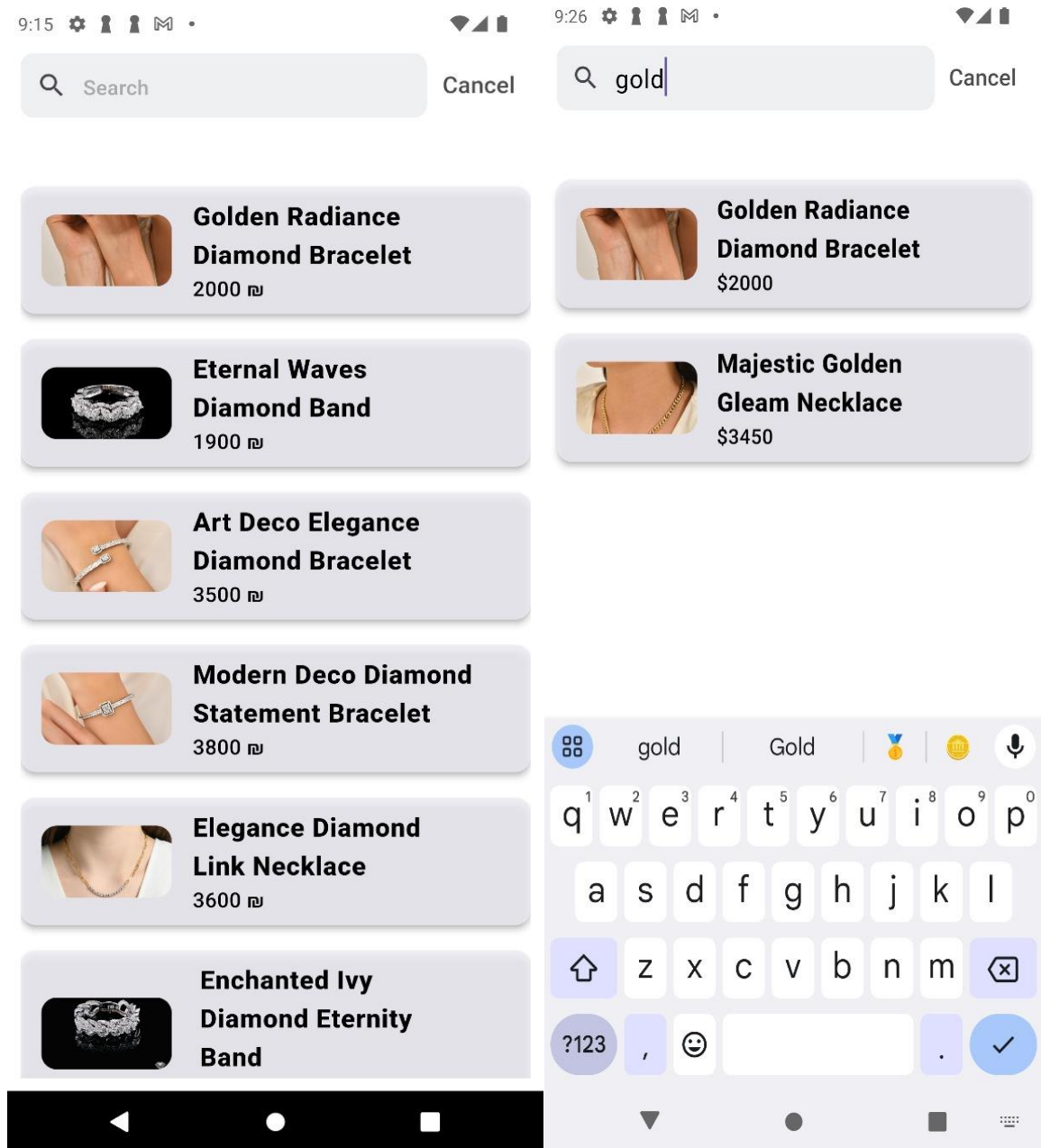


Figure 3:42 Search

- Also, the user can sort the items in the category they are browsing based on highest price, lowest price and newest items.

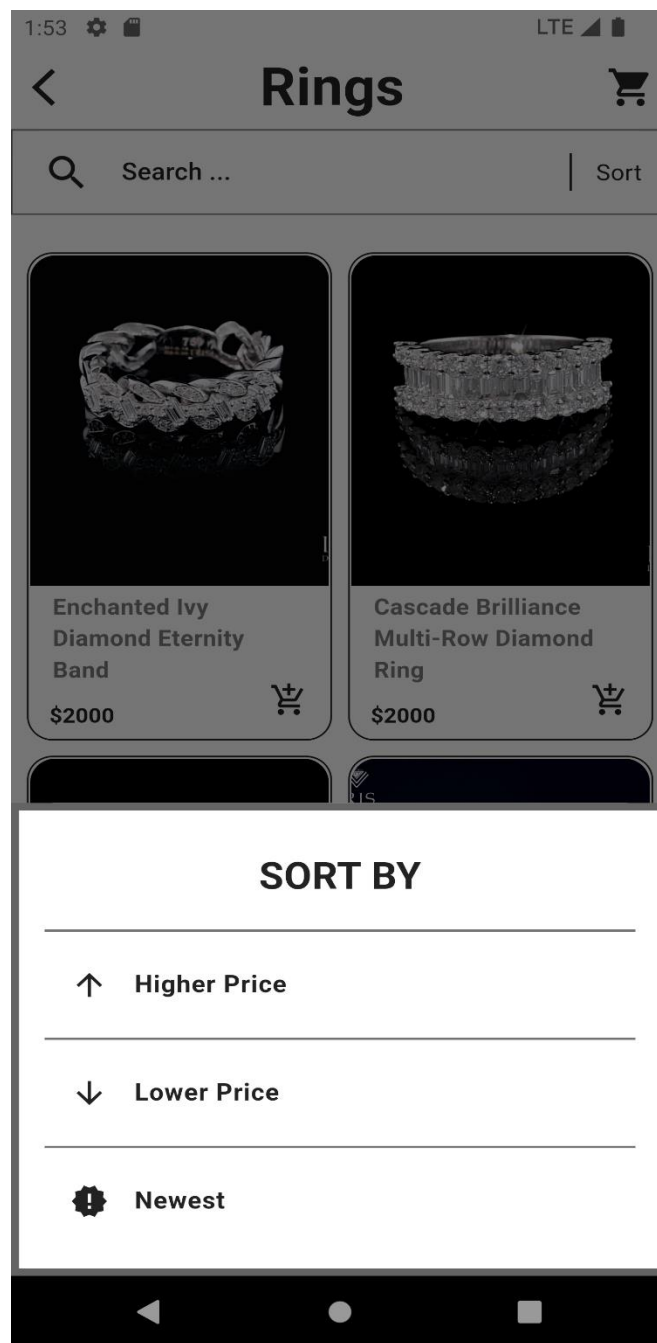


Figure 3:43 Sorting 1

➤ Higher Price:

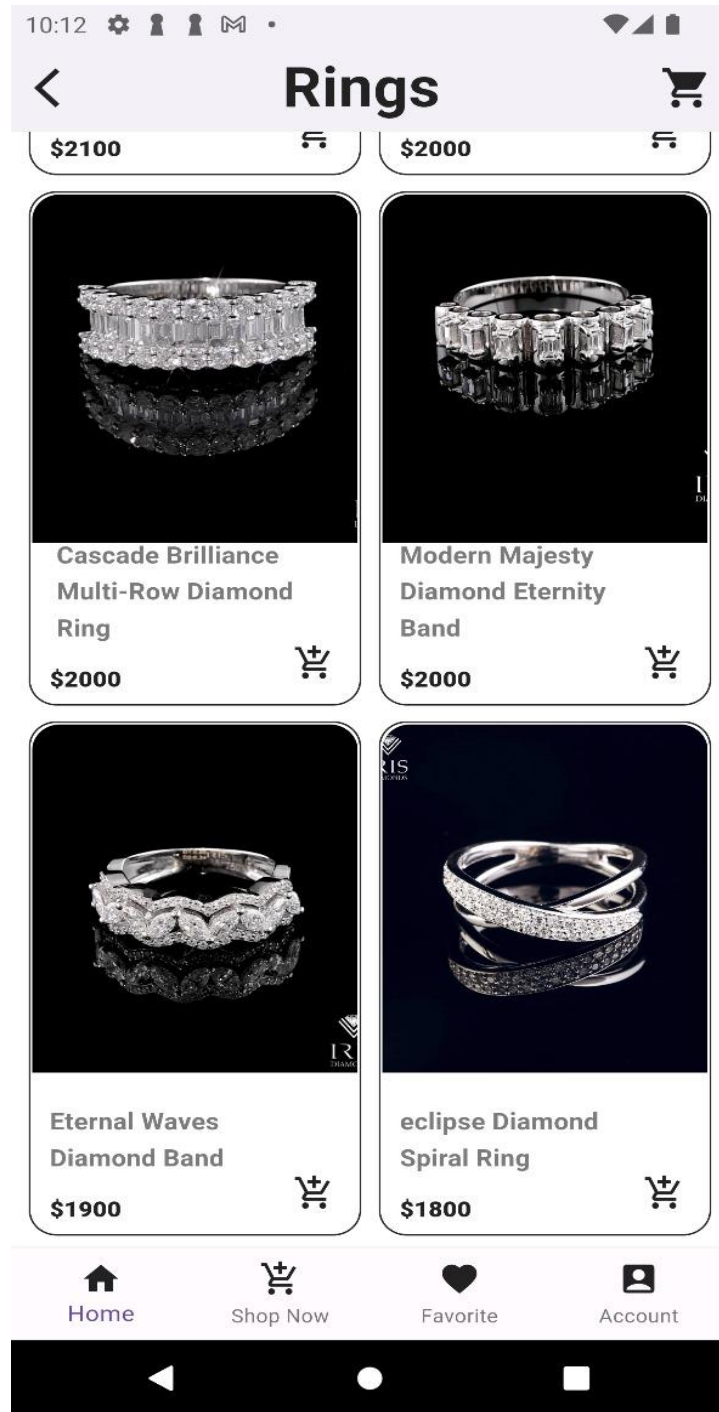


Figure 3:44 Sorting 2

➤ Lower Price:

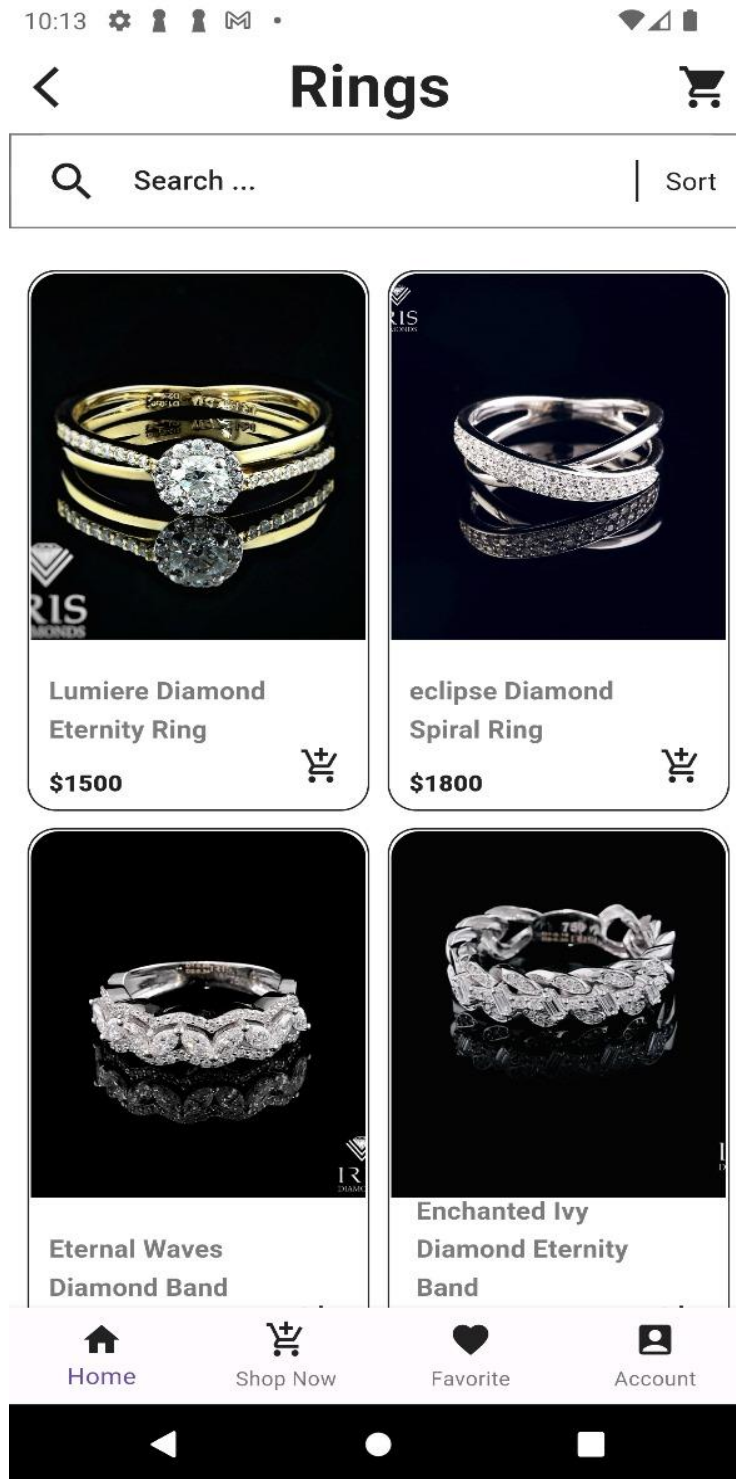


Figure 3:45 Sorting 3

➤ **Newest:**

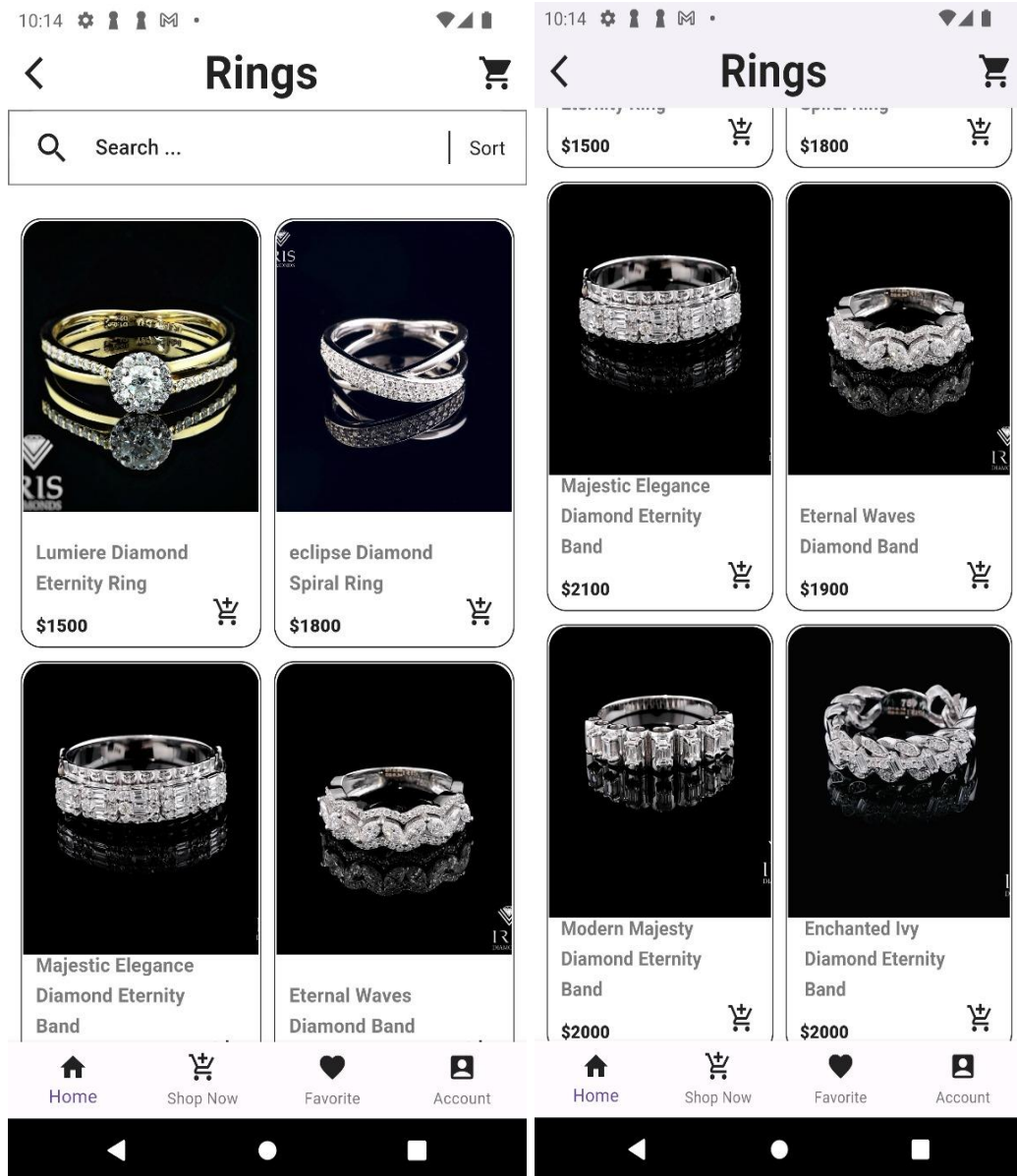


Figure 3:46 Sorting 4

- If the user wants to navigate to their profile, they can select the profile icon on the right bottom corner.

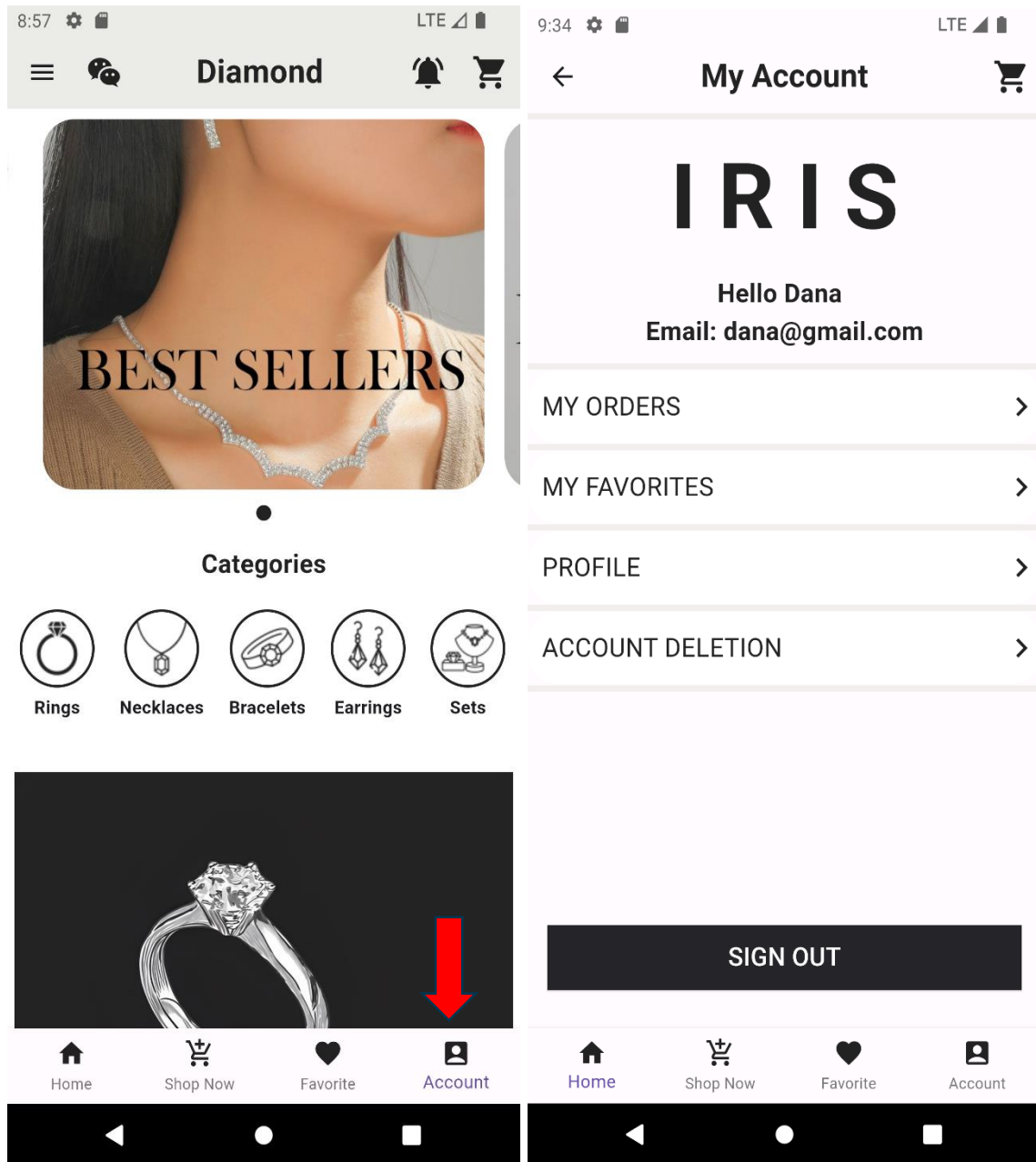


Figure 3:47 Profile 1

- The user can view their past orders and see their status.

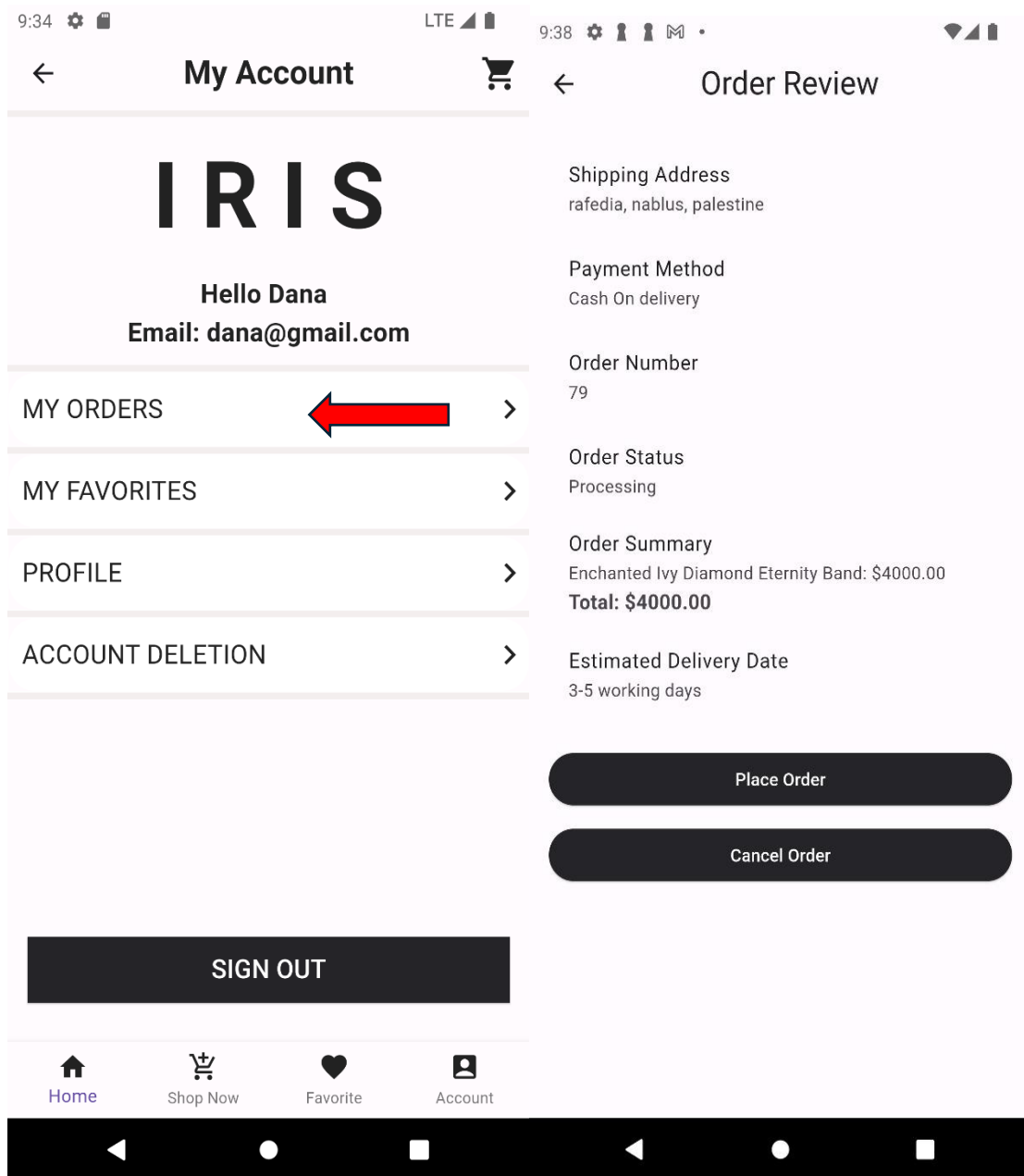


Figure 3:48 Profile 2

- Also, the user can view their favorite items.

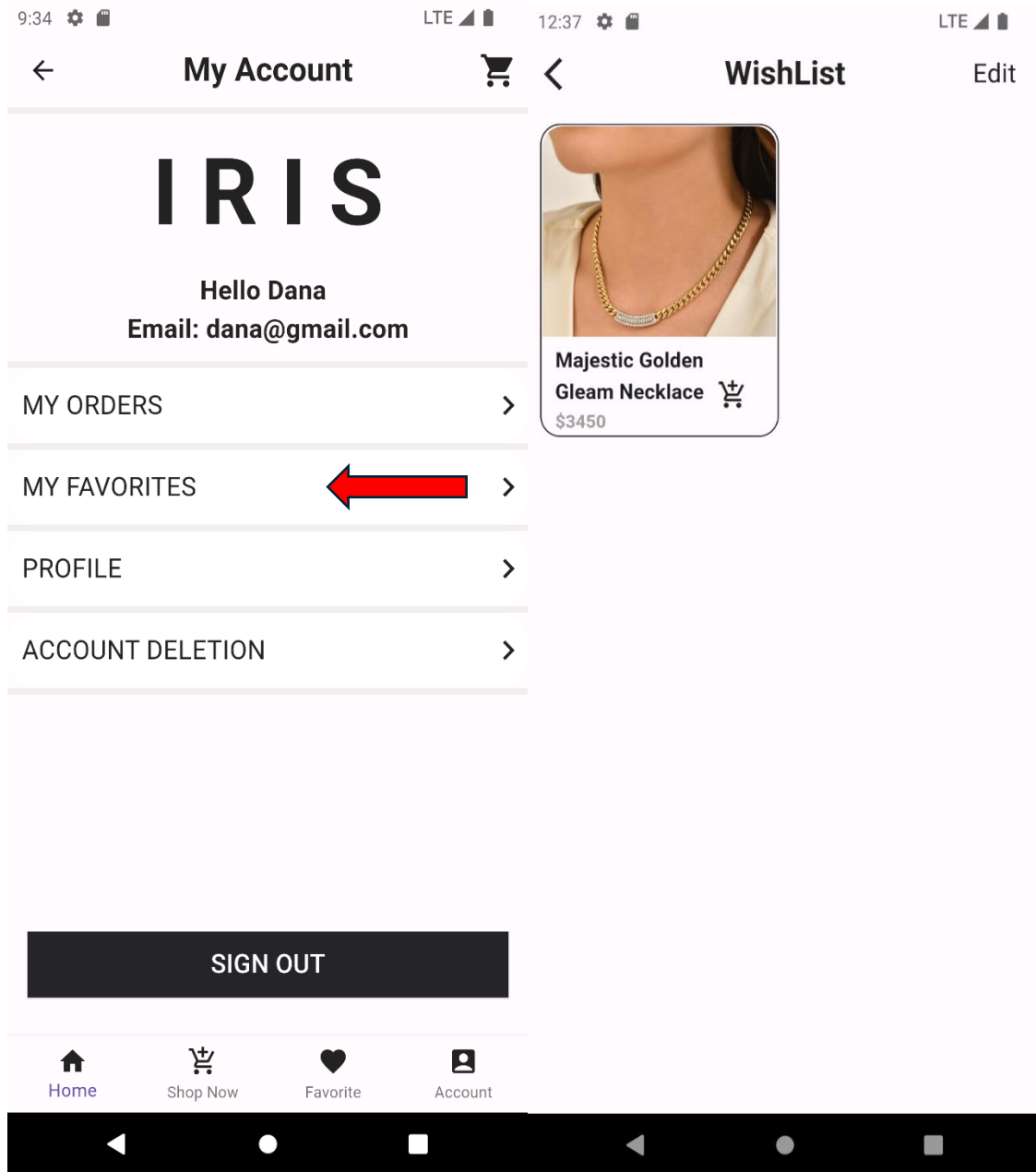


Figure 3:49 Profile 3

- They can edit and view their personal information.

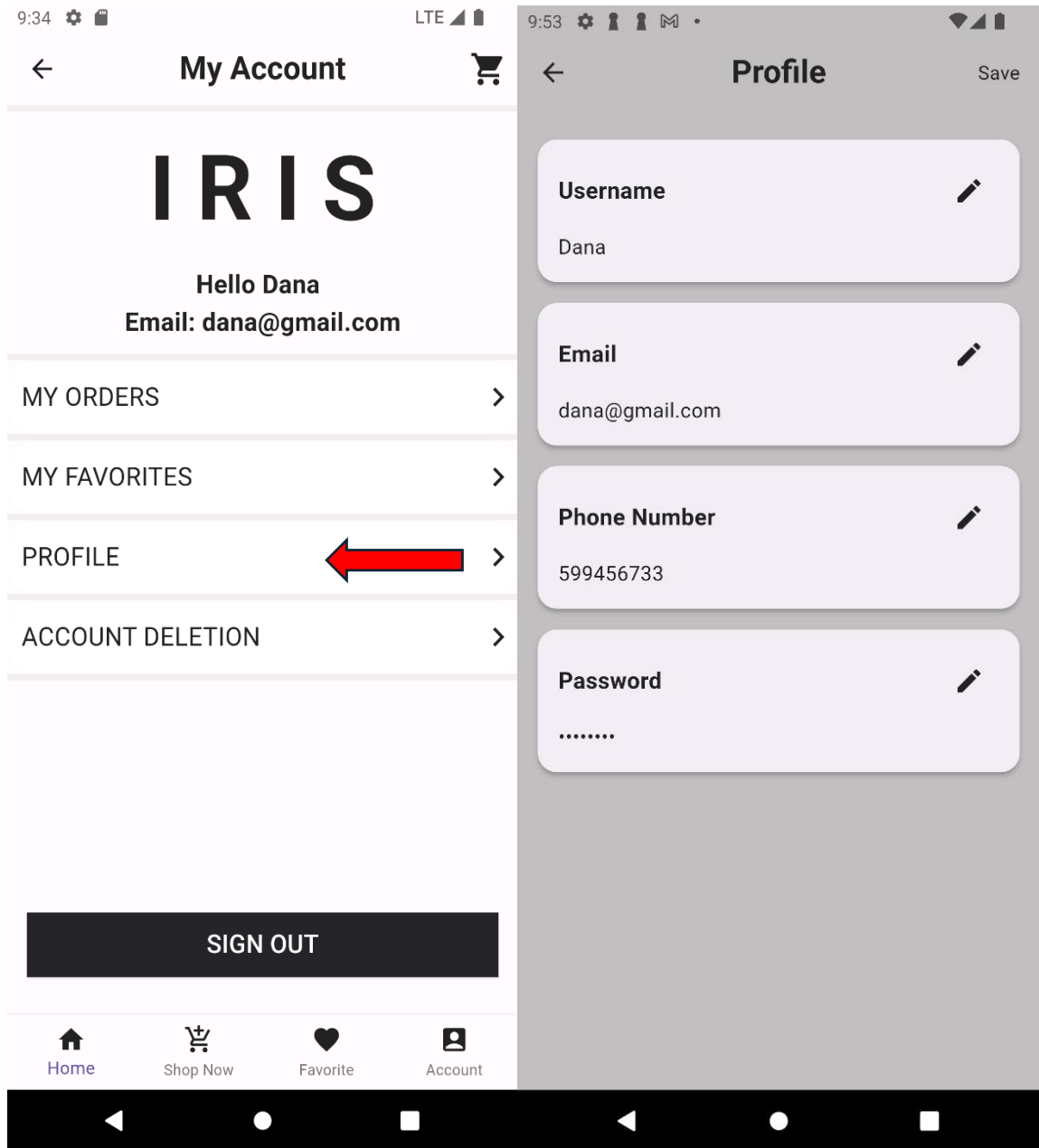


Figure 3:50 Profile 4

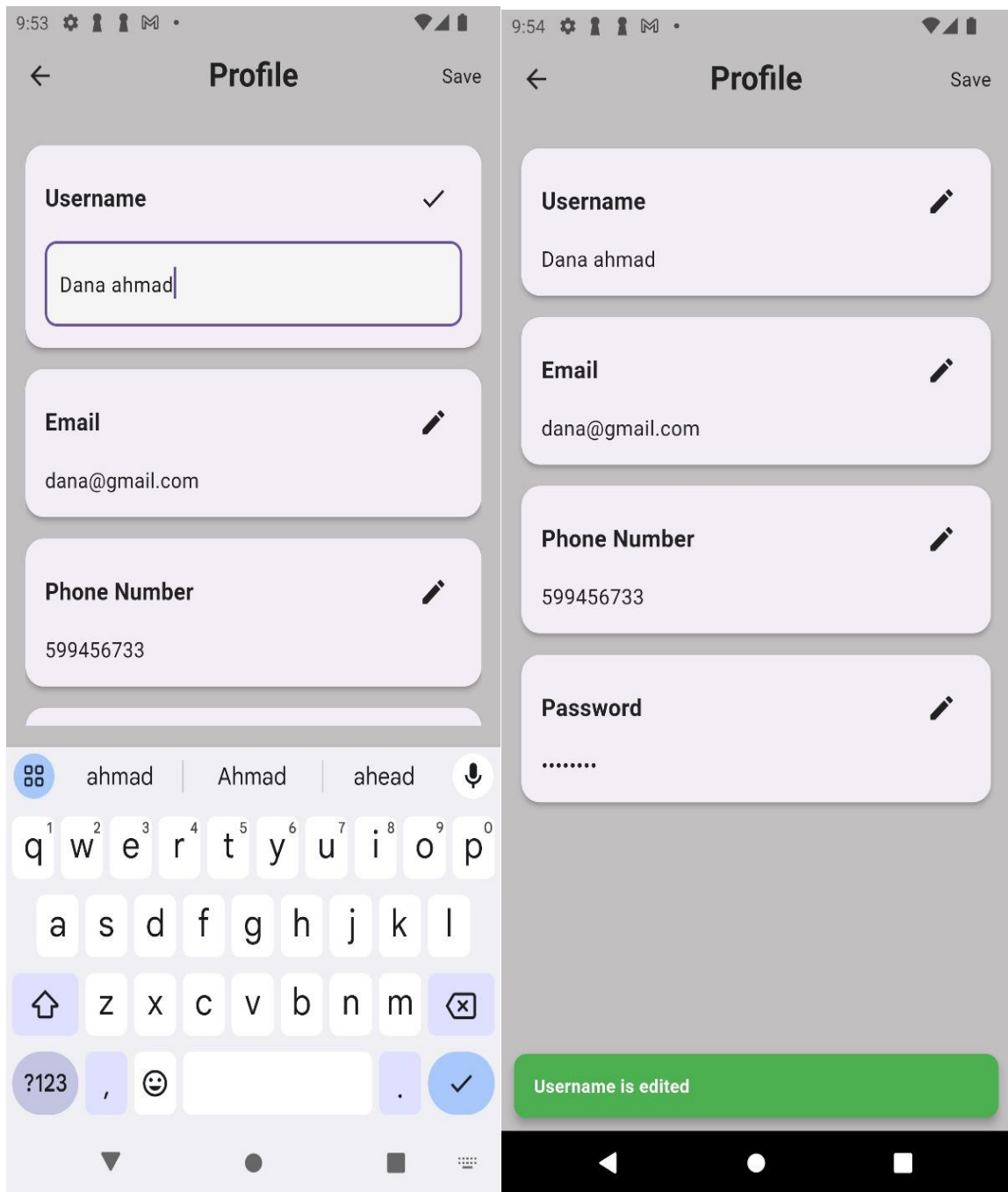


Figure 3:51 Profile 5

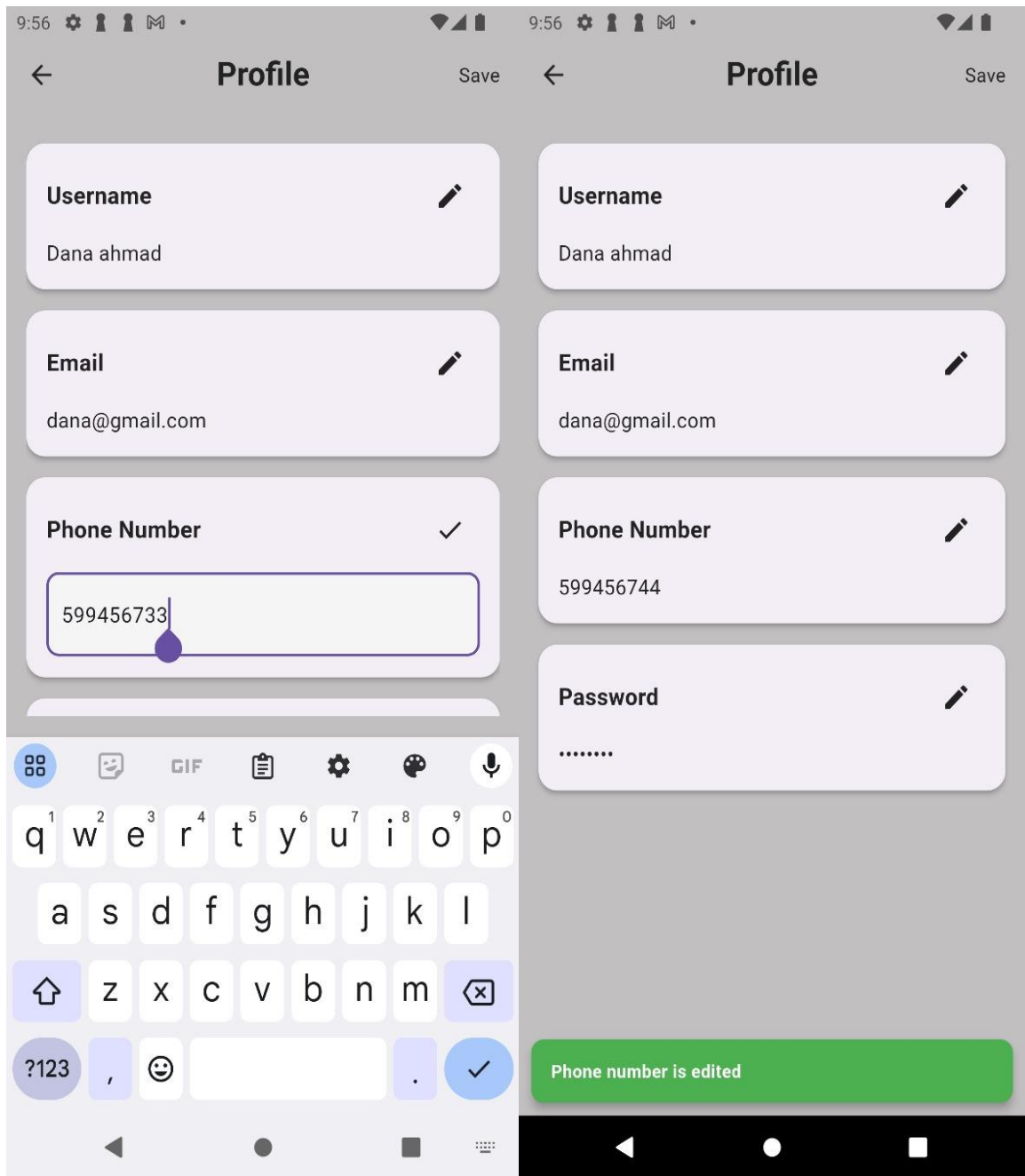


Figure 3:52 Profile 6

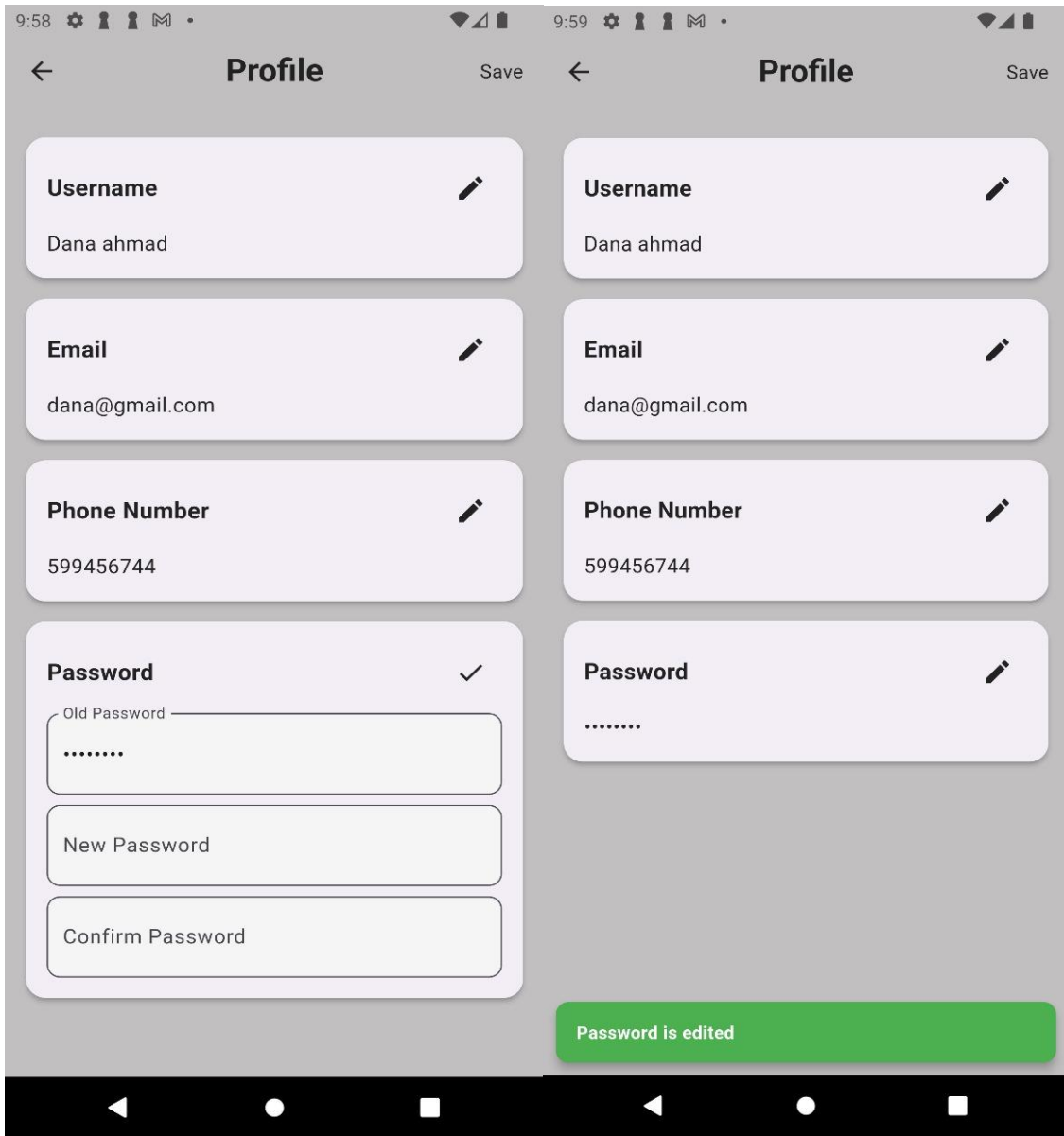


Figure 3:53 Profile 7

- Also, the user can delete their account if they wanted to.

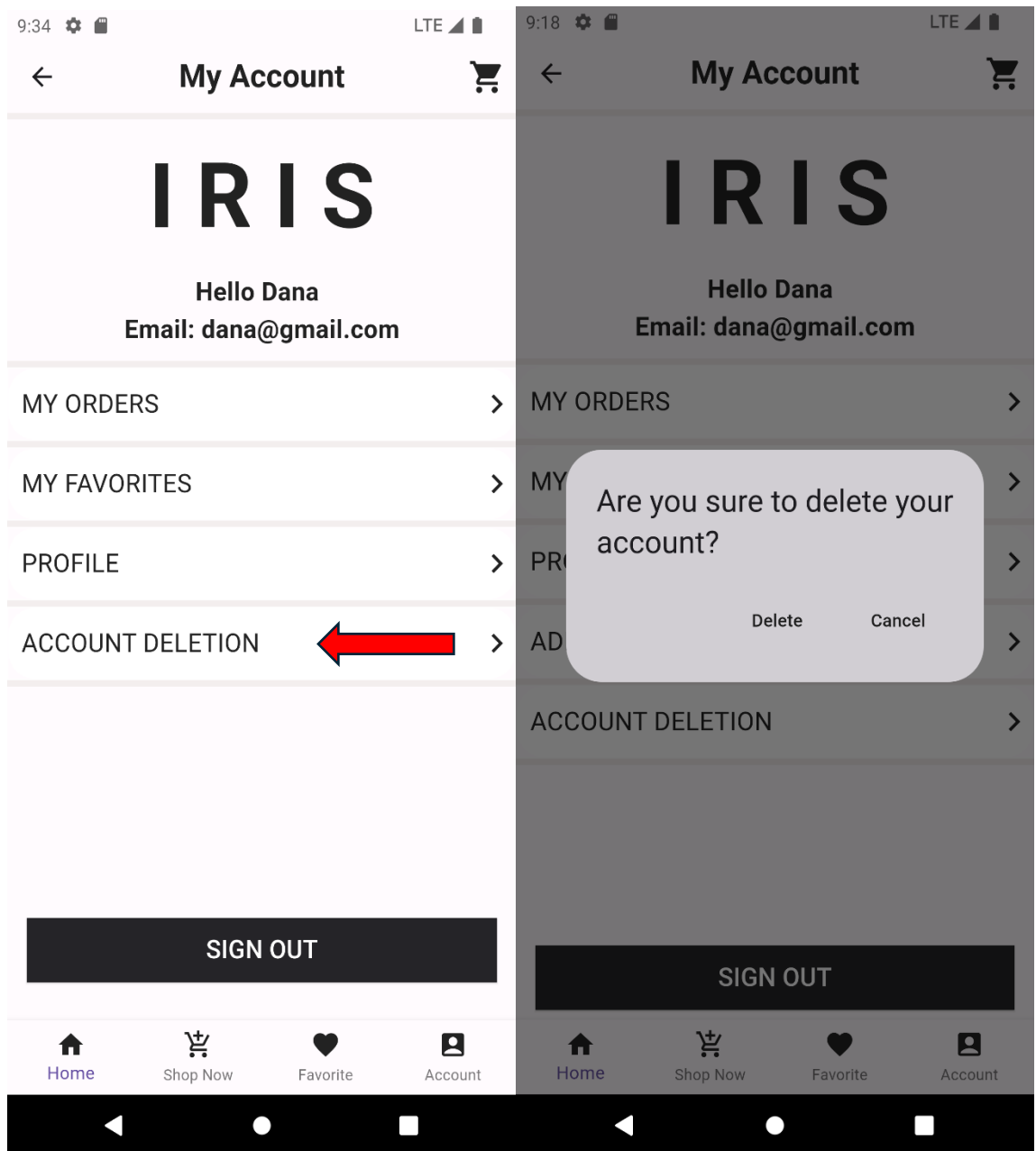


Figure 3:54 Profile 8

- Also, the user can view their items in the cart.

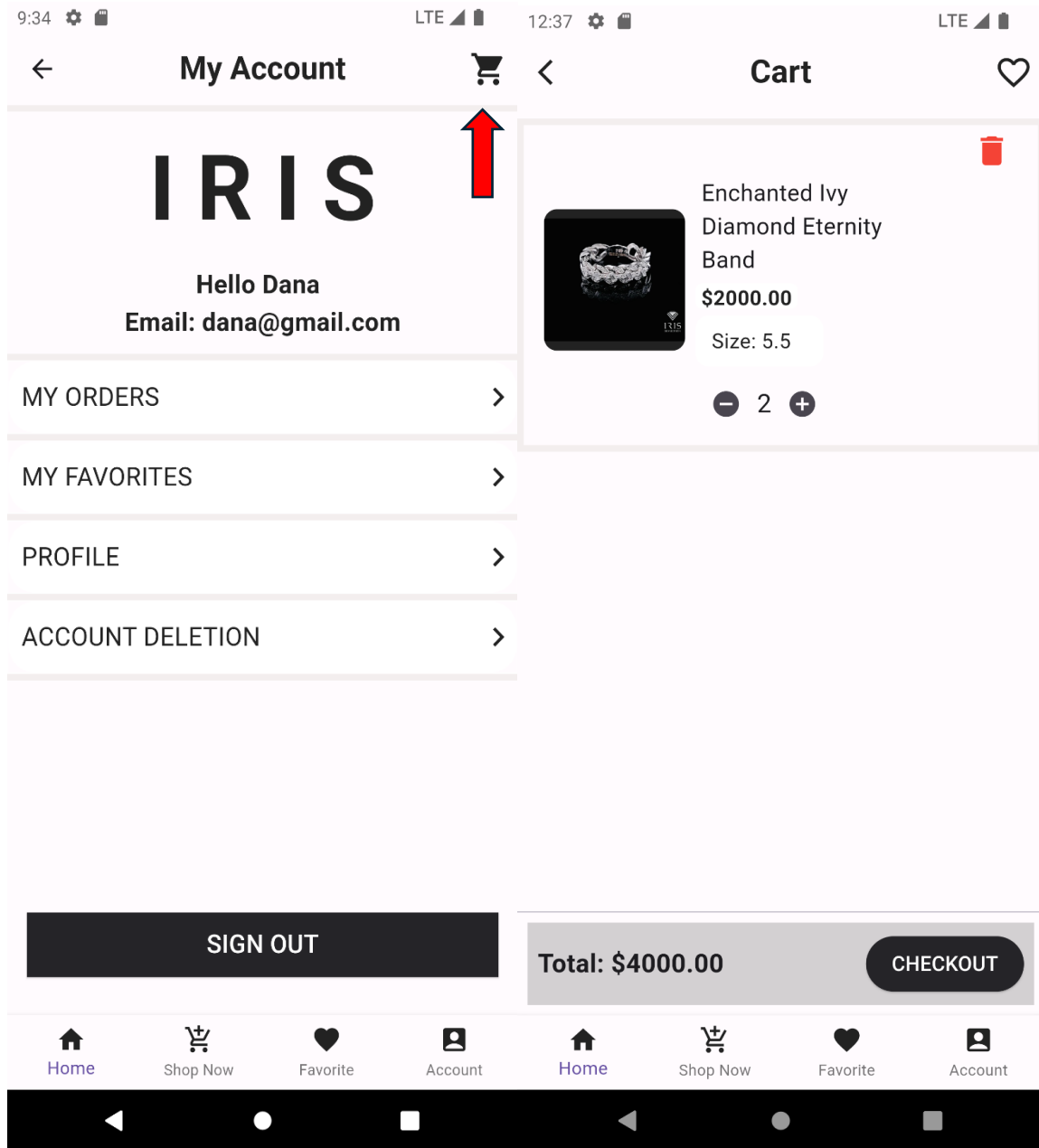


Figure 3:55 Profile 9

- Also, if the user wants to sign out of the application by pressing this button.

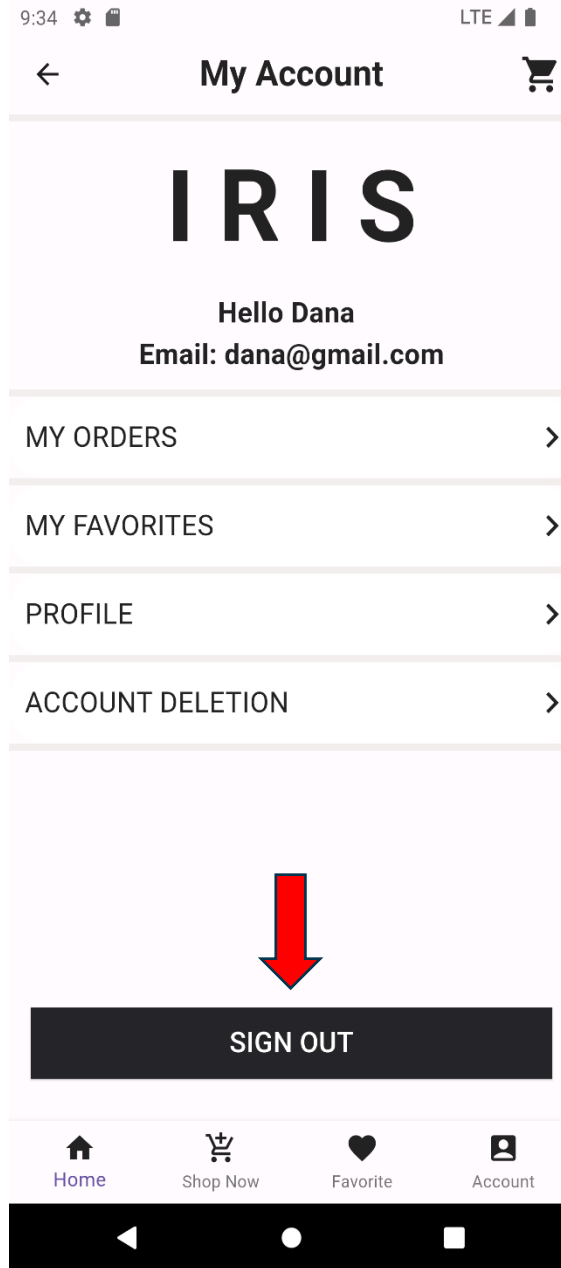


Figure 3:56 Profile 10

- There is a page dedicated for gemstones so that users can view them and learn about different gemstones.

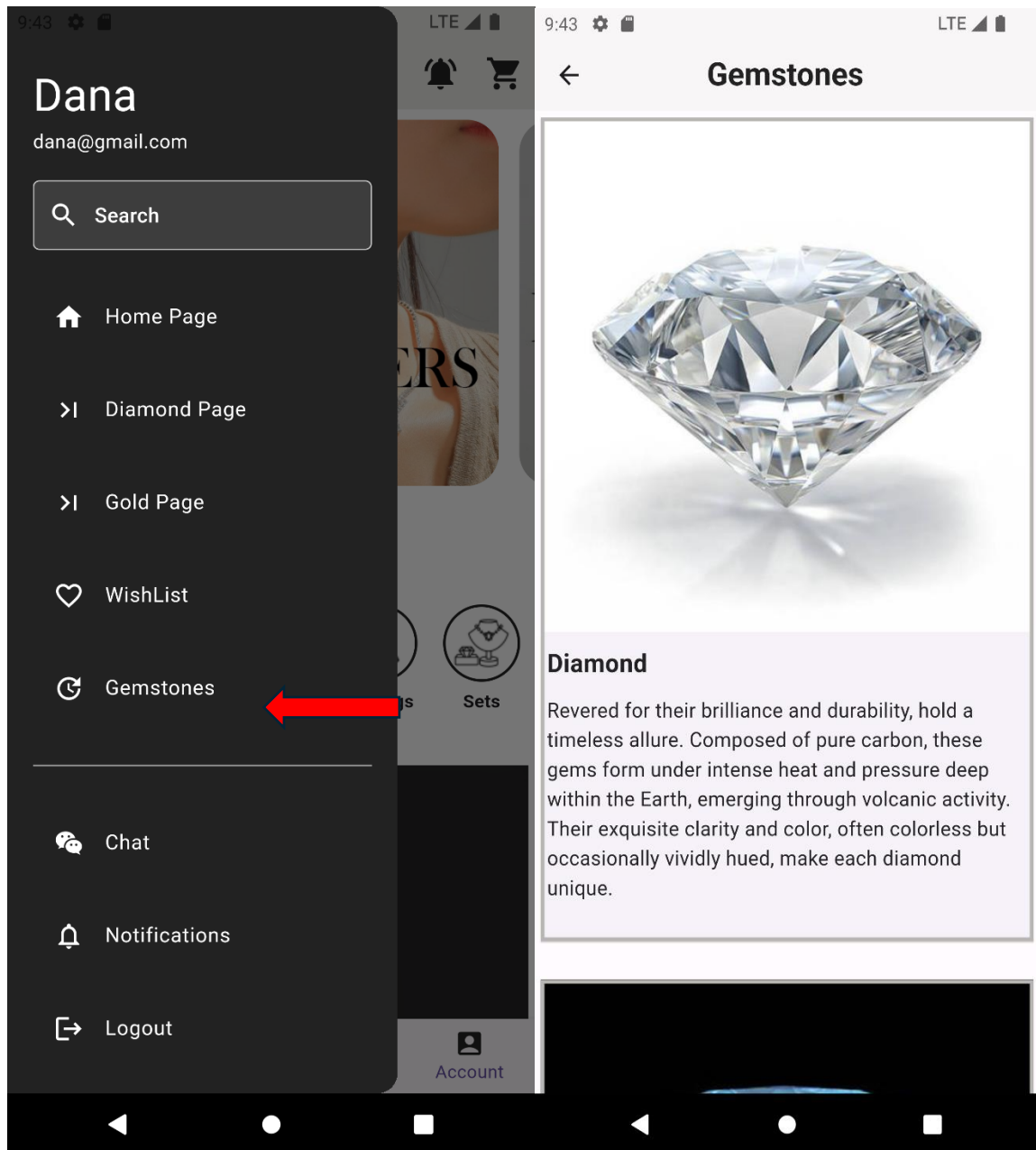


Figure 3:57 Gemstones Page 1

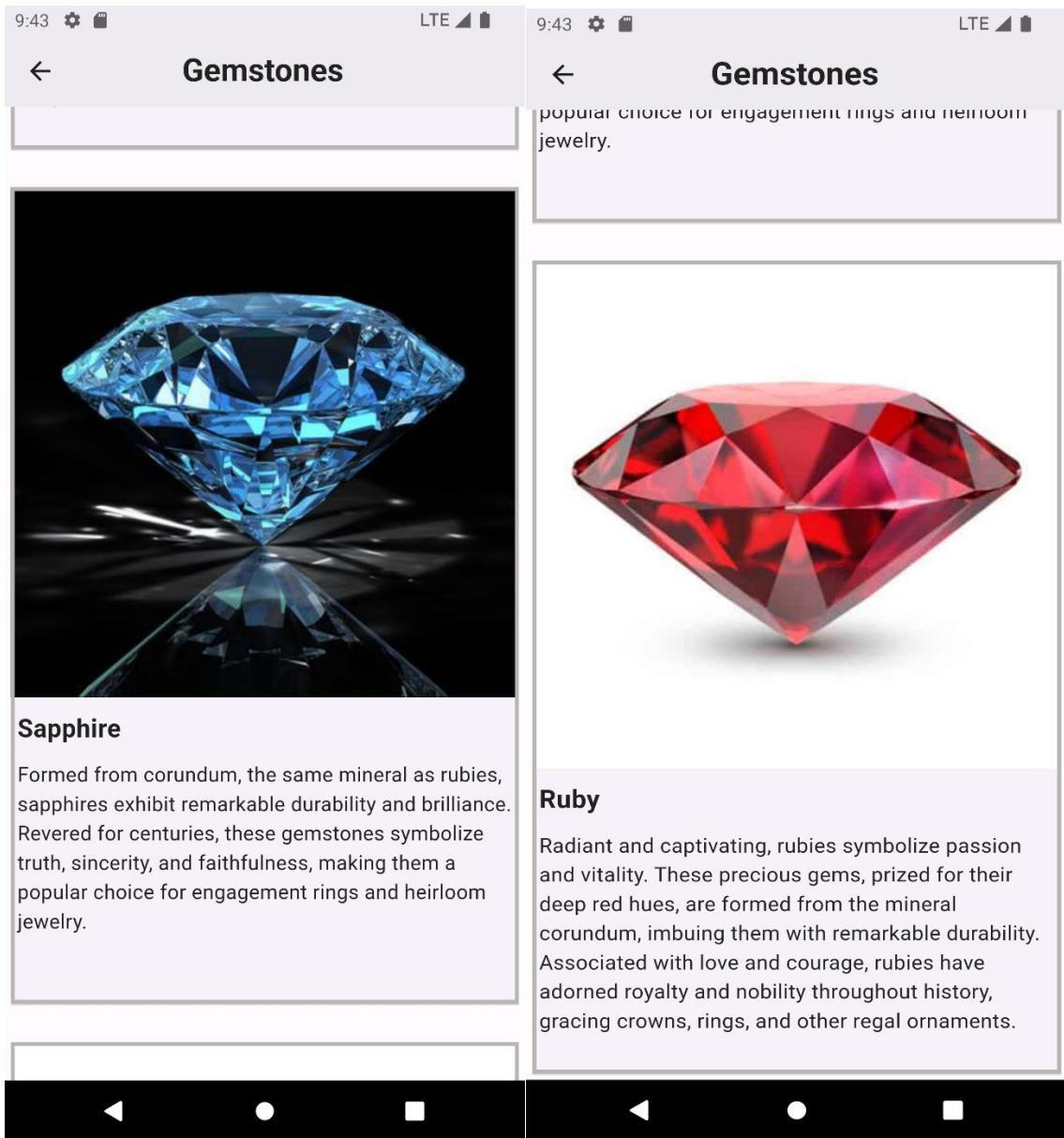


Figure 3:58 Gemstones Page 2

- Now if the user wanted to navigate to gold section, they can navigate from the navigation drawer.

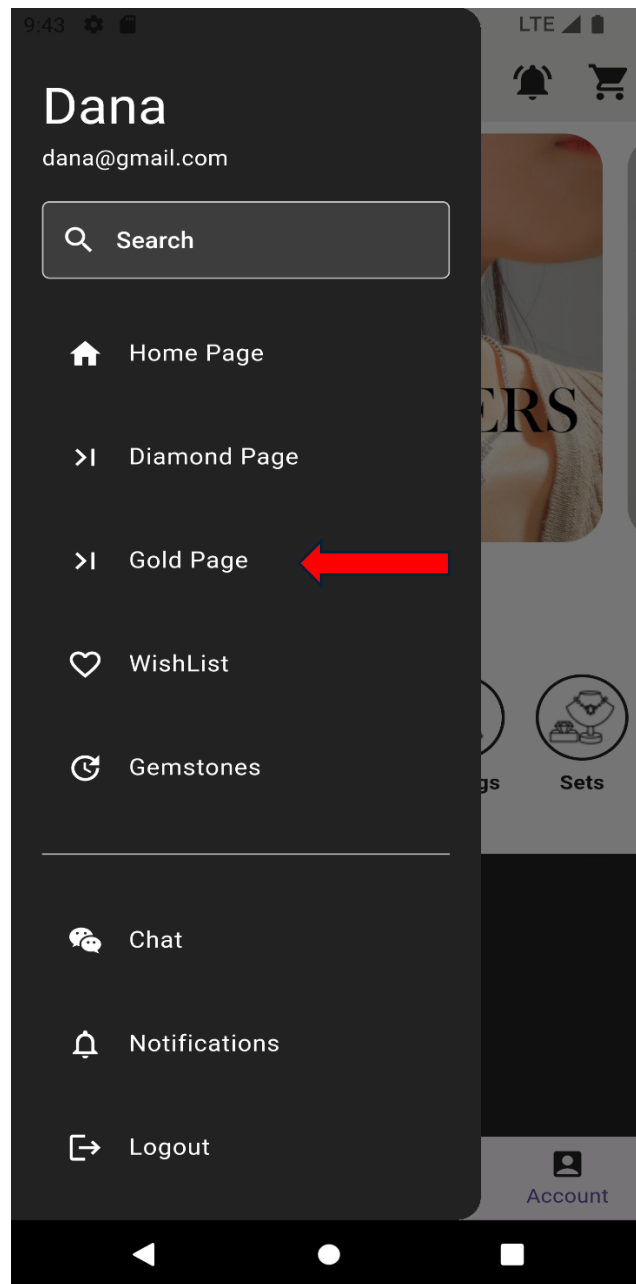


Figure 3:59 Navigate to Gold Page

- They will be guided to the gold home page.

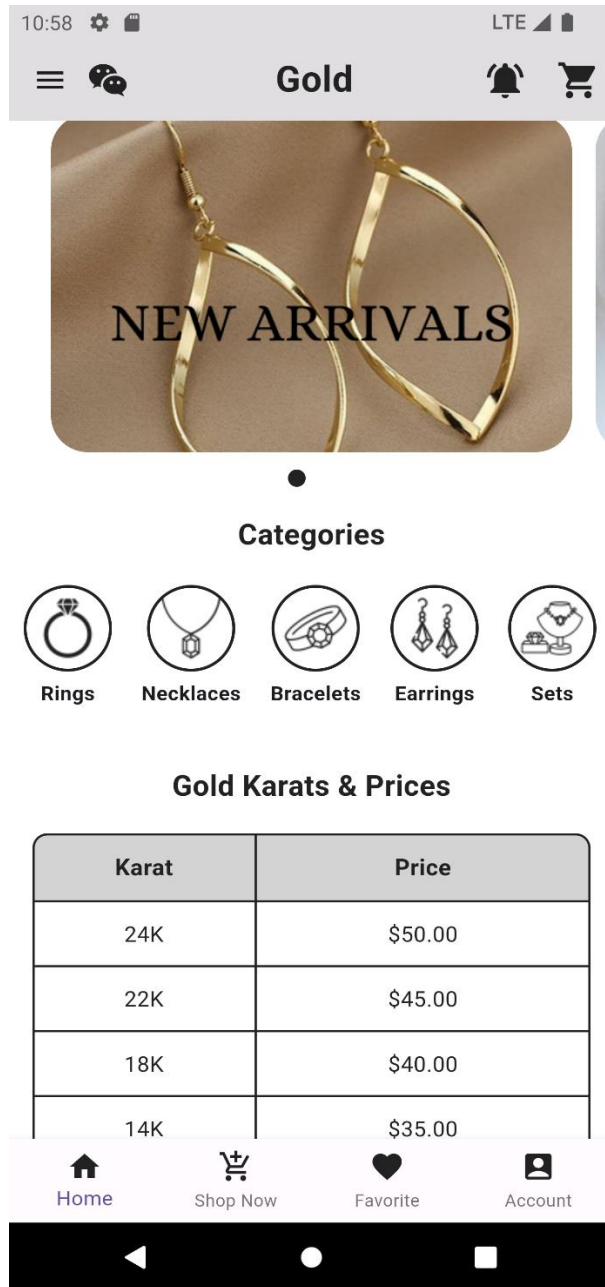


Figure 3:60 Gold Page

- This section is very similar to the diamond section, it has best sellers and new arrivals.

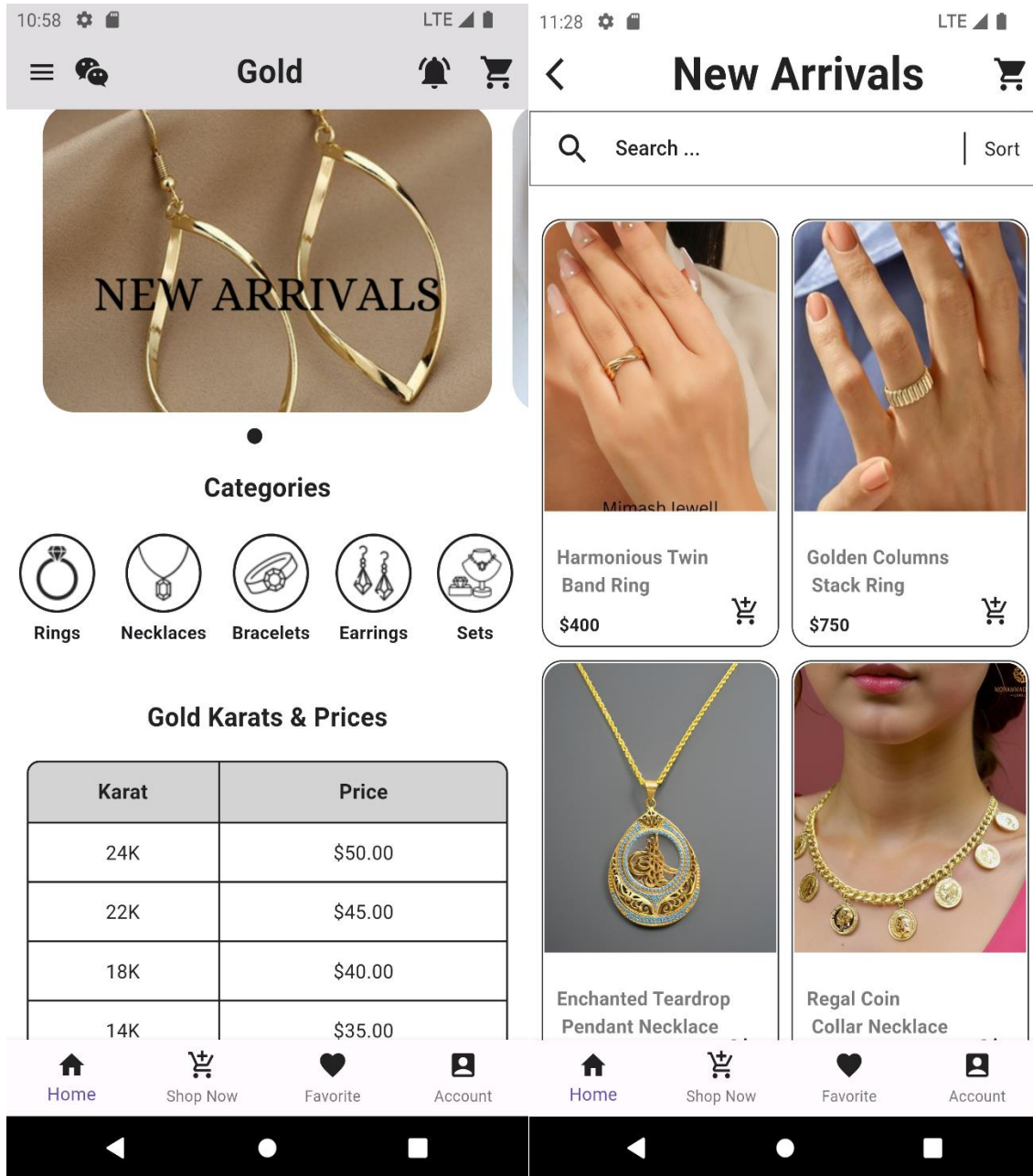


Figure 3:61 New Arrival in the gold page 1

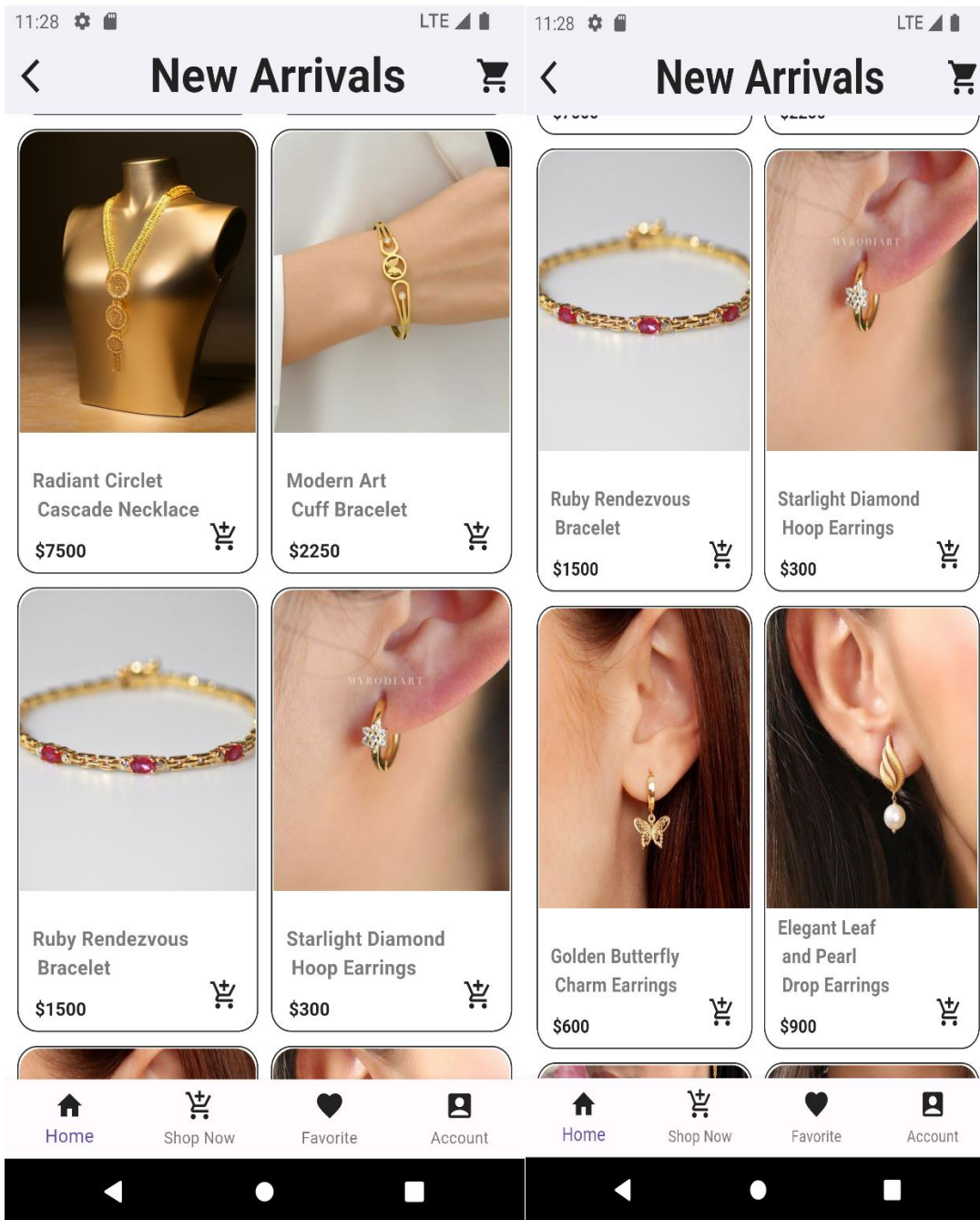


Figure 3:62 New Arrival in the gold page 2

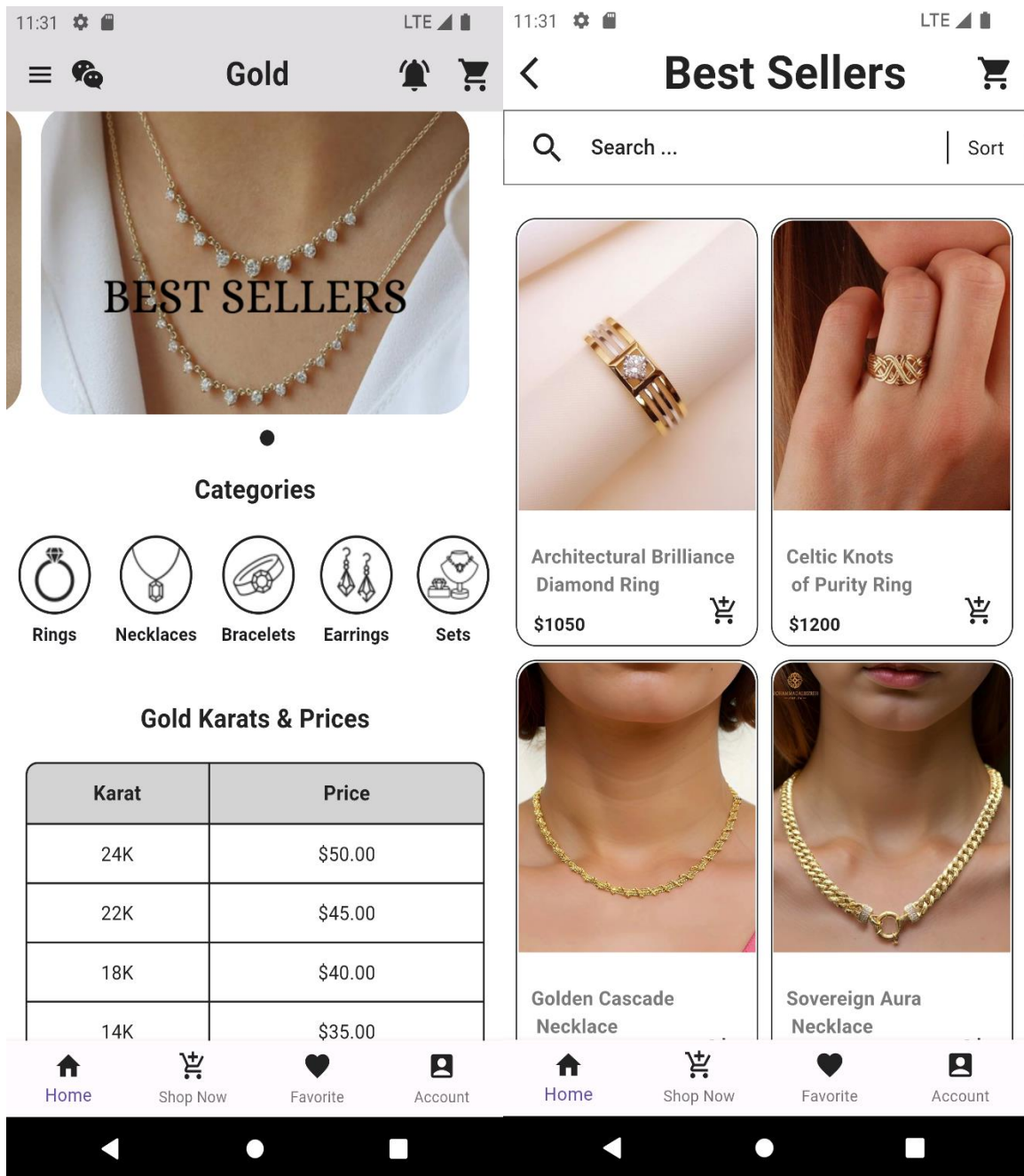


Figure 3:63 Best Seller in the gold page 1

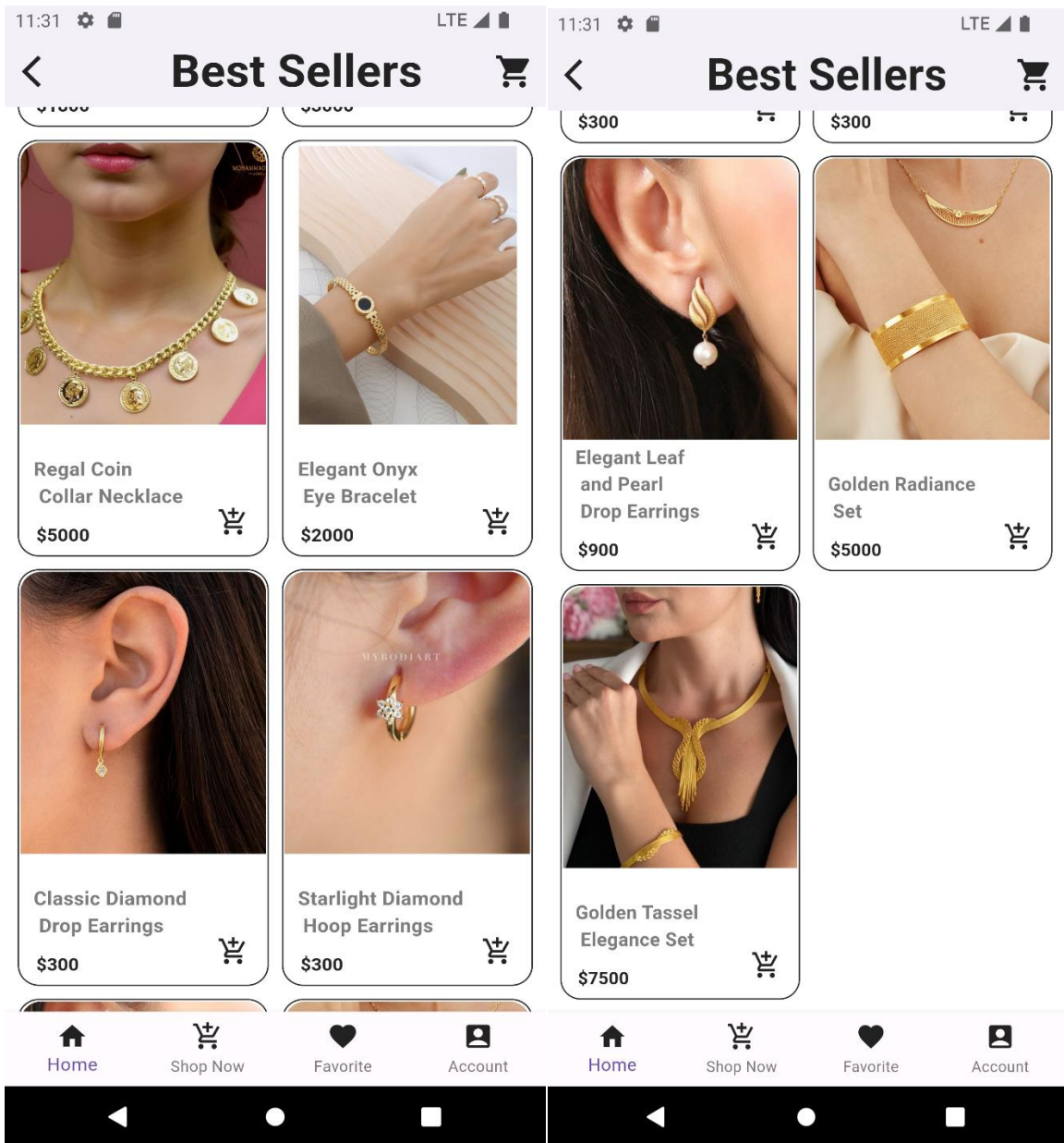


Figure 3:64 Best Seller in the gold page 2

- Also, it has the same 5 categories as diamond.

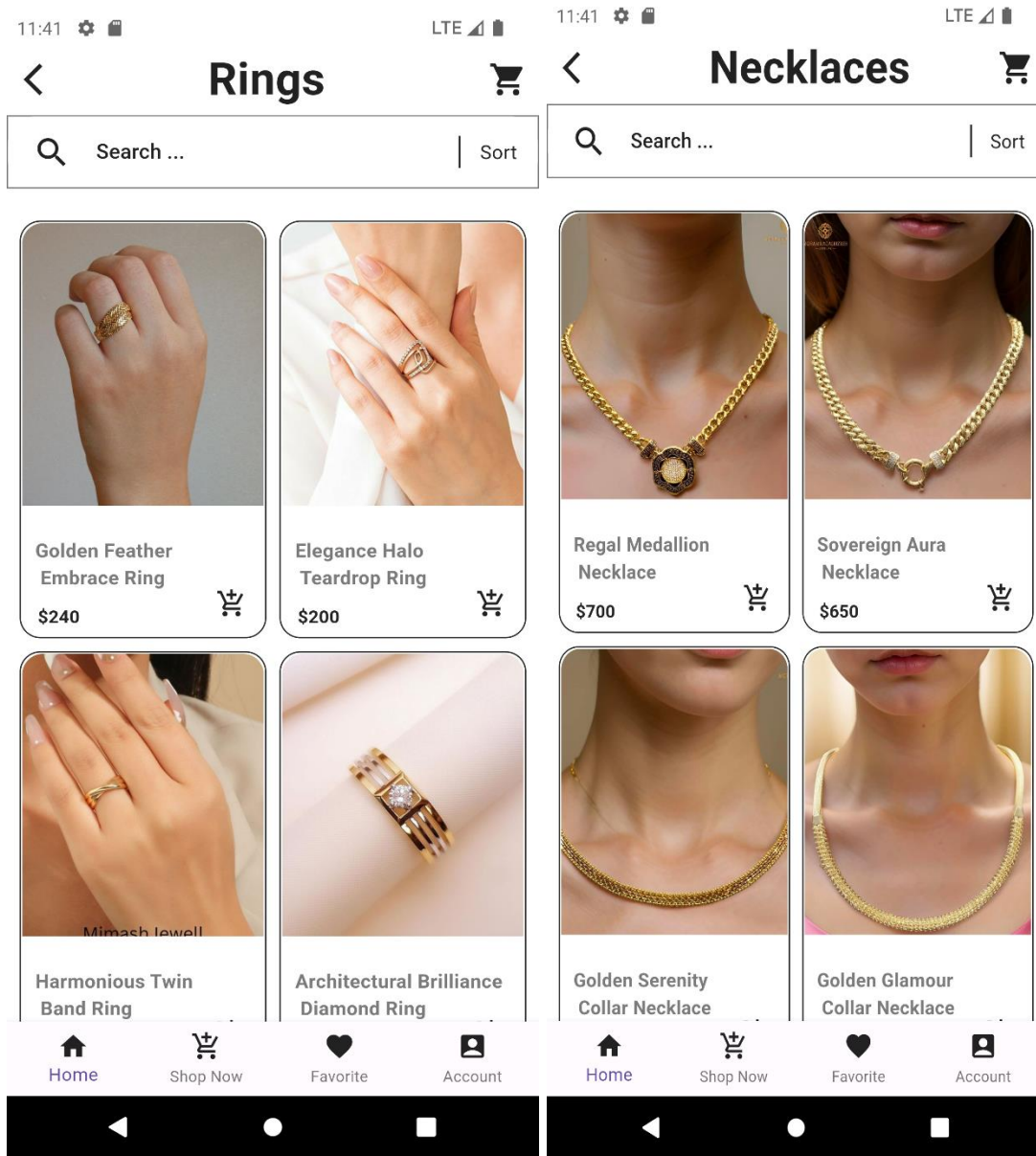


Figure 3:65 Gold Category Pages 1

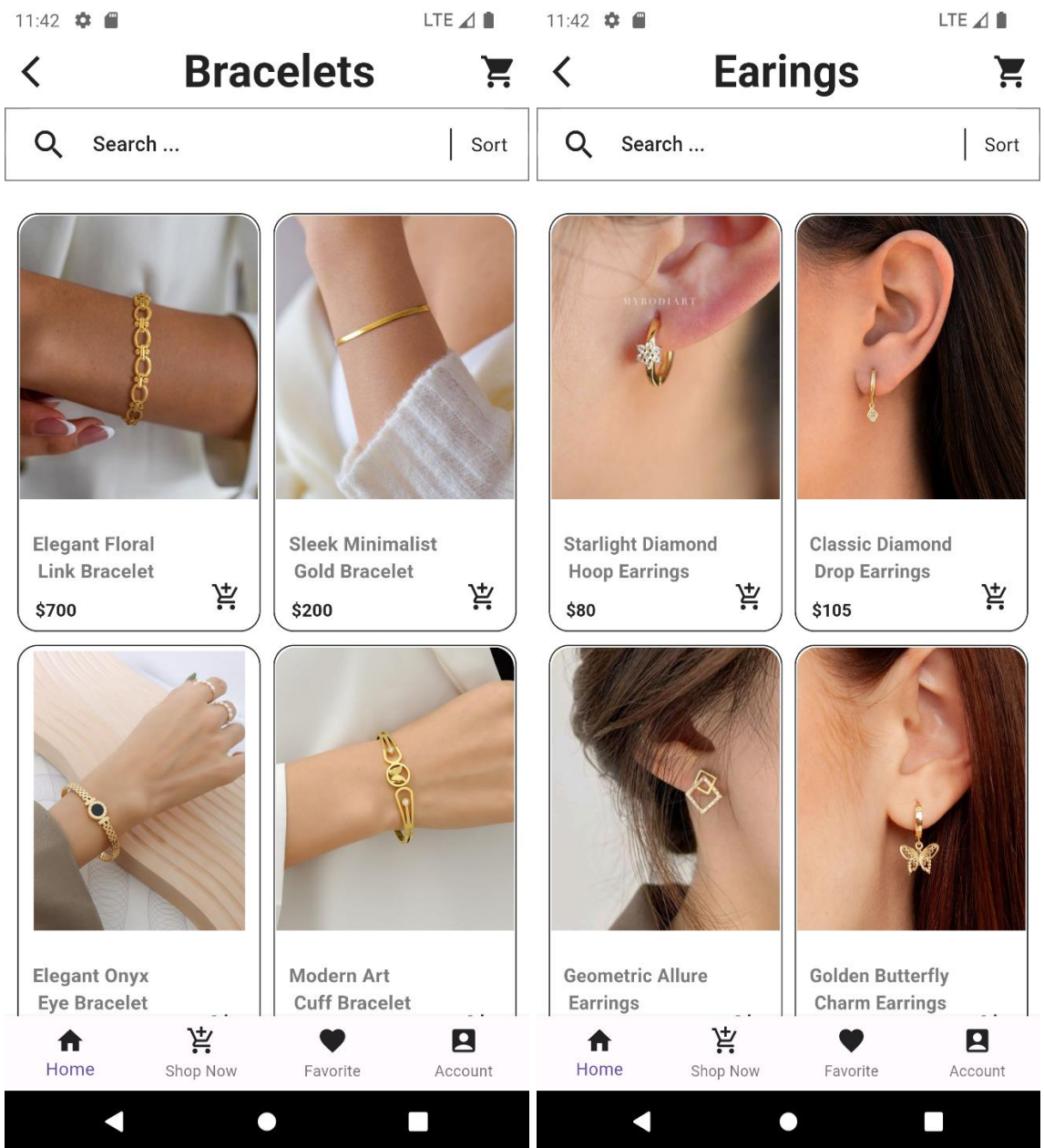


Figure 3:66 Gold Category Pages 2



Sets



Search ...

| Sort



Golden Tassel
Elegance Set

\$1500



Golden Radiance
Set

\$1000



Emerald Accents
Chain Set



Chic Cascade
Set



Home



Shop Now



Favorite



Account

Figure 3:67 Gold Category Pages 3

- The difference between the 2 sections is gold price, which changes every day and based on it all the gold items prices will be changed, the price is calculated based on the weight, karat and gold price at that day

Price = price per unit for the karat * weight of the gold item.

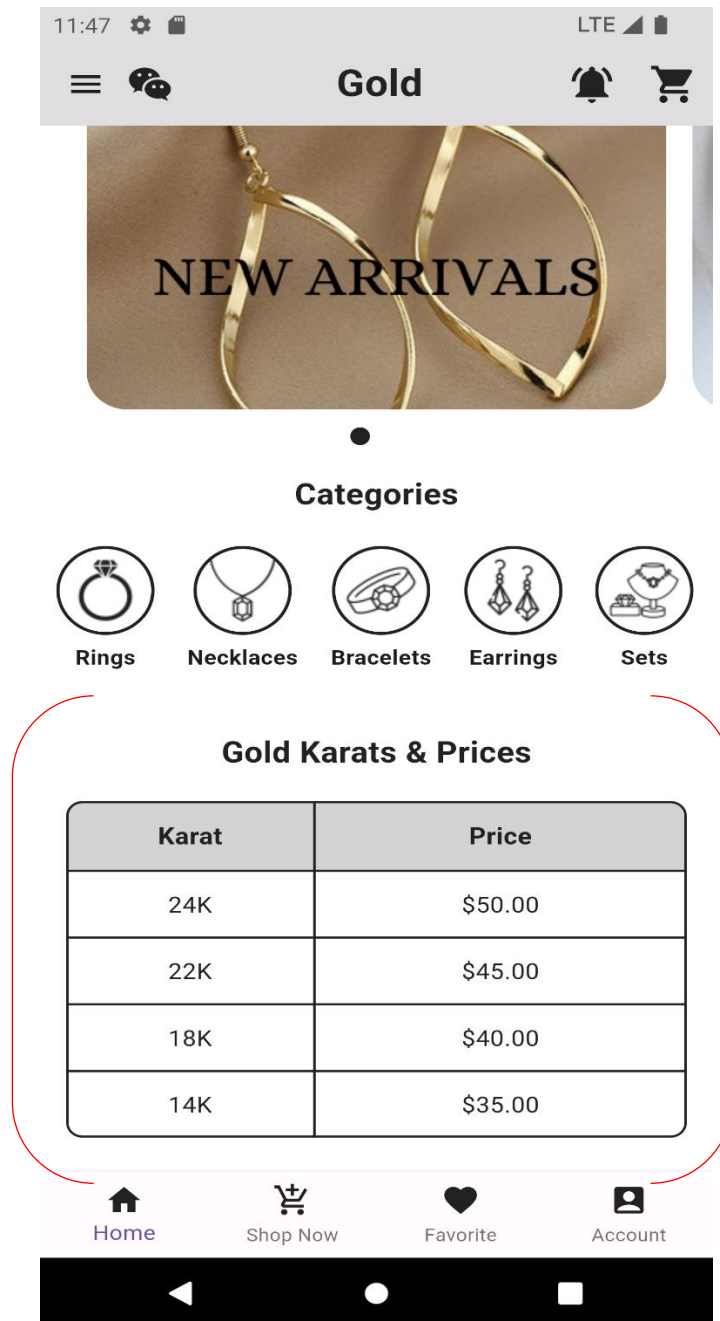


Figure 3:68 Gold Karats&Prices Table

o Notification

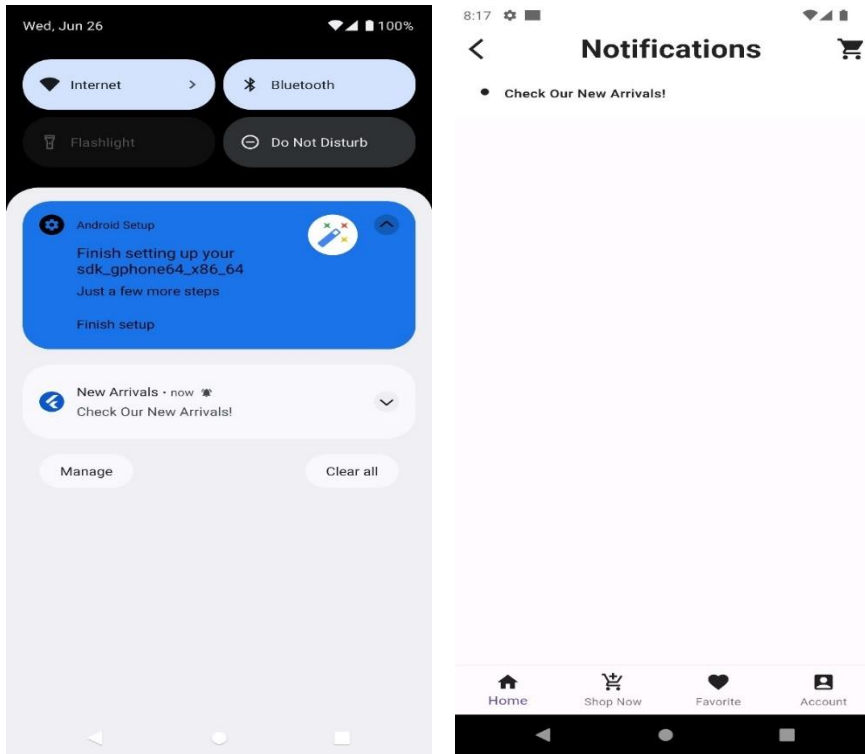


Figure 3:69 Notification

- **ADMIN STORY:**

- When the admin logs in, they will be directed to the admin section.

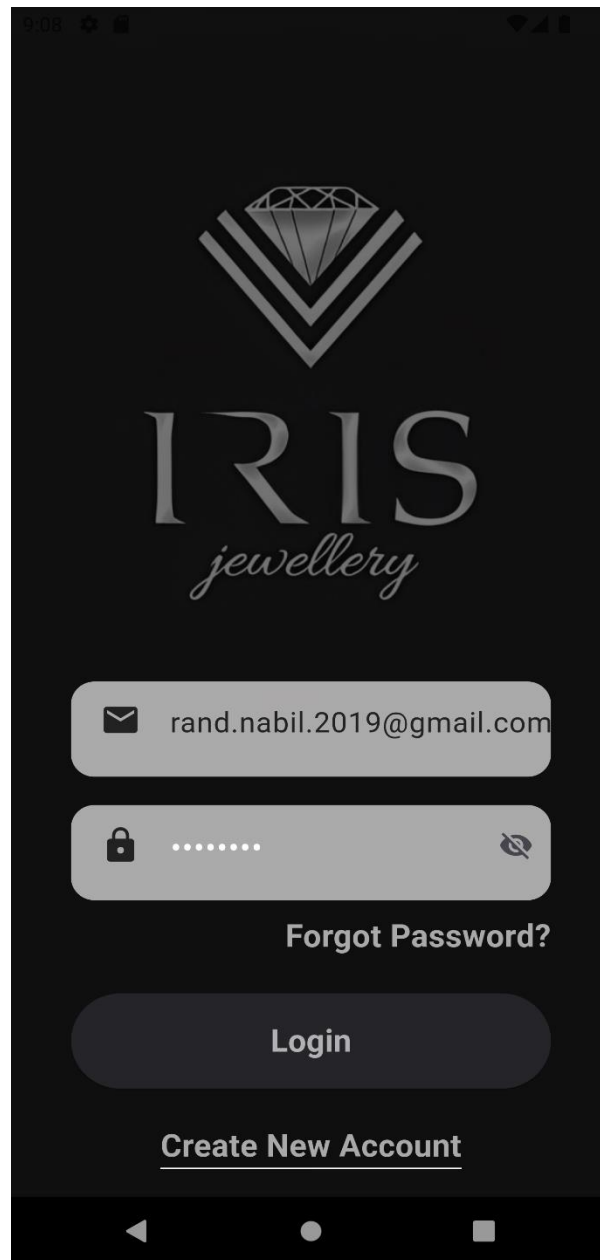


Figure 3:70 Admin Log in

- Here is the home page for admin section, here they can find the pie charts of IRIS.

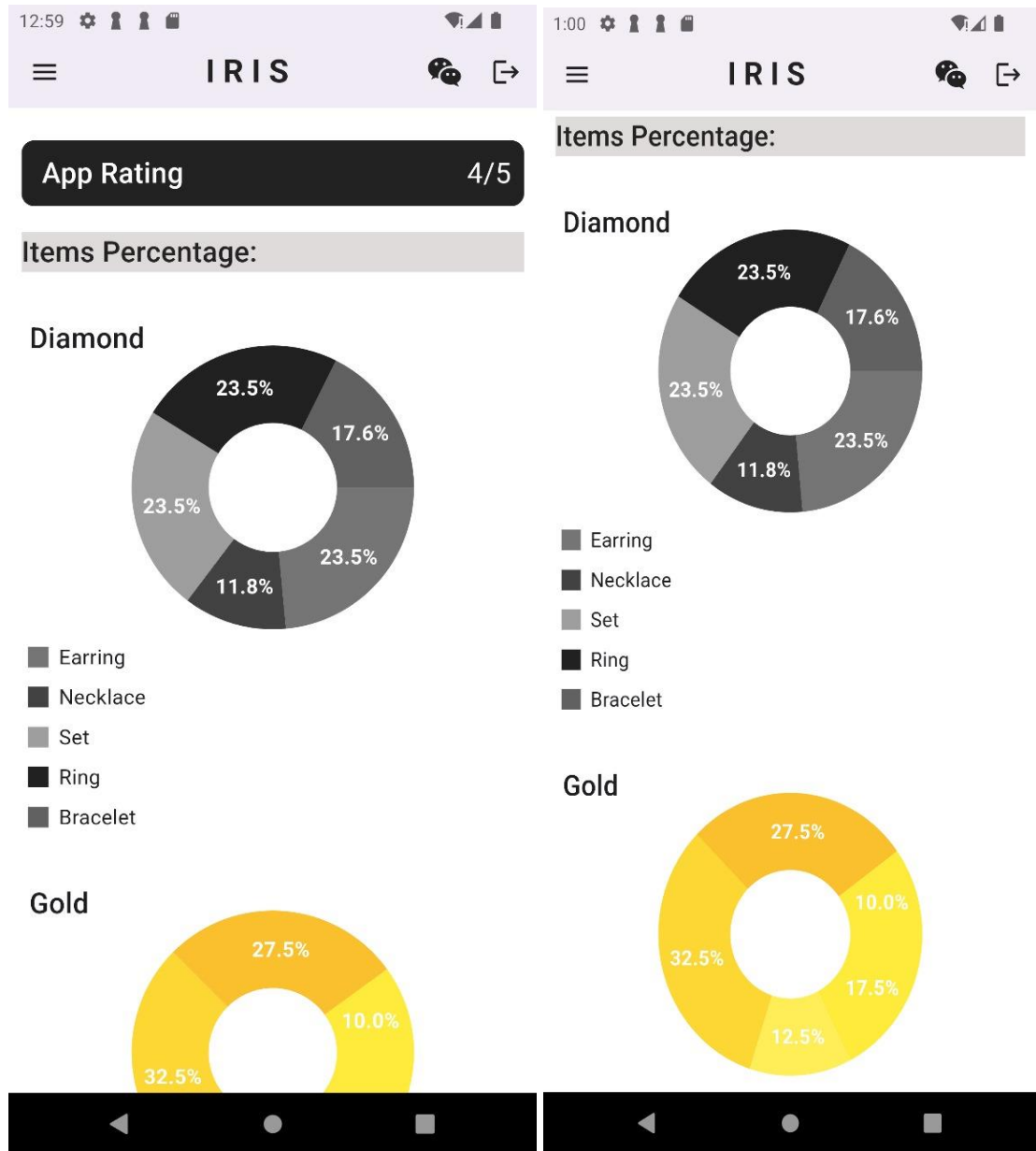


Figure 3:71 Admin Home Page 1

- Also, they can see their table of sellers.

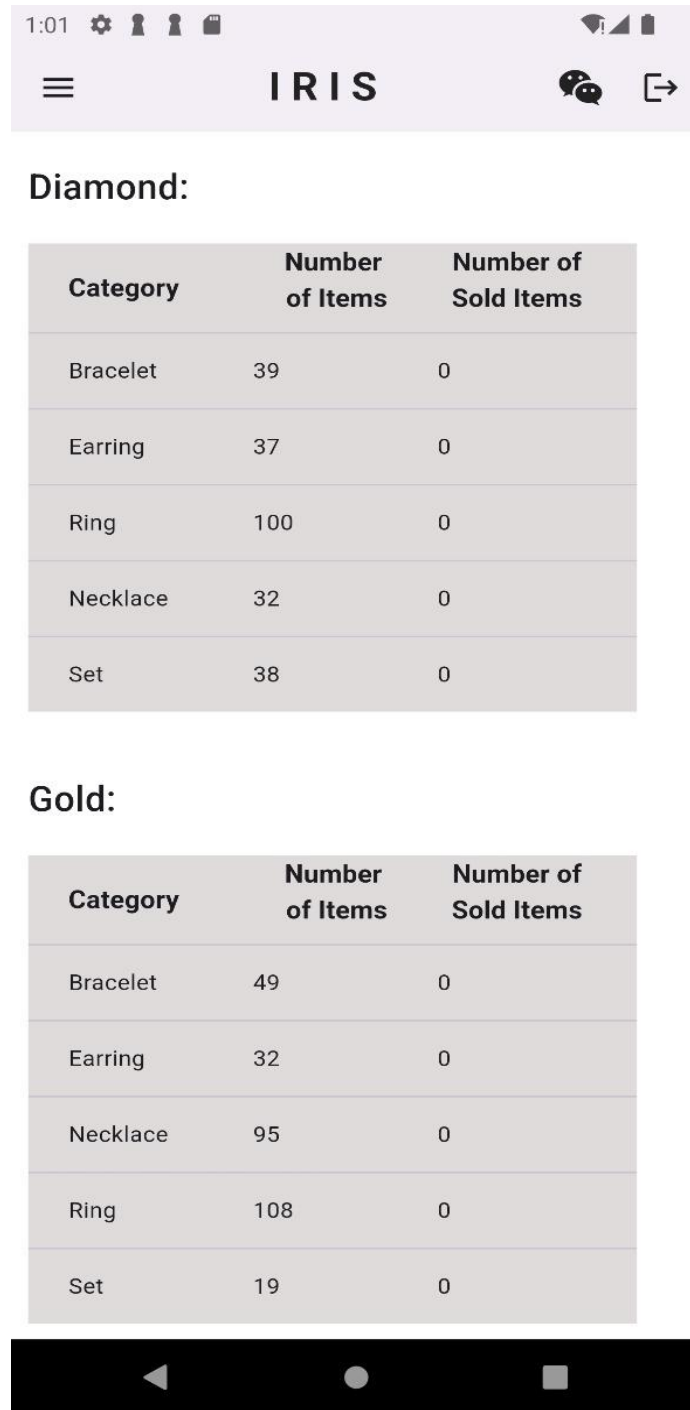


Figure 3:73 Admin Home Page 3

- The admin can search for a specific user to see their details, and delete their account if they wanted.
- Also, can search for a specific item, he can delete this item or modify it if they wanted.

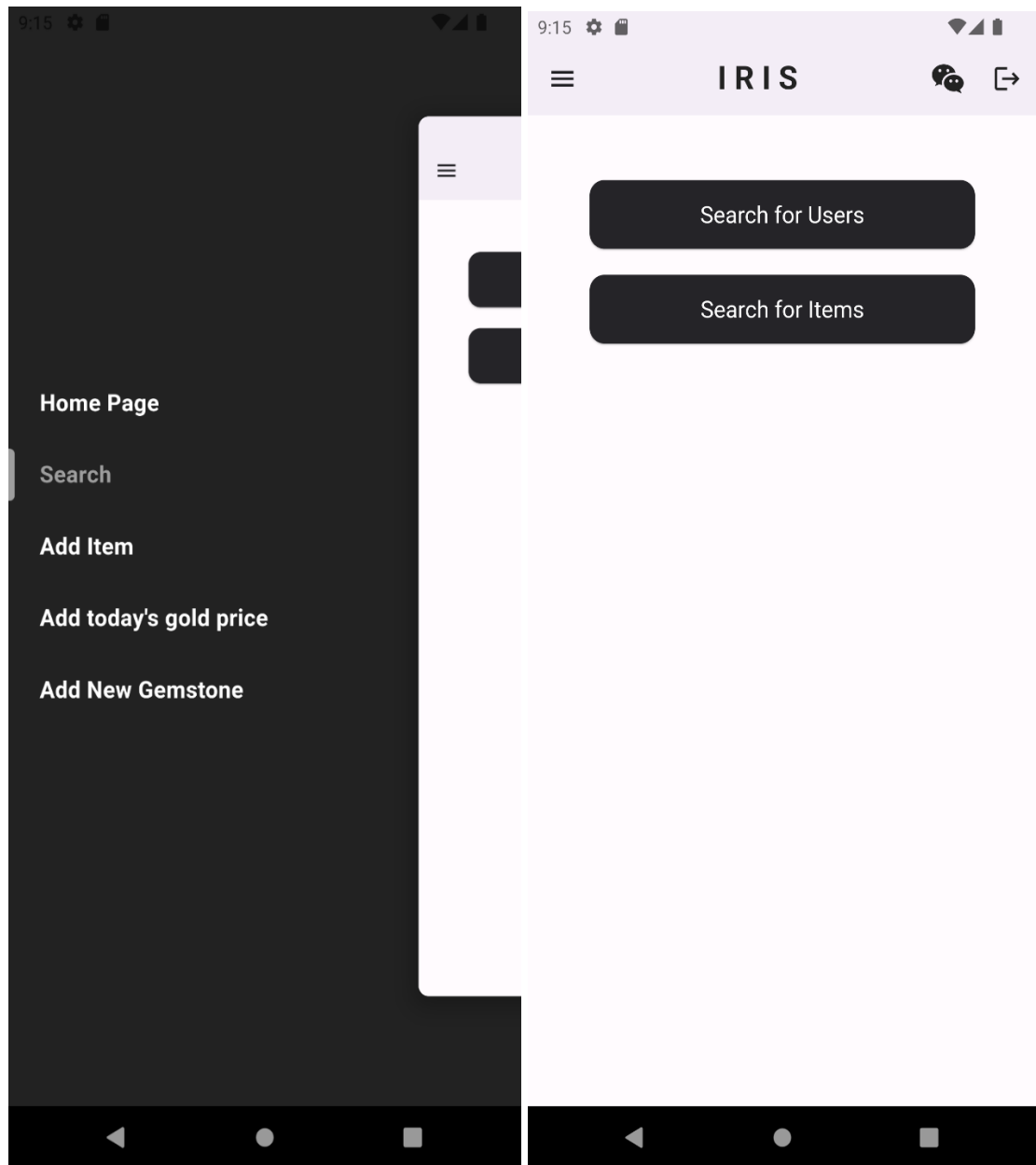


Figure 3:74 Admin Search Page

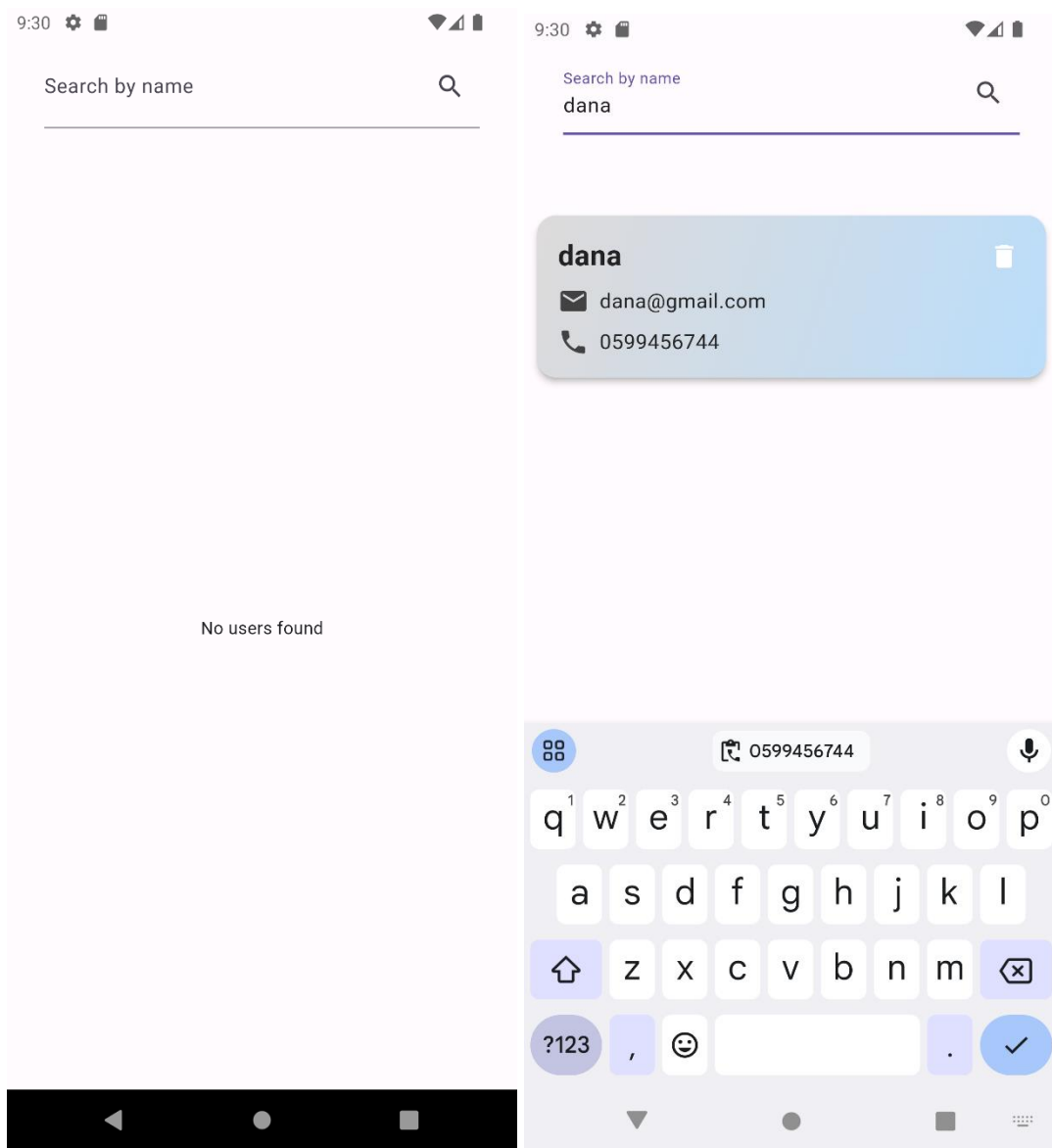


Figure 3:75 Search for Users 1

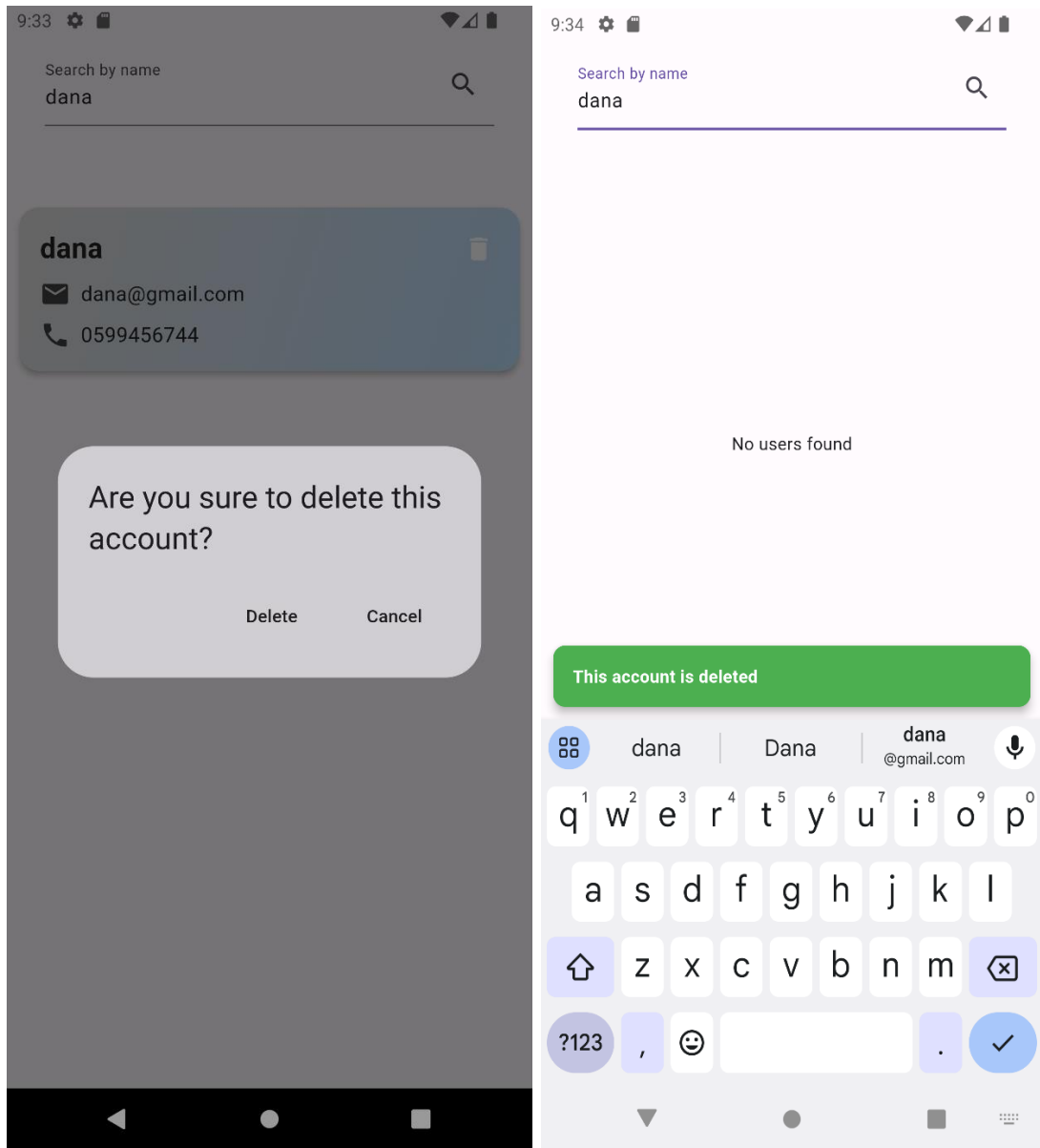


Figure 3:76 Search for Users 2

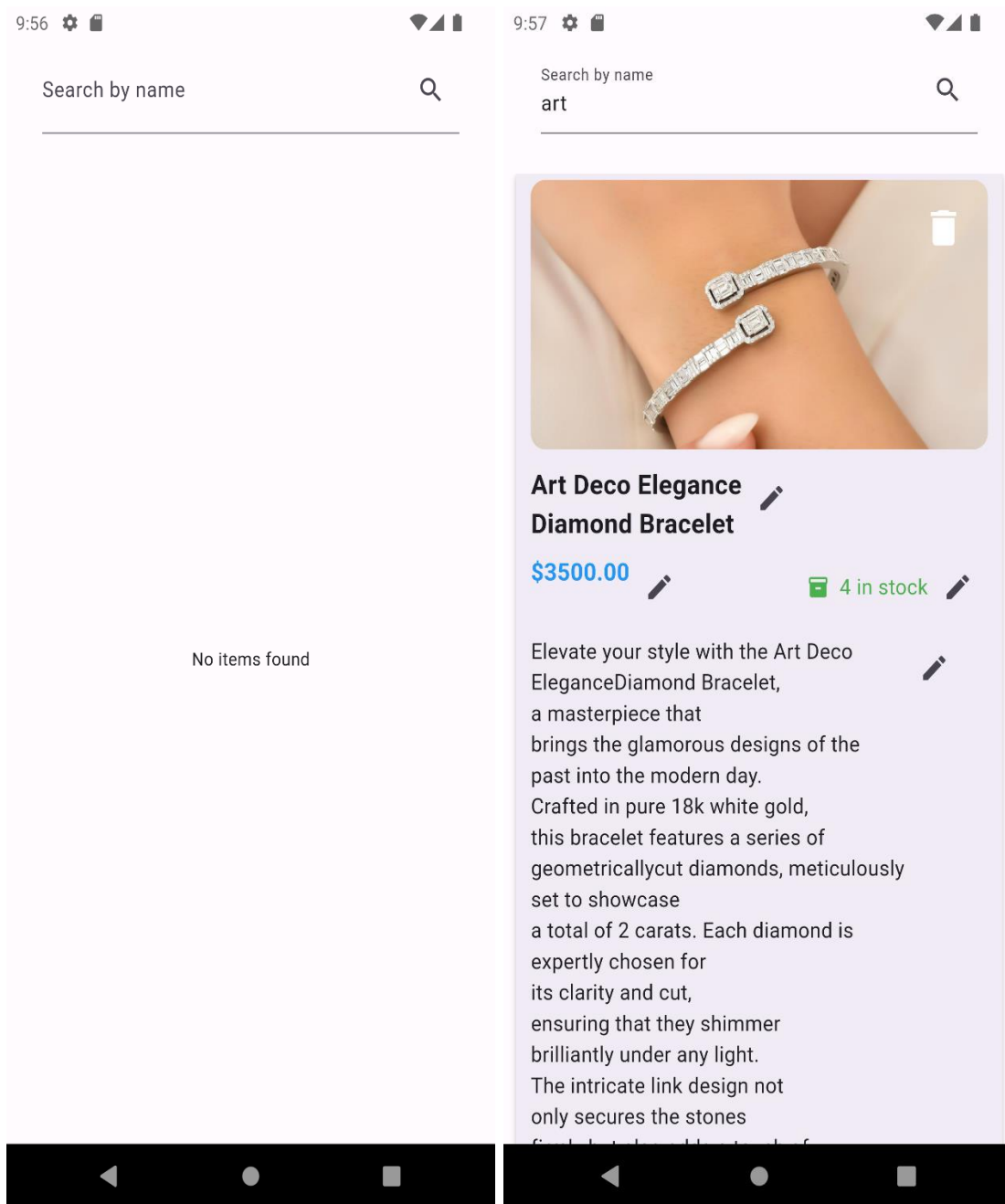


Figure 3:77 Search for Items 1

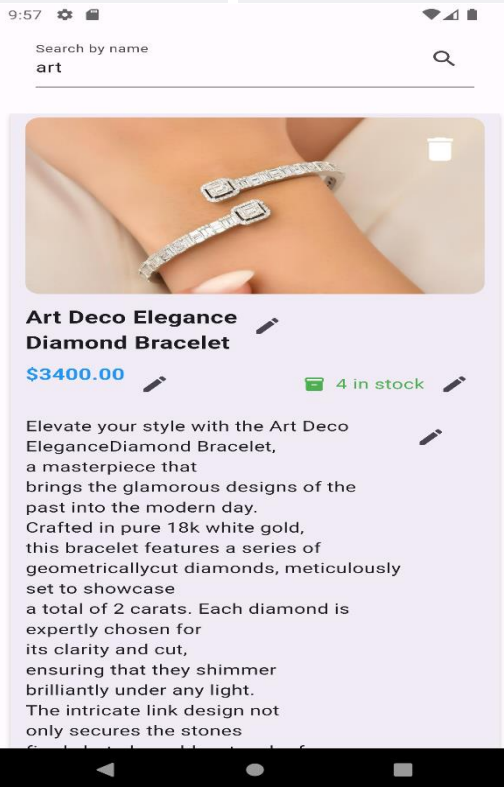
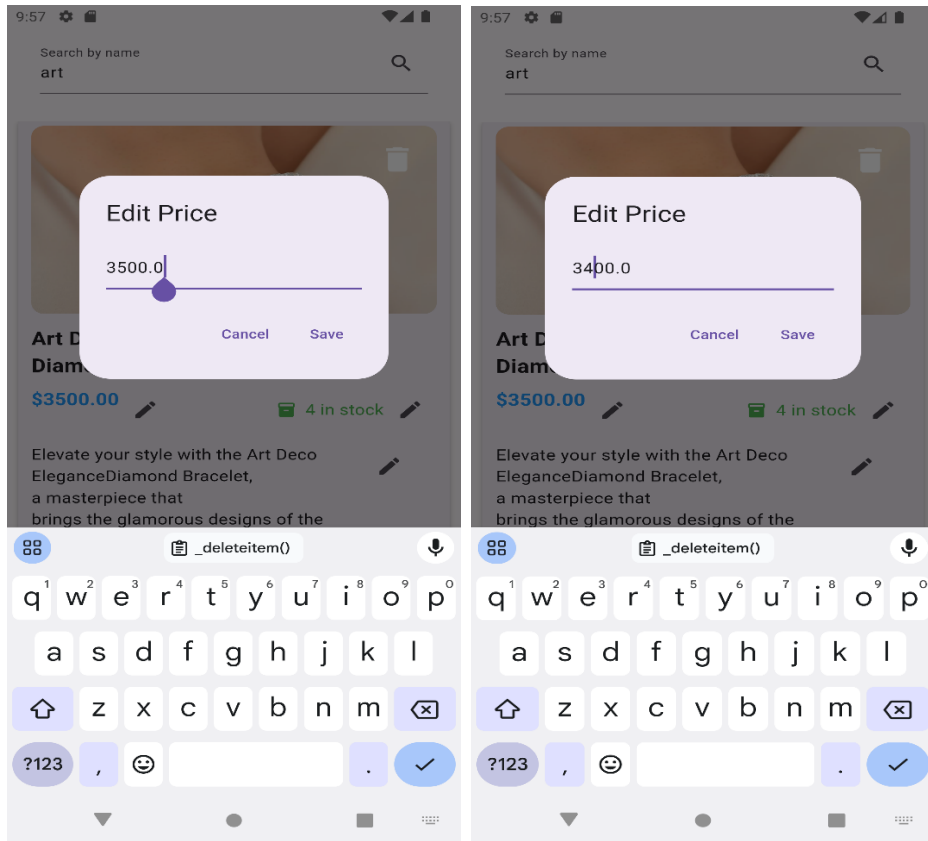


Figure 3:78 Search for Items 2

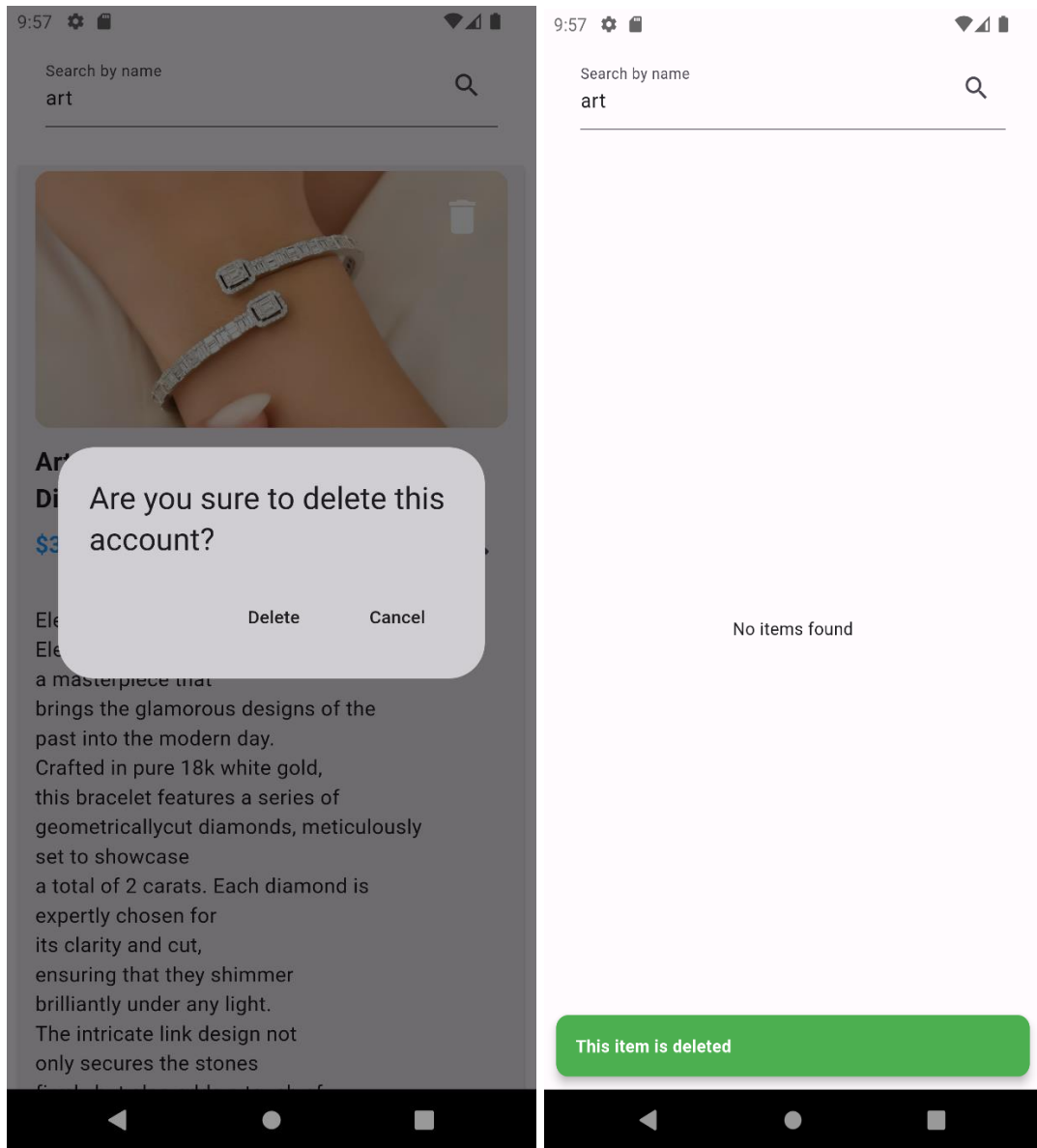


Figure 3:79 Search for Items 3

- Our admin can add new items to the app either gold or diamond.

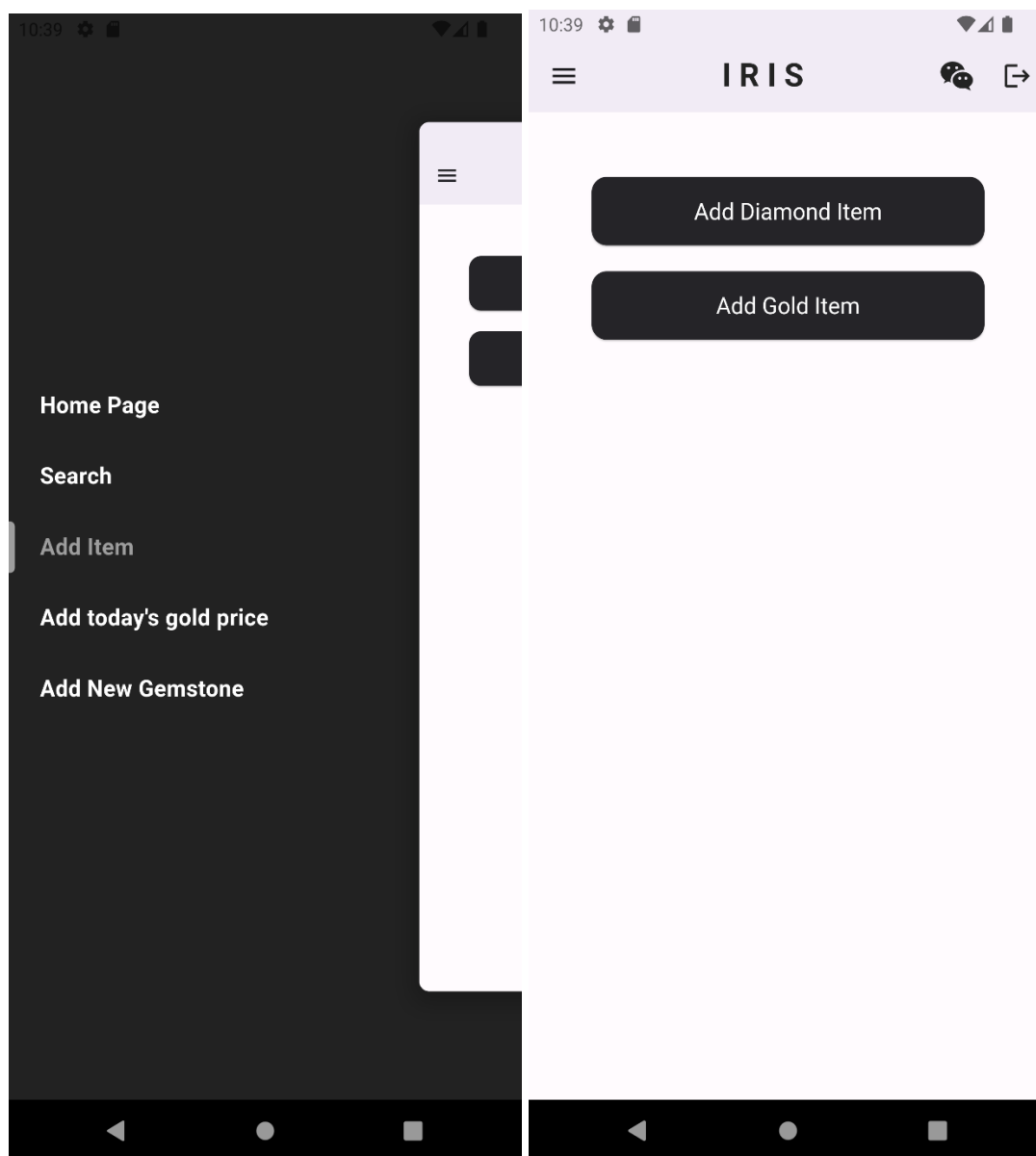
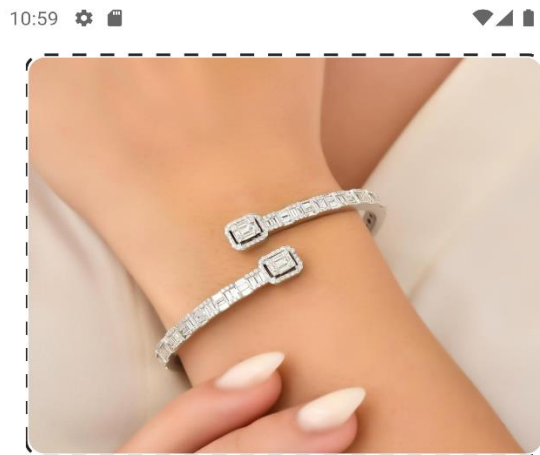


Figure 3:80 Admin Add Item Page



Category

- Ring
- Necklace
- Bracelet
- Earring
- Set

Art Deco Elegance\nDiamond Bracelet

3500



Category

- Ring
- Necklace
- Bracelet
- Earring
- Set

Art Deco Elegance\nDiamond Bracelet

3500

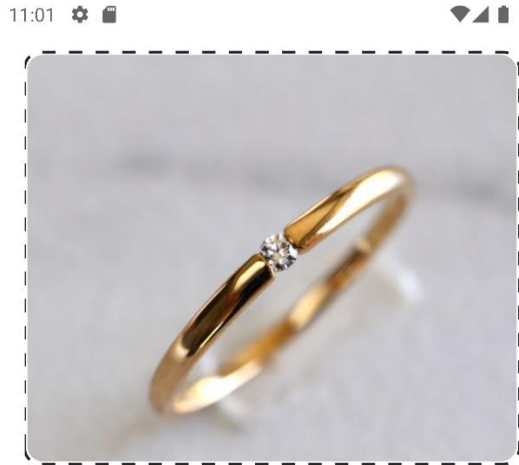
s a timeless addition to any jewelry collection.

10

Cancel

Save

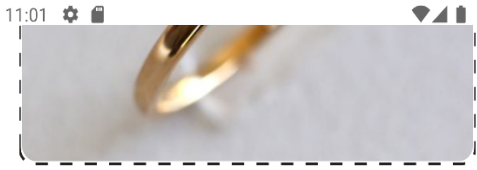
Figure 3:81 Add Diamond Item Page



- Category
- Ring
 - Necklace
 - Bracelet
 - Earring
 - Set

Golden Feather Embrace Ring

240



- Category
- Ring
 - Necklace
 - Bracelet
 - Earring
 - Set

Golden Feather Embrace Ring

240

Embrace Ring" is an artistic piece that encapsulat

10

Cancel Save



Figure 3:82 Add Gold Item Page

- Our admin adds the gold price daily.

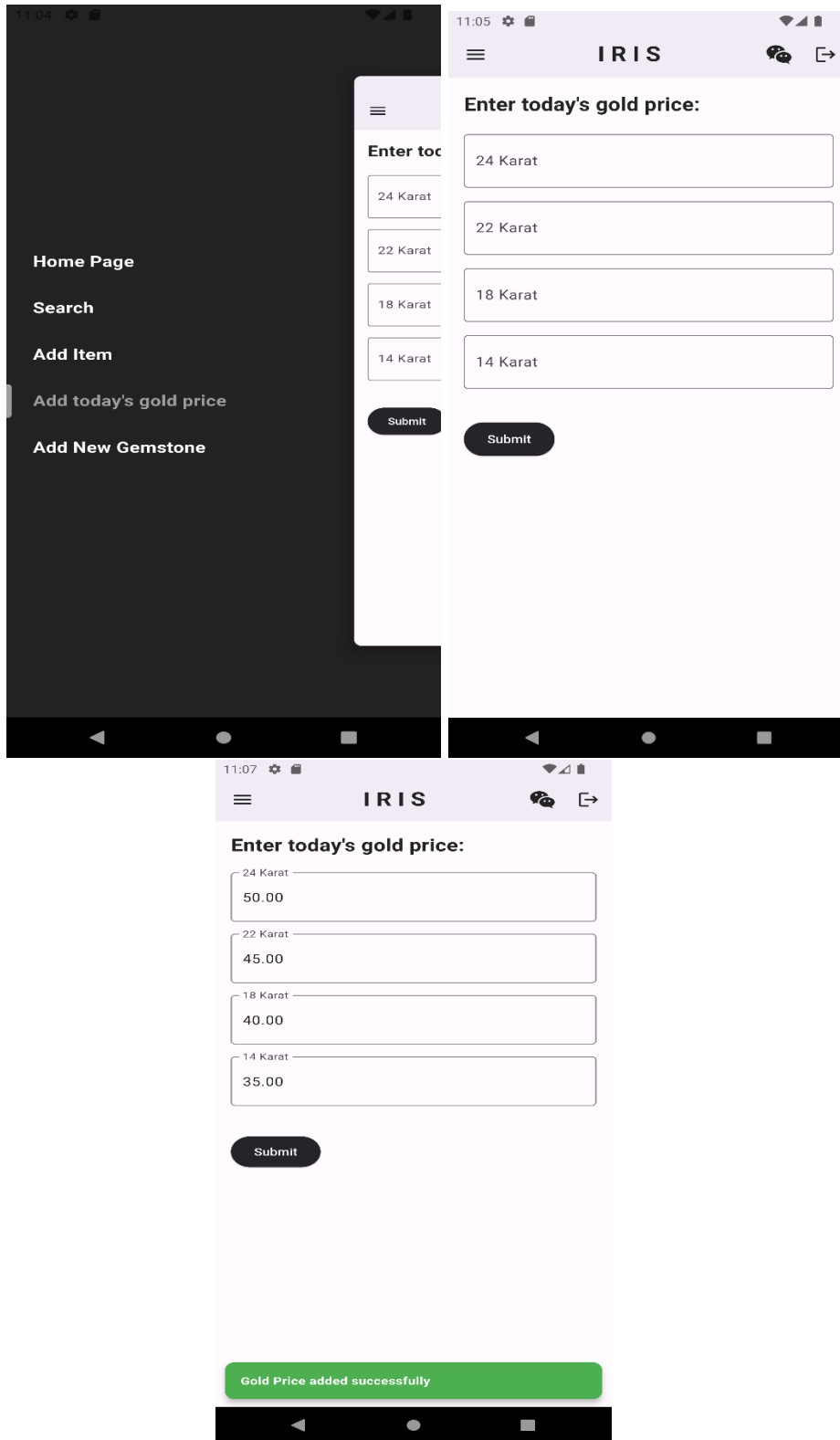


Figure 3:83 Add today's Gold Price Page

- Also, they can add a new gemstone to the gemstones screen.

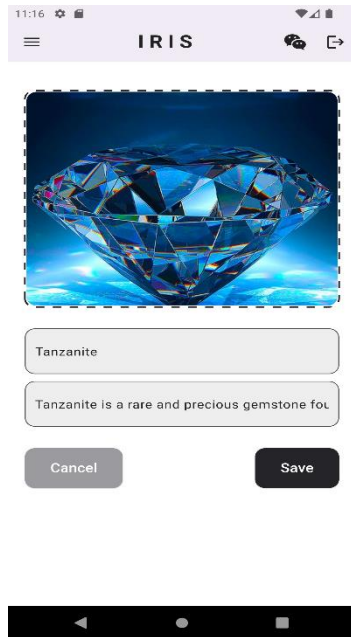
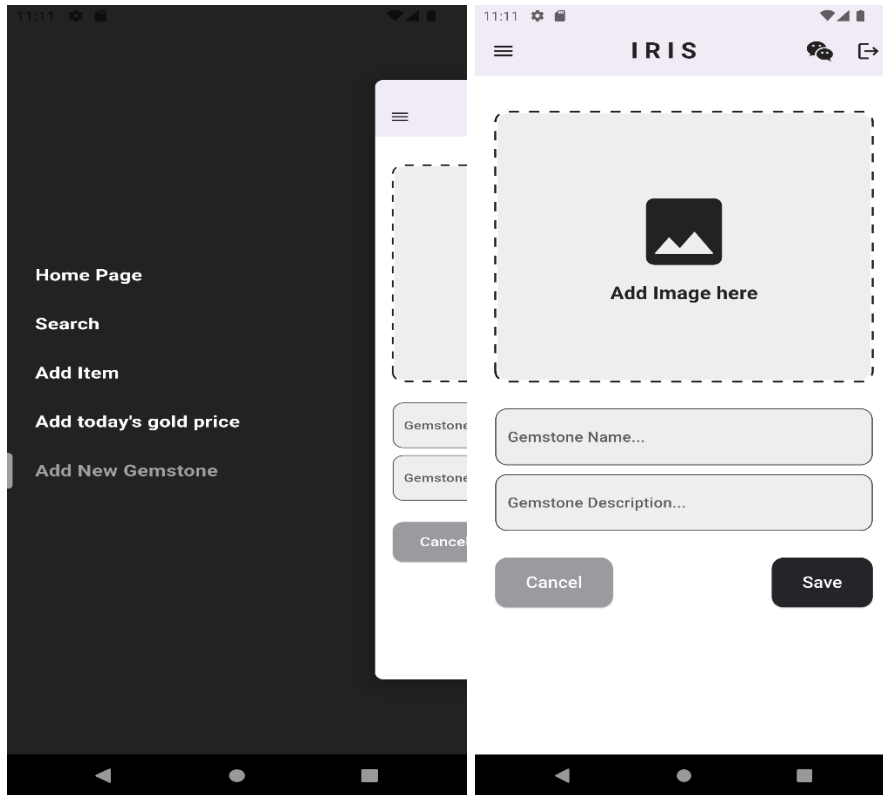


Figure 3:84 Add New Gemstone Page

- Forgot Password

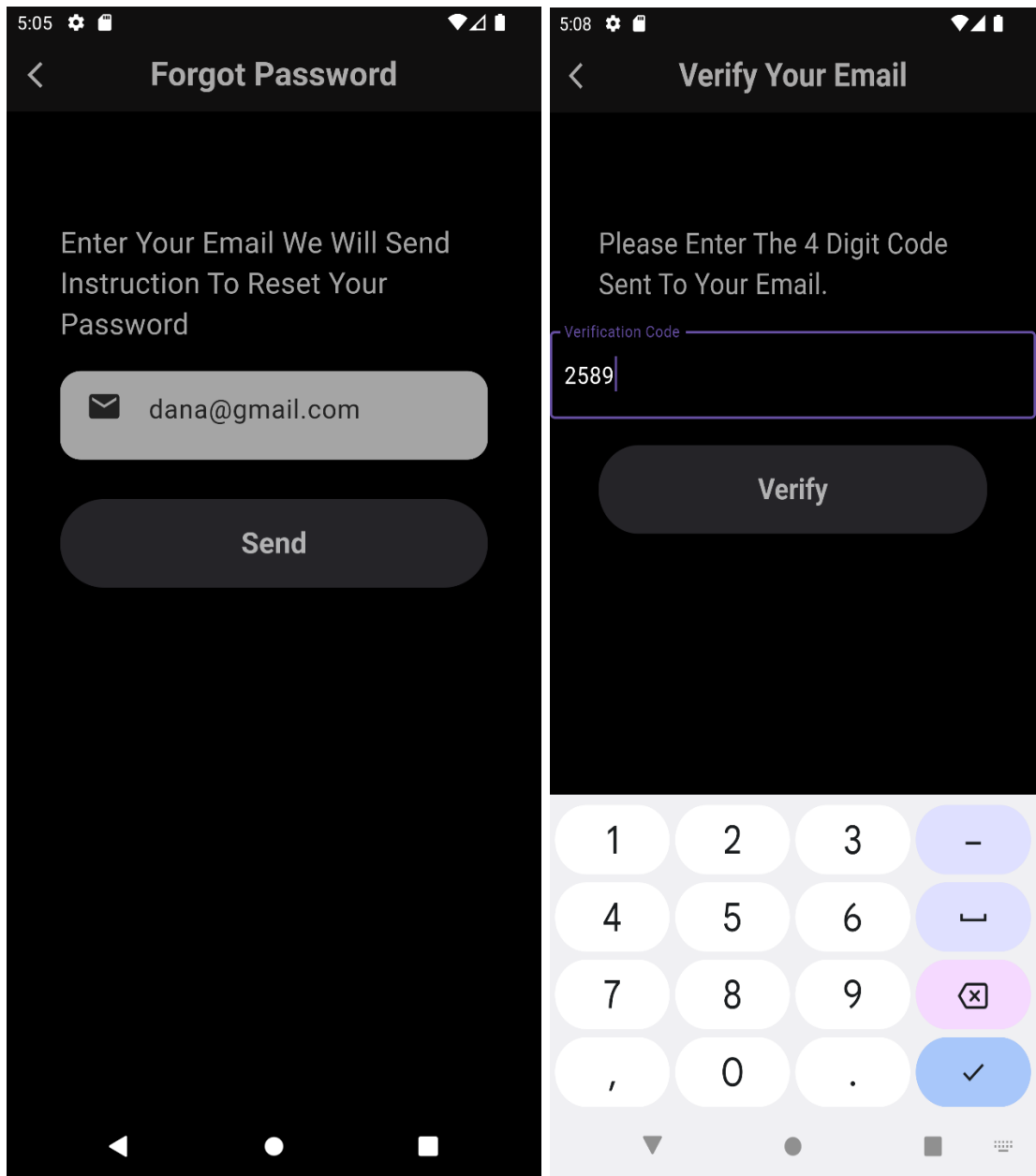


Figure 3:85 Forgot Password 1

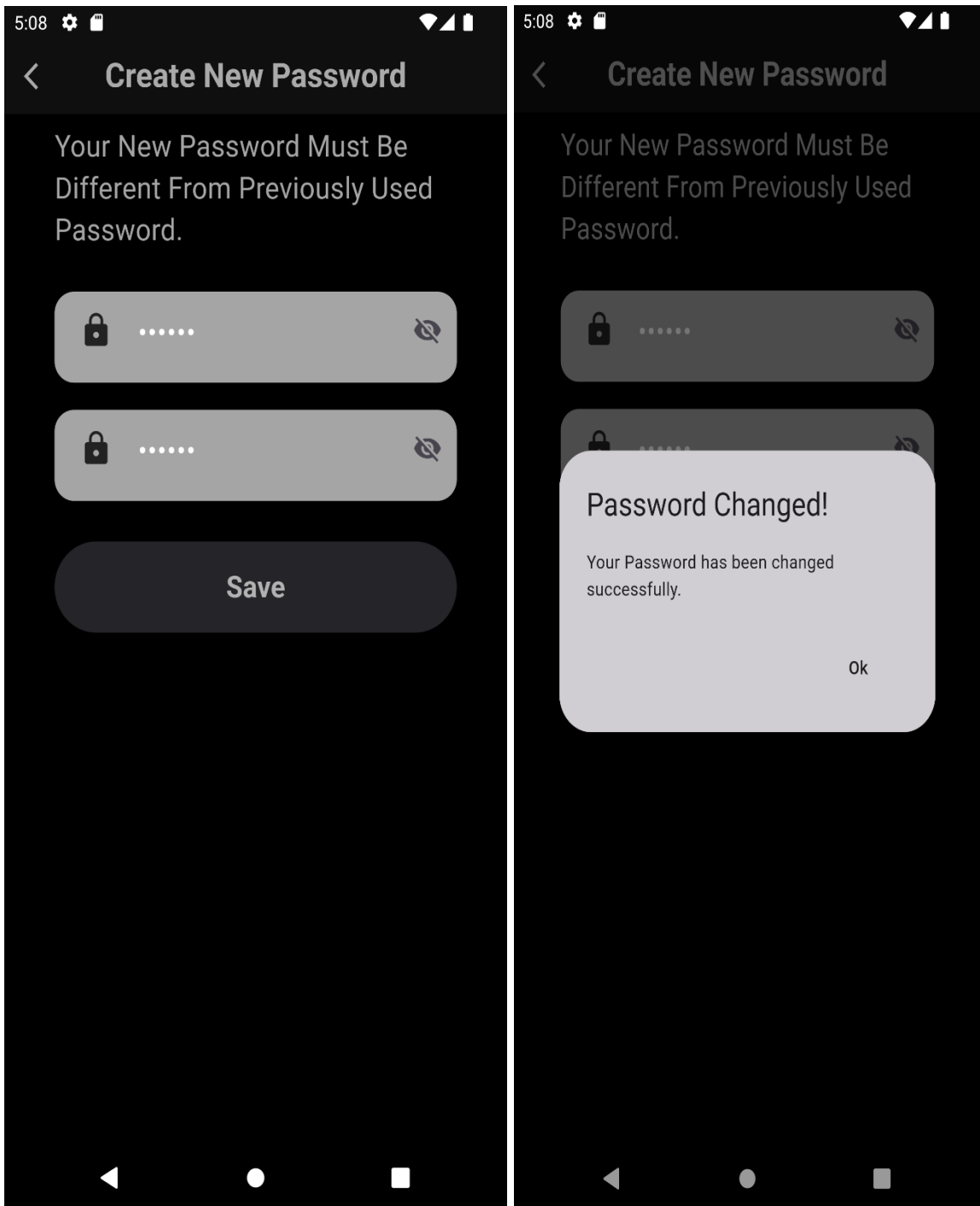


Figure 3:86 Forgot Password 2

- Validation

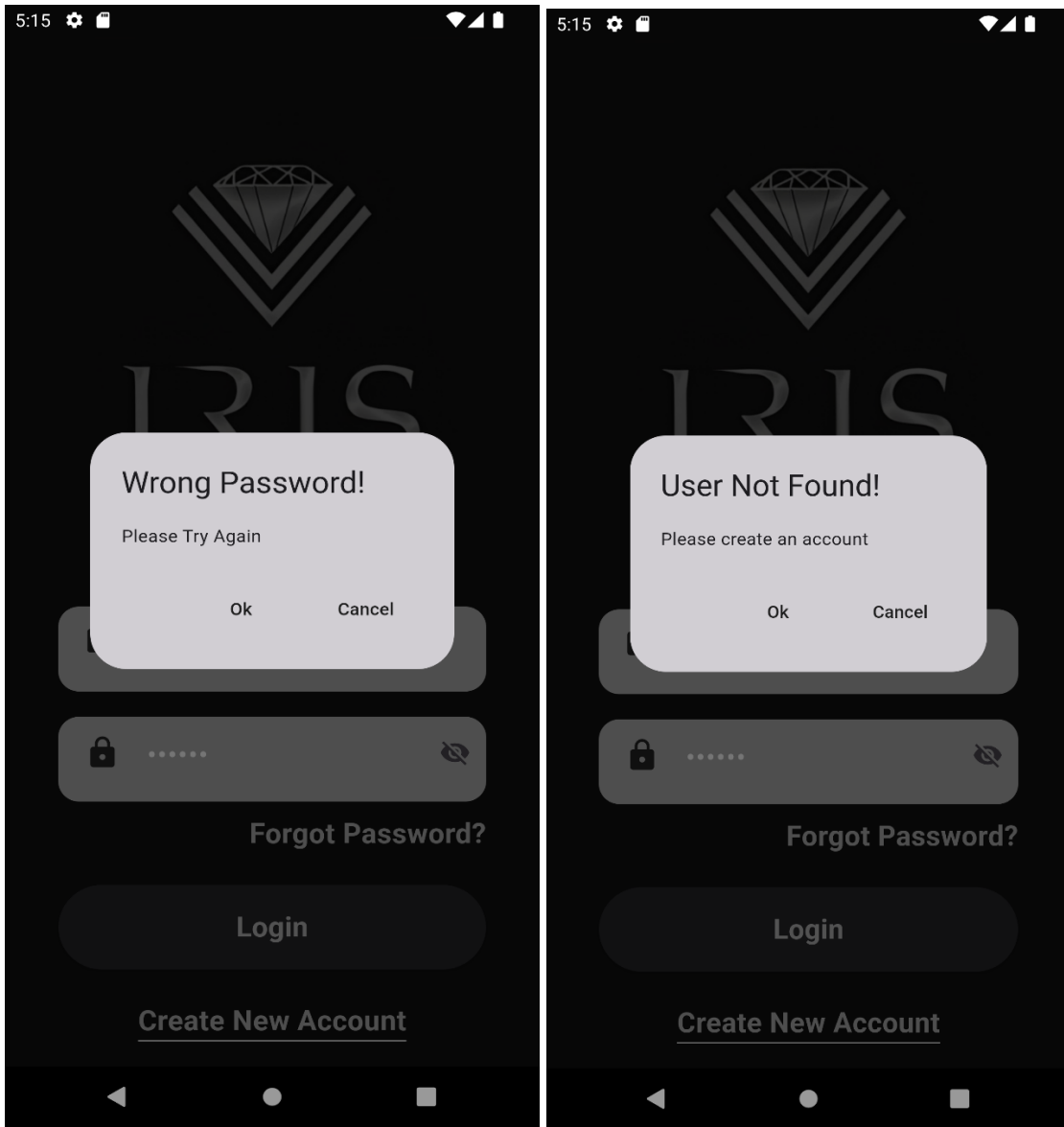


Figure 3:87 Validation 1

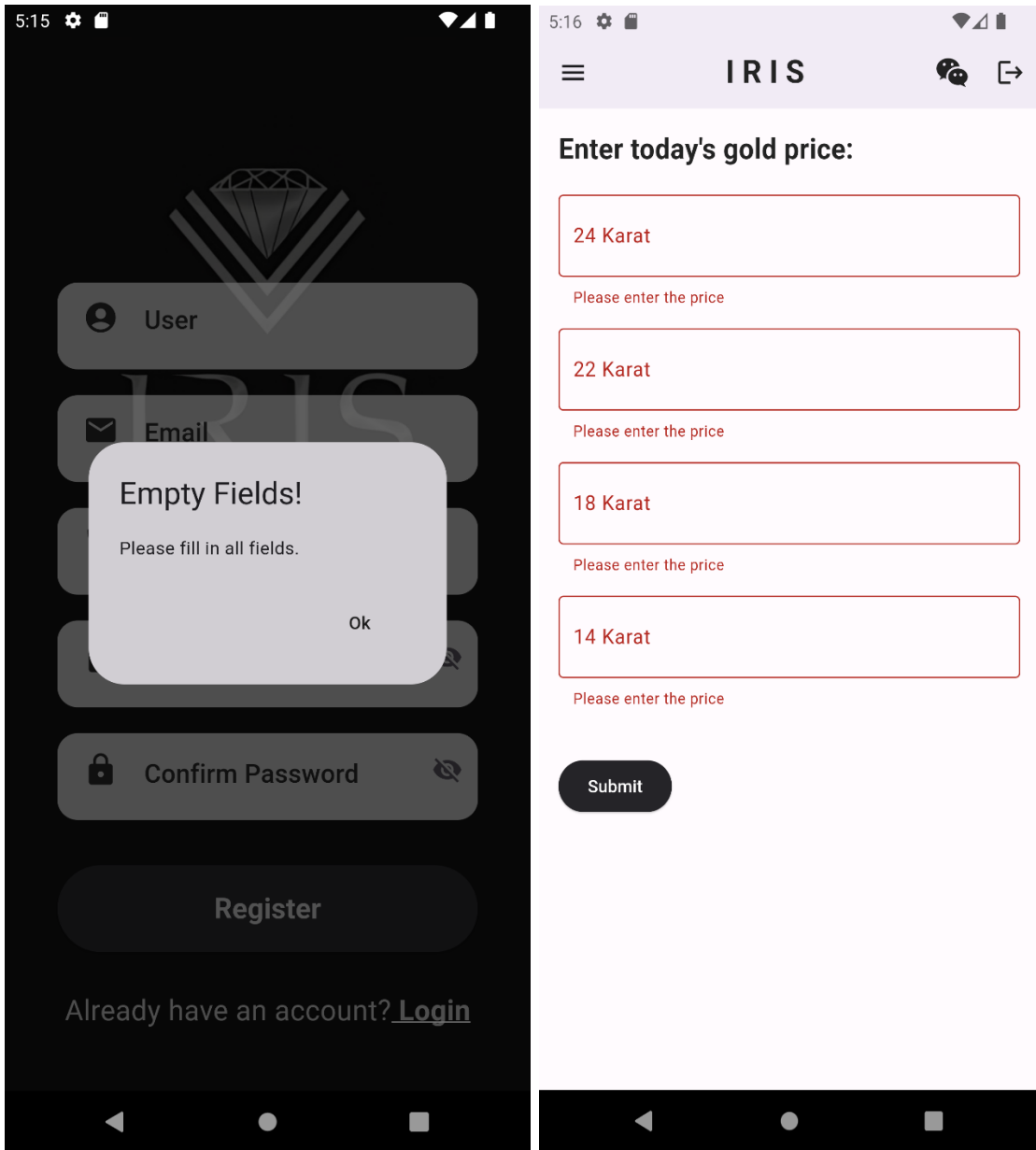


Figure 3:88 Validation 2

The image shows a registration form for 'IRIS jewellery' with five input fields, each with a validation message:

- User:** Required field
- Email:** Please enter your email
- Phone Number:** Please enter your phone number
- Password:** Please enter your password
- Confirm Password:** Please confirm your password

Figure 3:89 Validation 3

3.3.2. Website

The website encompasses all features and interfaces available within its platform, ensuring a comprehensive user experience.

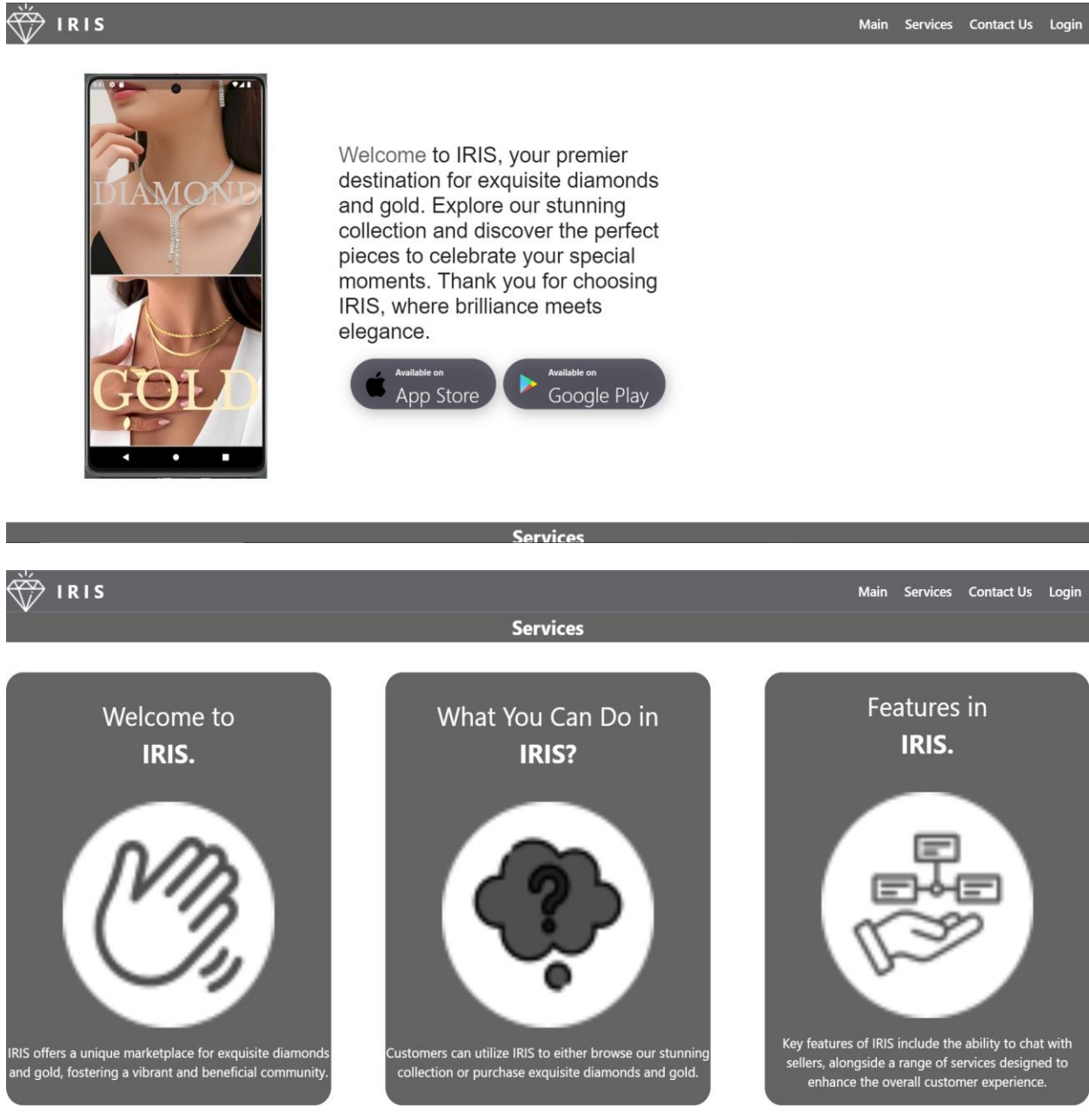




Figure 3:90 Website Pages 1


IRIS Main Services Contact Us Login



IRIS offers a unique marketplace for exquisite diamonds and gold, fostering a vibrant and beneficial community.





Customers can utilize IRIS to either browse our stunning collection or purchase exquisite diamonds and gold.





Key features of IRIS include the ability to chat with sellers, alongside a range of services designed to enhance the overall customer experience.

Contact us


IRIS@gmail.com


 +97254168650


[Facebook](#)


[Instagram](#)

IRIS
jewellery

Forgot Password?

[Create New Account](#)

IRIS
jewellery

Already have an account? [Login](#)

- Home Page
- Search
- Add Item
- Add today's gold price
- Add New Gemstone

App Rating

Items Percentage:

Diamond

- Rings
- Necklaces
- Bracelets
- Bangles
- Sets

Gold

- Rings
- Necklaces
- Bracelets
- Earrings
- Sets

Gold

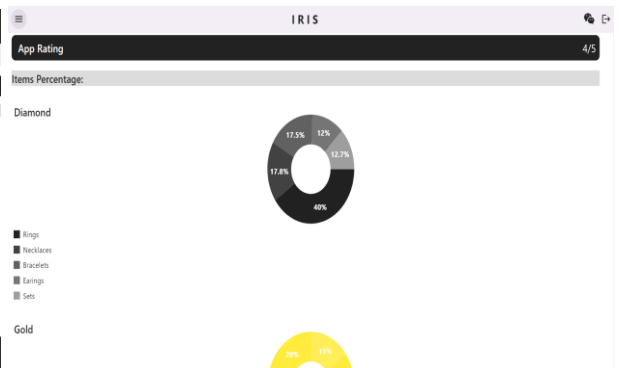


Figure 3:91 Website Pages 2



Figure 3:92 Website Pages 3

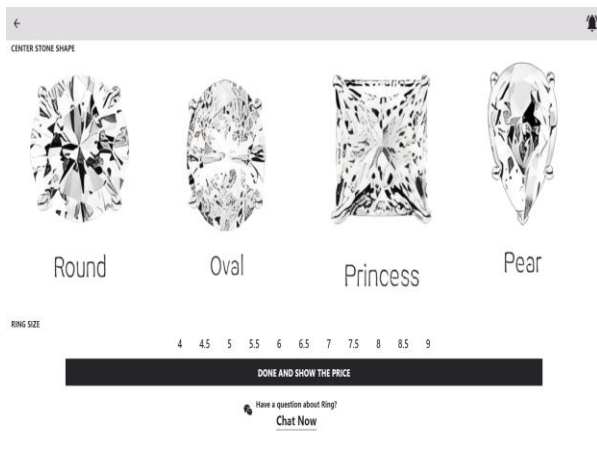
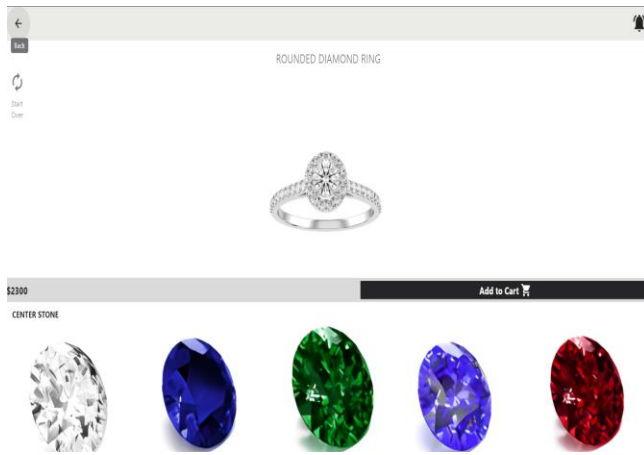


Figure 3:93 Website Pages 4

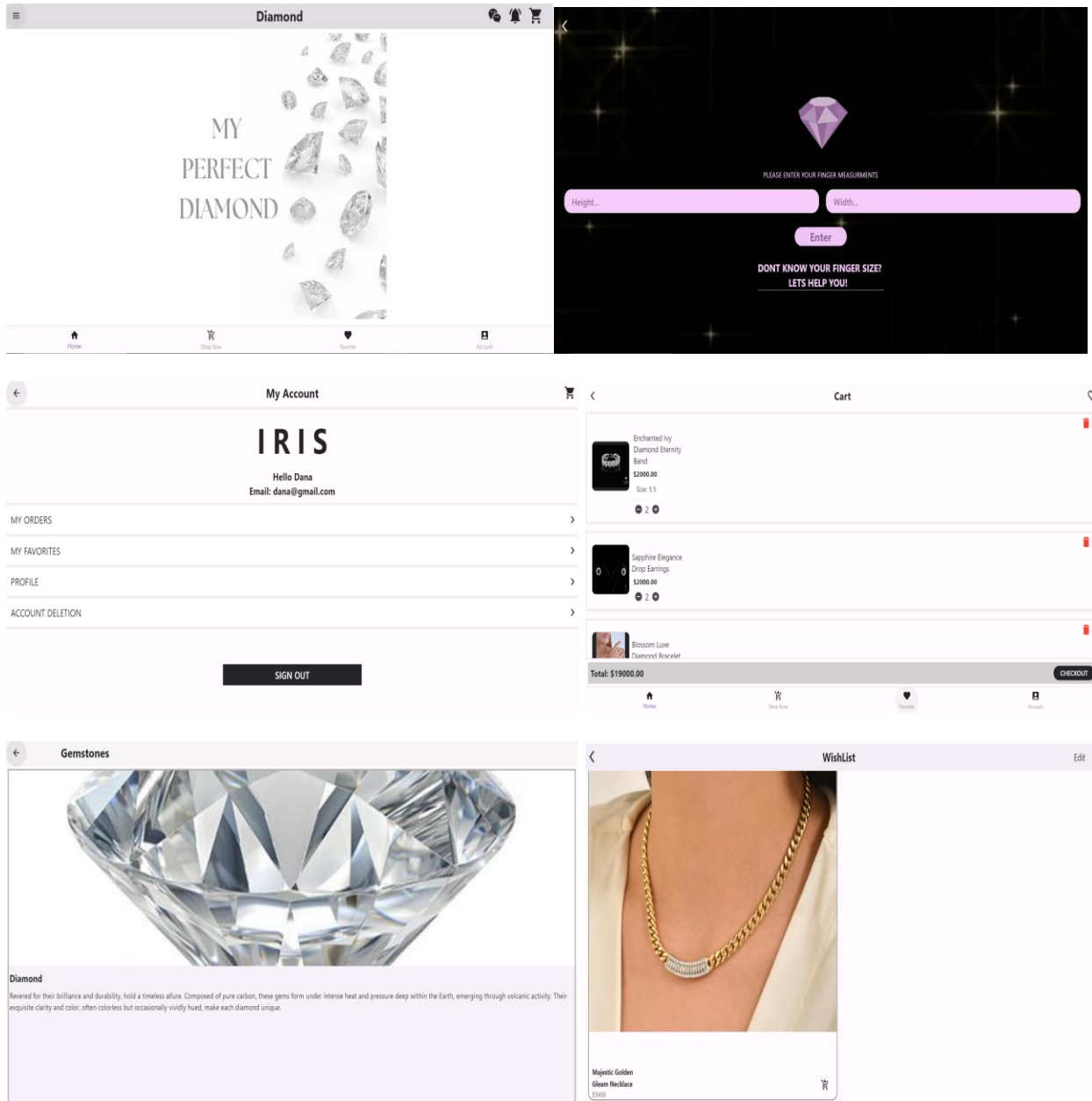


Figure 3:94 Website Pages 5

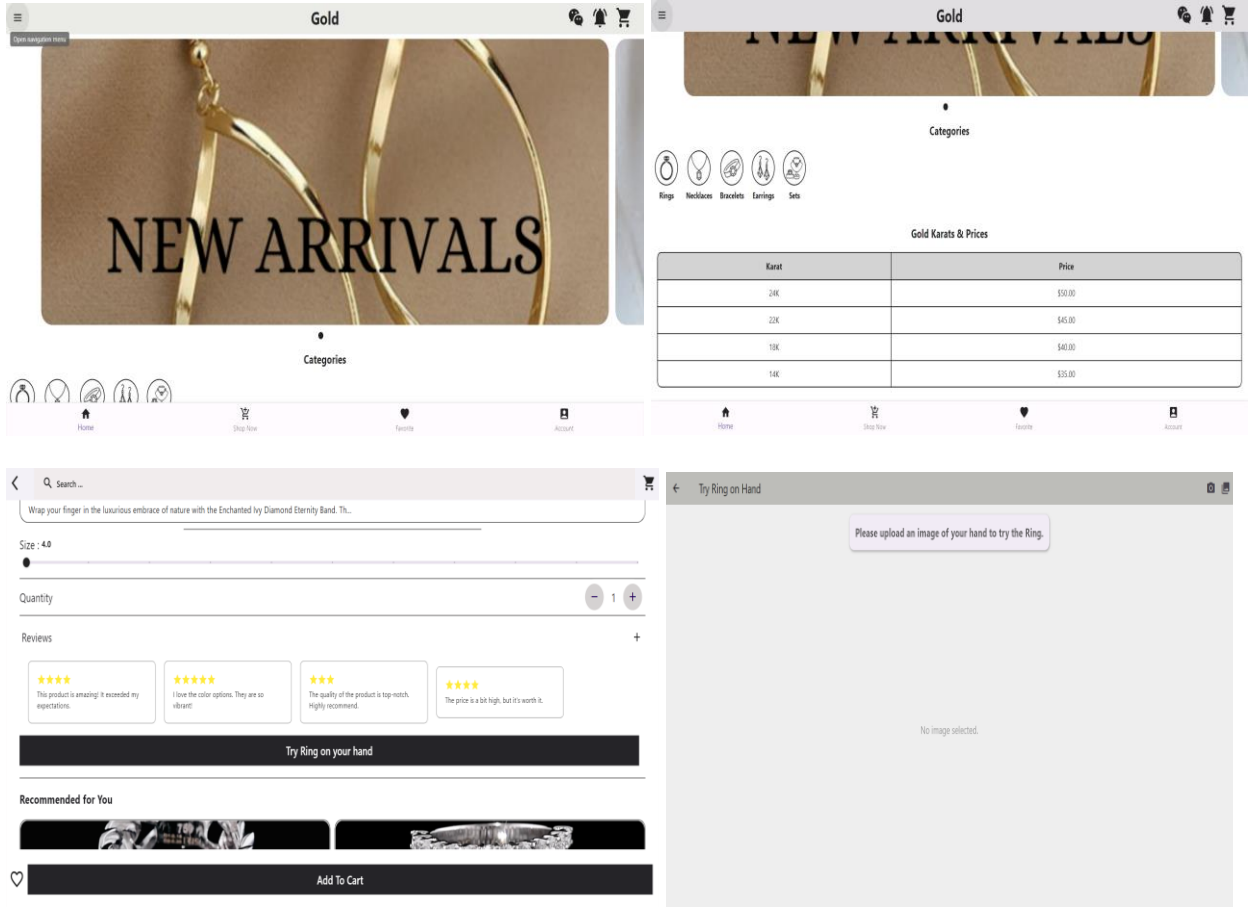


Figure 3:95 Website Pages 6

4. RESULTS AND DISCUSSION

At the end of this project, we successfully achieved the desired results by building "IRIS" a smart comprehensive platform that includes both a website and a mobile application designed especially for jewelry enthusiasts. IRIS provides high efficiency and a user-friendly experience, with outstanding features guided by our focus on creating a simple, intuitive, and visually clear design to ensure ease of use for all users. Through IRIS, users will have the opportunity to buy jewelry items, creating a beneficial exchange within the jewelry community. Additionally, an administrator oversees all aspects of the application, ensuring a smooth and secure experience for all users. The administrator is responsible for providing a variety of services aimed at enhancing the user experience.

4.1. CONSTRAINTS

However, the app development journey presented various technical and practical challenges for IRIS.

- Understanding the causes of exceptions and errors in the code has not always been straightforward. It involved investing time in research and troubleshooting to identify the root cause of the issues.
- As new dependencies were added and frequent updates occurred, it sometimes clashed with our existing infrastructure. The creation of a logical and robust database system that efficiently retrieves and stores data proved to be a challenge.
- Connecting the applications that we used to develop IRIS and making the emulator work was challenging.
- Finding a way to upload pictures from the code to a cloud and ensure they appear seamlessly in the IRIS application and website.
- Developing the "Design Your Ring" feature required sophisticated code to allow users to customize their jewelry accurately.
- Implementing the "Suitable Diamond" feature to recommend the best diamond shapes for users' hands based on various parameters was complex and required techniques to make it work.
- Integrating the "Try the Ring On" feature, which allows users to upload a picture and drag the ring onto the finger they want, was technically demanding and required careful attention to user interface design.

Despite these challenges, the application was successfully developed according to our vision, yielding satisfying outcomes. Users can buy their desired jewelry with just one click. IRIS is dedicated to a single local store, ensuring a focused and high-quality shopping experience for its users, and enhancing the overall value and appeal of the platform.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. SUMMARY

Our project addresses the growing trend of online jewelry shopping by developing a mobile application and website dedicated to gold and diamond jewelry. The platform features an extensive collection of jewelry items, including sets, earrings, necklaces, bracelets, and rings in 14k, 18k, 21k, and 24k gold purities. We prioritize a seamless purchasing experience with detailed product descriptions, high-quality images, and search options based on price, diamond shape, and metal purity.

A standout feature is the interactive try-on tool, which allows customers to see how rings look on their fingers, aiding in informed decision-making. The custom jewelry order section lets users design pieces tailored to their preferences. Additionally, the platform includes a tool that recommends the best diamond shapes based on the user's hand, ensuring a perfect match.

To ensure trust and transparency, users must create profiles, enabling reviews and feedback. An administrator oversees the platform, using data insights to continually enhance the user experience. Our mission is to offer a specialized, reliable, and user-friendly environment for purchasing fine gold and diamond jewelry, making online shopping more secure and personalized.

5.2. RECOMMENDATIONS

- Be careful when adding new dependencies or making updates.
- Connect the applications that you want to use and make sure that the emulator is working as early as you can.
- Choose the technologies that you want to use carefully.

5.3. WHAT WE HAVE LEARNED

- How to work with flutter, Node.js,
- How to use MongoDB and firebase (for notification and chatting) databases.
- How to upload pictures to firebase storage from code to appear in IRIS application and website.

5.4. FUTURE WORK

- Developing new features that include machine learning and AI tools for try ring feature and suitable diamond feature.
- Add an AI recommendation system.
- Make the application universal so that users can order from any place in the world.
- Improve chatting system by adding voice messages.

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