HOUSE RENTAL APP

A project report submitted to

Department of Information and Communication Technology

Manipal Institute of Technology

Manipal

Submitted by

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In the end, we would like to thank our friends who provided informational inputs and genuine feedbacks at every step of the process. We are grateful for all the support we received, without which this project wouldn't have been possible.

ABSTRACT

With the current paradigm shift in technological field, there is an urgent need to embrace and appreciate the power of technology.

Housing sector remains vigilant to face the challenges of change by employing a new strategy that facilitates easy management of rental houses. Hence there is need to develop a rental house management system that can simplify work for the rental managers and tenant so that all their work can be efficient and effective.

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1 Introduction

Every semester, more and more students of Manipal tend to look for apartments outside campus and it ends up taking months to find one. There is no fixed system for this and most of them end up getting scammed or paying really high rates because they have no knowledge of the kind of properties and prices available in the market. Our app aims to provide an easier and more cost-efficient way of finding and comparing apartment rental prices for students so that the process becomes much quicker for them.

This app would be beneficial to both the tenants(students) and the landlords as the commission that goes to a broker would be saved and time. Brokers don't give out owner contact information, but this app would let the prospective tenant be in direct contact with the owner.

2 Objective

Our main objectives for this project include:

- Providing easy browsing and price comparisons of apartments for students renting outside campus.
- Getting students in contact with landlords so that they don’t have to deal with brokerage.
- A user-friendly experience for landlords to post house rental ads.
- Providing useful resources (like videos explaining how to sign contracts) and an expense splitting calculator to provide a convenient renting experience.

3 Problem Definition

Students who plan to move out in their later semesters often face a crisis while looking for rental apartments either by settling for a room they don't like or by paying tens of thousands in brokerage to get a decent flat. We intended to solve this issue by connecting landlords and students directly and virtually by our app and helping them save commission and brokerage money. Our app, GetYourHaveli helps students find their dream apartment (haveli) by the click of a button.

4 Design Methodology

4.1 Hardware Software used

Frontend: XML

Backend: Firebase, Java

Database: Firebase Realtime Database

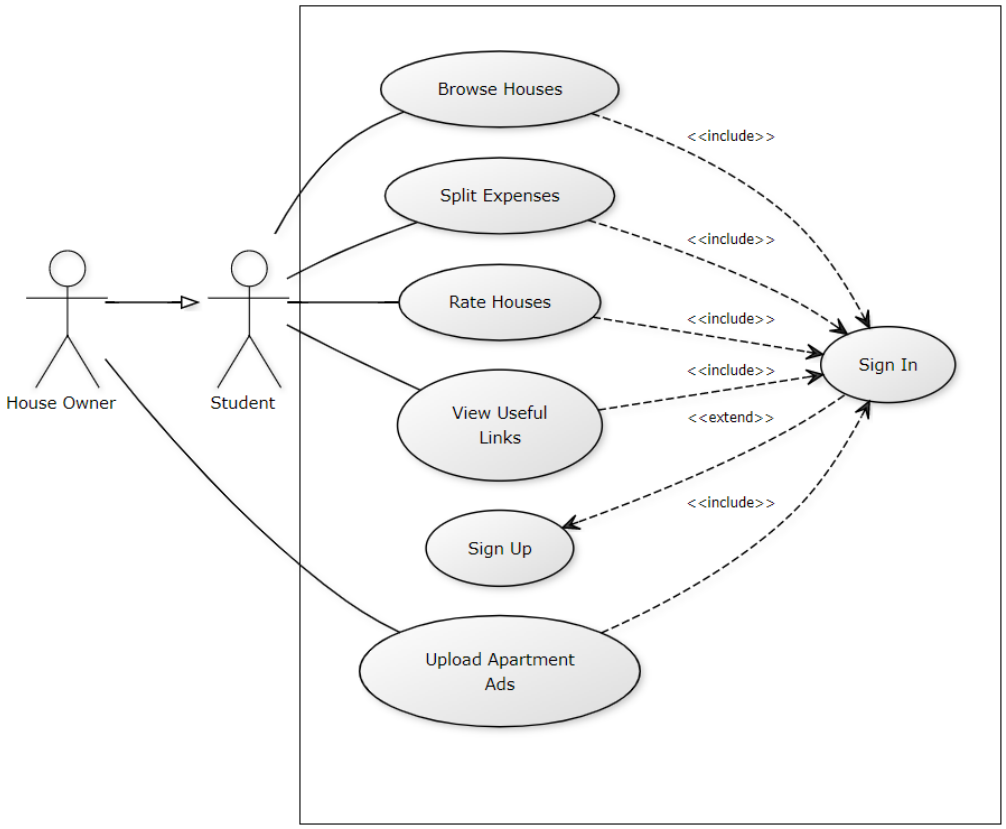
IDE: Android Studio

We created the app using XML and Java in Android Studio, and connected it to firebase database to store the user information. The flow and the activity diagram of the app is as given below.

The whole idea for this app was to be easy for the user to guide through and navigate for different rental properties.

4.2 Flow Chart

4.2.1 Use Case Diagram

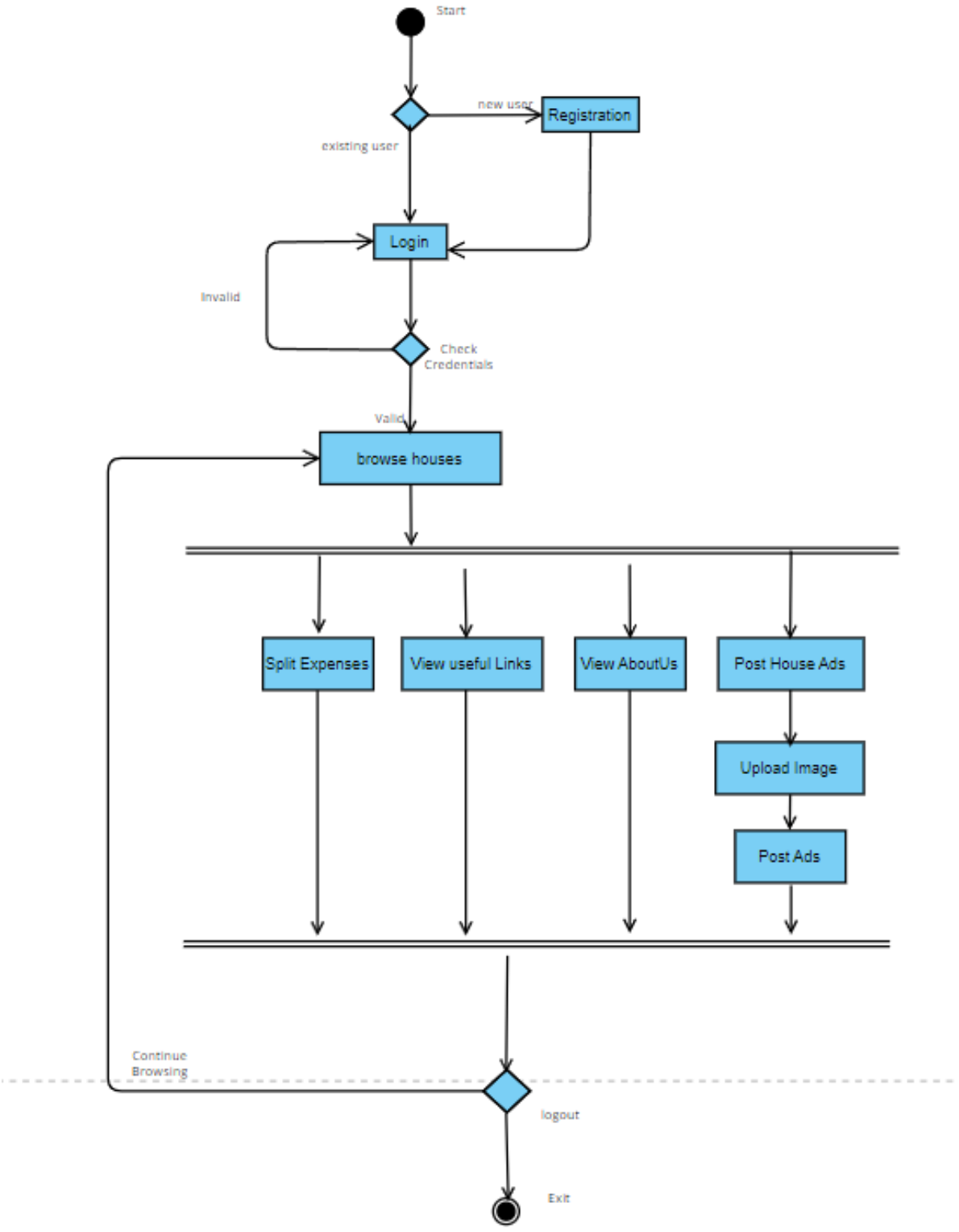


Important Use Cases:

Browse Houses: This use case can be used by both House owners and students to browse through various ads for apartments. It requires the user to be signed in

Upload Apartment Ads: This use case can be used by the House Owners to post a rental ad for their apartment. It requires the user to be signed in. The ad gets posted to the database.

4.2.2 Activity Diagram



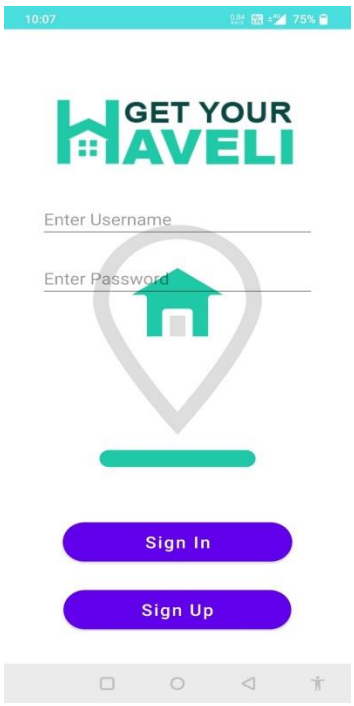
4.3 Additional Features

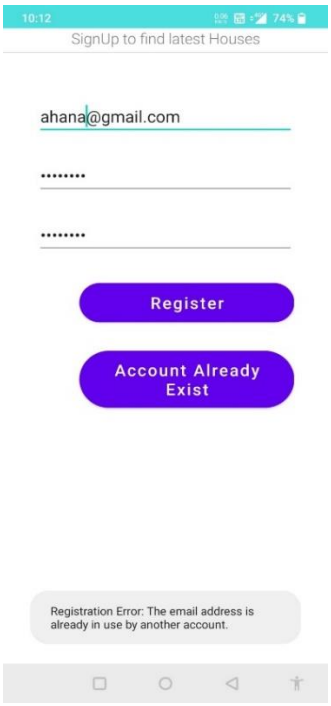
A few features provided by our app include:

- Firebase authenticated Login and Signup, with an animation that plays in the background when the app is first loaded.
- Easy browsing and price comparisons of apartments on the home page. Students can contact the landlords with the click of a button and rate houses to help out other students decide.
- A convenient and user-friendly way for landlords to put up rental ads with images, amenities and price specifications- managed by a Firebase Realtime Database.
- A navbar to conveniently navigate between pages with an option of Signing out.
- Students get to access useful video resources that explain to them, ‘how to sign contracts’, ‘how house leases work’, etc.
- Students can use the inbuilt expense splitting calculator where they can find how the different expenses will be divided between roommates each month.
- A separate page with information and ways to reach out to the creators of the app, in case of potential partnerships/collaborations.

5 RESULTS AND DISCUSSION

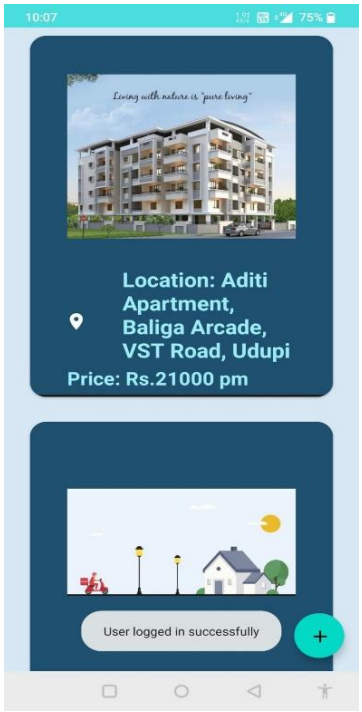
5.1 Sign-In and Sign-Up pages





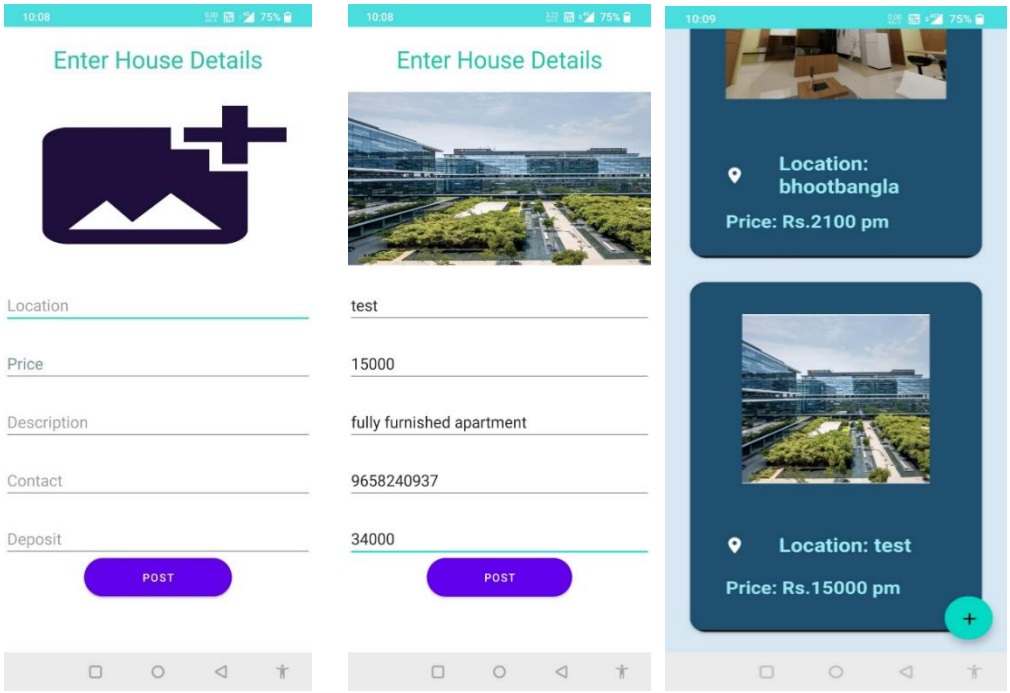
On opening the app, we see an animation on the page that runs once. Then the user can either Sign-in or Sign-Up. This has been done through **Firebase Authentication**. New user must enter an email address, which if not in valid format will give an error. Confirm password lets user re-enter password to confirm.

5.2 Browsing Ads Landing page



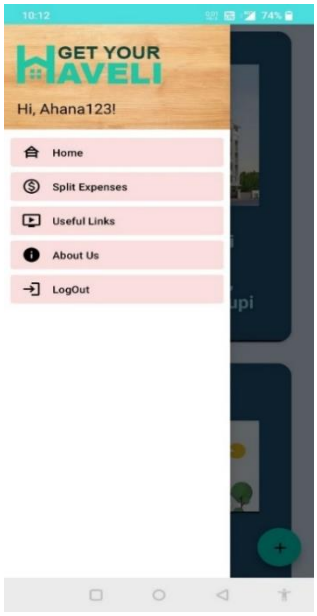
The page user lands on has multiple cards that showcase the rental ads, containing images, location and price of the houses. This has been done through RecyclerView and an Adapter that fetches data from a Firebase Realtime Database. This page is scrollable.

5.3 Post an ad with apartment details like location, price, amenities and an uploaded image.



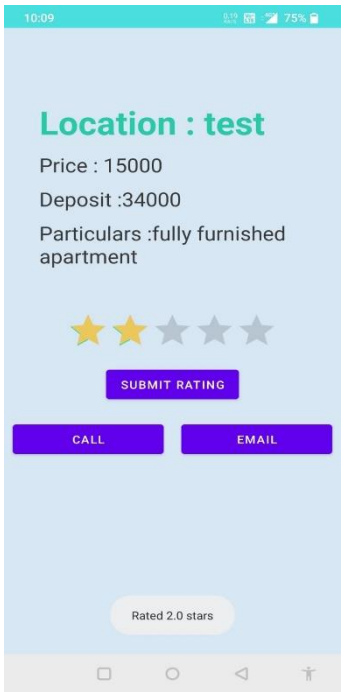
A floating action 'add' button at the bottom lets user add a new rental Ad. User can upload image from local device gallery that shows the upload image progress, enter location, price, description, contact and first deposit details. All of this data is stored into the **Realtime database** and updates the ads on the main homepage. The uploaded images are stored into Google Cloud storage.

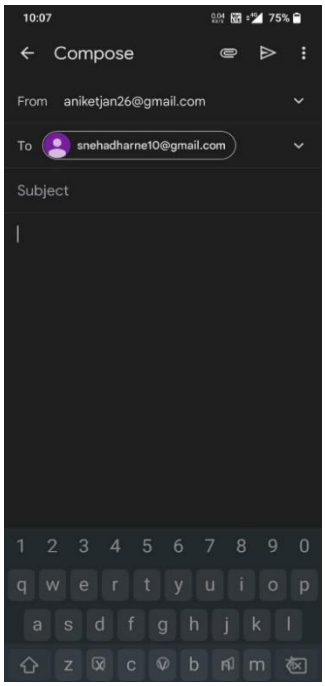
5.4 Navbar

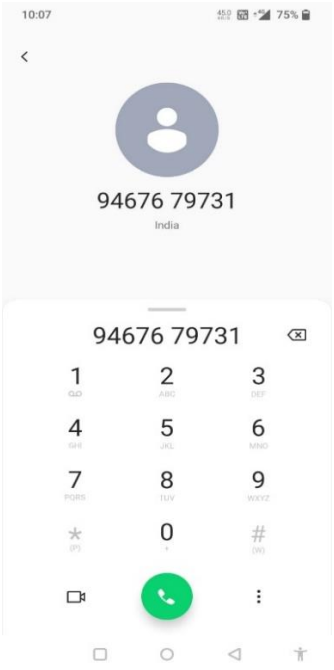


A navbar can be opened on swiping from the left side, which contains our custom-made logo. It has links to various pages like Home, Split Expenses, Useful Links, About Us and a Logout option.

5.5 House Details with call and email options

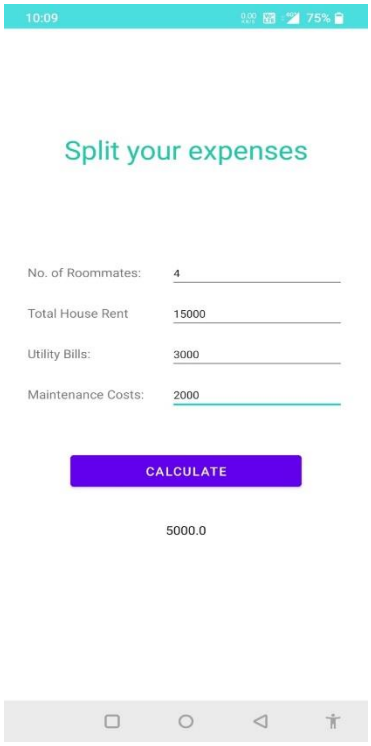






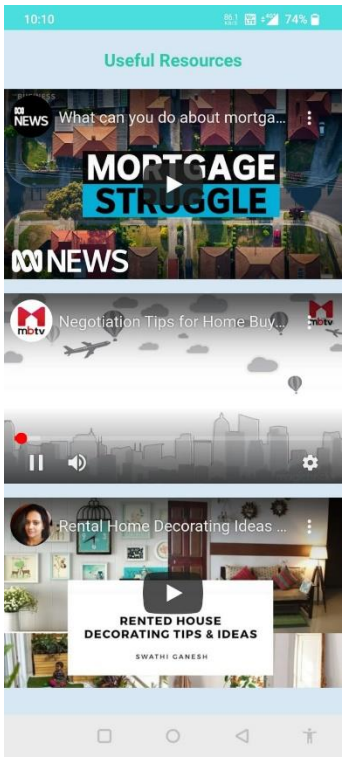
On clicking on any particular ad, it opens a page with more details about that apartment, with data fetched from database. There is location, price, deposit, description of the house, a rating bar that lets user rate the house and submit rating, and 2 buttons for calling and emailing the landlord.

5.6 Split expenses with roommates' page



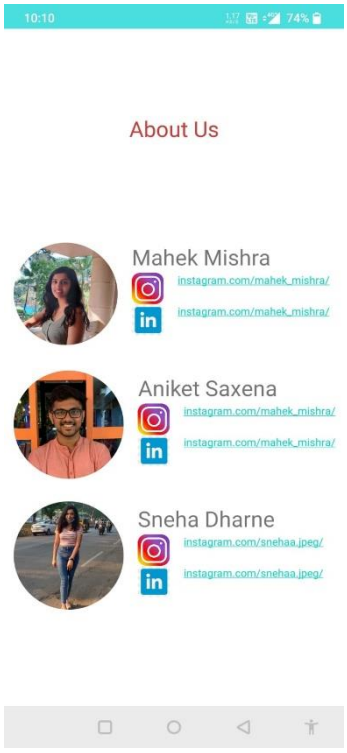
Split Expenses page lets user enter number of roommates, rent fees, utility and maintenance bills and computes the total bill each roommate needs to pay.

5.7 Useful YouTube resources page for students



Useful Links page uses **YouTube API and WebView** to let user view YouTube videos within the app and can even play multiple videos at the same time. This is to provide useful video resources to students to educate them on signing contracts, renting apartments, etc.

5.8 Page about the creators of the app



About Us is a page with details on the makers of the app with clickable links to our social media

6 Conclusion and Future Work

Using android app development, we effectively reduced the load on college students who wish to look for apartments outside the campus. Our app provides an easy, user-friendly experience for students to look for rental apartments, compare prices, manage expenses and learn about the process of renting an apartment.

To make our app better, we can add some new features in the future like:

- ML powered verification of House Owners using Optical Character Recognition methods
- Authentication of Manipal students using Learner id verification
- Partnerships with brands to get benefits for students (vouchers, etc.)
- Robust roommate finding service
- A notification reminder system to remind students to pay dues on time
- Expanding to more such student towns outside Manipal

7 References

https://developer.android.com/training/basics/firstapp

https://www.javatpoint.com/

https://www.geeksforgeeks.org/

https://www.tutorialspoint.com/index.htm

https://www.youtube.com/c/CodeWithHarry

https://journals.sagepub.com/doi/full/10.1177/1529100612453266

https://www.udemy.com/course/the-complete-android-oreo-developer-course/

https://www.magicbricks.com/