
Final Report:

Dream Bus Service

The purpose of this android application is to generate bus pass online by verifying the documents all through this application and generating a pass or renew pass based on the user's requirement.

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Purpose and Objectives:

In this rapidly growing world where technology is getting over from a small pen to a large infrastructure the transportation services needs to grow side by side in this race. So, I thought of digitalizing the process of getting bus pass. People have to run for verifying the documents and then get the pass.

I realized that I might not be the only one facing with such a situation. If there could be an app specifically designed to help anyone to get their bus pass without spending too much time, thought or effort then this could be revolutionary.

This app is targeted for anyone who uses bus service on daily basis.

It is designed specifically to target anyone who is looking to get pass or renew their existing pass. This will save the users efforts as well as time in this hustling world. No one has time in today's rapidly growing world. So, this app saves a lot of time for its users and also will reduce the manpower required.

Project Statement:

The purpose of this android application is to generate bus pass online by verifying the documents through this application and generating a pass or renew pass based on the user's requirement.

Some of its main features include:

- By using this app users can get their bus passes online without any hustle.
- Users can upload the documents needed for verification via app.
- Users can also renew their passes via this app.
- Optimize the lengthy process of creation of bus pass.
- If all the documents submitted for the verification are proper, then the user can get the e-pass via app and also can download it.
- Users can save time by using this application they don't have to rush to places for verifying their documents or to collect their pass.
- This app is coded using Android Studio IDE 3.1.4, which is functional only on Android OS Mobile Devices.
- Core Java is the main language used on the backend along with SQLite, JSON and XML.

USE SCENARIOS AND MOTIVATION:

To generate the pass currently the user, have to visit the transit agency and get it done from the respective department. This is involving multiple chained processes of verification and maybe other processes. Although there are existing solutions in the US, as being a developed country, the processes are efficient and the existing applications make lives easier, yet there are many other countries and maybe some states in the US where we can still find some scope of improvement. Granting bus passes and managing transit operations for different kinds of consumers becomes difficult at times. The question arises, what if we could automate the process and make it a shared responsibility? This question became a primary reason to build this application.

There are many similar applications like this one, available at the Google Play Store and App Store on iOS. For instance, consider the Toronto Transit Commission of Toronto CA, has recently launched their PRESTO app on android. Taking an inspiration from them and looking at the problems of other countries I took an inspiration from my neighborhood and tried making an app to implement all that we can see here.

Users for this app can be common citizens from any subset of the society, from professionals going to work or students currently in high school or college. This is a general-purpose android application. There are no special requirements for running this application except that the user must have an android device running on Android 7.0.0 or above.

Application Design:

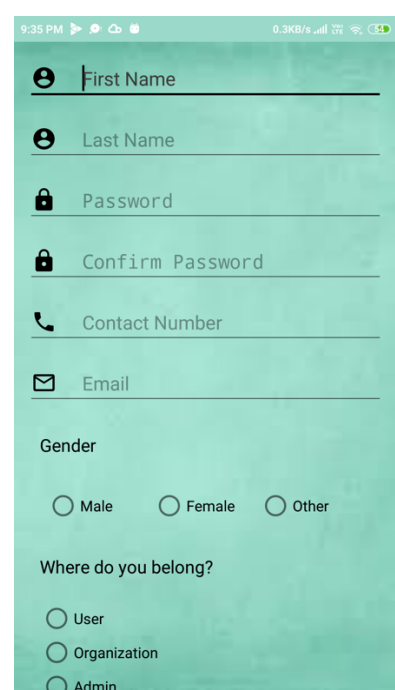
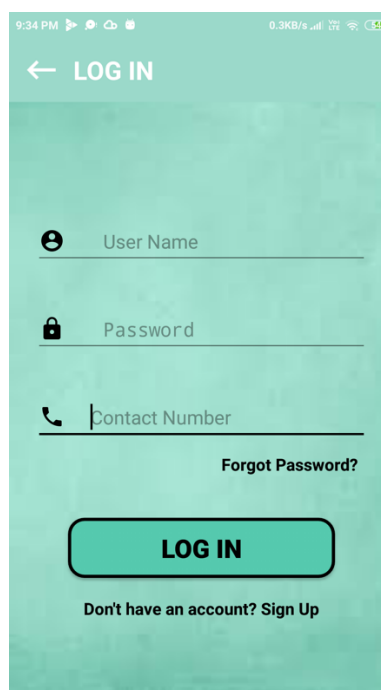
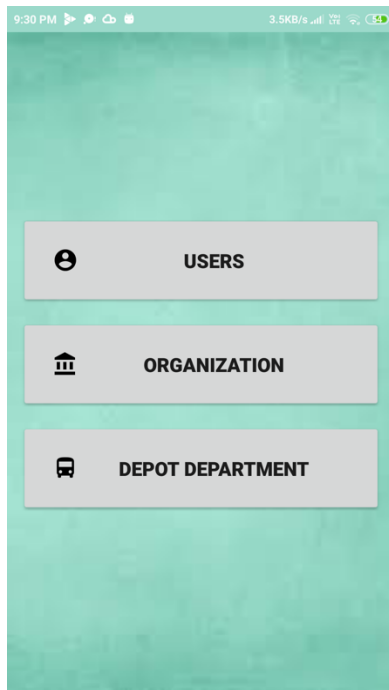
This application is intended to be used on an android smartphone device for best results. I have also tried implementing google services in the application development, which predominantly includes firebase integration for data storage and access. Google provides great support for android developers working with firebase and makes development seamless. Android Studio is so far the best IDE to develop android applications. Tools are a great part of the overall development process.

At high level we can decompose the design to observe that there will be a home activity that will have three buttons:

- Users
- Organization
- Depot Department

...and all of them resolve to a login and subsequently a register activity depending upon the user action.

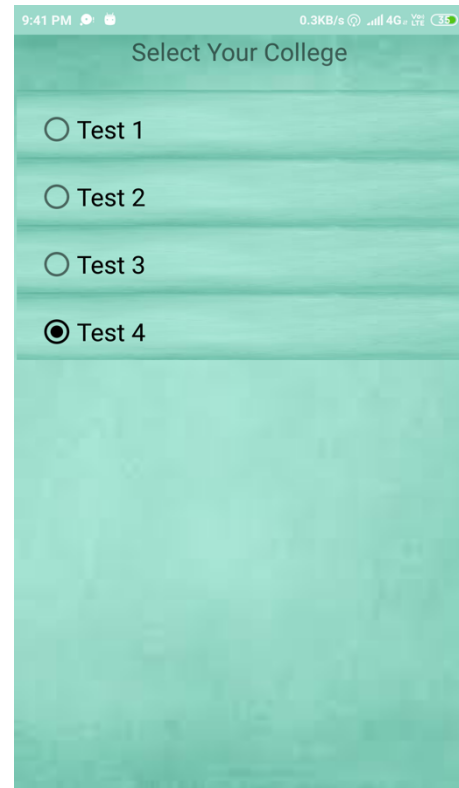
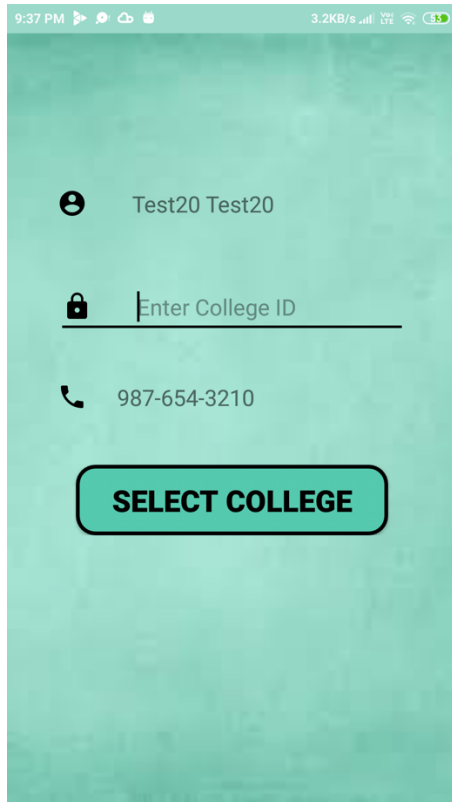
HOME:



Modules and implementations:

USER:

After clicking on the user from home screen it will take the user to login page where after logging in the user will have to enter its details which will be used for issuing the pass.



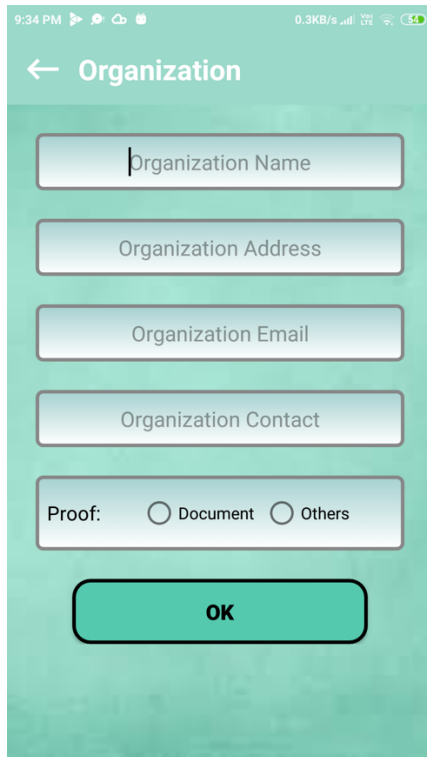
After selecting the college and entering his information the user will be taken to the screen where all the information for issuing a pass will be asked to be filled.

There will be two tabs one for issuing new pass and the other to renew the pass, which are under development as of now.

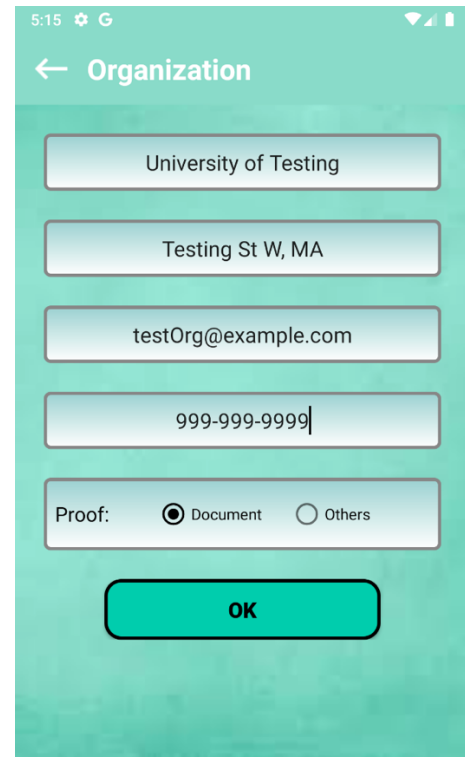
ORGANIZATION:

On Clicking the organization button from the home page user will be redirected to the login page.

After the user has successfully logged in, it will land up on the Organization details page.



A screenshot of a mobile application interface for organization registration. The title bar is teal with a back arrow and the text "Organization". The status bar at the top shows the time as 9:34 PM, signal strength, and battery level. The form consists of five light blue input fields with rounded corners: "Organization Name", "Organization Address", "Organization Email", and "Organization Contact". Below these is a "Proof:" section with two radio buttons, "Document" and "Others". At the bottom is a teal "OK" button with a black border.

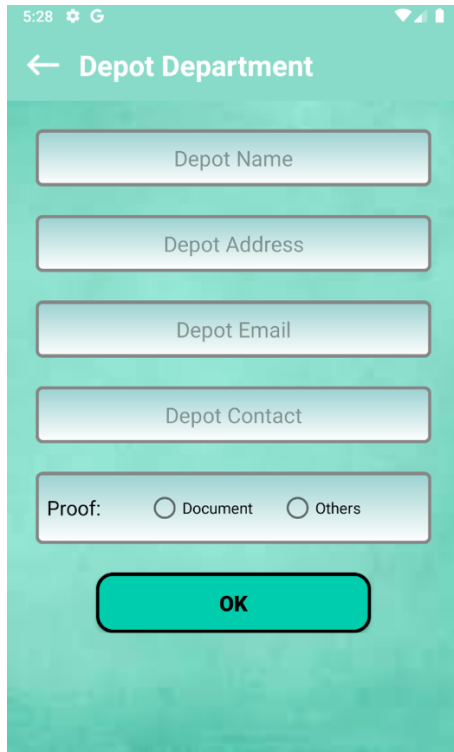


A screenshot of the same mobile application interface, but with the form filled out. The title bar and status bar are the same. The input fields now contain the following text: "University of Testing", "Testing St W, MA", "testOrg@example.com", and "999-999-9999". The "Proof:" section has the "Document" radio button selected. The teal "OK" button remains at the bottom.

Here colleges and other organizations can register to add their information which will be used subsequently in the application. Users can select from a list of organizations they belong to and then depending upon the special benefits for an organization, users can enjoy their offers and special fares.

DEPOT:

On Clicking the depot button from the home page user will be redirected to the login page. After the user has successfully logged in, it will land up on the Depot details page.



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← Depot Department

Depot Name

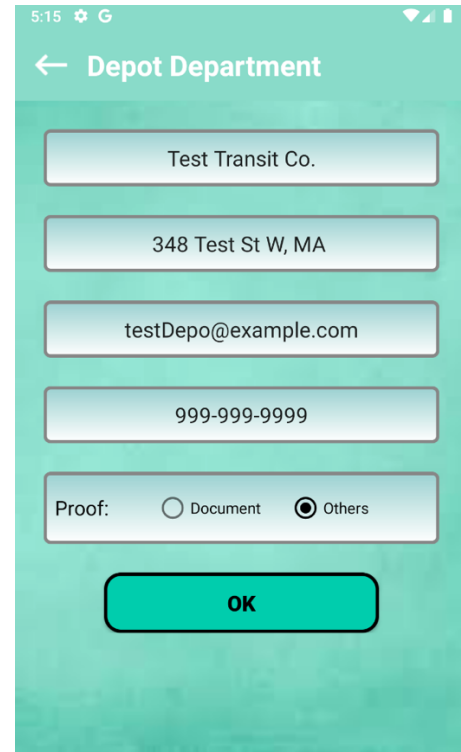
Depot Address

Depot Email

Depot Contact

Proof: ☐ Document ☐ Others

OK



5:15 G

← Depot Department

Test Transit Co.

348 Test St W, MA

testDepo@example.com

999-999-9999

Proof: ☐ Document ☒ Others

OK

Here the transit services can register to add their information which will be used subsequently in the application. Users can apply for a transit for a new pass or can renew their passes.

PASS ACTIVITY FOR USERS:

As seen in the USER module, a user after registration selects for an organization it belongs to. After this they land up to the application portal to apply for a new pass or request renewal for an existing pass.

The image displays three screenshots of the 'Smart Digital Pass System' app interface, showing the 'RENEW PASS' and 'ISSUE PASS' screens.

Leftmost Screenshot (RENEW PASS): This screen shows the 'RENEW PASS' option selected. The form includes fields for ID (12091209), Source (Place 1), Destination (Place 1), Period (3 Months), Distance (Enter distance in kms), and Depot Name (Test Department 1). A 'RENEW PASS' button is at the bottom.

Middle Screenshot (ISSUE PASS): This screen shows the 'ISSUE PASS' option selected. The form includes fields for ID (12091209), Name (Test User), Source (Place 1), Destination (Place 4), Period (3 Months), Distance (Enter distance in kms), Age (Enter Age), Organization (University of Testing), and Depot Name (Test Department 1). A 'Click to Upload' button is at the bottom.

Rightmost Screenshot (ISSUE PASS): This screen shows the 'ISSUE PASS' option selected. The form includes fields for Period (3 Months), Distance (Enter distance in kms), Age (Enter Age), Organization (University of Testing), and Depot Name (Test Department 1). A 'Click to Upload' button is at the bottom.

Here the leftmost screenshot shows the renew pass window where a user can enter the details for pass renewal. In the middle is the screenshot of the form to apply for a new pass, the rightmost screenshot is in continuation as the details required is more. When a user has submitted all required information, the request is sent to the organization and transit commission for verification and pass generation respectively.

Implementation and evaluation:

At the ideation and discovery phase, the scope of project planned to be implemented in modules and in an iterative fashion. To that thought and planning implementation started with login and sign up feature implemented successfully. After successful completion of first iterative project grew with increasing complexity and which eventually led to scope creep.

Easing on to the development, focus shifted, and strategy changed to building the most important activities first and trying firebase integration. To mark success or failure at the middle of a project isn't valid judgement so it's better I refer this project as an evolving opportunity to learn Android.

As an academic project, this application is a quite complex one to start with and complete in a limited time period. Dream Bus Services is at its initial phase of development and here what we see can be termed as an MVP with extensive features and promising future development.

Experiences and thoughts:

My experience in the course and development of android project has been full of knowledge that is both overwhelming and challenging at the same time. At the very beginning of the project, it was almost impossible to judge its complexity which seems to have grown exponentially with time. Challenging myself during the development and design phase have proved to be a good idea and I'm thankful to have learned android from this course and project.

Android development demands time and dedication, but the limited time has done miracles in teaching me good skills. Major takeaway from this course and project is a habit of extensive planning and detailed drafting of plans. Software engineering is a huge experience than it is a learning process. I look forward to learning more in the coming days, getting into the software development industry.

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