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Social Network Development Using the Firebase Platform

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Introduction

- ❖ Today's generation of smart phones and their originality, mass usability, and computer characteristics, represents an ideal platform for constant flow of information and faster access to them via mobile devices.
- ❖ The main goal of this paper is to show development opportunities with Android Studio and the back-end Firebase service.
- ❖ The main purpose of the application is to exchange a large amount of information, fast and easy access to information, communication with friends as well as a convenient way to present yourself.



Introduction

- Today, people need the best and fastest information about important events, current promotions and news.
- The "P" application would allow users to receive information in a timely manner, a way to connect with people who live far away, easier communication with friends, and the opportunity to learn something new.
- The application "P" is developed for Android platform. The Android platform was chosen because the most mobile phones use this operating system.
- The Firebase platform was used for the development of the application.



Introduction

- This paper is organized as follows:
 - In the first part, the technologies used during development are described, as well as the reasons for their selection.
 - In the second part the ideas that stimulated the development are explained. It is also explained how this application works as well as its implementation.



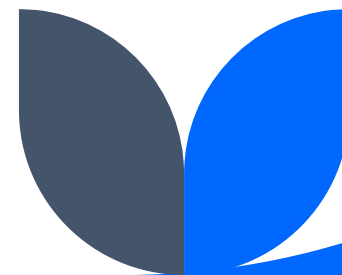
Technologies

- Modern, efficient and easily available technologies:
- ❖ Android application
- ❖ Firebase Platform: Analytics, App Indexing, Authentication, Cloud Messaging, Crash Reporting, Dynamic Links, Invites, Notifications, Remote Config, Realtime Database (free package which is limited to 100 active connections and 1GB of data, and Cloud Storage to 5GB of data)
- ❖ Firebase integration has been introduced in Android Studio



“P” application

- The basic idea of working on this application is reflected in the realization of an application that is like today's social network services.
- The "P" application offers free online services that allow users to have different ways of communication with the world and the opportunity for their own presentation.
- The application is designed to work like most of today's applications that mobile users are familiar with, such as Facebook, Instagram, LinkedIn, etc.

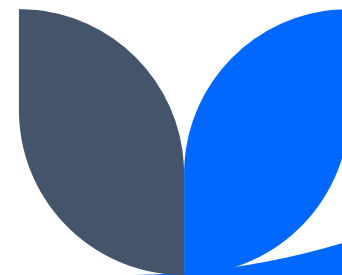


“P” application

To access the main functions of the application, users can log in or register.

After successfully logging in, the user:

- can view the posts posted by other users,
- like and comment on them,
- search to find a friend,
- send friend invitations,
- send messages to his friends,
- if it is necessary to change his data
- see the data of his friends

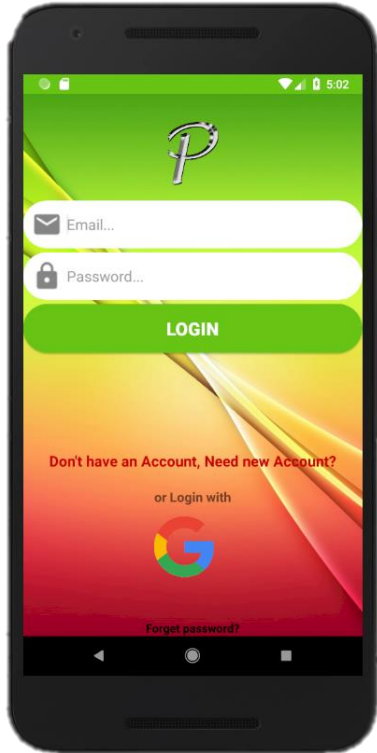


“P” application

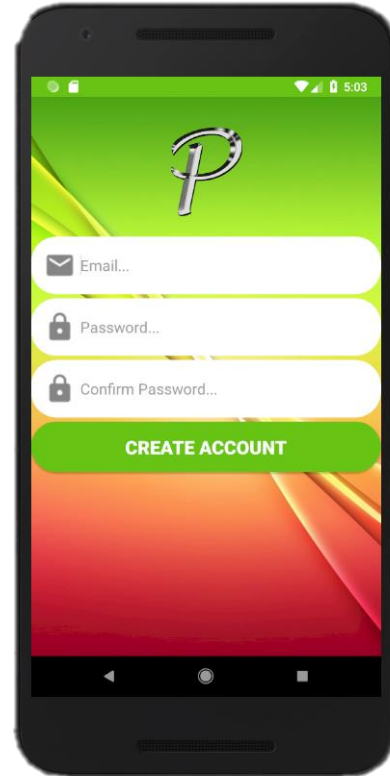
- ❖ When a user sends a friend request, likes a post, comments on a post, or sends a message, a notification is sent to the user for whom the friend request, comment, like, or message is intended.
- ❖ The other user can click on the notification and be redirected to a specific page, for example, if the notification is that he is receiving a message from a certain user, when clicking on the notification, he will be redirected to the received message.



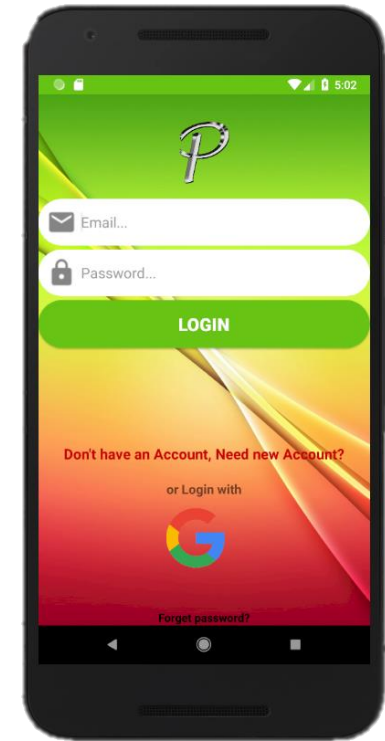
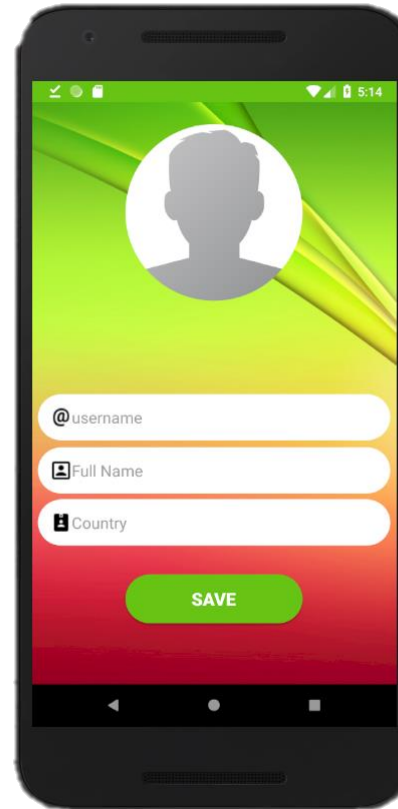
“P” application



Start screen of Application "P"





Registration screen



Login screen

“P” application

Reset your password for project-834878839078  

 noreply@poster-15e1c.fire...
to me
14:44 [View details](#)

Hello,

Follow this link to reset your project-834878839078 password for your [champioc88@gmail.com](#) account.

https://poster-15e1c.firebaseio.com/_/auth/action?mode=resetPassword&oobCode=gnBsu-Q7P99wN8OZbojKdaSv3AHleuhhdJ6HP77BuTUAAAFnSx12xA&apiKey=AlzaSyCwRo0yz1fNiUCIVPjBmqkksv bMHE8oyiM&lang=en

If you didn't ask to reset your password, you can ignore this email.

Thanks,

Your project-834878839078 team

An example for verification email

Reset your password

for [champioc88@gmail.com](#)

New password

.....



SAVE

Password changed

You can now sign in with your new password

- Form for entering a new password
- A form that is a requirement for a successful login

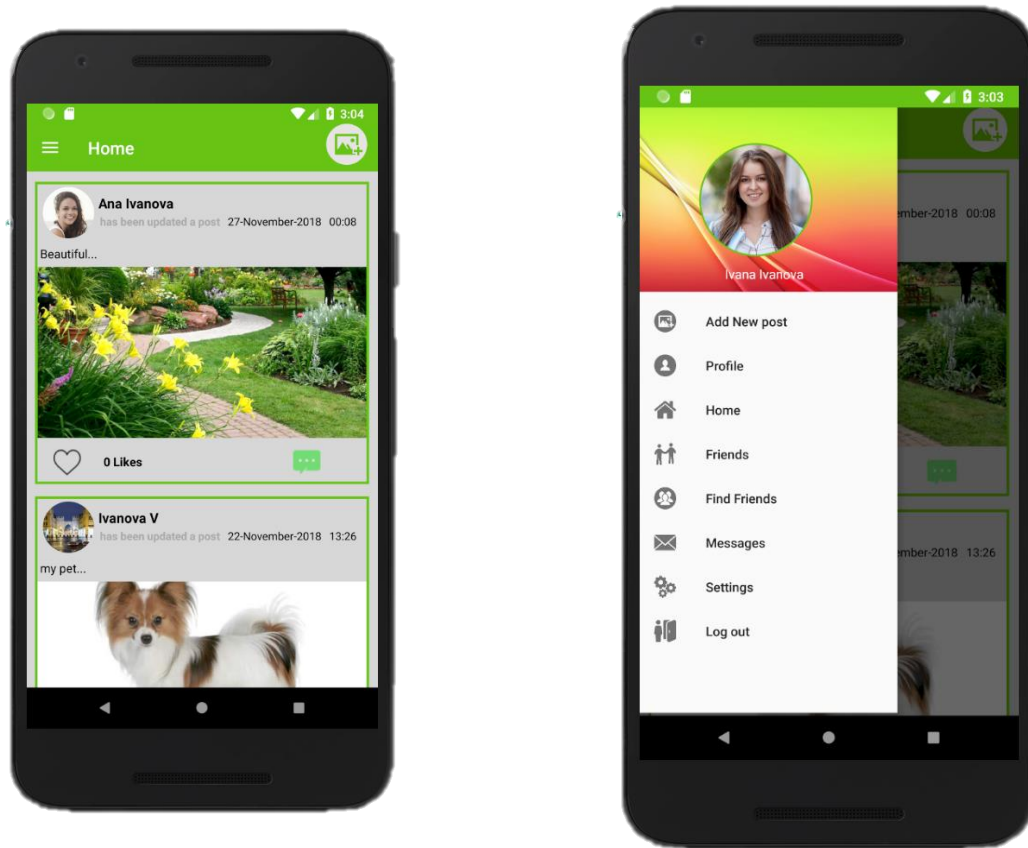


“P” application

The main screen is a kind of list of posts, posts can be liked and commented on by users.

- ❖ The navigation section is divided into 9 sections:
- ❖ An overview of the profile picture and the full name and surname of the currently registered user.
- ❖ "Add new post" allows to reach a page where the user can add an image and a description of the image to create a post.
- ❖ Display of data for the user who is logged in.
- ❖ "Home" to display the main page.
- ❖ "Friends" serves to display the list of friends.
- ❖ "Find Friends" is used to display the search field with the help of which a search is made for users who use the application with the possibility of adding to friends.
- ❖ "Messages" enables the display of the list of friends with the possibility to send them a message.
- ❖ "Settings" allows changing the data of the user who is logged in at the moment.
- ❖ "Log out" is an option to log out of the application.

“P” application

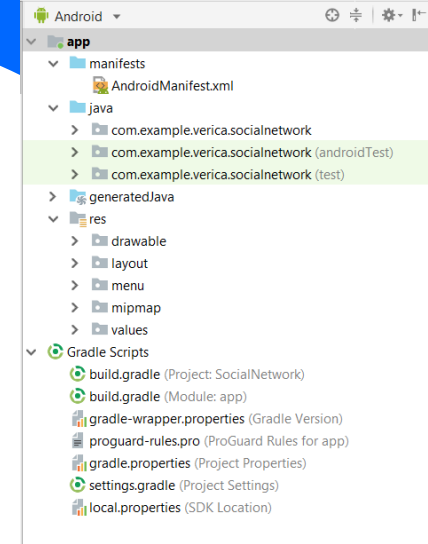


The main screen a) and navigation part b)

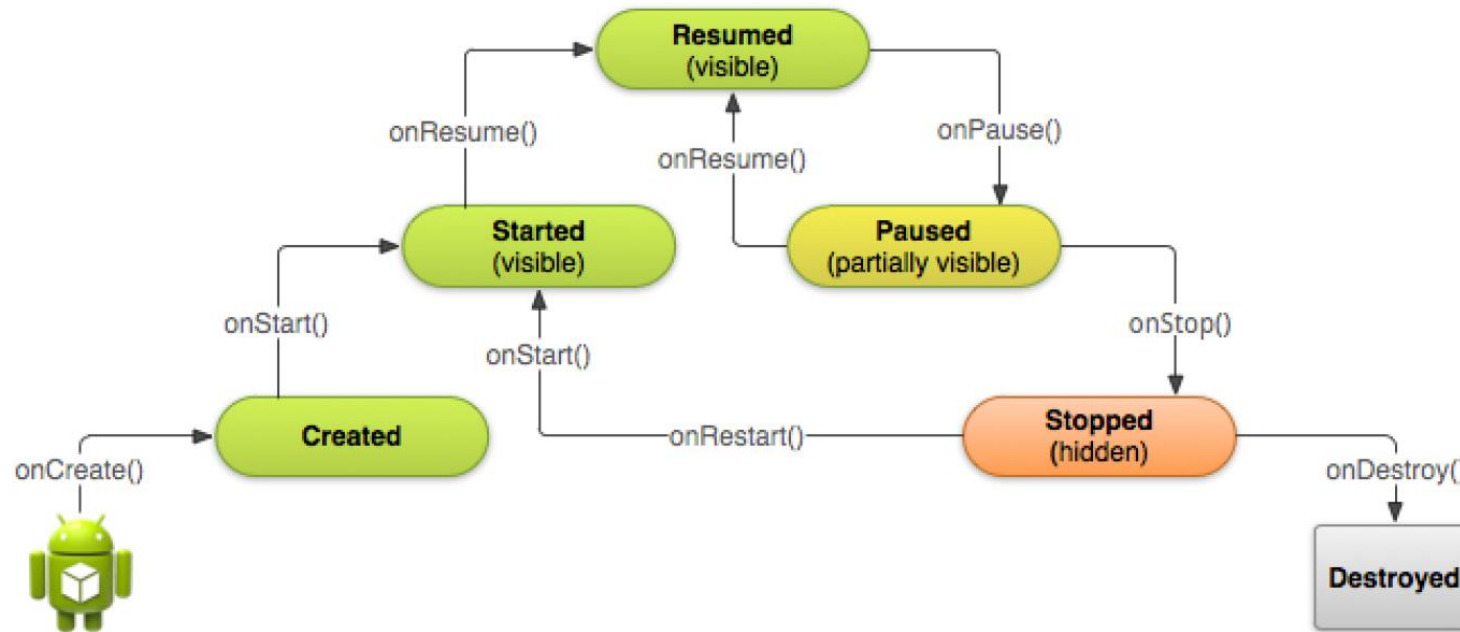
Implementation

Android Project Structure

- ❖ The Android project consists of the following groups:
- ❖ Gradle Scripts - the group consists of configuration files related to the generation of the application itself, with the launch of the application, files related to the logic are generated. Gradle Scripts use the Domain Specific Language or DSL.
- ❖ Manifests- contains AndroidManifest.xml file, which contains detailed information about the application, all activities and required permissions.
- ❖ Java - contains .java source files organized by packages, contains all the activities that are programmed and determine the flow of an application.
- ❖ Res- contains XML files, strings, images and other resources, divided into appropriate folders.



Android Project Structure

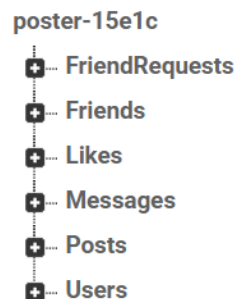


Life cycle of Android activity

Implementation

Firestore Database Structure

- ❖ Firestore Realtime Database is a NoSQL database.
- ❖ The data is stored in JSON format and is synchronized in real time, for each connected client. All clients share a single instance of the Realtime Database and automatically receive updates with the latest data. The Firestore Realtime Database API is designed to allow only operations that can be performed quickly.



Structure of the database



Example structure of an object from the database

Summary

- ✓ The "P" application aims to demonstrate the possibilities offered by these technologies when used together.
- ✓ Without using a server and a separate database, we got a complete solution.
- ✓ The main goal of this application is for users to be a part of today's lifestyle and to acquire necessary information in a quick and easy way.
- ✓ The "P" app is just another app that takes part in the age of hyper-mobility.



Thank you

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