Technical Project Report - Android Module

UNews

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Project abstract: UNews was developed to be a simple application that does not complicate its main purpose: a news and feed reader. It is a single place to follow topics of one or more categories selected previously that you most care about, save preferred news, share news and get notified about interesting trends.

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1 Introduction

This project was developed under the supervision of Prof. Ilídio Oliveira in the context of the subject Computação Móvel (Mobile Computing) between September and mid-November of the academic year of 2016-2017, a class of the course BSc/MSc Engenharia de Computadores e Telemática, University of Aveiro (www.ua.pt).

We were proposed to develop an application for an Android mobile operating systems, in a team of at least two people. We made their own proposal of developing an application for showing news from multiple providers as well as show news using the current location of the user.

2 Application concept and scope

UNews is an application conceived to connect to the world. An application to get knowledge about the actuality based on the categories that interest the most the user, for instance, politics, sports, technology, gastronomy, and more and more. It will aggregate the news that we think that are more important to get known about and show them to the user.

Users must be aware that UNews is only an application that provides content from other sources. Therefore, this is an application that provides a simple and fast user interface to the users, getting them comfortable and encouraged when using it. So the simplicity and good looking are what makes UNews different from the other applications of the same gender.

Initially, it was thought that it would be a good bet to improve the design. Although, the design skills of the developers revealed it selves to not be so good as it was thought, so the next move was to find a way to sync user metadata and provide news to the interface. To do that, we planned to start by authentication provided from Firebase, so we provided authentication by email, Google+ and Facebook.
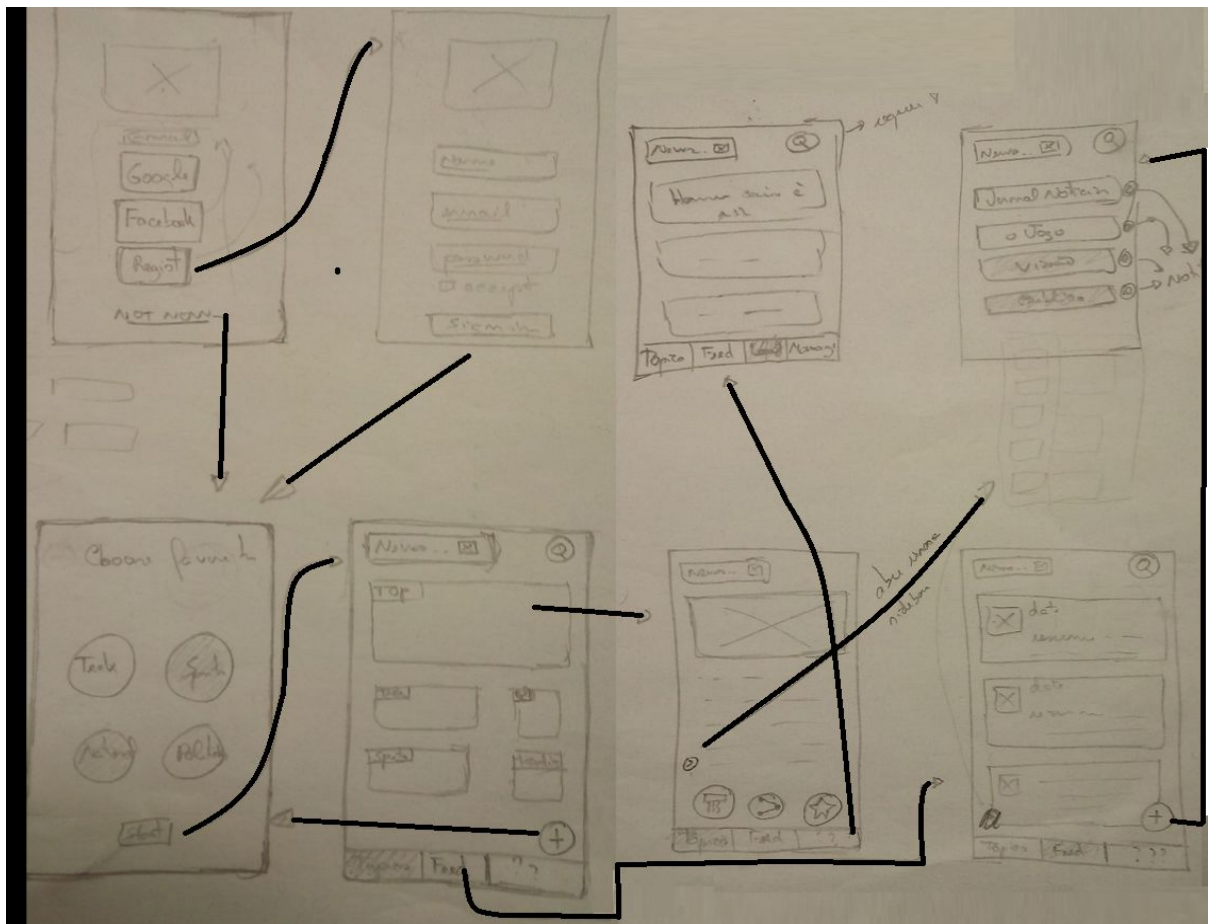
3 Technical design options

User experience design

The application aims at providing a clear user interface and experience throughout its usage.
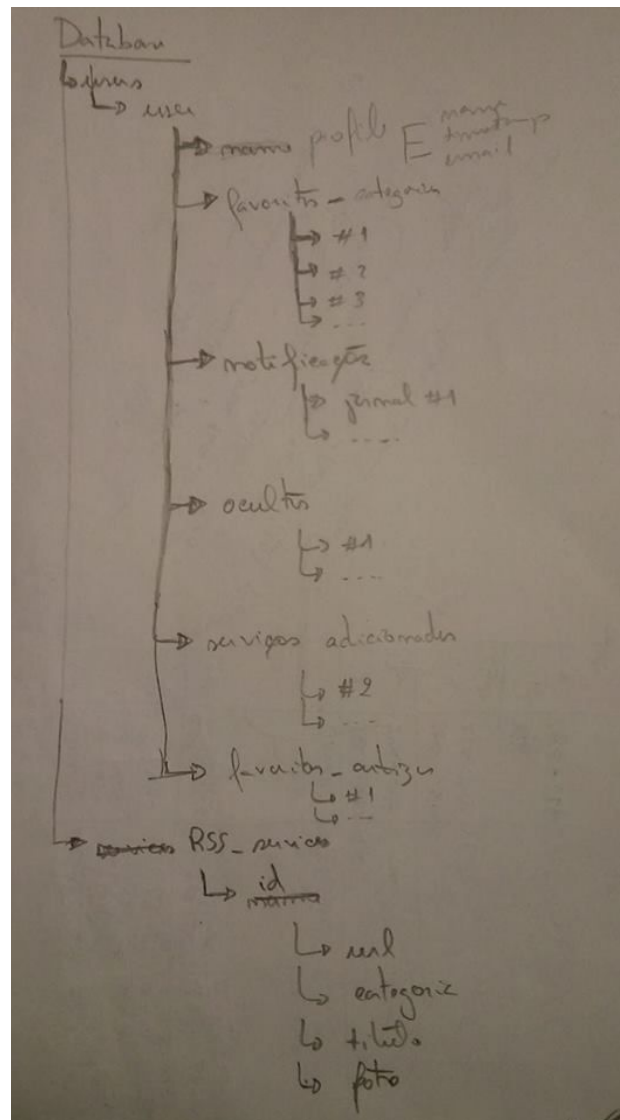
As reported above, we wanted a simple interface, so we were concerned about the complexity of information shown on screen. To pass this issue, we decided to show on activities and fragments only information regarding its context. For example, a screen only dedicated to authentication, an activity dedicated to choosing favourite categories, etc.

We combined several components that Android SDK provides, such as RecyclerView, CardLayout, ListView and floating buttons. The navigation is made using tabs and simple scrolling on each one and a menu is provided to access setting or log out the account.

We made a search of the design principles on Android's Material Design Patterns and the outcome was the presented layouts, with a blue background, some white Cards with black letter and white letter on remaining.

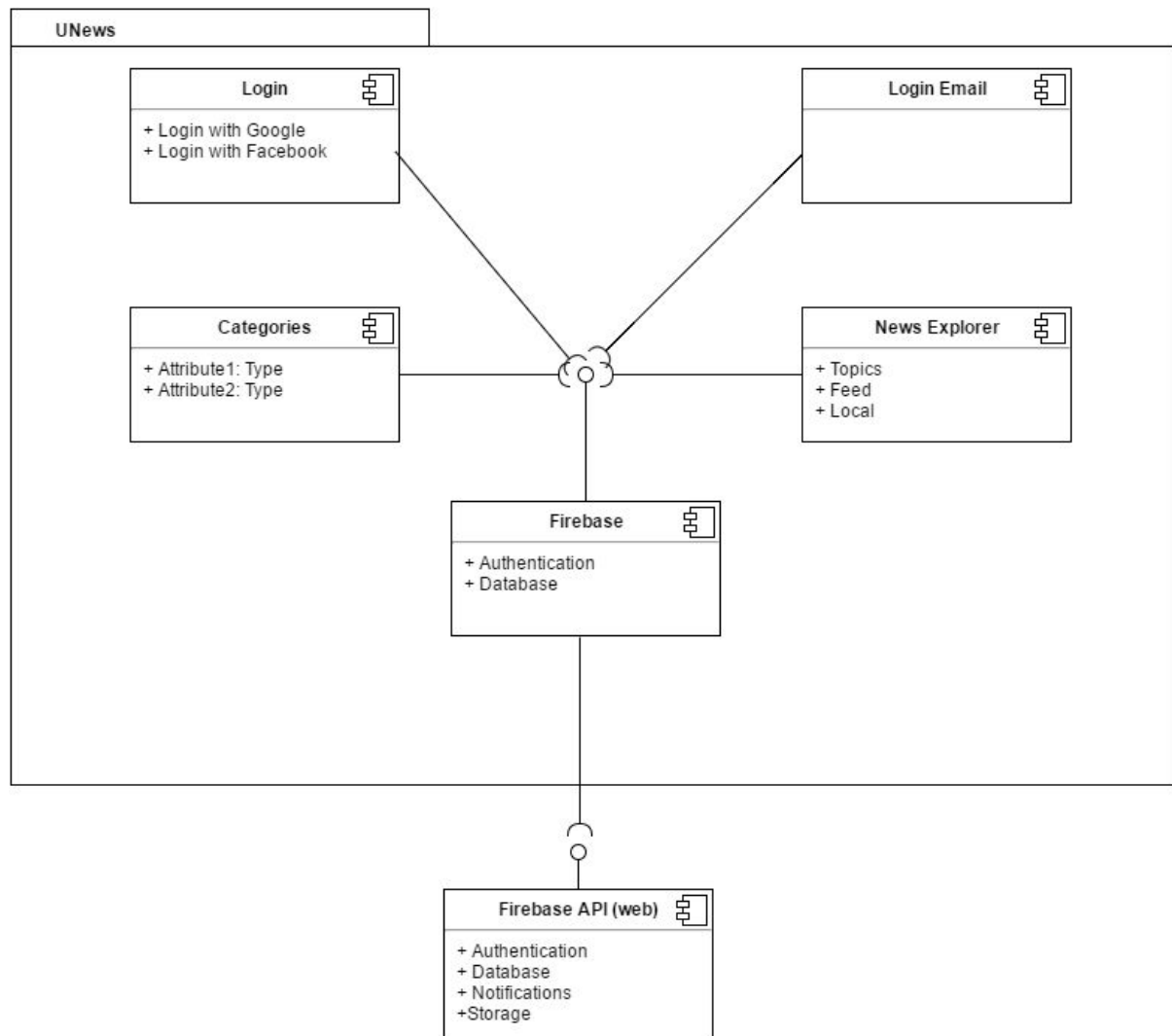Flow of the application

Data model draft

Technical design

We planned to use as many fragments as possible for reusing the design and functionality, but unfortunately, in certain parts of the application, it was not possible at all.

The major use of this fragments was on Topics activity on which we used a fragment for each tab.

Our news will be all stored in firebase. After making the login, the application will get the selected categories for the logged in user and using the selected categories of the user,

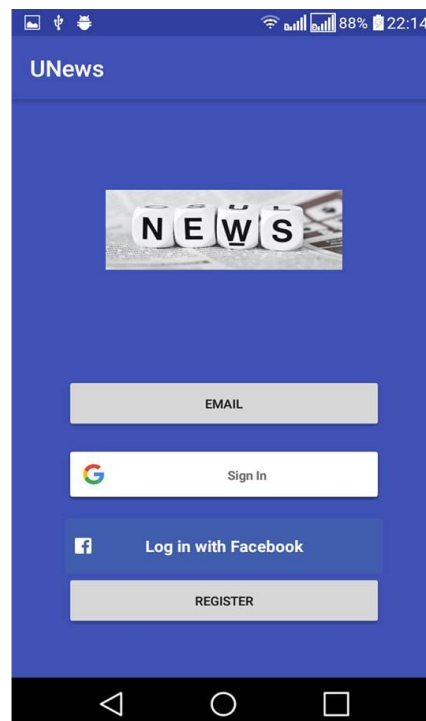the application will only show the news which belongs in those categories.

UNews

Login
+ Login with Google
+ Login with Facebook

Login Email

Categories
+ Attribute1: Type
+ Attribute2: Type

News Explorer
+ Topics
+ Feed
+ Local

Firebase
+ Authentication
+ Database

Firebase API (web)
+ Authentication
+ Database
+ Notifications
+Storage

Component model

4 Implemented solution in Android

By starting the UNews application we will get the splash screen like we can see below. After a few seconds, the login/register screen will appear.

The user has multiple register methods, like register by email, Facebook or using Gmail account or simply make his login.

First we present the screen for register. If the user doesn't have an account or don't want to login using one of the previous methods he can create an account by typing an email and choosing a password for the further login sessions.
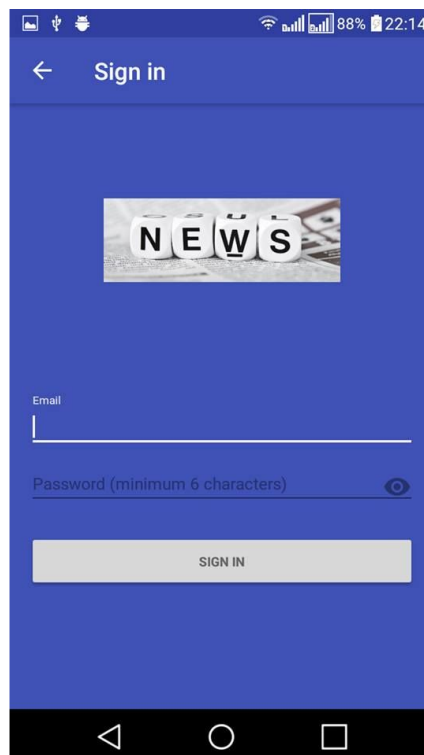

If the user has already register his account he can sign in using email, in which the user must type his registered email and respective. After this we must type 'SIGN IN'.
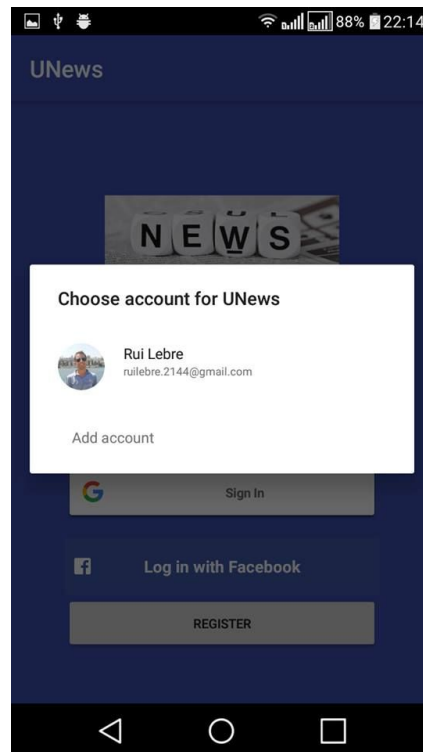
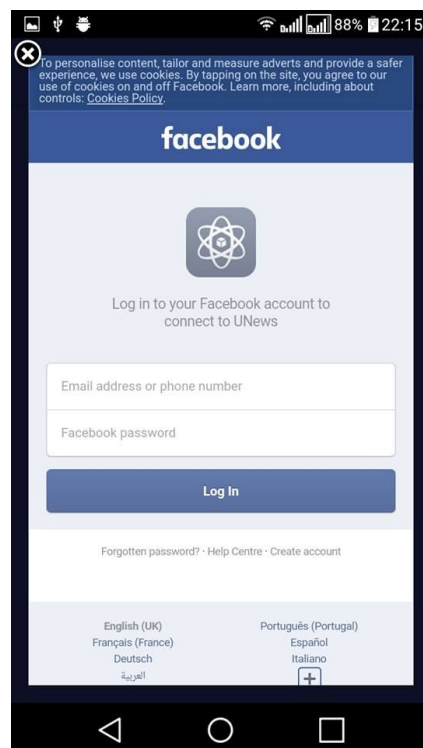The second method consists by using an existing Gmail account, by selection the intended account. So the user can register or sign in if has already register his account.

Then we have a login method using a Facebook account, or register if it is the first time, in which the user types the email and password associated to his account.

After accomplish the register, the user will get a screen in which he will select the categories from which he will get news. The selected categories will be associated to his account in the Firebase.
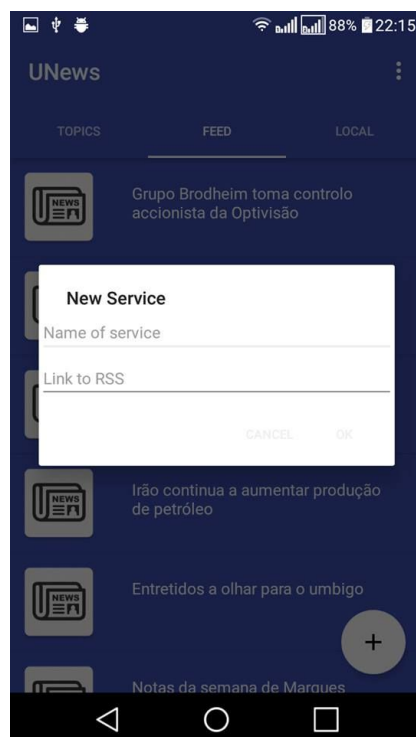

After this and the next times the user will log in to the application he will get directly the news. By selecting one of the news a new screen will open in which he can read the entire text.

The user can switch to the feed and also open one of the news.
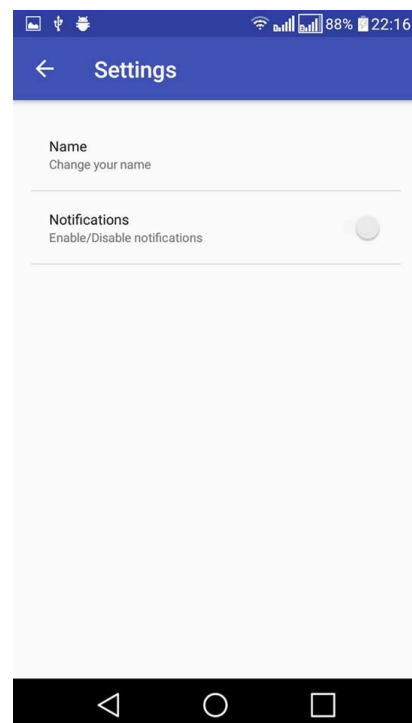

Add a new feed, introducing a name and the link to the RSS feed.

Our application gets the coordinates of the cellphone of the user and converts them to the location. So in the last tab, the user can consult the news of his location.

We enable the settings panel for the user so he can edit his name and enable/disable the notifications of the application.

6 Conclusion

At the beginning, we made a search about the existing news feeds and we reached the conclusion that EventRegistry (http://eventregistry.org/) would be the best choice taking into account that they provide all type of news. After trying to implement a kind of server to get the news from EventRegistry and saving them in Firebase, we've got lots of problems. We tried to implement everything in Python since EventRegistry offers support for it, but unfortunately, Firebase does not have support for Python, so it was kind of impossible to get the necessary imports in Python. So we thought about the other solution, which consists of getting the news from EventRegistry to a file implemented in Python, and then using a program in Java reading that news and register them in Firebase.

Since no one of us ever worked with Android Studio, it was not ever simply to implement our ideas like they were thought. But the classes and with a bit of search, we achieved our goals.

7 References and resources

For EventRegistry:

- https://github.com/gregorleban/EventRegistry/wiki

Project resources:

Project resources for the Android module:
- Code repository: https://github.com/rlebre/NewsApp-Android
- Ready-to-deploy.APK:
  https://github.com/rlebre/NewsApp-Android/raw/master/app-debug.apk