

Mobile Computing - EIC0050

Assignment #2 - **Stockswagen**

Visualization of stock quotes

Stock exchange quotes and warnings



Professor António Miguel Pontes Pimenta Monteiro

Ruben Fernando Pinto Cordeiro - ei11097

Duarte Nuno Pereira Duarte - ei11101

Context

The proposed project consists in the implementation of a mobile stock market monitorization platform.

The front-end of the distributed system is composed by a mobile application. It allows the end user to build a personalized portfolio with a set of stocks to be monitored.

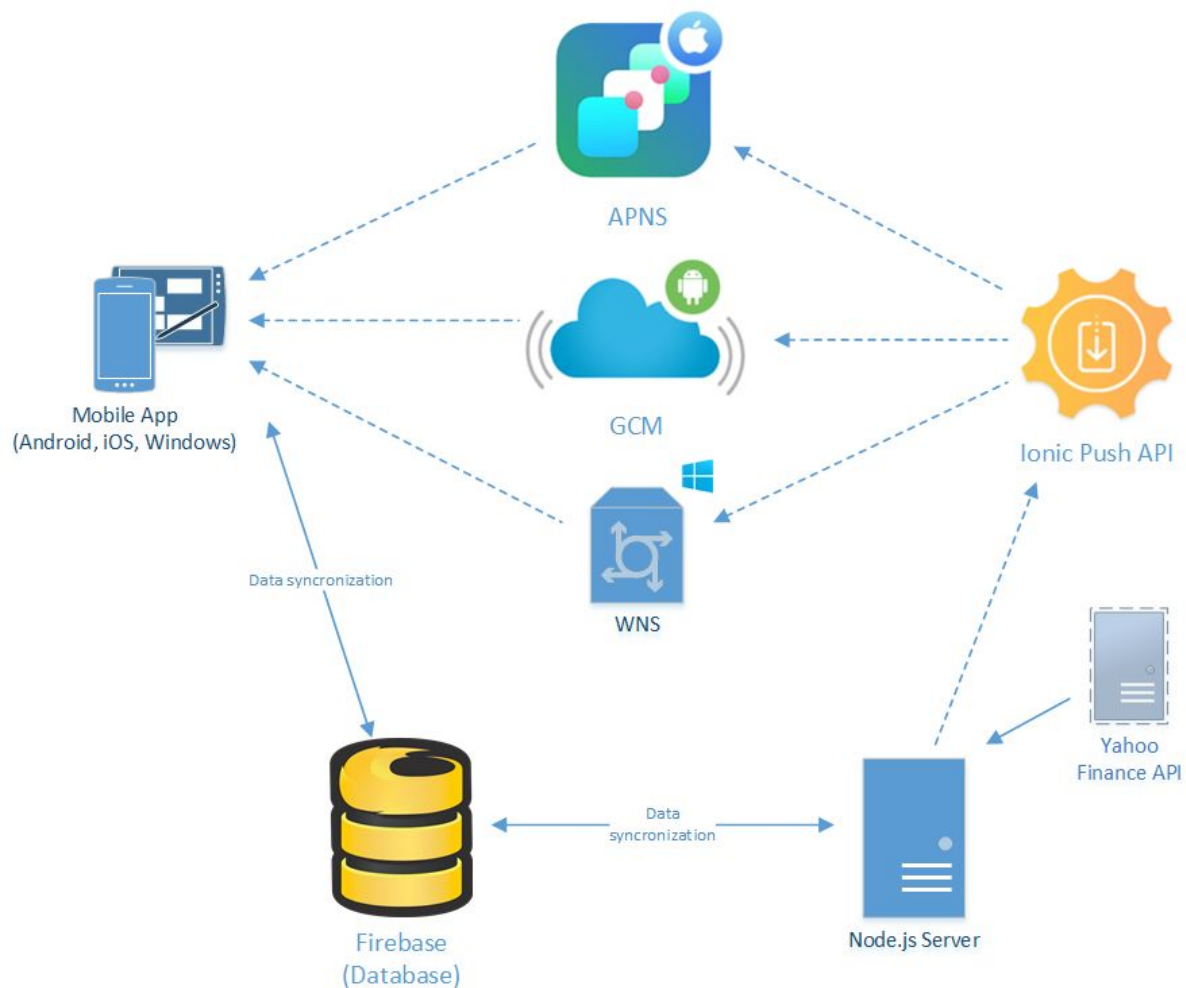
Architecture

The stock market monitorization platform follows a client-server architecture composed by three layers: data, business logic and presentation layer.

The data layer consists of a Firebase instance. Firebase is a backend as a service platform that exposes a real time NoSQL database with a nested key-value structure.

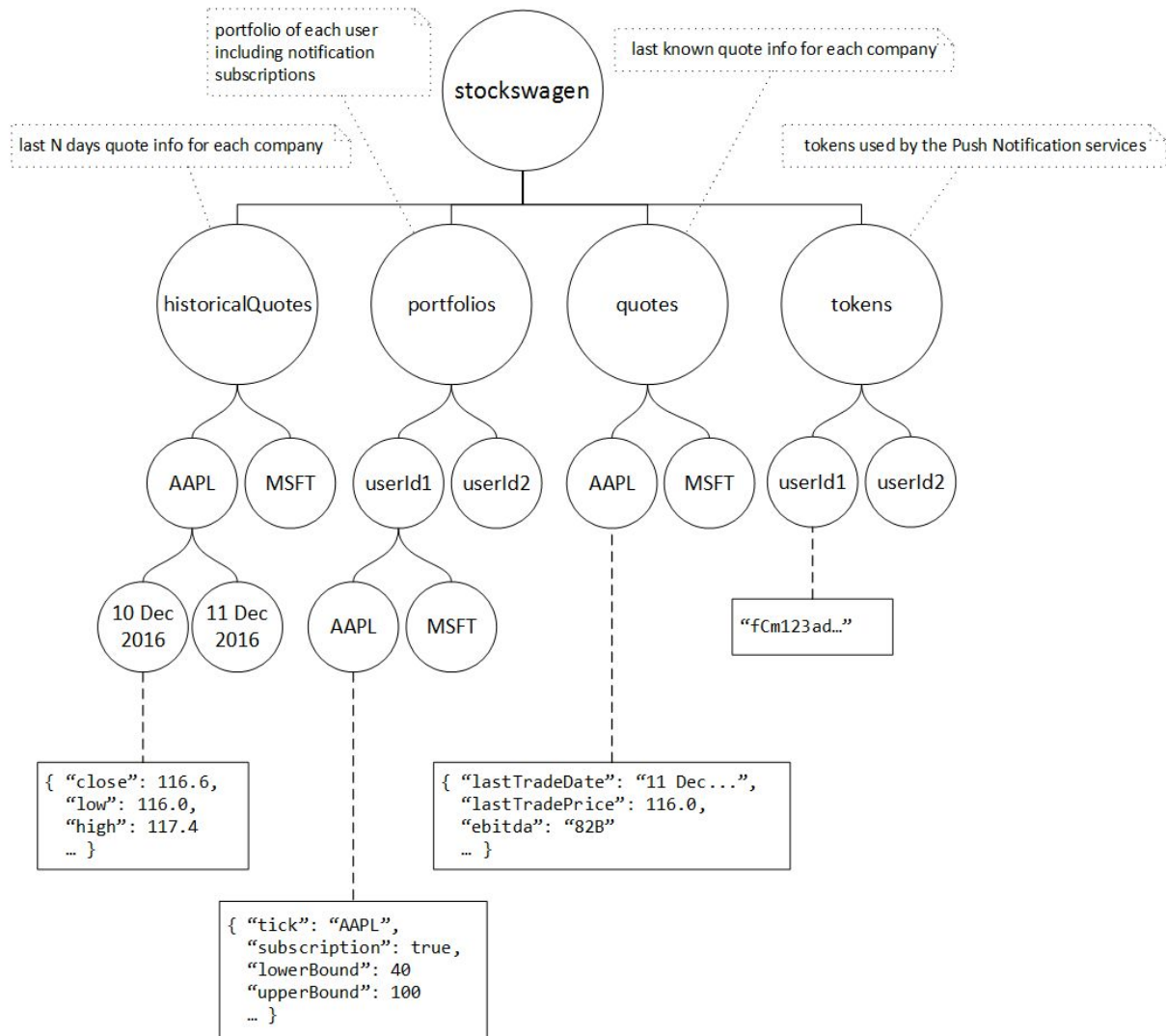
The business logic layer consists of a Node.js server. It exposes a set of services that periodically update the stocks information and manage stock push notification subscriptions.

The presentation layer is represented mobile application. The client is an hybrid application implemented with the Ionic framework using HTML5 and AngularJS. It is compatible with Android, IOS and Windows Universal Apps.



Data storage

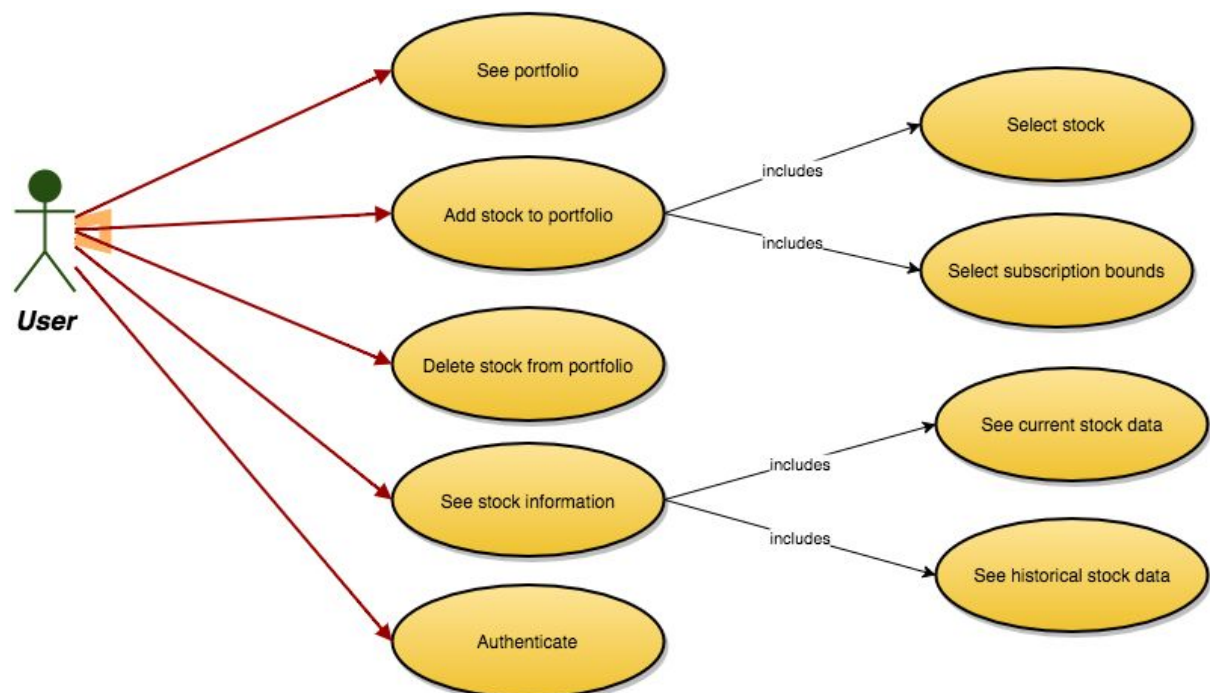
Data is stored in a Firebase instance, which is a real-time database (data is synchronized with connected clients automatically) modelled as a JSON tree.



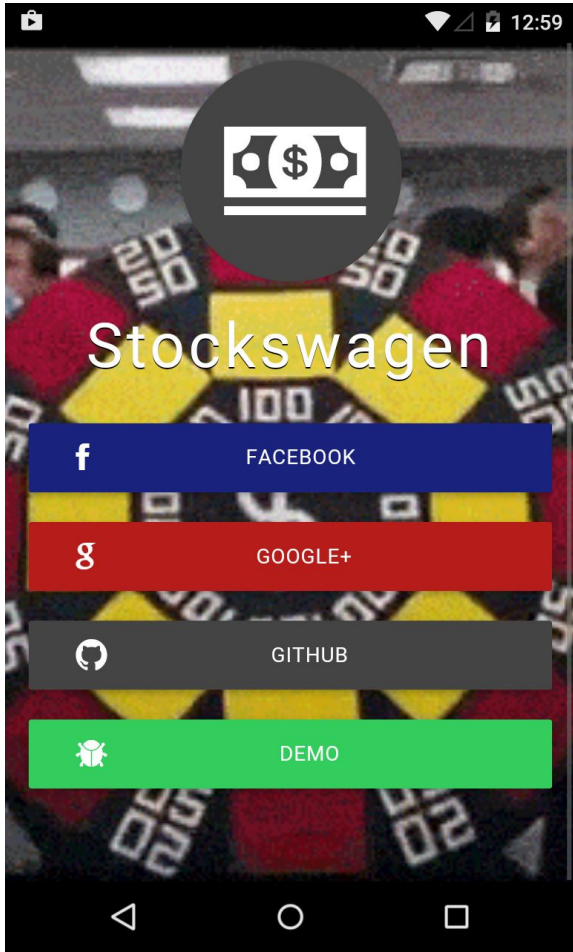
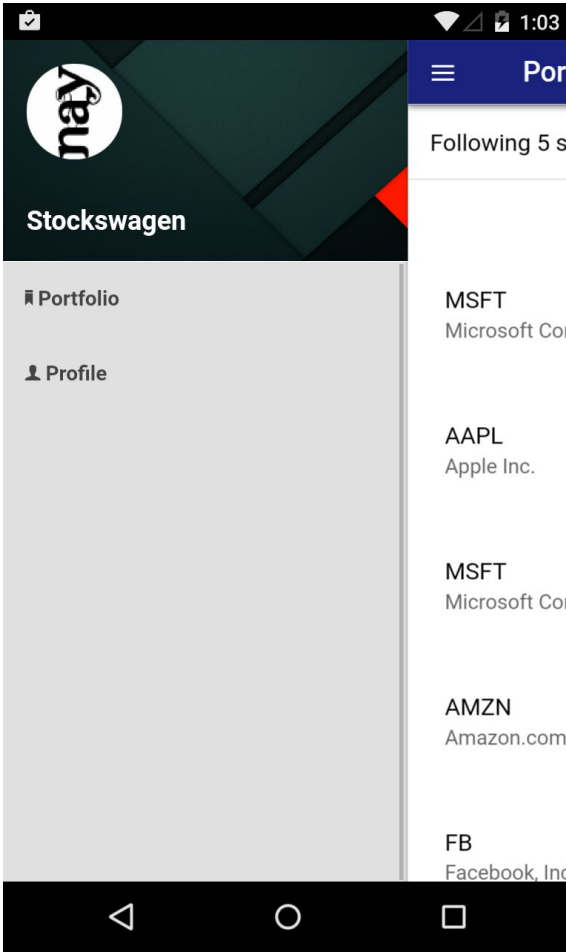
Use cases

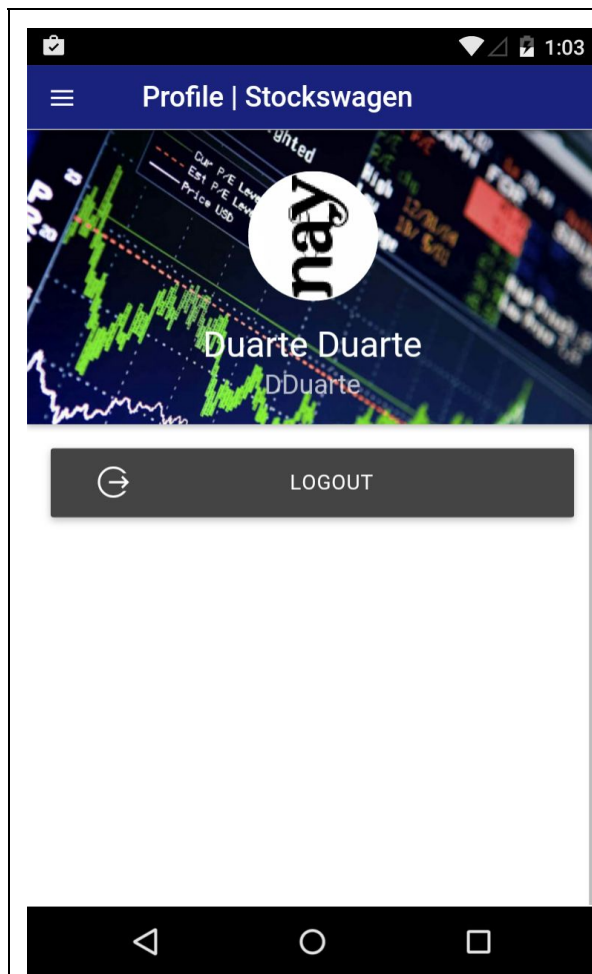
The user should be able to define the share or shares in which he is interested. The most usual companies should be present in a dropdown or other kind of list, but the user should also be able to add new companies (by tick name).

For each of the shares of interest the user could also define a lower and higher value limit and subscribe a service that should warn the user if those limits are surpassed. The user should also be able to know the current constitution of his portfolio, with its current value (per stock), presented in a table or graphical form. Another pertinent information is the evolution (last 30 days) of the value of each of the shares that are present in the portfolio.

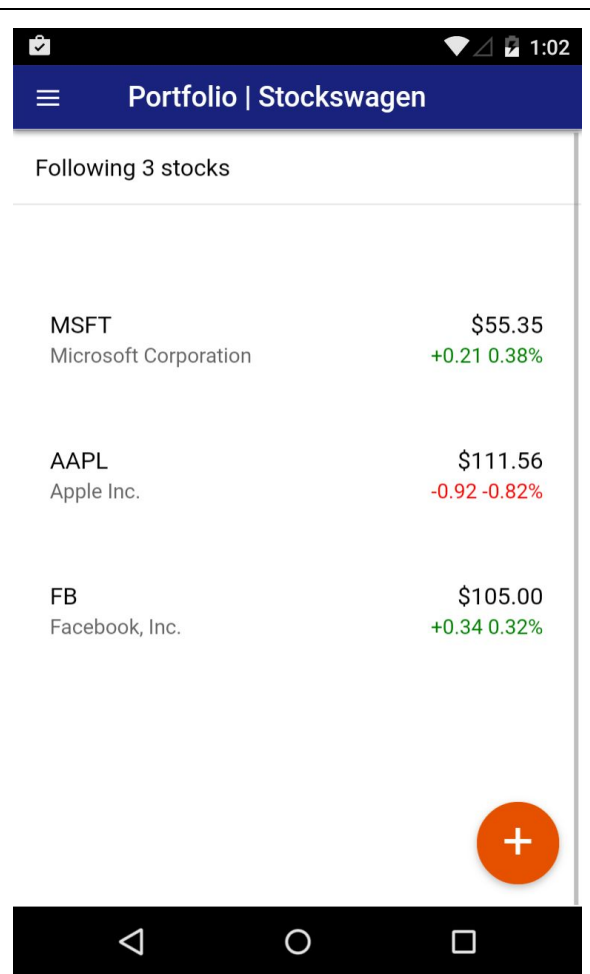


Application interface

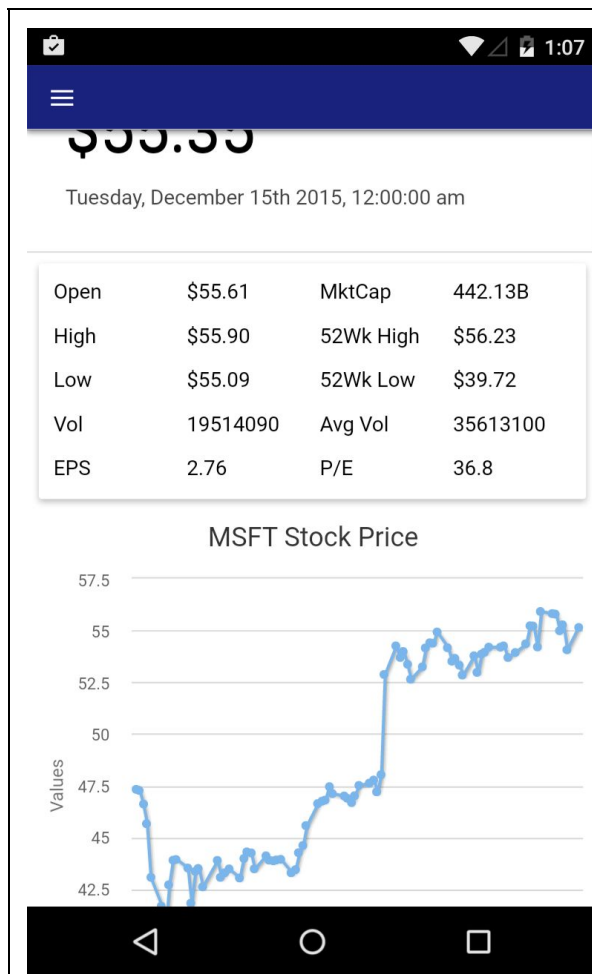
	
Screen 1 - Login view	Screen 2 - Side bar



Screen 3 - Profile



Screen 4 - Portfolio



Screen 5 - Stock info

New Portfolio Entry

Tick MSFT - Microsoft Corporation

Enable Notifications ☒

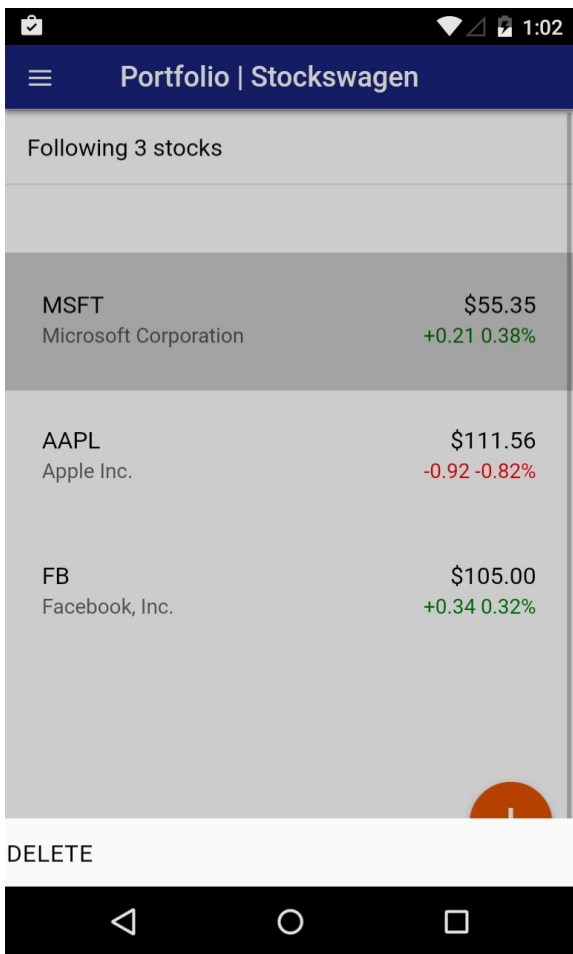
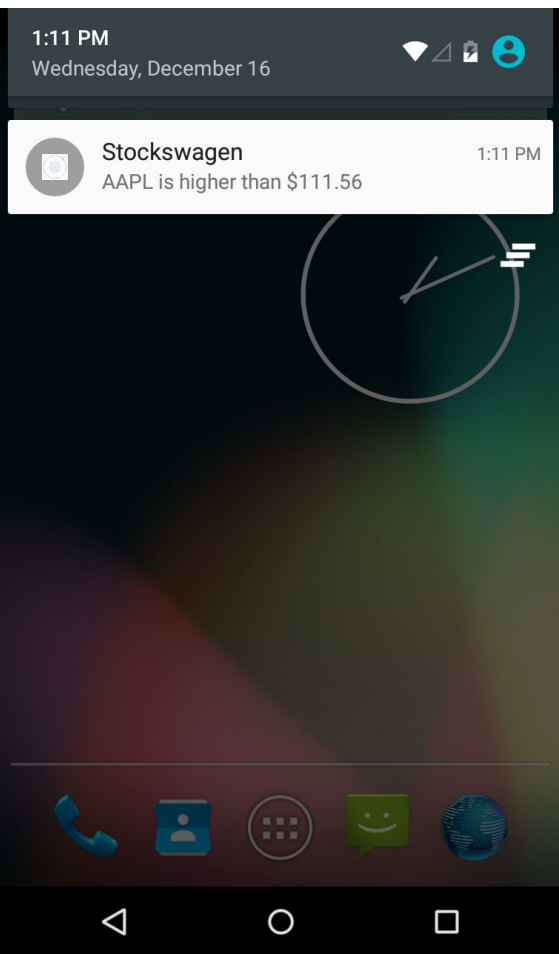
Receive a push notification if the stock value gets lower than a **minimum value** or higher than a **maximum value**.

Minimum Value \$ 50

Maximum Value \$ 100

SUBMIT

Screen 6 - New portfolio entry

 <p>Portfolio Stockswagen</p> <p>Following 3 stocks</p> <table border="1"> <tbody> <tr> <td>MSFT Microsoft Corporation</td> <td>\$55.35 +0.21 0.38%</td> </tr> <tr> <td>AAPL Apple Inc.</td> <td>\$111.56 -0.92 -0.82%</td> </tr> <tr> <td>FB Facebook, Inc.</td> <td>\$105.00 +0.34 0.32%</td> </tr> </tbody> </table> <p>DELETE</p>	MSFT Microsoft Corporation	\$55.35 +0.21 0.38%	AAPL Apple Inc.	\$111.56 -0.92 -0.82%	FB Facebook, Inc.	\$105.00 +0.34 0.32%	 <p>1:11 PM Wednesday, December 16</p> <p>Stockswagen AAPL is higher than \$111.56 1:11 PM</p>
MSFT Microsoft Corporation	\$55.35 +0.21 0.38%						
AAPL Apple Inc.	\$111.56 -0.92 -0.82%						
FB Facebook, Inc.	\$105.00 +0.34 0.32%						
Screen 7 - Delete entry	Screen 8 - Notification						

Basic application usage

1. The user should login or register through a social account (screen 1).
2. After the login, the user is redirected to the portfolio view (screen 4).
3. In the portfolio view (screen 4), the user can create a new portfolio entry (screen 6). If an item from the portfolio list view is clicked, the user is redirected to the stock information view (screen 5).
4. In the “New Portfolio Entry” view, the user may choose the tick symbol of the stock to insert and choose the lower and upper bounds of the subscription (optional). If all the fields were inserted correctly, the user is redirected to the portfolio view (screen 4).
5. In the stock information view, the current stock market information is displayed, as the timeseries chart with the stock value evolution in the last 30 days.