**Login and Register Research**

**Overview of the process**

To create the login and register systems for the Application there were a few steps followed. The first step was obviously installing Android Studio which would be used for creating and designing the whole application. After installing it and all its features the next step was the coding part. For the application there were 2 versions created, namely one with Firebase integration (A database provided by google implemented by default in Android Studio) and another one with Microsoft SQL Database integration. The Microsoft SQL Database was needed due to the fact that we had a lot of information to save, not just a username and a password. As for the coding part, some YouTube tutorials were followed and also documentation regarding different aspects of the code such as exceptions, errors or bugs. Some links to the videos and webpages will be displayed at the end of the document.

**Explanation of the login and register pages**

The application contains 3 files for the login and register system:

1. The connection file in which the connection to the server and the database is established and also the variables needed for the initial pages are defined. This file contains the connection string, connection method and exceptions for the cases in which the application cannot connect to the server/database.
2. The login page in which the username and password are retrieved from the server, checked for valid credentials and eventually giving the user the possibility to log in. The login page contains 2 text fields (one for the username and one for the password) and the log in button. When the button is pressed, the database checks if the username and password exist in the database. If they do, the user is allowed to log in, otherwise a message will be displayed, stating the credentials could not be verified. If the user is allowed to log in, he/she will be redirected to the main page of the application.
3. The register page is similar to the login page. It contains the same fields and the sign up button. If the length of the username is valid and the password is valid in terms of length and terms (symbols, uppercases, numbers etc.), the username and password are stored in the database in the correspondent columns. The password will be encrypted (hashed) due to security reasons and will be displayed in the database under a long row of numbers, letters and symbols. If the username and/or password don’t correspond to the terms, a message will be displayed, stating that something should be changed either in the username or the password the user chooses. If the credentials are corresponding the terms, the user will be redirected to the log in page.

**Sources:**

YouTube tutorials: <https://www.youtube.com/watch?v=0NFwF7L-YA8&t=701s>

<https://www.youtube.com/watch?v=tJVBXCNtUuk>

<https://www.youtube.com/watch?v=HRF8NpoFteg&t=300s>

Tutorials on websites: <https://stackoverflow.com/questions/42247465/how-to-connect-android-studio-with-sql-server-database>

<https://parallelcodes.com/connect-android-to-ms-sql-database-2/>

<http://seotoolzz.com/android/android-login-app-with-mssql-server.php>