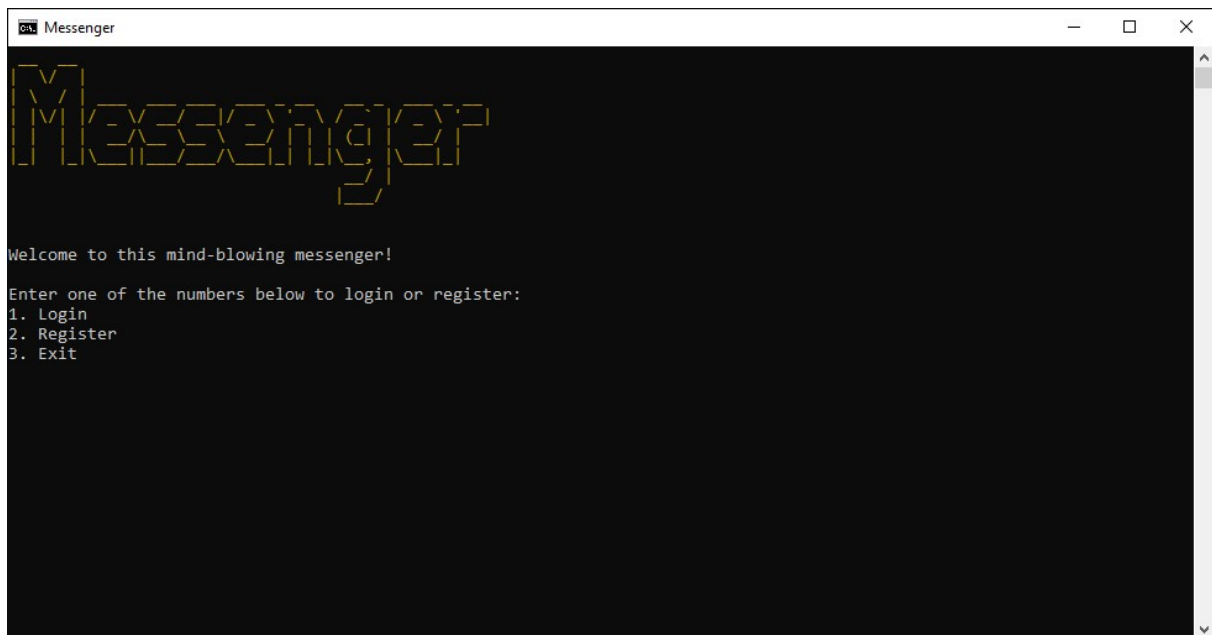# Brief documentation

Messenger is a basic messaging console application, introducing fundamental interaction methods between various users. The technology underneath this interaction combines the capabilities of Java programming language and the data management flexibility of MySQL language, providing a secure way to store, retrieve, review and delete data.

The structure of this application rests on two pylons: users and administrative hierarchy.

Users

There are three types of users: a super administrator, plain administrators and users. Each type has different roles in the application, however some rights and responsibilities may overlap. All users can create, view, edit and delete messages, but the right to view all the user's messages belongs only to administrators. The super administrator and the plain administrators can view the users' messages and messages among administrators, but none of them can view the super administrator's messages, regardless of the messages' senders and recipients. The right to edit and delete a message belongs only to the message's holder. Even if users delete messages, they are removed from their folders but remain in the system and can be viewed by the administrators, who cannot delete them. Total deletion is feasible upon request.

The super administrator and the plain administrators can create users' and delete users' accounts, but only the super administrator can determine the role of a user (plain administrator or user). The roles can be altered. Batch deletion of users is impossible and must be done separately for each user. If a user is deleted, all his/her messages are also removed from the system, regardless of their marked state (inbox,

sent, trash). To ensure data privacy, the only personal information stored in the system is the users' first names, last names and genders.

On the very first launch of the application, the system builds the messenger's database and automatically creates the first user, the super administrator, whose account cannot be deleted.

Logging

To ensure the stability of the application, the users' experience and the data cohesion, the system keeps a log in a separate file named "log.txt" (automatically created upon the first logging activity and stored in the application's root folder). It records the users' messages, creation, modification, review or deletion of users and any other activity related to the application's scope minus password changes.

Users' rights

Actions \ Users	Users	Plain administrators	Super administrator
Create message	✓	✓	✓
Edit message	✓	✓	✓
Delete message	✓ Only for self	✓ Only for self	✓ Only for self
Review all user's messages		✓ Only plain users	✓
Create account for self	✓	✓	Created during first launch
Create other users' accounts		✓ Only plain users	✓
Edit personal information	✓	✓	✓
Alter user's role			✓
Review all users		✓ (minus super administrator)	✓
Delete account for self	✓ Upon request	✓ Upon request	
Delete other users' accounts		✓ Only plain users	✓

Database

The application's relational database has been built upon the notion that the reference point of the application is users. Thus, the main table of this database is "Users", interconnected with all the other tables "Roles", "Messages", "Inbox", "Sent", and "Trash".