IAM CORE APPLICATION

JAVA FUNDAMENTALS PROJECT

MARIA PAULA ANASTÁS

SUBJECT DESCRIPTION

The main goal of this project is to learn to program in Java by building an application.

In this project there will be the usage of the Java Developer KIT APIs, databases, executing an application in a Java server and more.

The subject of the project is the Identity Management which is always used in the application world. This Identity Management software is quite basic. The main goal is to manage users of an Information System. As many basic concepts, it can be much improved, especially when you want to bring security to this management. As specified, the application will be able to:

- Access, create and modify user information
- Persist users data in a database (or in an XML File)
- Be robust, capable of good performance
- Propose a simple but efficient user interface (optional)

SUBJECT ANALYSIS

MAJOR FEATURES

In this project the major features are:

User Authentication

The application allows the user to create a unique username and password to access the system.

If already created an account, the application will allow the user to access into the system.

Identities Management

The application is capable of update, search and delete an already existing identity.

An identity can be created and saved into the DB in order to do it.

APPLICATION FEASIBILITY

The iam core application is already defined with the data structures, and the datatypes that will be used and the identities and objects that can be created.

Although the data that will be entered by the user on the application is not known, but this will be controlled and modified by the already stablished data types.

DATA DESCRIPTION

As stablished in the requirements the application is prepared to work with identities and users.

As already defined, the identities are created with 4 attributes: uId, displayName, Email, and id. For the user there is an id, a username and a password, and an identity attached to it.

EXPECTED RESULTS

In this application there is certain behavior expected. As the user is interacting with the application there are several operations that are expected to perform.

As a user he can:

- Create
- LogIn

The basic operations over the identities are:

- Create
- Update
- Read
- Delete

ALGORITHMS STUDY

The Iam-core application is filled with different algorithms and operations to achieve its purposes. It's very important to say that the use of classes where created with relationships between them in order to create a more simple architecture to the application.

SCOPE OF THE APPLICATION (LIMITS, EVOLUTIONS)

The iam core application is created as a java application with limited actions and operations to perform. It is created to run the basic operations mentioned before with certain limitations. One limitation that can be found in the application is the creation of more than 1 identity over a certain amount of time. A user can only create more than one identity if they are created one by one, this same restriction applies to the operations of update and delete.

Fields such as password, username, etc. are limited to a certain number of characters (255 characters)

CONCEPTION

DATA STRUCTURES

DAO (Data Access Object) is an object that provides an abstract interface to some type of database or other persistence mechanism. By mapping application calls to the persistence layer, the DAO provides some specific data operations without exposing details of the database.

This is used to save the data of both the identities and the users into the database. Thanks to the use of these methods and operations such as create, read, edit and delete can be used in the iam core application. In order to communicate with the DB, the use of a JDBC object is necessary (which relies on the derbyClient).

GLOBAL APPLICATION FLOW

Bin

SQL

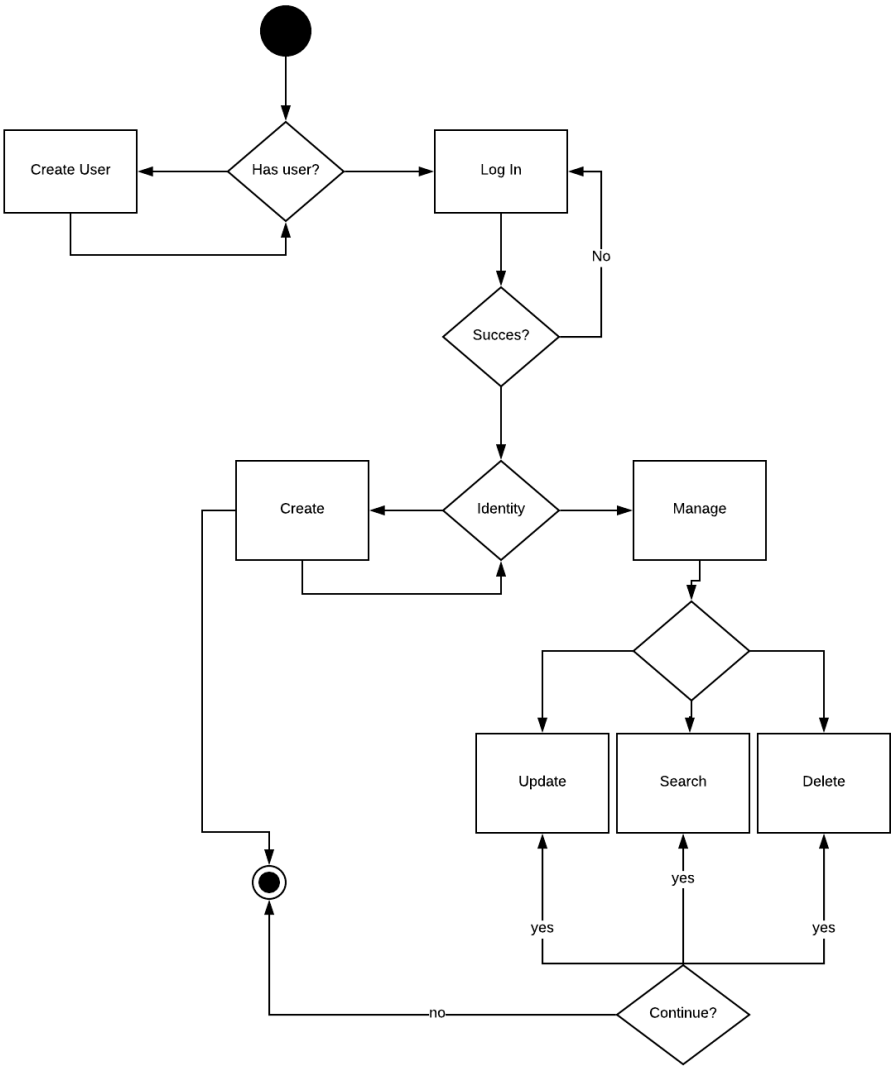
SRC

- **FR**
  - **EPITA**
    - **IAM**
      - controllers
      - datamodel
      - exceptions
      - launcher
      - services
      - ui
      - utils
      - logger
    - views
  - **UTILS**
    - Services

TEST

- **FR**
  - **EPITA**
    - **IAM**
      - **TEST**
        - controllers
        - db
        - file
        - properties

The iam core application flow is the following:



GLOBAL SCHEMA AND MAJOR FEATURES SCHEMA

The schema for the software application is:

CONSOLE OPERATIONS DESCRIPTION

CONFIGURATION INSTRUCTIONS

In order to run the application there should be a configuration file, this configuration file should contain the following data in the form key=value:

db.host=(url for the database, for instance)

db.user=(databse user)

db.pwd=(database password for the user)

log.path=(file path where the log file will be stored)

As the project needs to run over a database, you will have to install and run DerbyDB

http://apache.mindstudios.com//db/derby/db-derby-10.14.1.0/db-derby-10.14.1.0-bin.zip

Run the create.sql that is provided with the project to create the DB

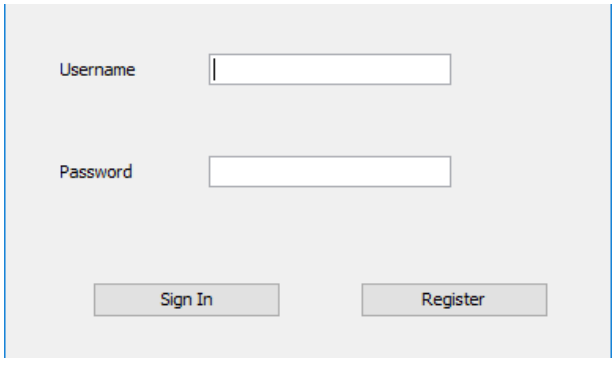
To run the application, execute the following command on the directory where the jar file and configuration file are located.

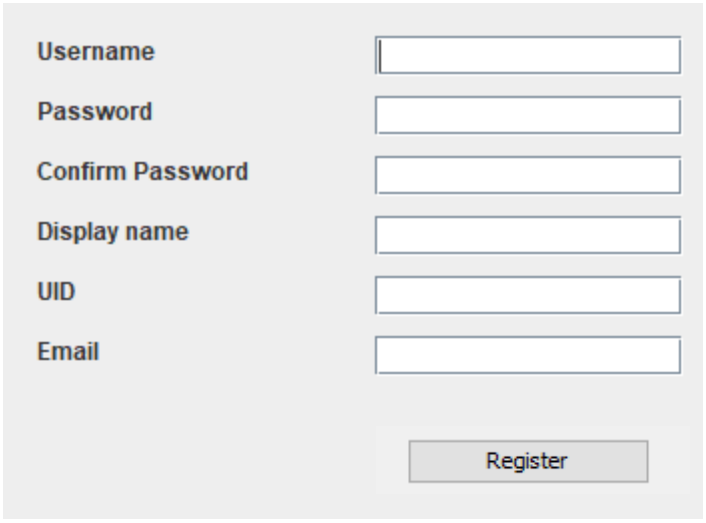
java –Dconf=conf.properties -jar iamCore.jar

COMMENTED SCREENSHOTS

Show of the Java application interface

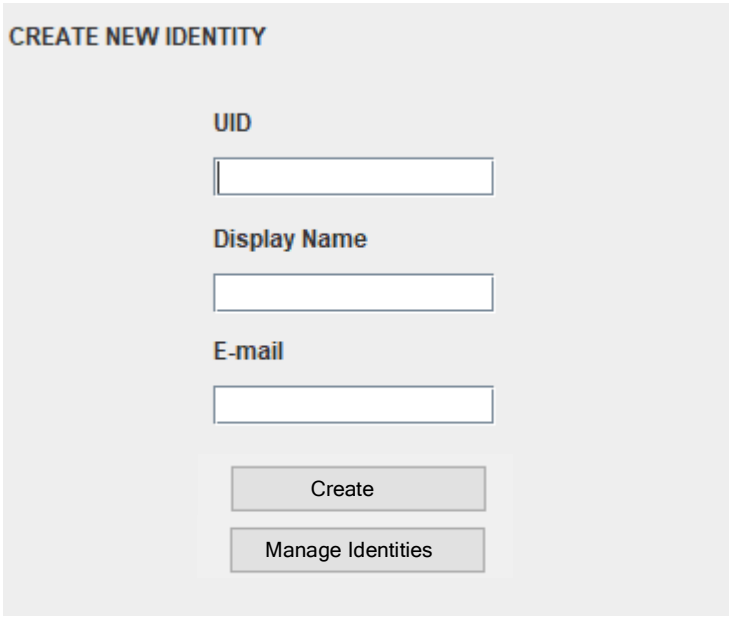
In the next window the user has access to the Log In screen, the username and password will be required to access the system. Sign In button is used to authenticate the entry. The register button will open a window with the new user registration.





This screen is from the user registration, where different data is asked for the user to be saved in the DB. This screen appears when the user clicks on the Register button.

To create new identities there's the following screen.



To create successfully an identity the user must place all the data asked above.

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