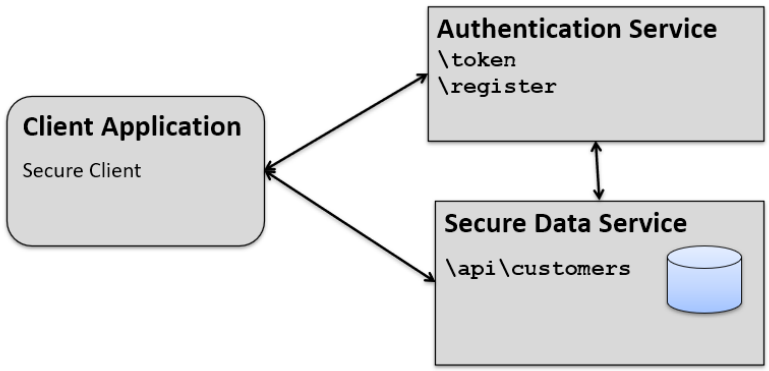
Application Design and Work Plan

Description

This project involves the creation of REST microservices (APIs) to support a secure Customer management application. The supplied client uses the various microservices to:

- Register new users
- Authenticate users who are logging in
- Create, Update and Delete Customer records

Component Diagram



Component List

- Authentication Service
- Data Service
- Client Application

Component Interaction

- The client application gets JWT token from the authentication service during login
- The client application accesses Customer data via the Data API
- The client application adds the JWT token to all Data API requests
- The authentication service calls the Data API to verify user/password during token requests
- The authentication service calls the Data API to insert Customer records during register requests

Account Service

- Service information:
  - context path = \account
  - port = 8081
- Endpoints
  - \account\token

    - \account\register
    - \account\
- Root Endpoint (\account\)
    - Returns a message confirming that the service is up and running.
- Token Endpoint (\account\token)
    - Responds to requests for JWT tokens
    - Takes username and password as parameters
    - Checks that username exists in customer store
    - Checks that password matches the one listed for the customer in the customer store
    - Returns a JWT token suitable for connecting to the data service
- Register endpoint (\account\register)
    - Takes name, email and password and adds them to the Customer data store via the Customer endpoint of the data service
- Security
    - A token is not required to access the account service endpoints

Data Service

- Service information
    - context path = \api
    - port = 8080
- Backend Data
    - Will use embedded hsql database
- Endpoints
    - \api\customers
    - \api
- Root Endpoint (\api)
    - Returns a message confirming that the service is up and running.
- Customers Endpoint (\api\customers)
    - Supports CRUD management of Customer records
    - Supports GET, PUT, POST and DELETE requests
    - A JWT token is required for all requests
- Security
    - Use a servlet filter to intercept calls to the api and check requests for JWT tokens

Work Plan (high level)

- Create Customer endpoints
- Test Customer endpoints
- Create Account register endpoint
- Test register endpoint
- Create Account token endpoint
- Test token endpoint
- Secure the Data API service with filter that checks for JWT tokens
- Create a token and test Customer endpoints including token
- Test APIs using the React client application

Work Plan (task backlog)

- Create local git repos for
    - Data API Code
    - Auth API Code
- Implement Data API's root endpoint
- Implement the Data API's Customer GET endpoint
- Test created endpoints with postman REST tool
- Implement PUT, POST and DELETE Customer API endpoints
- Test created endpoints with Postman
- Test customer endpoints using React client
- Test created endpoints with Postman
- Test created endpoints using React client
- Create Authentication API
- Implement token endpoint
- Test token endpoint using postman
- Test token endpoint using React client (the client's login function uses the token endpoint)
- Add authentication filter to the Data API to require a JWT token to access services
- Try accessing Data API with authentication filter in place using Postman
- Test login and access to customers using the react client