Setup / General Info

- Used C++ and Qt
- It requires Qt 5
- It is a Qt Creator project.

  Set the appropriate kit inside Qt Creator (Qt 5)
- It uses MariaDB
- Set the database parameters (username, password, etc.) in config.cpp
- Create an empty database

  CREATE DATABASE blueCar;
- Then run all

  sql.txt

  It generates and populates the tables and views

External Modules

(Not written by me)

- rbk

  https://github.com/dublinbranch/rbk

  General utility functions.

  E.g., Used to run queries on the database
- variadictable.h

  https://github.com/friedmud/variadic_table/blob/master/include/VariadicTable.h

  To print ASCII tables

Definitions

blueCar

Name of the application requested

Admin

Role of the boss who manages the cars and the users

User / Normal User

Role of a person who rents a car

Pickup Point (PUP)

A point where a user can pick up (and then return) a car who has rented

Car Location

Assumption: each location (circle) has exactly 1 PUP.

So, when a car is free its location is the circle where the PUP is located (column car.locationId in the database), while, when a car is rented the location is unknown (car.locationId = NULL)

Hash Function

The program can use 2 hash functions (according to simulateHash in config.cpp):

- simulated hash function

  For testing and debugging, the function is (not a hash one):

  <string> → HASH_OF_<string>

- RealSha3_512

Important note:

I used RealSha3_512 for ease of implementation and because the application is not real.

In a real application it would be necessary to use strong functions like bcrypt or PBKDF2

https://stackoverflow.com/questions/16877976/is-the-c-hash-function-reasonably-safe-for-passwords