

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

TAXI MANAGEMENT SYSTEM

Group 5:

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Advanced programming with python 2021

Introduction

PyTaxi is a simple taxi management application that connects drivers with customers using PyQt5 for GUI, mongodb for database and socket.io to connect drivers with users.

Basic Features

- **Booking history:** Our application allows users to book new trip and see booking history
- **Select customer:** Our application allows drivers in the system to choose customers.
- **Account portal:** Our application allows users and drivers to sign up for a new account and login to their current account.
- **Admin monitor:** Our application allows administrators to manage and see insight details of drivers and users.

Technology and Structure model

1. MVC structure model

- MVC is a software design pattern commonly used for developing user interfaces that divides the related program logic into three interconnected elements.
- The three components applied in our application are:
- + The model: The three object structures that handle data from the GUI are Driver object, User object and Admin object.

- + The controller: data from the model will be sent here to sanitise and interact with the database.
- + The view: This part in charge of GUI and data from the database will be sent here from the controller.

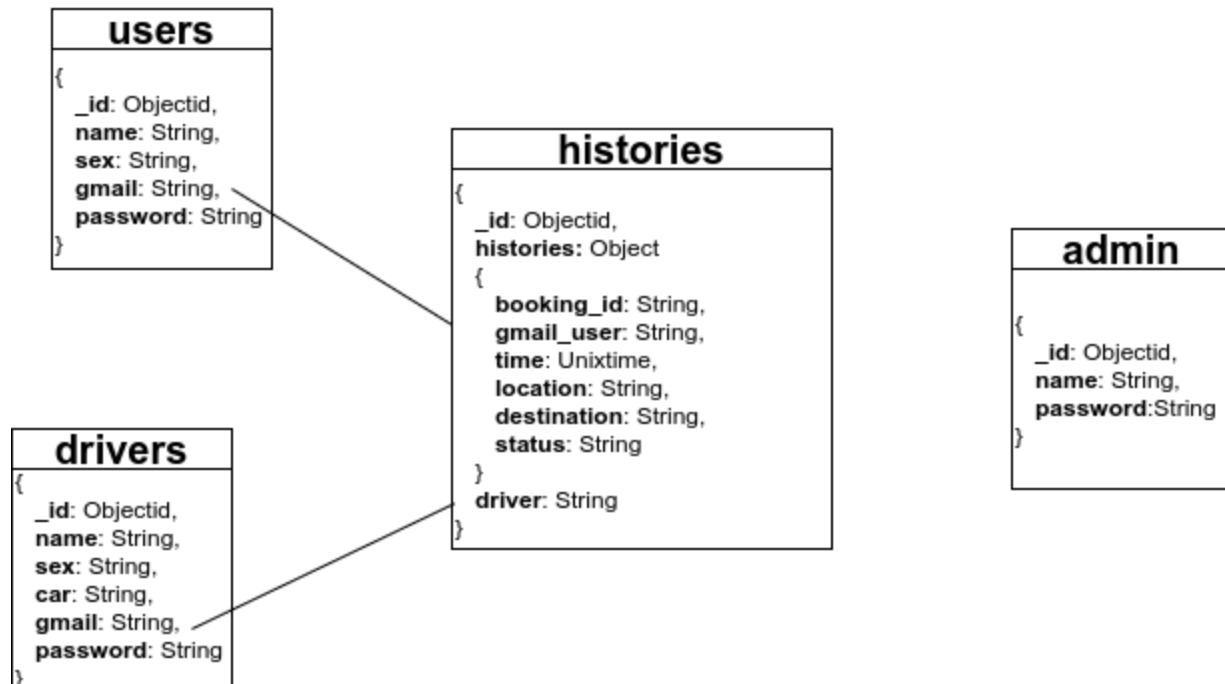
2. MongoDB Database

- This is a noSQL database structure, document database, in which data is stored in JSON-like documents.
- By choosing this kind of database, the chance to make mistakes of very strict rules of SQL-like databases is reduced and it is dominantly used in the real world application with large scale.

3. Web Socket

- Web socket is used to connect requests sent between driver and user.
- When a request is sent, the database will be reset.

Database schema

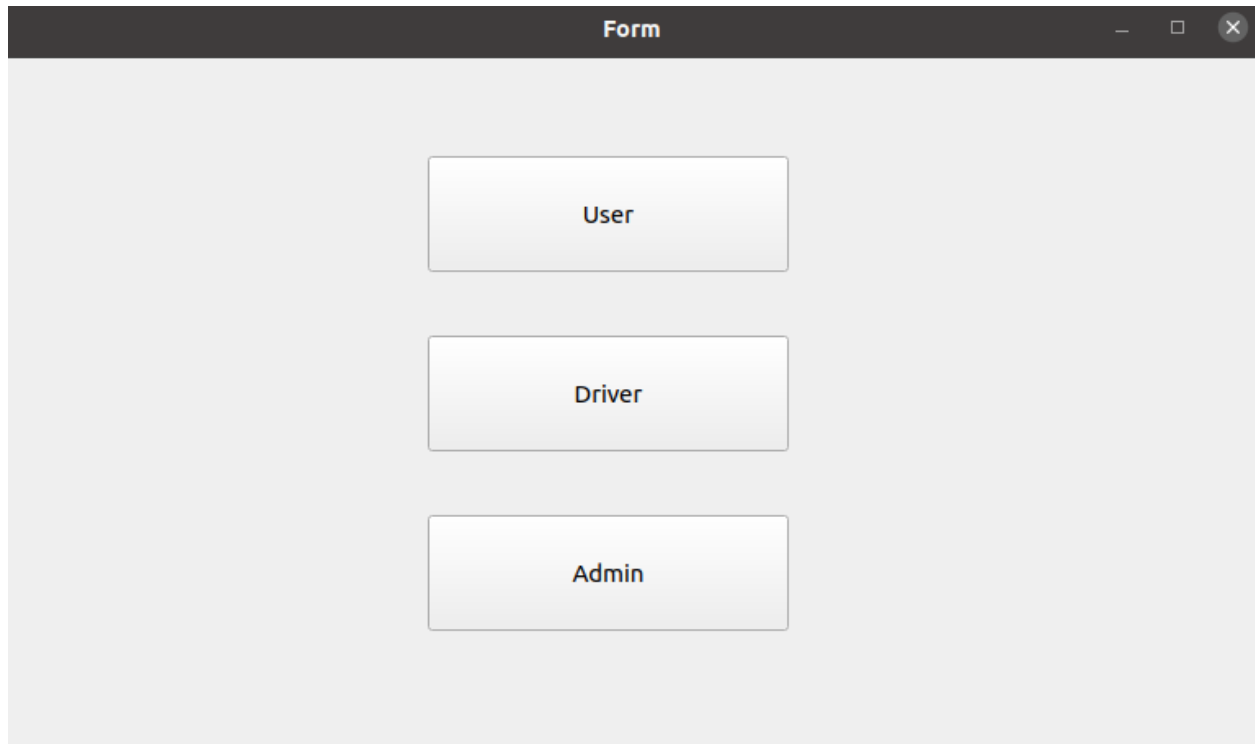


- Basically we have 4 collections in which users, drivers and histories could be merged through each other's gmail with gmail_user and driver.
- The admin is separate because of its privilege: the admin could see overall but others don't.
- Specially, the driver is outside of histories object because it only appears when the driver chooses that trip with its specific booking_id.

Application's GUI and its main functions in action

Begin screen

This screen appears for clients to choose their role.



Login and Signup screen

Basically these two screens of the Driver and User part are the same except the admin doesn't have the signup part, and the signup screen of Driver has a car type field.

- Users:

Form

Taxi_management App

Enter gmail

Enter password

Sign Up *Login*

Form

Taxi_management App

Name *Enter name*

Email *Enter gmail*

Password *Enter password*

Confirm Password *Enter password*

Sex *Male*

Sign Up *Login*

- Driver:

Form

Taxi_management App

Name

Email

Password

Confirm Password

Sex *Car*

- Admin:

Form

Taxi_management App

Main window

- When the user types in the Location and Destination and press Submit, the database will be reset, and their history will appear in the history table. For example, the user wants to go from Thanh Xuan to Dong Da.
- And when the request has been sent successfully, a message appears in the main window of the **User**.

MainWindow

Booking tab

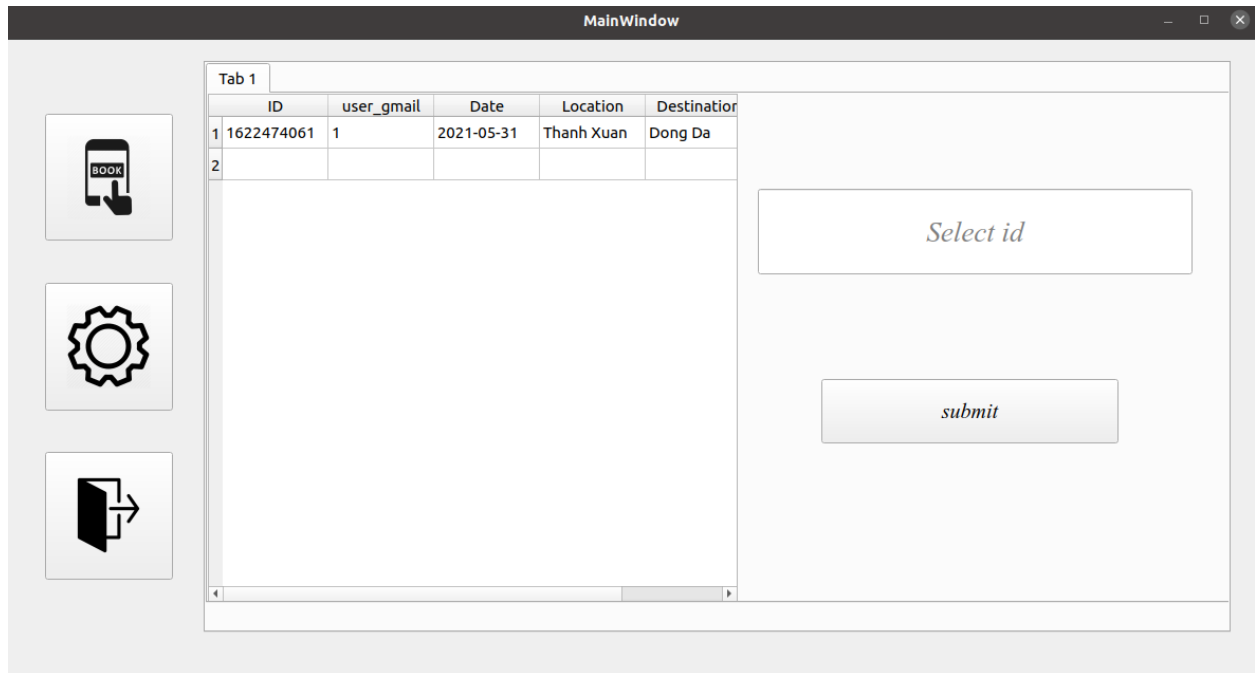
Date: 31/05/2021 22:14 Location: Location Destination: Destination

ID	Gmail_User	Date	Location	Destination	Status	
1	1622474061	1	2021-05-31	Thanh Xuan	Dong Da	false
2						

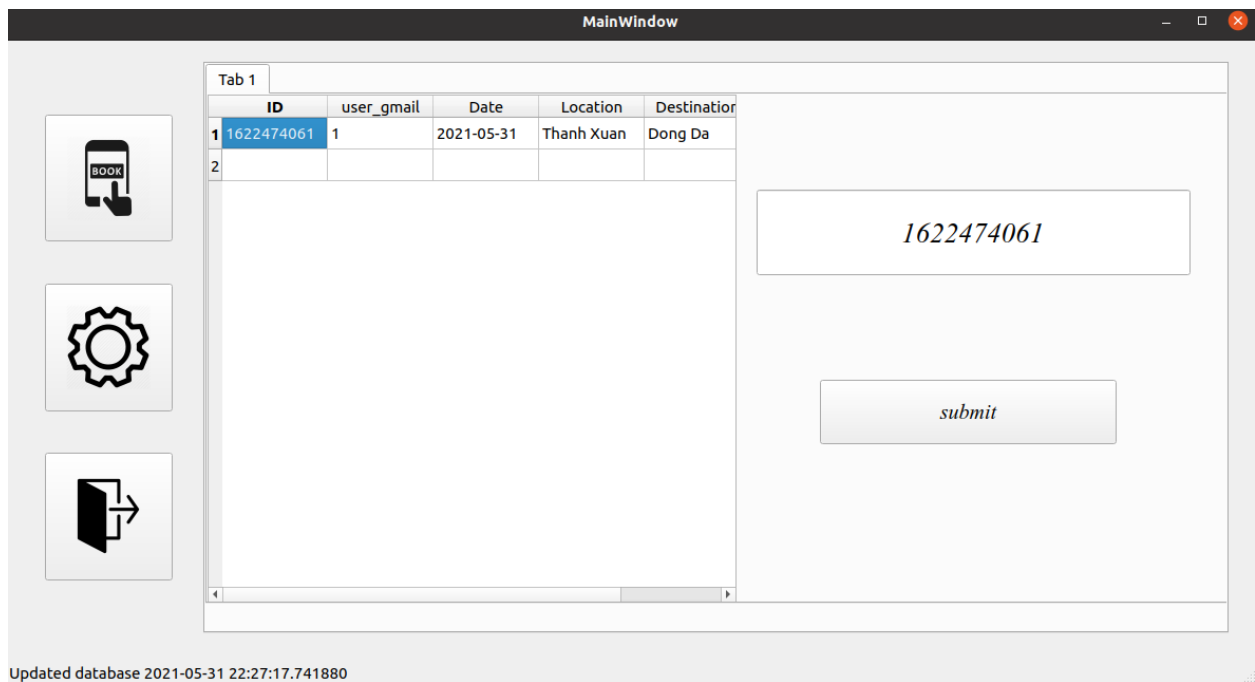
Submit

Your request has been sent, please wait

- From the main window of **Driver** intermediately appear the information appears to the main table.



- The driver then selects the ID of the trip that he or she wants to take. When the submit button is clicked, the database will be reset one more time.



- Then the status in the User's main window will change to "true".

Booking tab

Date: 31/05/2021 22:20 Location: Location Destination: Destination

ID	Gmail_User	Date	Location	Destination	Status	
1	1622474061	1	2021-05-31	Thanh Xuan	Dong Da	true
2						

Submit

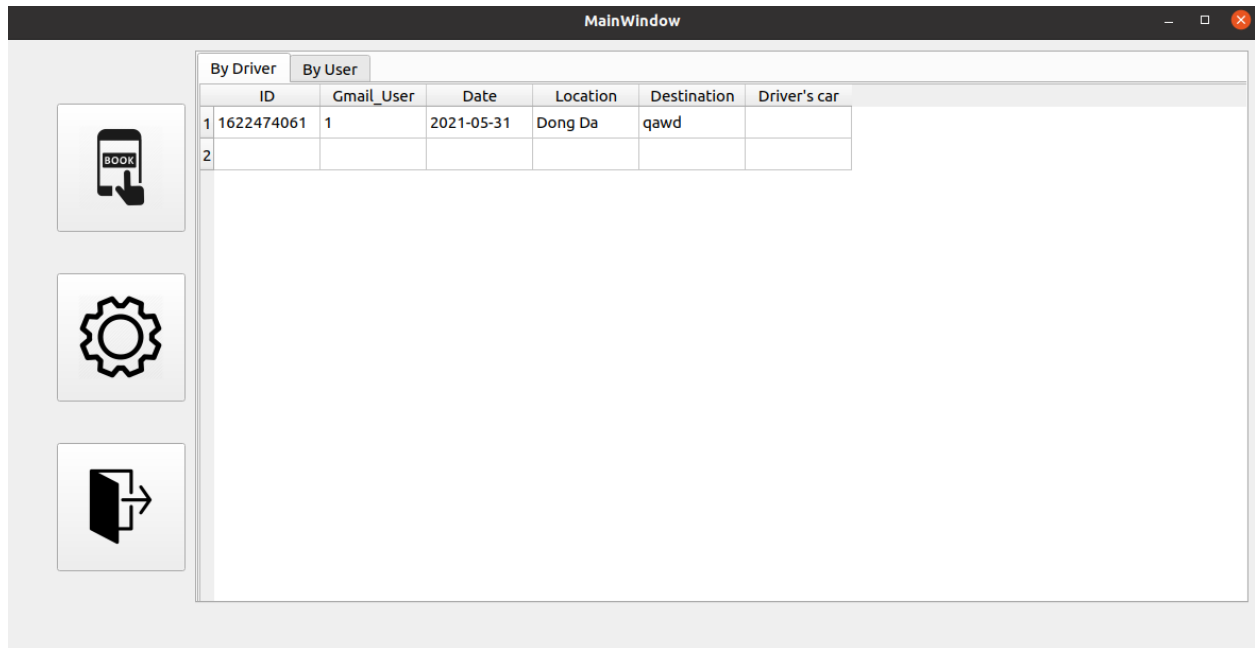
Updated database 2021-05-31 22:27:17.741880

- The **admin** screen can see overall histories of drivers and users:
- + Sort by user:

By Driver By User

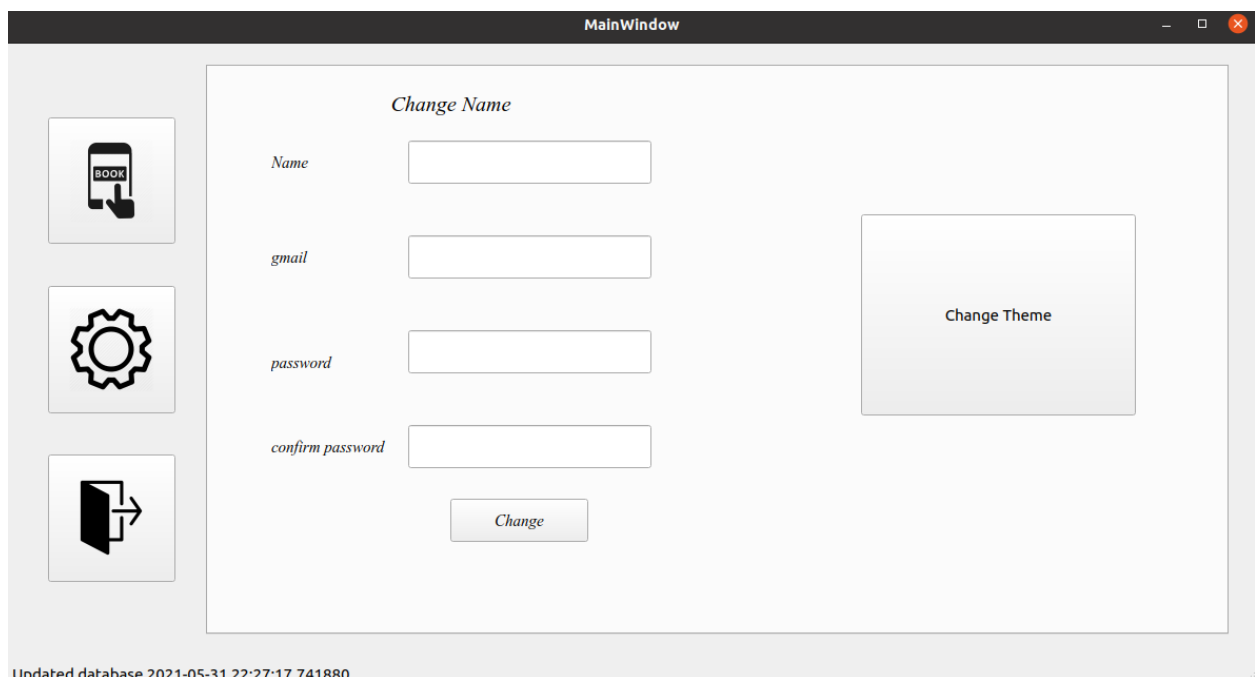
ID	Gmail_User	Date	Location	Destination	Status	
1	1622474061	1	2021-05-31	Dong Da	qawd	true
2						

- + Sort by driver:

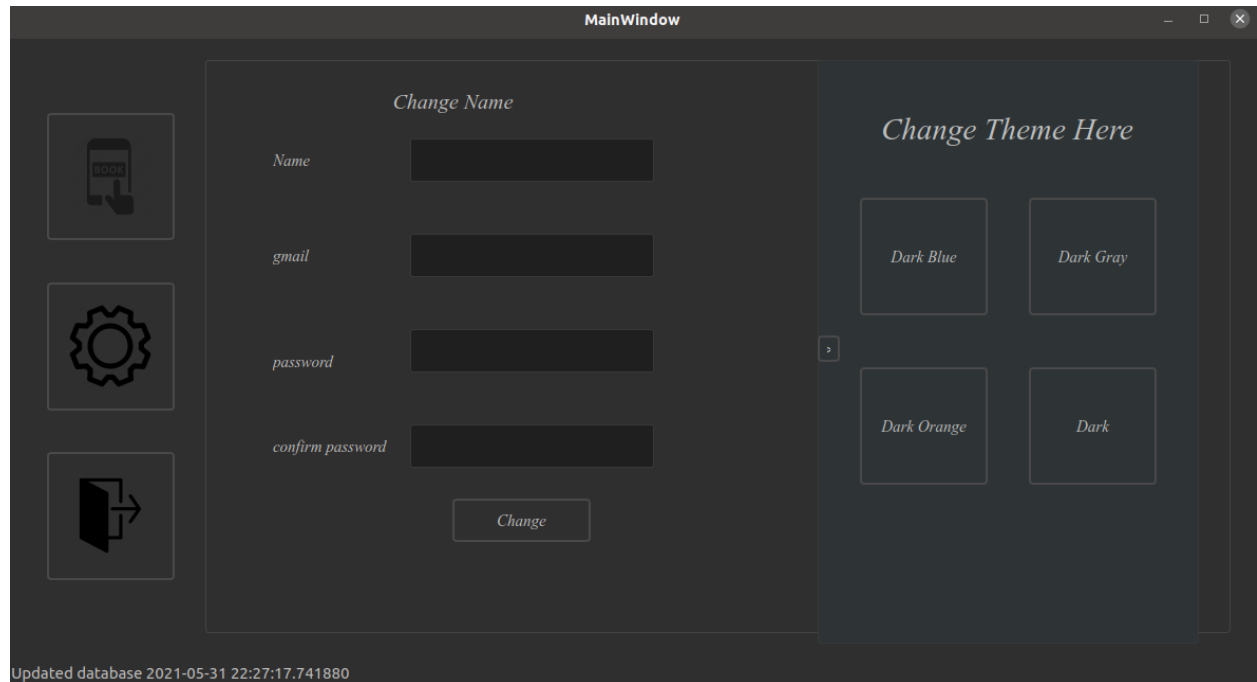


Setting screen

- Basically clients can change only their name which appears in the “name” field on the database. Other line-edits are for sanitizer only.



- We also provide the change-theme service which has 4 themes to choose from. This is the example of Dark Blue theme:



- When all three types of client click to the signout button on the left down corner, they intermediately switch the begin screen.