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**REPORT**

**«Object Oriented Programming»**

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**Astana, 2024**

**Introduction**

In today's world, mobility plays a key role, and the possibility of renting cars for certain dates is becoming more and more in demand. Our project, developed on the Java platform, is a software application for renting cars. With its help users can easily find available cars for desired dates, book them and make payment. The project uses a Swing library-based GUI for user experience and interacts with a PostgreSQL database to store information about available cars and users. Our application provides a convenient and efficient way to rent cars, combining ease of use with powerful functionality.

Our application provides a user-friendly interface for searching available cars for different dates and locations, as well as for registering new users and authenticating existing ones. We used the Swing library to create the GUI and user interaction, and JDBC to work with the PostgreSQL database. With this combined approach, our application provides a convenient, reliable and secure car rental experience.

Login Window:

This is the first window that the user sees when the application is launched.

It consists of login and password fields, login and registration buttons, and an image that can serve as a visual element.

The user can enter their credentials and click the “Login” button to authorize in the system, or proceed to registration by clicking the “Register” button.

If the data is entered incorrectly, a dialog box with an error message appears.

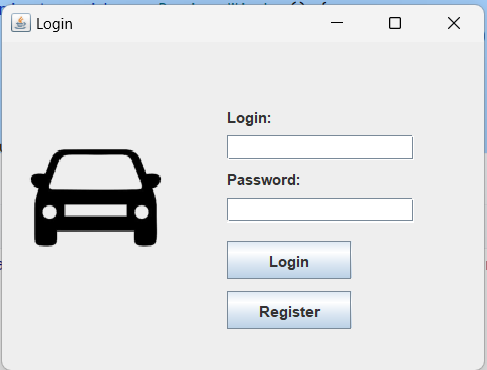


Fig 1 login or registration windo

Invalid Credentials Dialog:

Appears when a user attempts to log in with an invalid login or password.

Informs the user that the credentials they have entered are invalid.

Prompts the user to verify the credentials entered and retry the login attempt.

The user can click “OK” to close the window and try again.

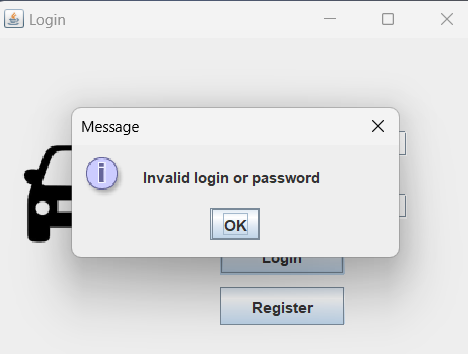


Fig 2 input data error message

Registration Window:

This window provides a form for registering a new user.

It includes fields for entering first name, last name, e-mail address, login and password.

When all fields are filled in and the “Register” button is clicked, the data is sent to the database and the user receives a message about successful registration or an error.

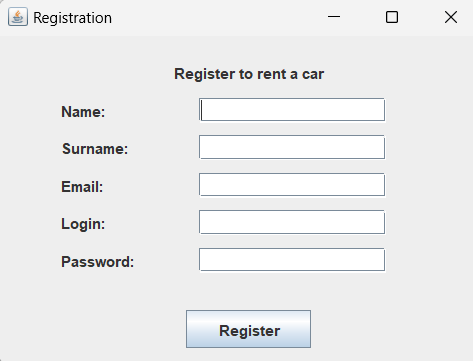


Fig 3 registration window

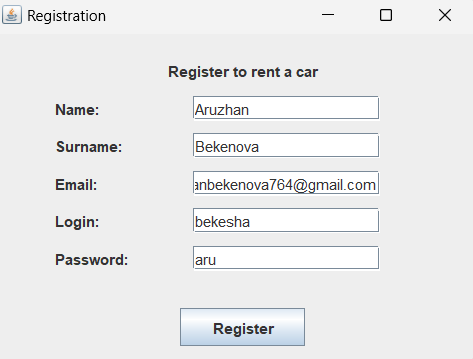


Fig 4 registration data entry

Successful Registration Dialog (Successful Registration Dialog):

Appears after a new user has successfully registered.

Informs the user that their registration was successful.

It may contain additional information such as a welcome message or instructions on how to proceed.

The user can click the “OK” button to close the dialog box and continue using the application.

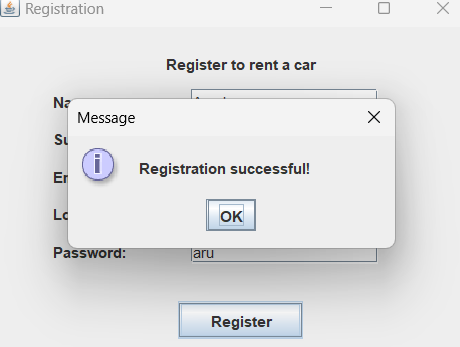


Fig 5 successful registration message

Главное окно приложения (Main Application Window):

Открывается после успешной авторизации пользователя.

Включает левую панель с меню, где можно выбрать различные действия, такие как просмотр отзывов, каталога автомобилей или информации о компании.

Правая часть содержит форму поиска автомобилей с полями для указания местоположения, даты и времени аренды и возврата.

После нажатия кнопки "Поиск" отображается список доступных автомобилей.

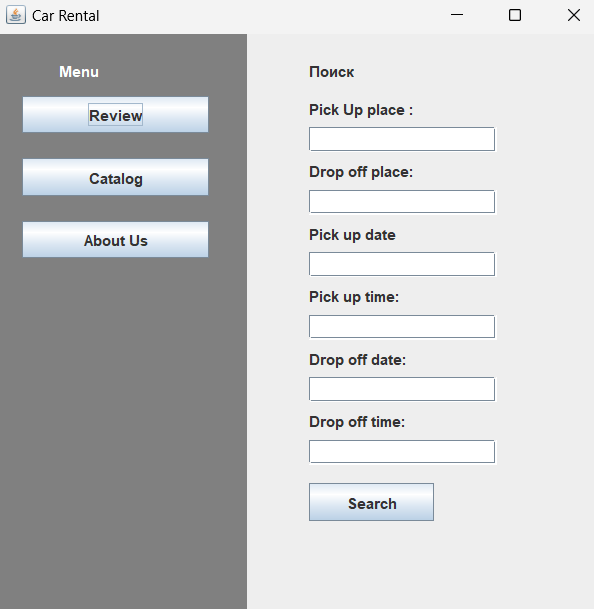


Fig 6 car reservation window and menu

Reviews Window:

Opens when you click on the Reviews button in the main window.

Allows users to view other users' reviews and add their own.

Includes a field to enter a user name, a field to enter a review, and a button to submit a review.

Reviews are saved in a file and displayed in a text box.

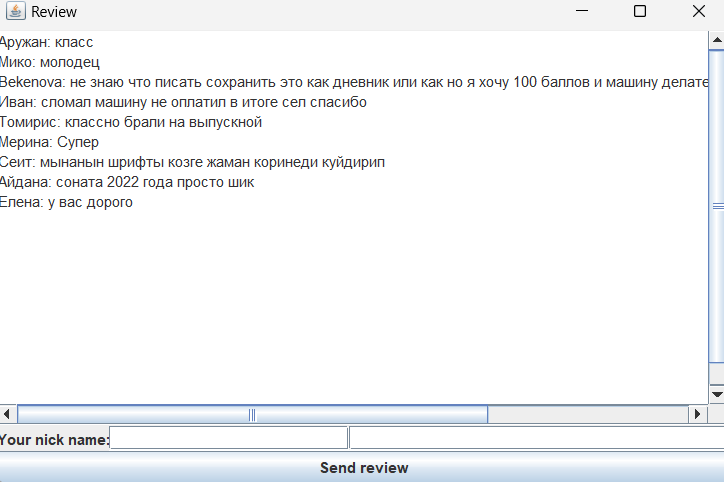


Fig 7 feedback window

Car Catalog:

Name: Car Catalog or List of available cars.

Description: This window allows the user to view available cars for rent.

Components:

A table or list of cars with information about each car such as name, year, color, and rental cost per day.

Buttons or controls to filter the list by various criteria such as car type, price, etc.

Close or Back button to return to the main menu.

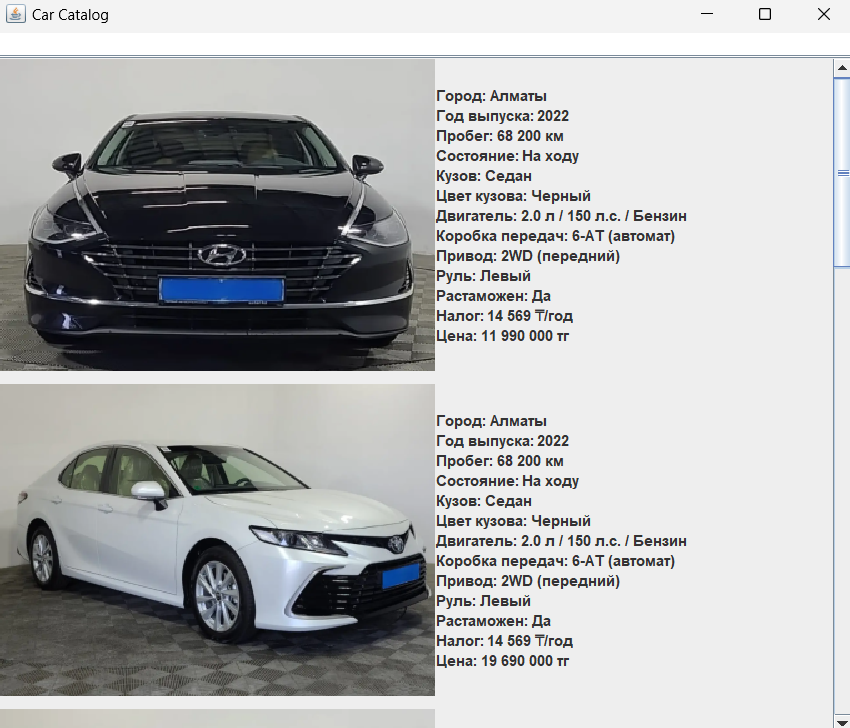


Fig 8 window for searching for machines in the catalog

About Us:

Title: About Us or Company Information.

Description: This window provides the user with information about the car rental company.

Components:

A text description of the company, its history, mission and values.

Images or logos associated with the company.

Contact information such as office address, phone number, email.

Perhaps a link to the company's website or social media for more information or communication.

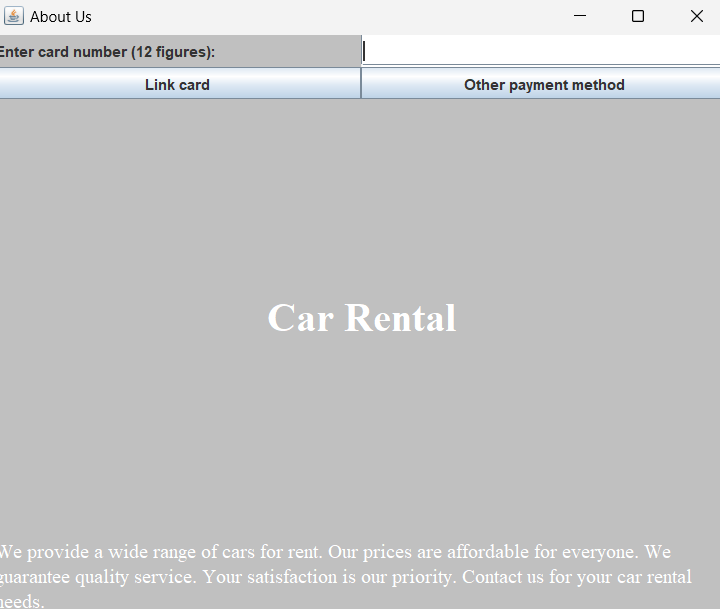


Fig 9 information window

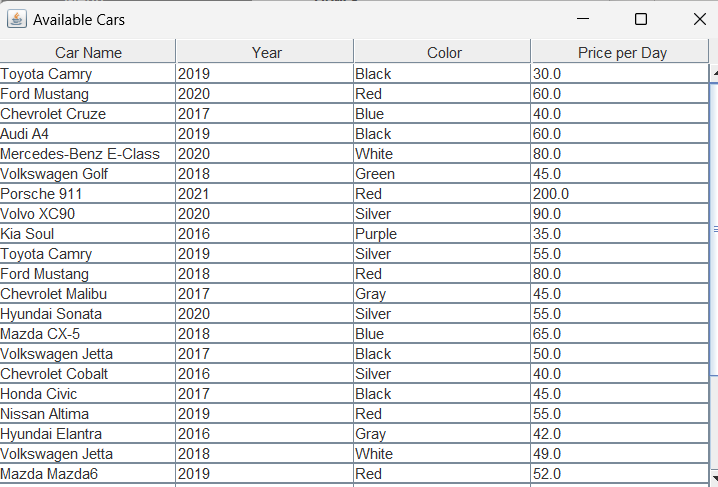


Fig 10 view available search cars

Users table in PostgreSQL:

Table name: users.

Structure:

name: VARCHAR, stores the user's first name.

surname: VARCHAR, stores the user's last name.

email: VARCHAR, stores the user's e-mail address.

login: VARCHAR, stores the user's login for logging in.

password: VARCHAR, stores the user's encrypted password.

Additional fields: You can add additional fields such as registration date, account status, etc.

Indexes and Restrictions:

Primary Key: Can be set on the login field to ensure uniqueness of logins.

Unique Restrictions: Can be set on the email field to ensure there are no duplicate email addresses.

Validation Restrictions: Password rules can be set, such as minimum length, use of letters and numbers.

Purpose: To store information about registered users, authenticate logins, manage user accounts.

Project use: For new user registration and authentication when logging in to the car rental system.

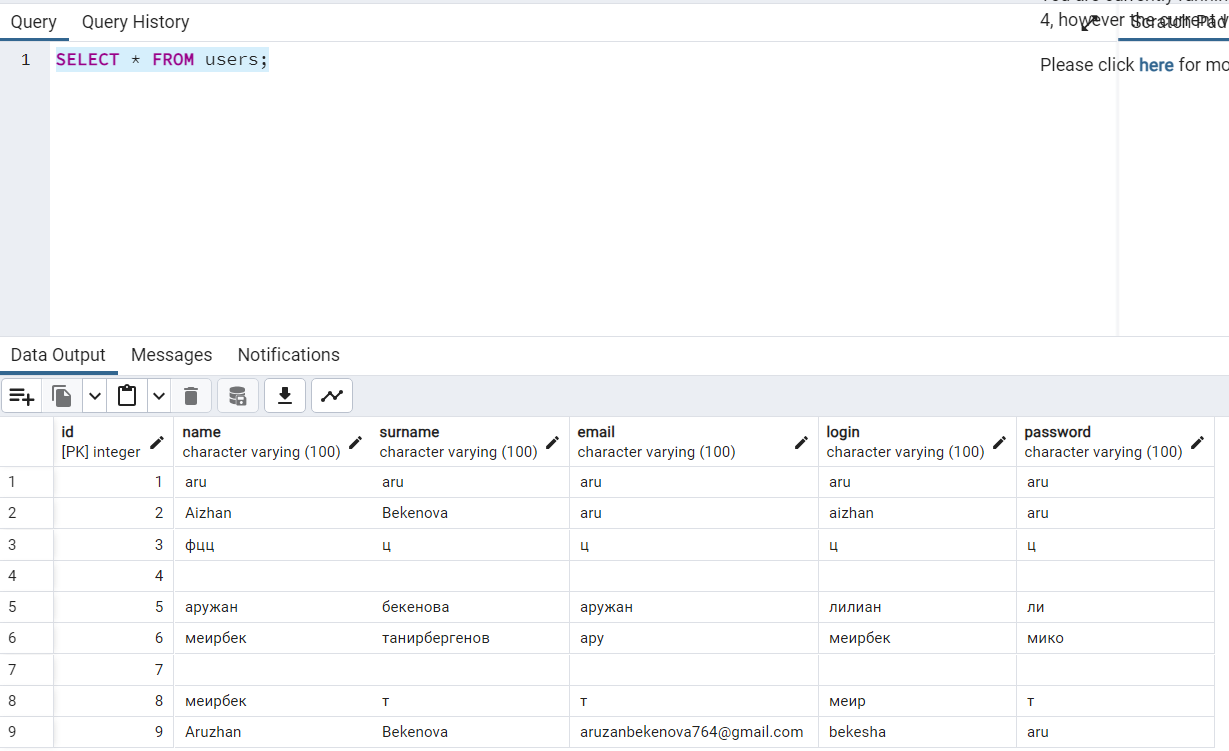


Fig 11 table for viewing registered users

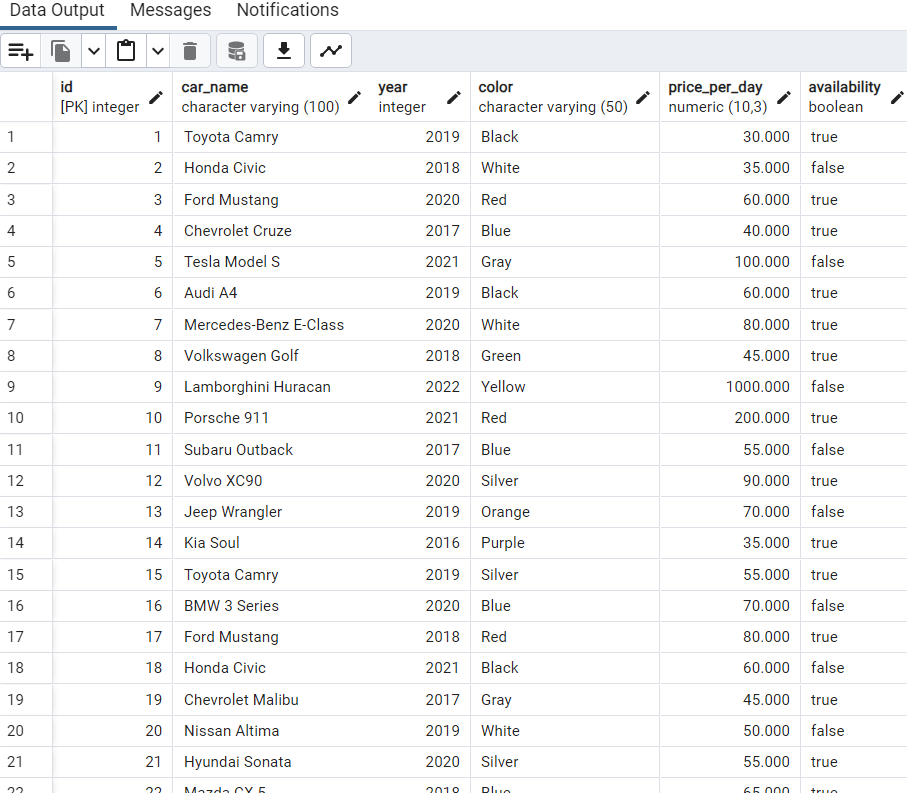


Fig 12 created database to view available cars

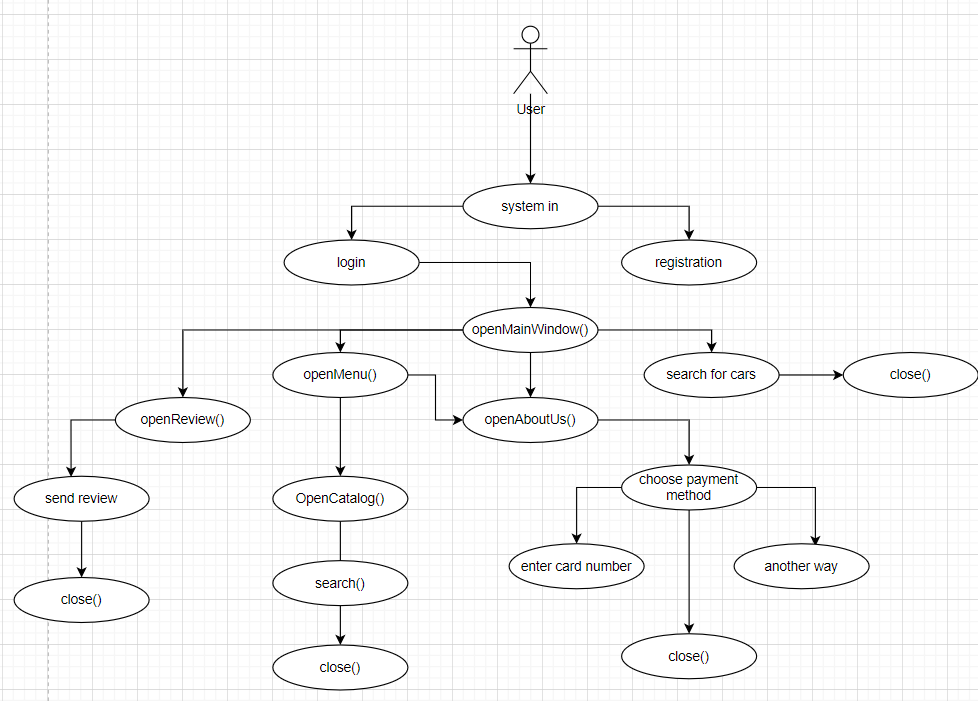


Fig 13 Flow chart diagram

Изображение выглядит как текст, снимок экрана, число, программное обеспечение

Автоматически созданное описание

Fig 14 Jira