**INTERNATIONAL SCIENTIFIC AND VOCATIONAL JOURNAL (ISVOS JOURNAL)**

**Vol.: 8 Issue: 1 Date: 30.06.2024 Received: 04.06.2024 Accepted: 26.06.2024 Final Version: 29.06.2024**

ISVOS Journal, 2024, 8(1): 65-75 – DOI: 10.47897/bilmes.1495877

# Advanced Web-Based Customer Taxi Appointment Request System

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**Abstract**

In today's rapidly digitalizing world, significant transformations are also taking place in the service sector. In this context, the taxi industry is also being reshaped by technological innovations. A study was conducted in the literature to reduce traffic congestion. In this study, a web-based online taxi calling and control application was developed. This application was implemented to ensure that users receive safer, faster and more comfortable transportation services. This study aims to prevent security problems that may arise in the taxi industry. Since the application allows the information of the taxi driver and the passenger to be easily visible on the system, it is aimed to prevent situations such as loss of belongings and events that could endanger the life of the taxi driver. With the study, an innovative platform was presented that aims to improve the experiences of both passengers and taxi drivers. Thanks to user-friendly interfaces, users can easily make a taxi appointment and choose the driver they want. This application, which has a dynamic structure, was coded in the PHP programming language.

***Keywords:*** "Taxi, Customer, Security, Appointment."

## 1. Introduction

Taxi appointment systems are very important for both taxi drivers and customers to avoid wasting time. In such applications, it is also important for customers to be able to choose the taxi driver as they wish. Disruptions in the transportation system caused by traffic density are one of the common problems that many cities have to deal with [1]. Instant or long-term disruptions in traffic may occur due to many reasons, especially in the city center, such as car parks in wrong locations, density of pedestrians and vehicles, lack of sufficient physical infrastructure on the roads, individual vehicle users, etc. Many simulation and analysis processes are carried out by relevant institutions to predict or solve such problems [2,3]. Cui et al. they drew attention to the increase in population and developments in technology in the developing world and its cities [4]. Chen et al. they stated that people's preferences for getting on and off taxis are generally hospitals, shopping malls or city centers [5]. Traffic density, which has become one of the biggest problems of cities day by day, can sometimes reach the highest levels. On the other hand, it is very important to be careful about any problems that may occur in transportation, to work against the problems and to take precautions to protect the sustainability of transportation, which is directly related to the living standards of city residents. Commercial taxis also bring about transportation problems such as insufficient control of businesses, inability to integrate with other means of transportation, and in cases where the demand for commercial taxis is irregular, taxi drivers wander around the city idly, occupying traffic unnecessarily [6]. Öztemiz et al. they stated that traffic problems in residential areas are serious problems that need to be solved [1]. Wong and Szeto stated that the demand for commercial taxis is irregular [7]. In a different study conducted by Engin, it was emphasized that public transportation and taxi service are very important elements in transportation for city residents [8]. A different remotely controlled web-based study was conducted [9].

A detailed and useful web-based application was developed to solve such problems. This application aims to prevent such problems.

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## 2. Material and Methods

The web-based Taxi Management System in this study was developed using PHP, MySQL, HTML, CSS and JavaScript programming languages. From our navigation bar, users can log in, register, view drivers, and send contact e-mails. Admins can also log in from here. The general view of the developed application is shown in Fig. 1.

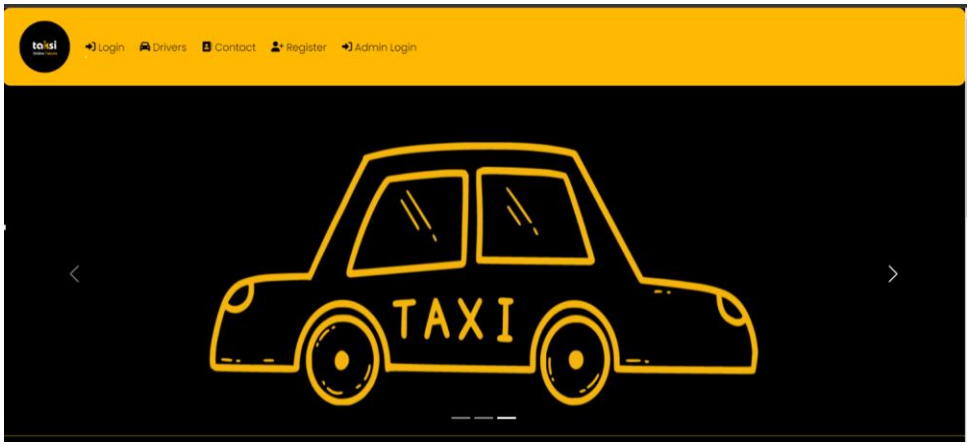


**Fig. 1. General interface view**

Among the drivers rated by passengers, those with the highest scores are displayed on our homepage. In this way, users are provided with convenience in choosing a driver. In addition, it is aimed to provide better service to passengers by asking drivers to enter their favorite drivers list. The developed favorite drivers interface is shown in Fig. 2.

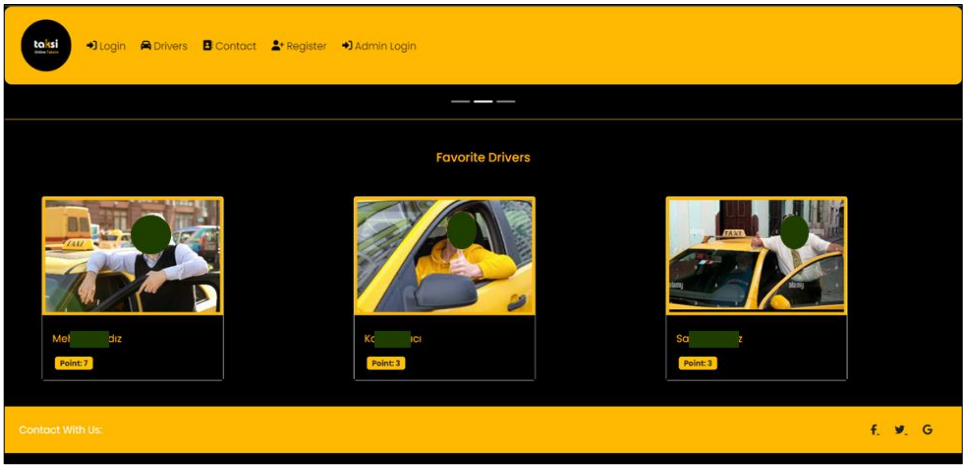


**Fig 2. Favorite Drivers Interface**

In our drivers interface, drivers added to the system by the admin are listed. The drivers interface is shown in Fig. 3.

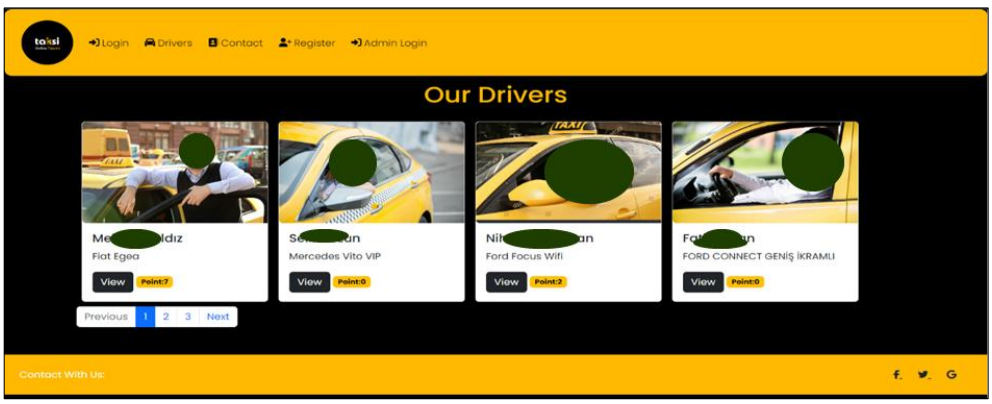


**Fig. 3. Drivers Interface**

Details of the driver can be seen by pressing the view button. The developed interface is shown in Fig. 4.

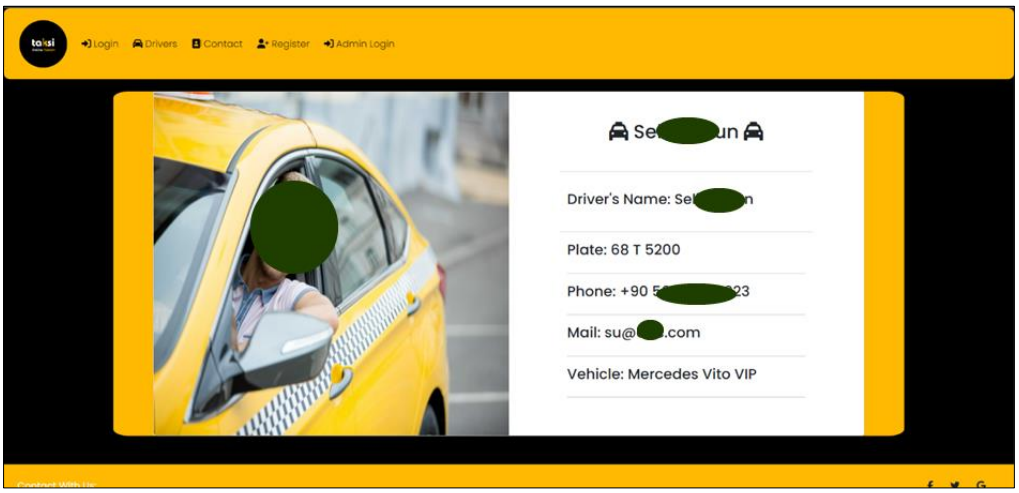


**Fig. 4. Driver Detail Interface**

Users can give us their opinions on our contact page. The message is sent to the admin via e-mail. The developed interface is shown in Fig. 5.

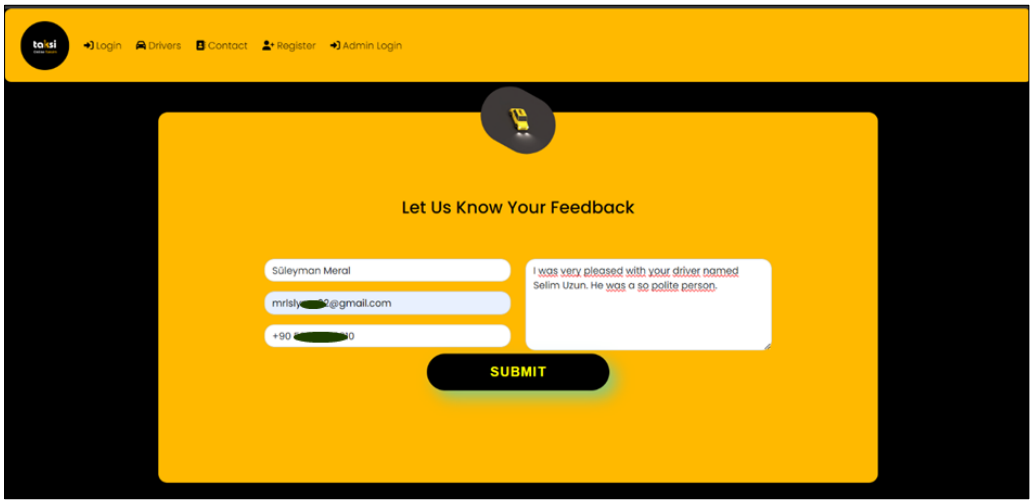


**Fig. 5. Communication Interface**

The sent e-mail reaches the admin's e-mail address. Users can register to the system by entering their information in the user registration interface. The developed interface is shown in Fig. 6.

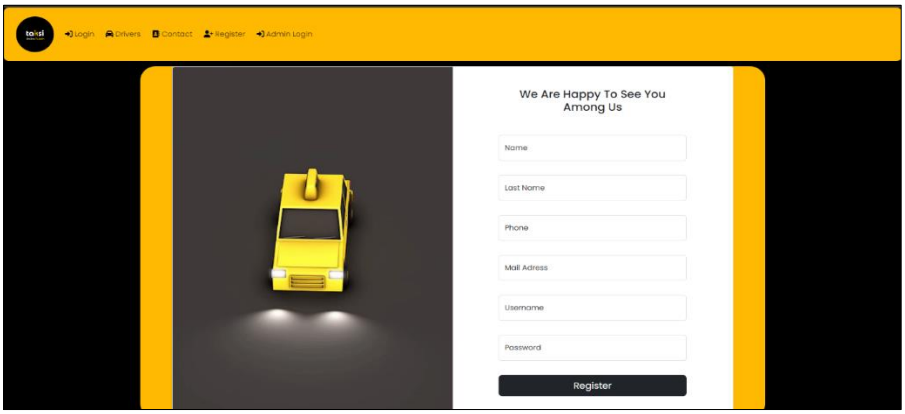


**Fig. 6. User Registration Interface**

Users can log in to the system with their own username and password. The login screen developed for this is shown in Fig. 7.

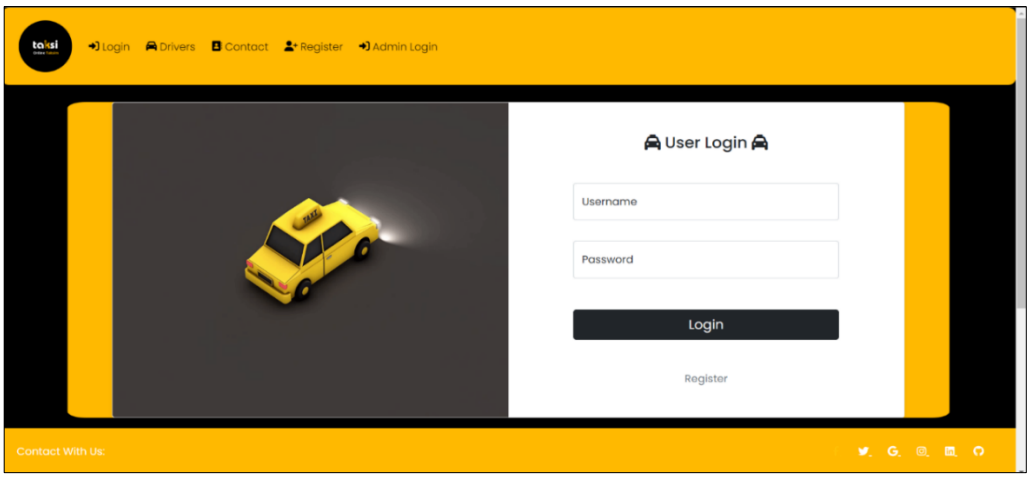


**Fig. 7. User Registration Interface**

After logging in, users can create, view, cancel and edit appointments. The person's username also appears in the navbar. The developed interface is shown in Fig. 8.

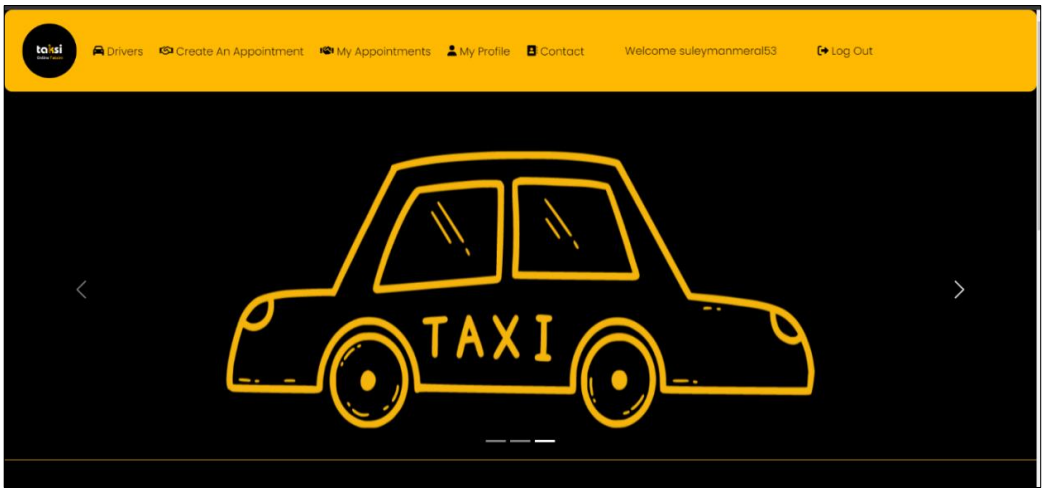


**Fig. 8. User Home Page Interface**

Admin can determine the appointment date range via the admin panel. Appointment requests are not created outside the date range. The warning is shown to the user via notification as in Fig. 9.

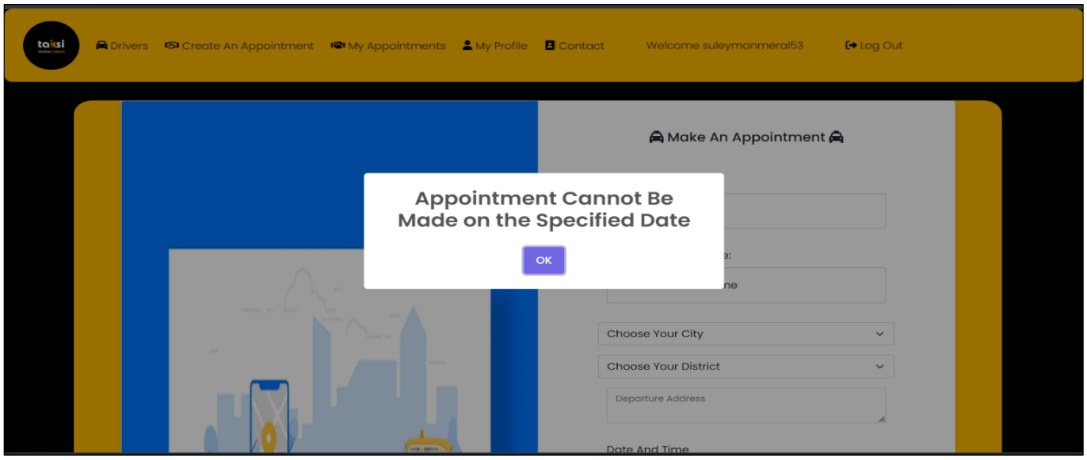


**Fig. 9. Invalid Date Notification**

After making an appointment, an e-mail is sent to the user and the admin. The user has the opportunity to cancel and edit the appointment until the admin confirms the appointment. The developed appointment booking interface is shown in Fig. 10.

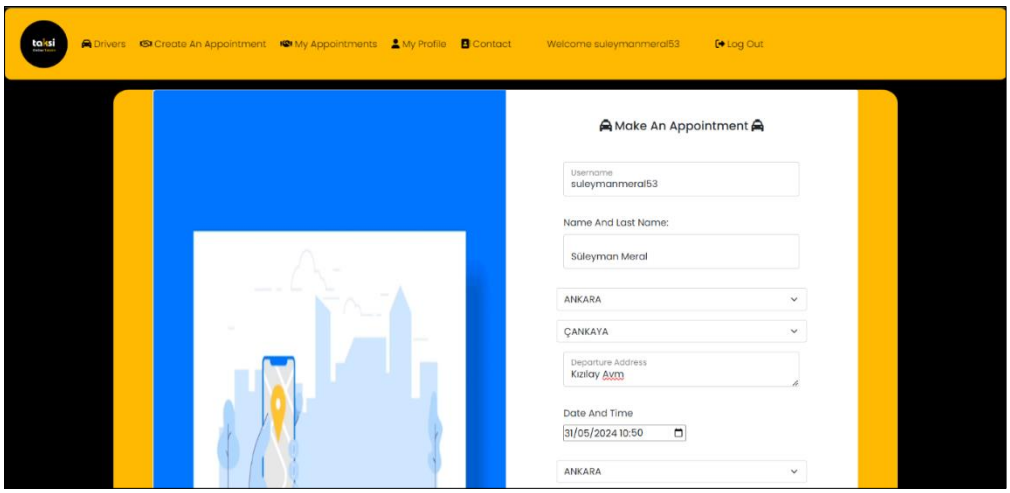


**Fig. 10. Appointment Interface**

After the appointment is made, the user is notified and the appointment is placed on the My Appointments page awaiting confirmation. This process is shown in Fig. 11.

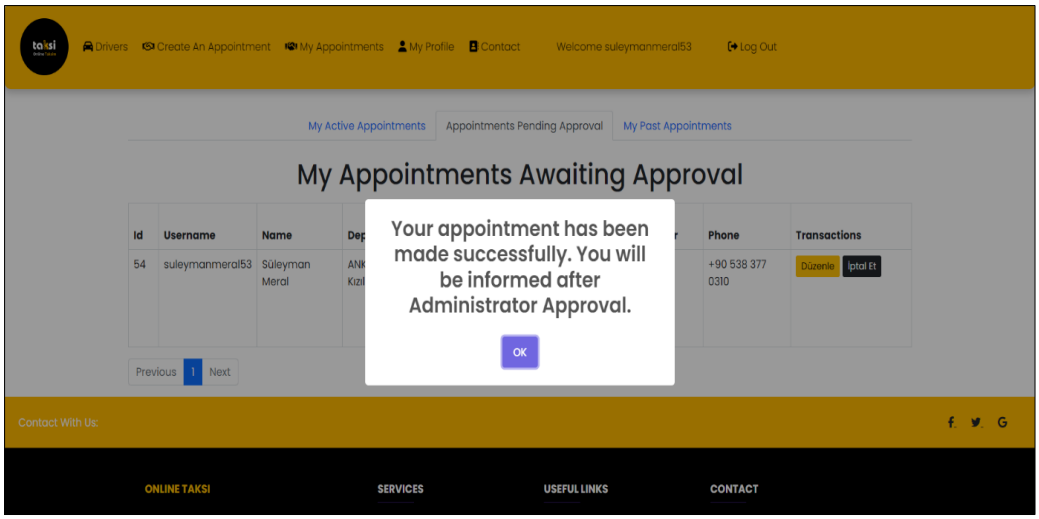


**Fig. 11. Interface After Making an Appointment**

Appointments made by users are sent to the admin via e-mail. As an example, it is shown in Fig. 12.

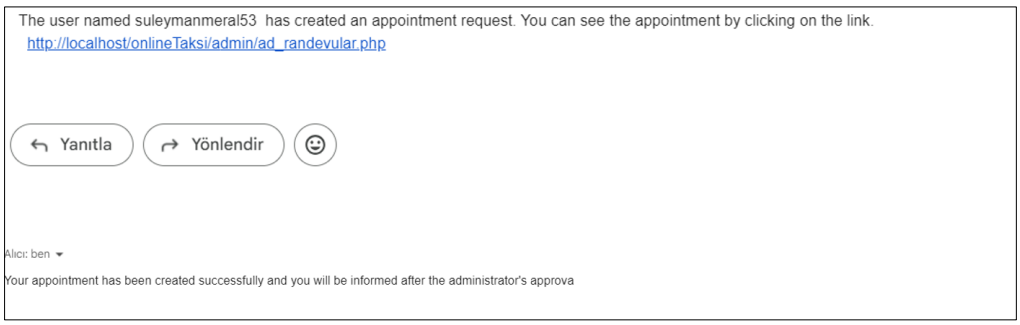


**Fig. 12. Appointment Email Sent to Admin**

The user can cancel the appointment by specifying the reason for cancellation. The reason for cancellation is communicated to the admin via e-mail. The appointment cancellation interface is shown in Fig. 13.

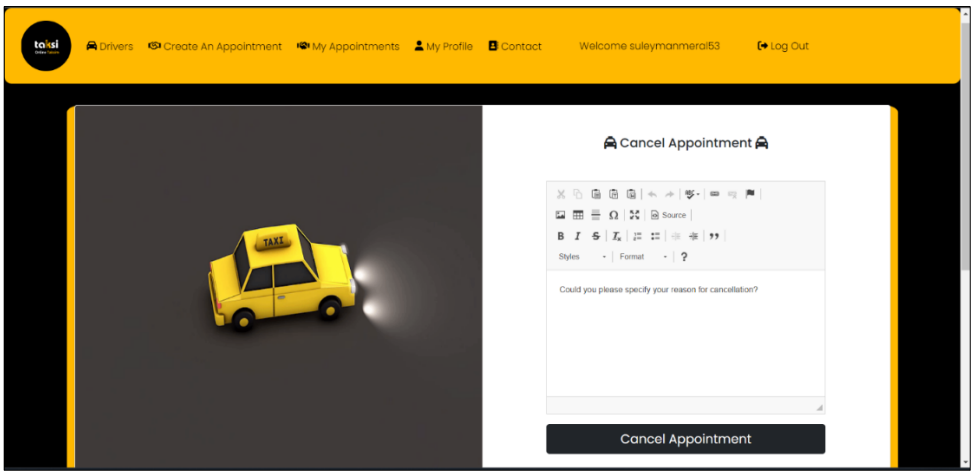


**Fig. 13. Appointment Cancellation Interface**

Admin logs into the system with username and password from the login screen. The developed admin login interface is shown in Fig. 14.

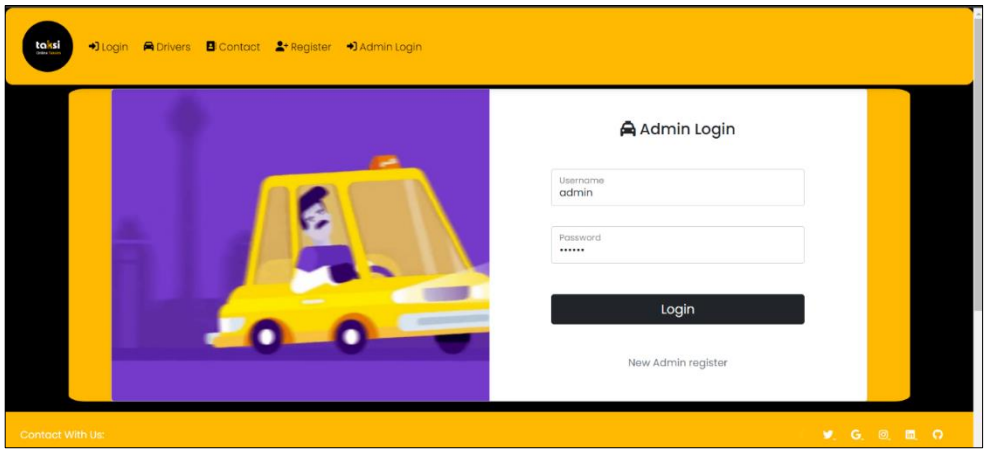


**Fig. 14. Admin Login Interface**

The admin can view appointments, change the appointment date range, and view driving evaluations from his own panel. The general interface of the admin page is shown in Fig. 15.

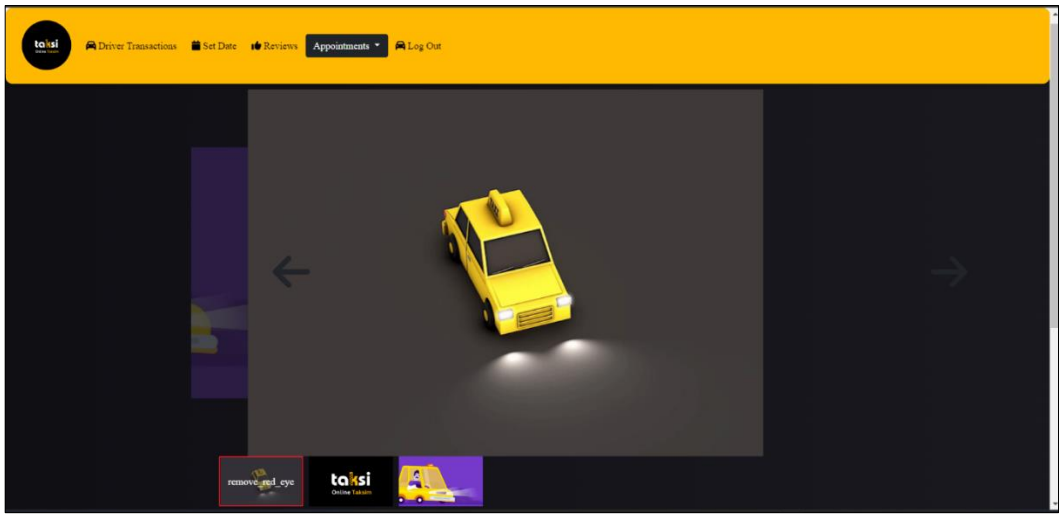


**Fig. 15. Admin Page General Interface**

Admin can determine the appointment date range from the date setting section. The interface developed for this is shown in Fig. 16.

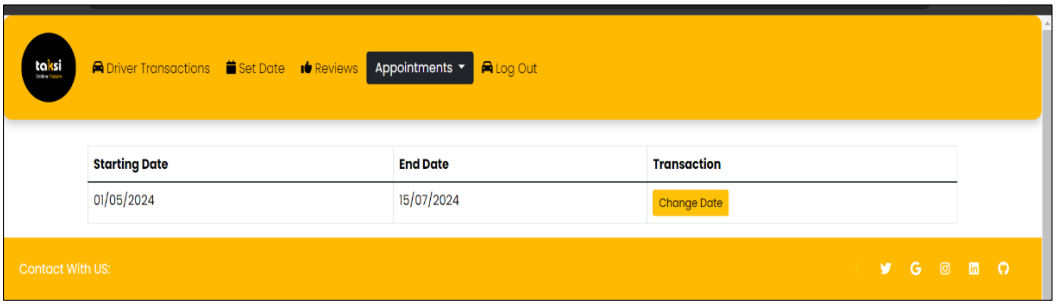


**Fig. 16. Date Setting Interface**

The appointment date range can be changed from the change date button. The developed interface is shown in Fig. 17.

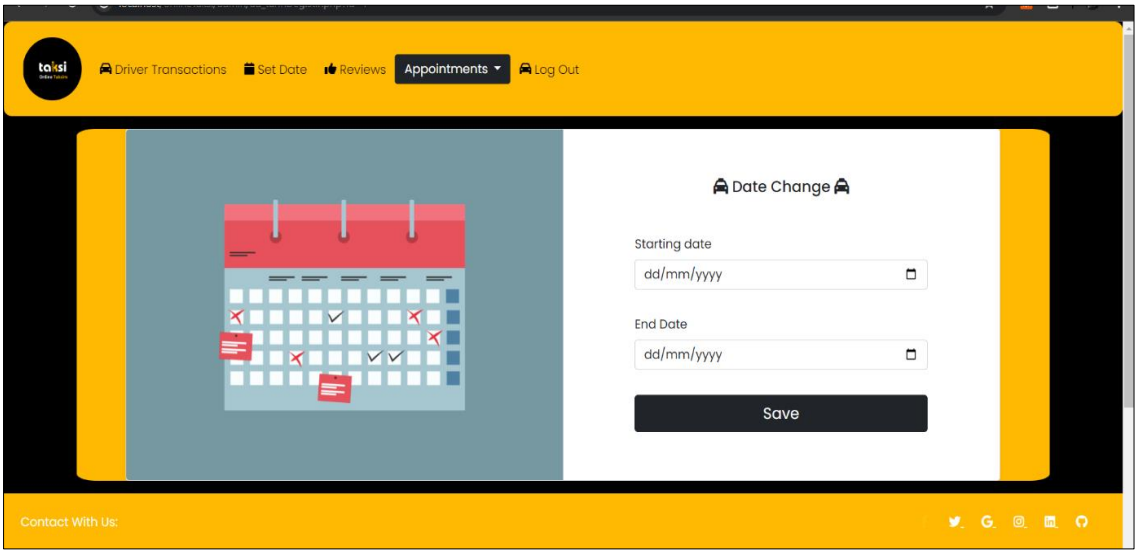


**Fig. 17. Date Change Interface**

Admin can add drivers to the system, delete drivers and make edits from the driver transactions section. The developed driver operations interface is shown in Fig. 18.

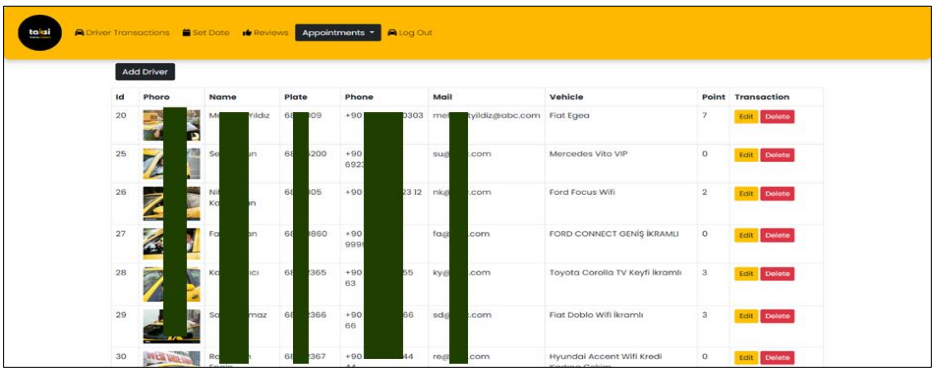


**Fig. 18. Driver Operations Interface**

Admin can add new drivers to the system via the driver adding interface. The developed interface is shown in Fig. 19.

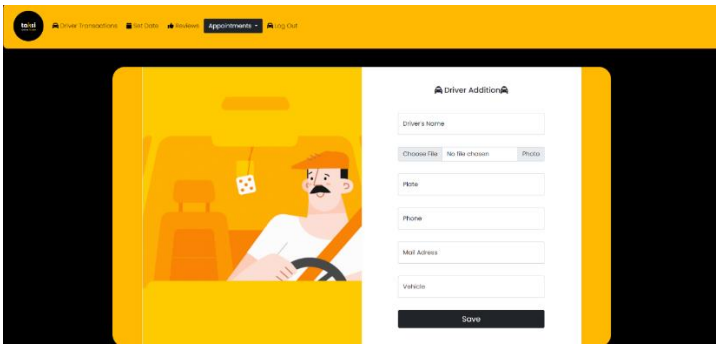


**Fig. 19. Driver Addition Interface**

Admins can see the reviews in the reviews section. The interface developed for this is shown in Fig. 20.

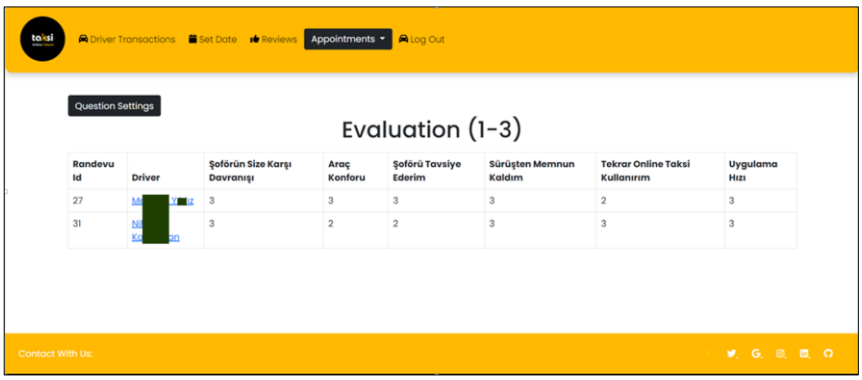


**Fig. 20. View Reviews Interface**

Admin can change the questions from the evaluation questions changing interface. The developed interface is shown in Fig. 21.

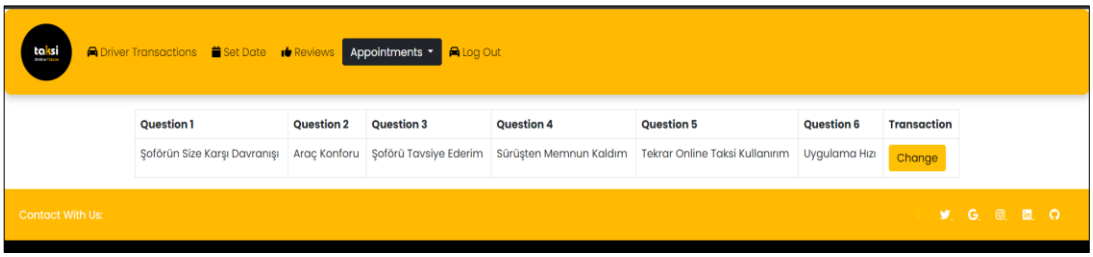


**Fig. 21. Evaluation Questions Changing Interface**

Appointments made by users are displayed on the appointments pending approval page of the admin. Admin can approve or reject the appointment from here. The reason for rejection is communicated to the user via e-mail. The interface for appointments awaiting approval is shown in Fig. 22.

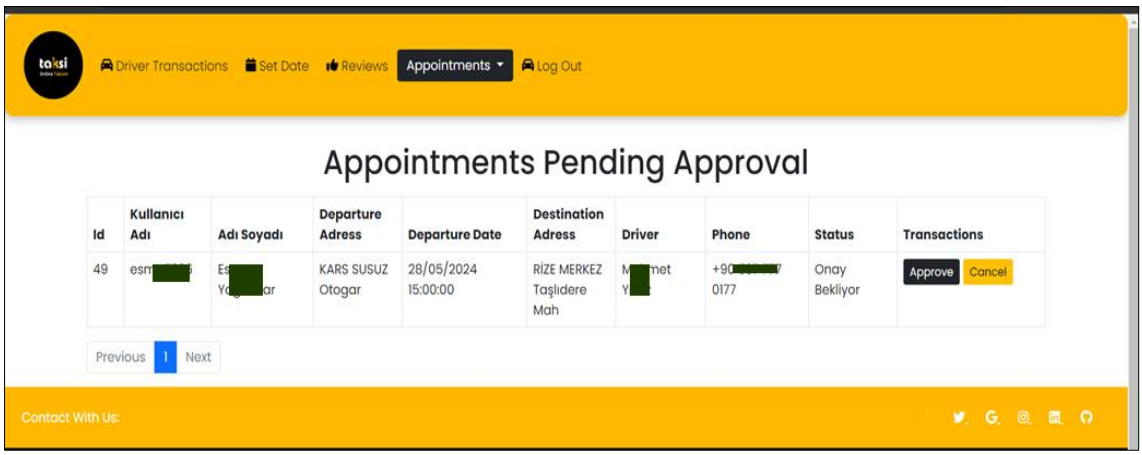


**Fig. 22. Admin Appointments Pending Approval Interface**

Confirmed appointments appear on the active appointments page. An e-mail is sent to both the admin and the user 1 hour before the appointment. Admin can end the appointment from this screen. When the appointment ends, it can be viewed on the past appointments page. And an e-mail is sent to the user to rate the appointment. The developed confirmed appointments interface is shown in Fig. 23.

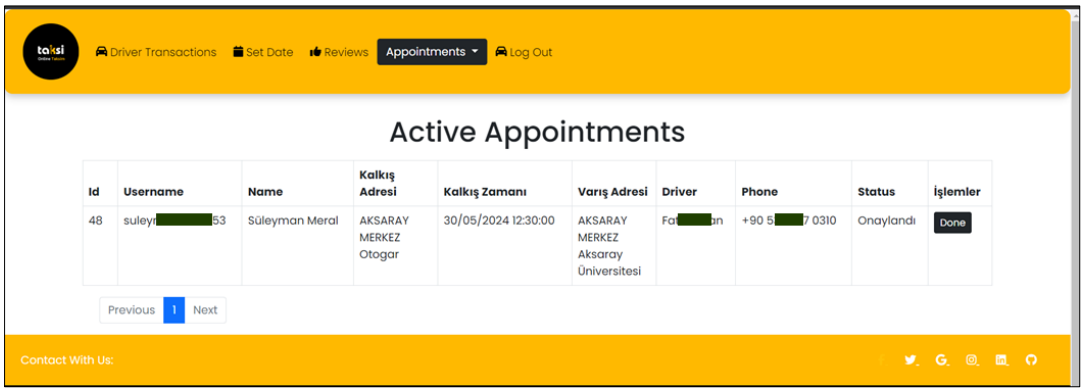


**Fig. 23. Admin Approved Appointments Interface**

Users can view their completed appointments on the My Past Appointments page. They can score from here. The developed My Past Appointments interface is shown in Fig. 24.

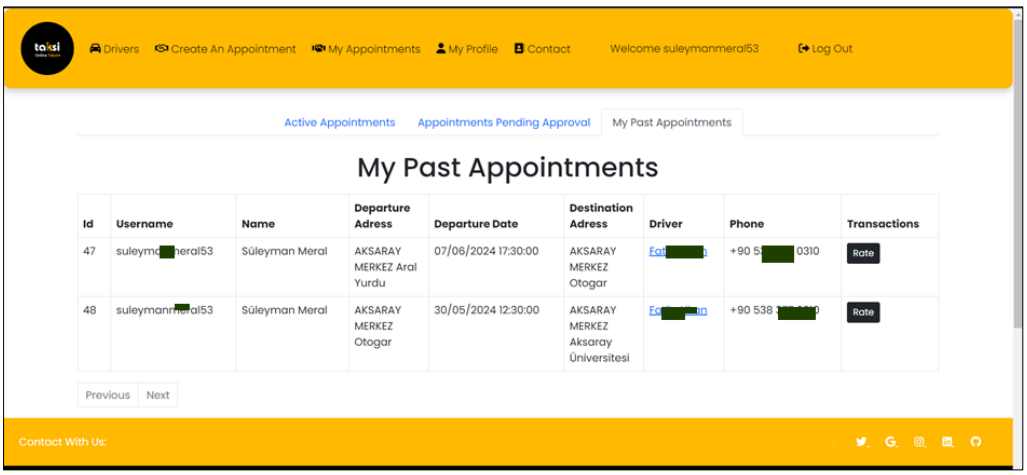


**Fig. 24. User History Appointments Interface**

The scoring result is averaged and the selected driver's score is updated. Evaluation results are also sent to the admin via e-mail. The scoring interface is shown in Fig. 25.

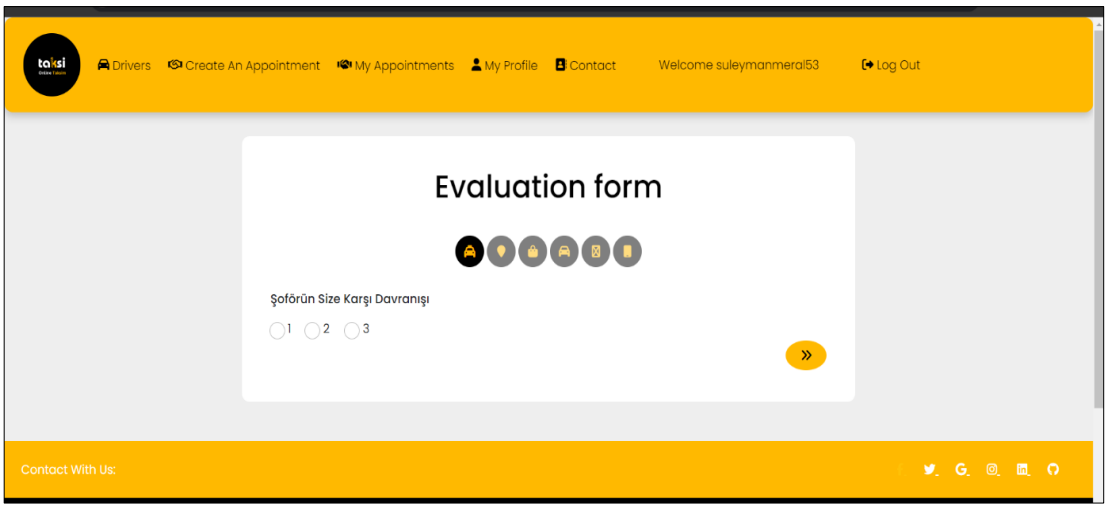


**Fig. 25. Appointment Scoring Interface**

Users can view their profile and change their personal information from the My Profile tab. The developed profile interface is shown in Fig. 26.

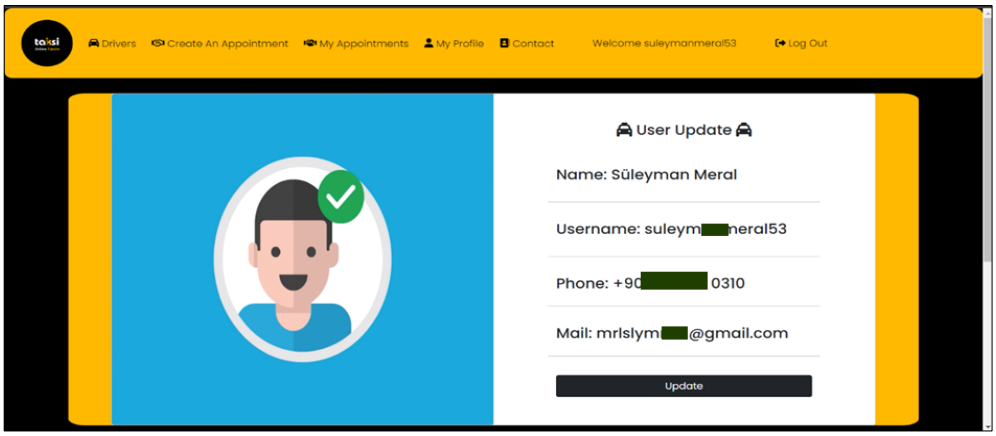


**Fig. 26. My User Profile Interface**

## 3. Conclusions and Future Works

As a result, our online taxi web application facilitates people's daily lives by offering them easy, fast and comfortable transportation. Users can plan their future work more easily by making appointments in advance. They do not face the problem of not finding a taxi. Thanks to its user-friendly interface and advanced features, it optimizes the business processes of both passengers and taxi stands. It prevents security problems that may arise in today's conditions by safely displaying driver and user information in the system. In case of losing their personal belongings, users can see the vehicle they used to ride, the driver of the vehicle and the driver's contact information through the application. In this way, they can cope with this situation without any problems. Additionally, thanks to the integrated scoring system, taxi stands can determine their favorite drivers and constantly improve their service quality. With this web-based application, the innovations we have brought to the taxi industry make a significant difference in the sector by responding to modern needs. In future applications, artificial intelligence support may be used in taxi driver recommendations.

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