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Austazi

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Disclaimer

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Abstract

When we were in senior high school and wanted to take extra studies with well-known tutors, we students and also tutors struggled to find the most suitable appointment since the tutors had them scheduled in a written paper and sometimes they forgot or did not notice any note written by them in the paper when someone cancels their appointment. Also, students have to figure out with their tutor to have the best suitable appointment for both of them which obviously takes a lot of time. Austazi is a platform for class scheduling service that allows both tutors in the institute and the institute itself to schedule their classes and then publish them. The students book a suitable class for their time and date wise, as well as help the students to find the best tutor in a specific subject by the total rating of each tutor. By creating an account on Austazi, students can register their information and start scheduling appointments with the tutor they want whether they prefer a permanent appointment with them throughout the whole semester or a one-time appointment. furthermore, for more security and to ensure a trustworthy tutor the register of the tutors will be from the institute itself to prevent anyone from masquerading as a teacher. Austazi will be available as a mobile application for both students and tutors and as a website for the institute.

Chapter 1

Introduction

Tutors are always doing their best to organize their private educated sessions so when the students want to take one it would be easier for them to find one, but unfortunately, it is not always like that.

1.1 Problem Statement

For a long time tutors suffered from organizing their appointments with their students and many conflicts occurred, also students had to wait for a long time to get an answer from their tutor to find a suitable appointment, thus we see tutors and students can't organize it well. Furthermore, when the institute holds a session and can't be sure how many students attend some financial issues will occur. And all of these handwritten papers and counting the students one by one do not make it easy to organize everything.

1.2 Objectives

This project seeks to assist tutors and the institute to organize their sessions as well as for the students to book the session fast and easily.

1.3 Scope of the work

1. **Create accounts:** Autazi's users can make their own accounts and fill up their personal information but for extra security, the tutors sign up through the institute.
2. **Notification Feature:** When someone applies for one of the company's open positions, job holders are notified.
3. **Search Feature:** Students can use this feature to look for other tutors based on the subject they want and they choose the tutor they want, rating of each tutor is displayed.
4. **Providing feedback Feature:** This feature allows students to rate their tutor and that will help other students when looking up for a good tutor.

5. **A fully functional website and mobile application that allows Austazi to operate as it is desired.**

Chapter 2

Constraints and Earlier Coursework

2.1 Constraints Limitations

Building a comprehensive application with all of the requested features takes a lot of time that we didn't have since it takes time to learn the relevant technologies, pick concepts and design the user interface. All of the necessary elements and features have been established to finish this project and it will be enhanced in the future. We also lacked some educational materials that we needed to solve the challenges we were facing.

2.2 Earlier Coursework

- Database Design Management course:
  This platform's database is entirely made on MySQL. Database design principles and crucial concepts like dependencies, keys, and indexes were also covered in this course.
- Critical Thinking & Scientific Research course:
  In order to finish this course, students were taught how to read scientific publications and how to produce research papers using current technologies such as latex.
- Web Development course:
  This course focused on the programming languages required to accomplish the project, such as HTML, CSS, and Javascript.
- Software Engineering course:
  All of the principles and approaches covered in this course, such as software requirements, architecture, and user acceptability, have been shown to be effective and helpful, and they were implemented in this project.

Chapter 3

Literature Review

As previously stated, Austazi aims to organize private education sessions for tutors and students by providing a platform that connects tutors of the institute and students who look for these sessions. However, it was not the first; there are numerous websites that perform the same function, such as:

3.1 tutors International

Tutors International conducts a customised global search for every Tutor according to the specific requirements of each Client.[**TutorsInternational**].

Advantages

1. They can ensure a tutor has the appropriate experience and specialist training for any special educational need, such as Dyslexia, ADD, ADHD and specific educational needs.
2. It has Travelling tutors, they have tutors with multiple homes or travel extensively, which allows them to help as many students as they can.

Disadvantages

1. They mostly lack tutors who are native Arabs, this will be an issue for the students since most of them are not fluent in English or other languages.
2. It can register tutors with no bachelor's degree, some of them are just people who are good at a specific subject.

3.2 What enhancements do Austazi bring?

Austazi was designed to be as simple as possible for all users, regardless of their technological knowledge, and to include features not found on current platforms and sites, such as the ability to search for a tutor in a specific subject, as well as the registered tutors are proven that they are well educated with a degree to ensure a trustful and professional education.

Chapter 4

Methodology

4.1 Used Technologies

4.1.1 Flutter

Used in Alibaba.com and Rbay. Flutter is an open-source UI software development kit created by Google. It is used to develop cross-platform applications for Android, iOS, Linux, macOS, Windows, Google Fuchsia, and the web from a single codebase. And it is a popular, multi-platform UI toolkit that's powered by the Dart platform. [**Dart**] Dart is a programming language designed for client development, such as for web and mobile apps. It is developed by Google and can also be used to build server and desktop applications. It is an object-oriented, class-based, garbage-collected language with C-style syntax

Why Dart?

1. Dart is a programming language designed for client development, such as for web and mobile apps. It is developed by Google and can also be used to build server and desktop applications. It is an object-oriented, class-based, garbage-collected language with C-style syntax.
2. Dart offers sound null safety, meaning that values can't be null unless you say they can be. With sound null safety, Dart can protect you from null exceptions at runtime through static code analysis.
3. Dart has a rich set of core libraries, providing essentials for many everyday programming tasks
4. Dart's compiler technology lets you run code in different ways: Native platform and Web platform.

4.1.2 ExpressJs

ExpressJs is a NodeJs back-end web application framework that's available as free and open-source software under the MIT License. It is intended for the development of web applications and APIs. [**express**]

Why ExpressJs?

ExpressJs offers a number of features, including the ability to make NodeJS web application development simple, fast connection construction with databases like MySQL, and the ability for developers to simply build a scalable server using the REST API.
One of the main features that ExpressJs provides that helped us a lot in building our application is the JSON Web Token: it is an open industry standard used to share information between two entities, usually a client and a server.

The main reasons why we chose to work with JWT instead of cookies and sessions are:

1. **Authentication,** we take in a username and password and make sure it's correct (logging in).
2. **Authorization,** we make sure the user who is sending requests to your server is the same user who logged in during authentication.
3. **Storing Data,** After authentication, JWT creates a JSON web token, sterilizes it, and adds a secret key-based signature to prevent tampering. This replaces the previous method of keeping data on the server.
4. **Multiple Servers,** JWT also allows us to use the same JSON Web Token in multiple servers that you can run without running into problems.

4.1.3 MySQL

MySQL is a relational database management system based on SQL – Structured Query Language. The benefit of using a secure database like MySQL that supports transactional processing is clear when it comes to money transfers. MySQL offers data encryption, data protection features, and support for SSH and SSL. Additionally, there are tools for blocking users and limiting server access.

MySQL Workbench: We used MySQL Workbench which offers a variety of administration tools for server configuration, user management, backup, and SQL creation in addition to data modelling. and it is compatible with Mac OS X, Linux, and Windows.

MySQL database allowed our application to have a high performance since it is fast and more efficient than other relational database management systems. and to insure extra security for our application, we used one ExpressJs package to hash the passwords and then we store them in the database in the hashed form.

4.1.4 API Endpoints Testing:

Since the back-end server of our application contains a RESTful API, we must test each endpoint before integrating it with the client. To do this, we utilize Postman.

Postman is a tool for developing application programming interfaces (APIs) that aids in the creation, testing, and modification of APIs. This tool contains nearly all the features that a developer would require. it is very fast and it has a friendly GUI that made it easy

to work with.

Nodemon In addition to the Postman, we used Nodemon which is a command-line program that facilitates the quick construction of Node.js programs. It keeps an eye on your project directory and restarts your node application automatically if it notices any changes. This implies that your modifications will take effect immediately without the need to stop and restart your programs.

4.1.5 IDEs:

We used VS Code for the back-end because it's a great tool for working with JavaScript and NodeJS. The best features of VS Code include support for several programming languages, extensions and support, a repository, web support, and support for Git, among others.
Also, we used it for the front-end, it's particularly helpful for Flutter development because it can run flutter commands from within the editor. Flutter's default environment is iOS, but VS Code lets you switch between web and Android environments by clicking on the corresponding button.

4.1.6 Other technologies & tools

There are multiple other technologies used, including:

1. **Firebase**, it is a Google-backed application development platform that allows developers to create iOS, Android, and Web applications. Firebase provides capabilities for measuring metrics, reporting and repairing app errors, developing marketing campaigns, and testing new products. It was used in Austazi for chatting between tutors and students.

2. **React Router** is a tool for handling routes in a web app by utilizing dynamic routing that occurs when the app is rendering on the machine to create a single-page application.

4.2 Authentication and Validation

Because Austazi is regarded as a middleman between tutors and students, each party must register on the platform in order to identify himself and have access to all of its features.

4.2.1 Login

In order to log-in to the website, you have to enter your valid email address or account and a valid password. Here the login page is for both tutors and students. As seen in Figure: 4.1

Figure 4.1: Login Form

4.2.2 Sign up

To register on the website as a student, you must provide certain information such as your username, email, first name, last name, the school you are learning in right now and your grade as a student. (see Figure **??** and **??**)

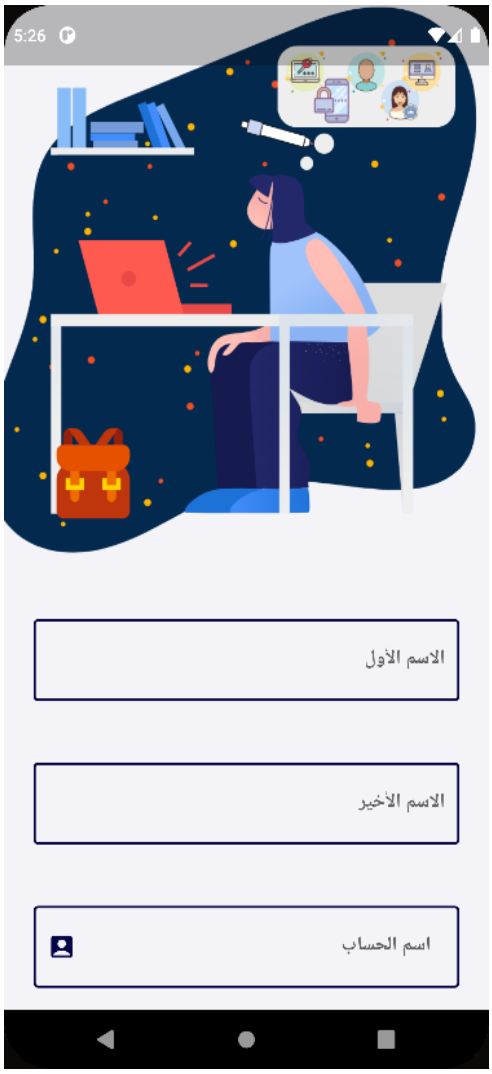

Figure 4.2: Sign up as a student

Figure 4.3: Sign up as a student

4.2.3 Validation

When the student tries to register to the app and there are messing fields he will be notified, also when he logs in and if the email or password is wrong he will also be notified.

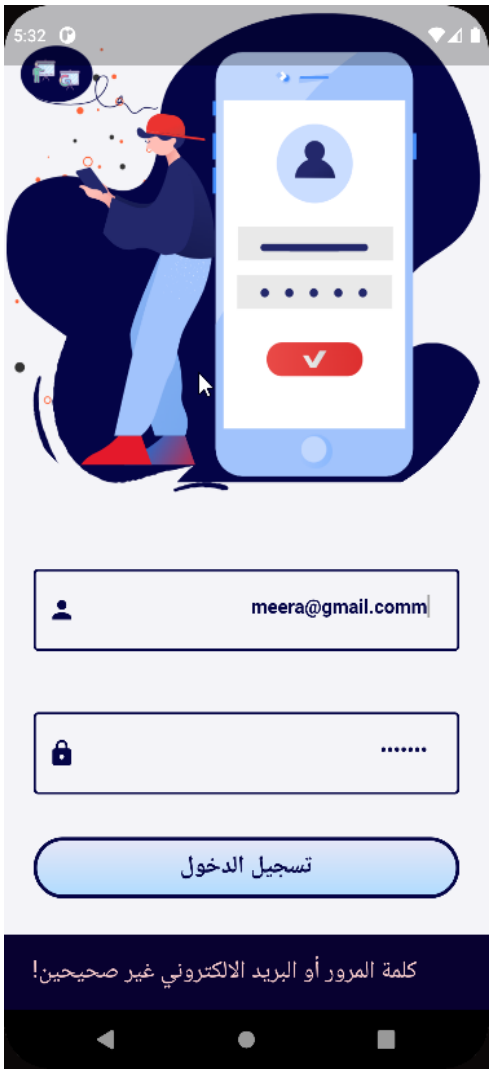

Figure 4.4: log in page with error

Figure 4.5: Sign up page with error

4.3 Student's Home Page

When the student first log in the first thing he will see is the home page, it has a grid view list with four main pages, institute courses, the student's tutors, the chatting page and the student's own bookings.
The navigation bar has the main page (home page), a search page to search for a specific tutor in or specific subject and the student's own profile page. Also, the drawer in the top left is easy access to the pages of the application

Figure 4.6: Student Home Page

Figure 4.7: Student Home Page

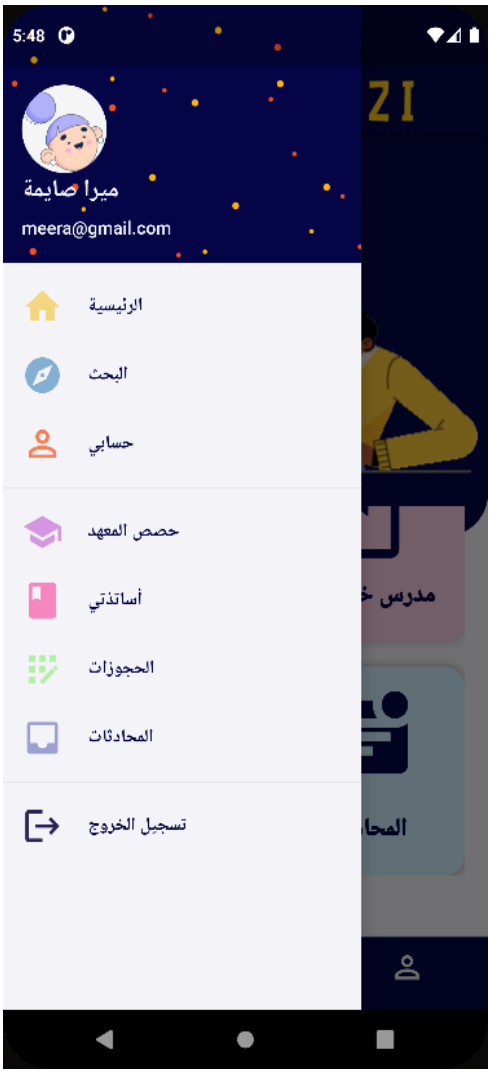

Figure 4.8: Student Drawer

4.3.1 Profile page

This section will talk about the profile page of the student.

To begin, if the user registered a new account and viewed his profile, his profile will display all the information he entered in the registration, and he is able to edit them.

Figure 4.9: Student Profile Page

Figure 4.10: Student Profile Page

Search Page

Austazi allows students to find a specific tutor, or if they do not know a specific one they can search the subject they need a personal education session in, through the search bar.

Figure 4.11: Student Search Page, subject

Figure 4.12: Student Search Page, tutor

Institute's Courses

When clicking on " " on the student's home page it will show you all the courses that the institute will hold, the tutor that will give it, the subject, the date, the start and end time and the price, as shown in the figure below:

Figure 4.13: Student Home Page, Institute courses

Figure 4.14: Student Institute courses Page

Figure 4.15: Student Institute courses Page, booking

4.3.2 Tutors on student's side

when clicking on " " in the home page, then clicking on "", it will display the personal page of the tutor that you clicked on, there you can review the tutor and view his permanent and temporary sessions.

Figure 4.16: Student Home Page, tutors

Figure 4.17: Student Home Page, tutors

Figure 4.18: Student Personal Tutor's Page

Figure 4.19: Student Personal Tutor's Page

In the permanent or temporary appointments the student can select a date and book a suitable session for him, as shown in the next figure:

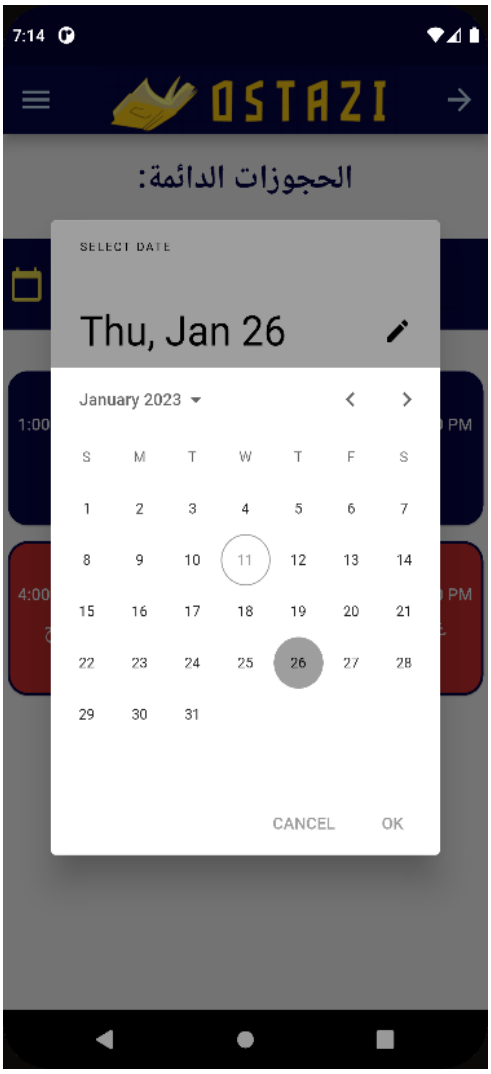

Figure 4.20: Permanent Sessions, Selecting Date

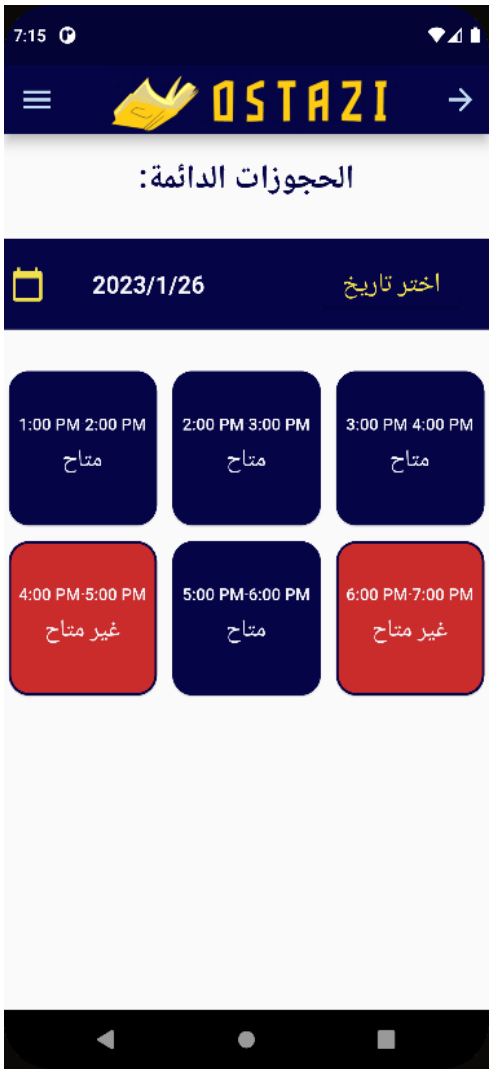

Figure 4.21: Viewing Sessions

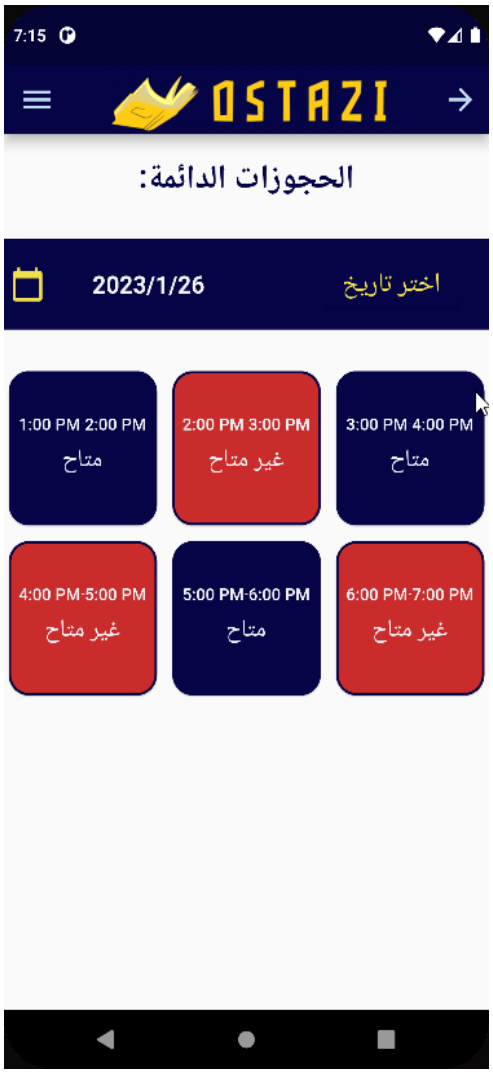

Figure 4.22: Booking a Session

Same thing for temporary sessions:

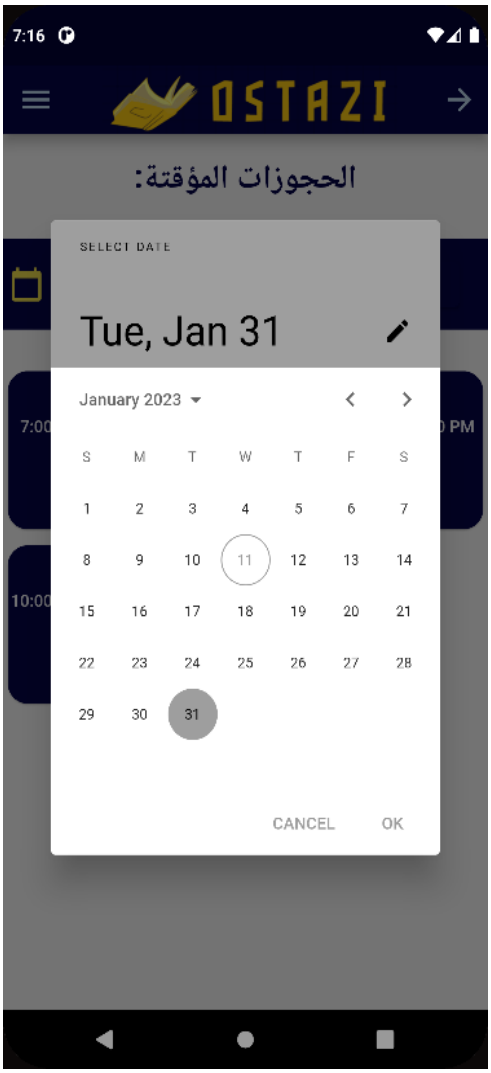

Figure 4.23: Temporary Sessions, Selecting Date

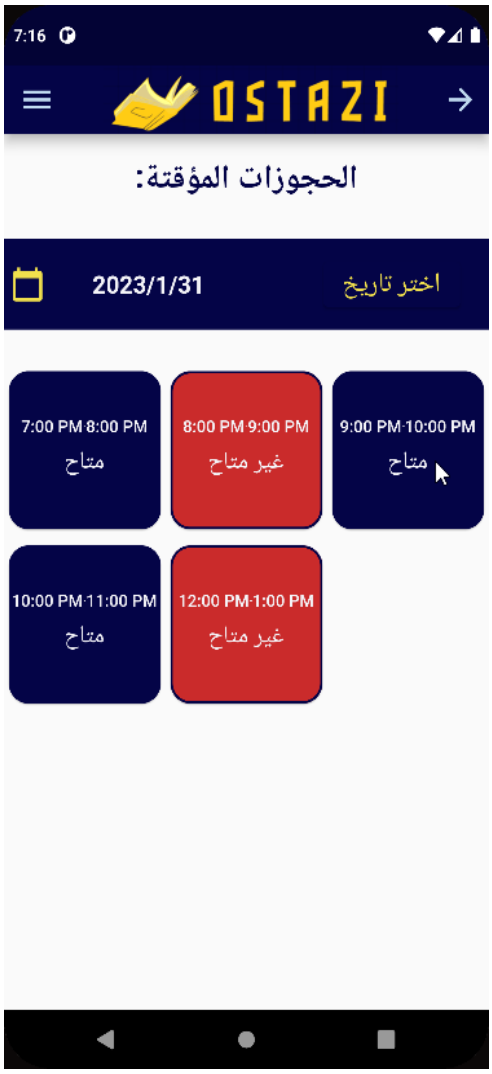

Figure 4.24: Viewing Sessions

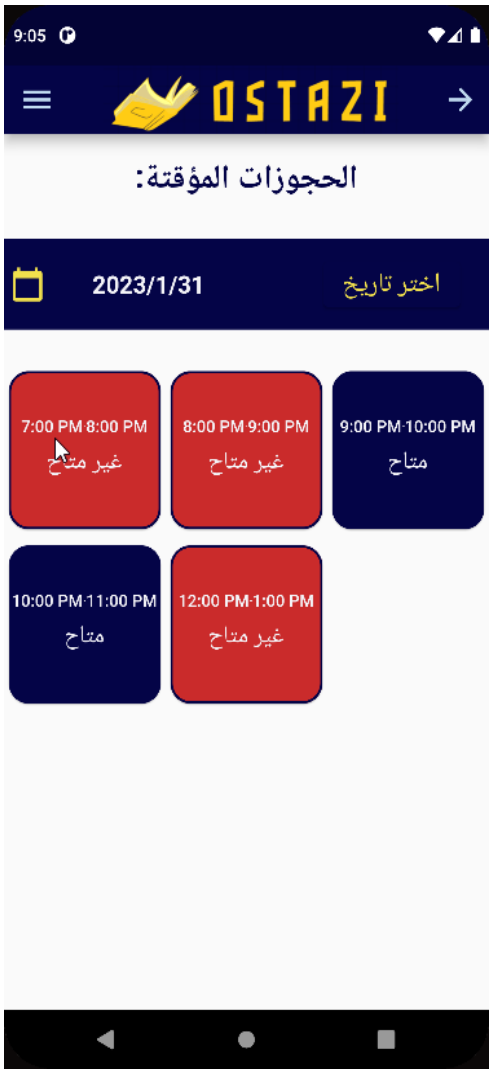

Figure 4.25: Booking a Session

4.3.3 Student's Bookings

When clicking on " " on the home page you will be on the student's own bookings page. On this page the student will be able to view all of his classes and session bookings, also he can delete any of them.

Figure 4.26: Home Page, Bookings

Figure 4.27: Bookings Page

Figure 4.28: Classes and Sessions

Figure 4.29: Deleting Course

4.3.4 Chatting

Austazi allow the students and tutors to communicate with each other through chat messages, as shown in the figures below:?? and ??.

Figure 4.30: Home Page, Chat

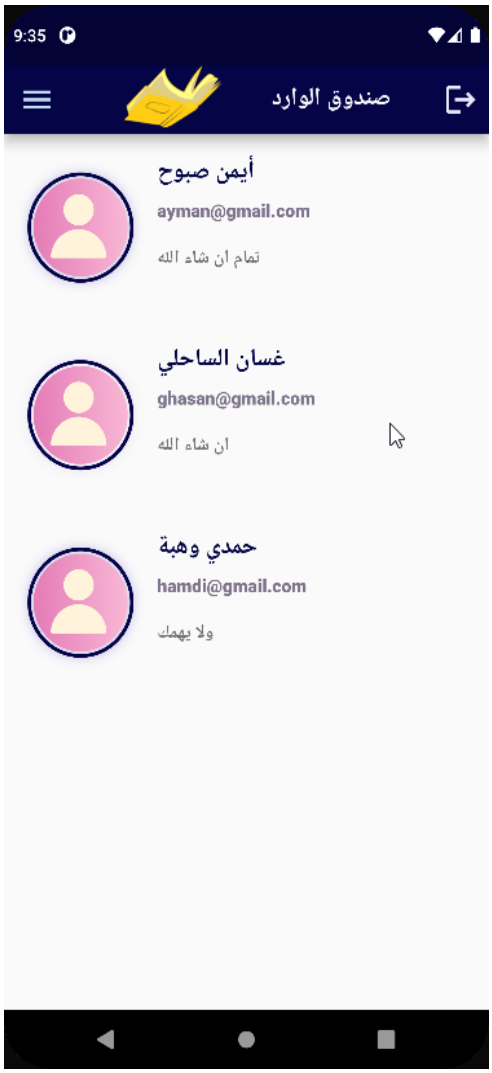

Figure 4.31: Inbox Page

Figure 4.32: Chat Page with a Tutor

4.4 Tutors Application Side

On the Log in page the tutor enters his email and password to be able to get access to his awn account, the home page consists of a grid view list, through it he will access his own calendar, his own account, institute courses that includes him as a tutor, adding a private education session and chatting with the students.

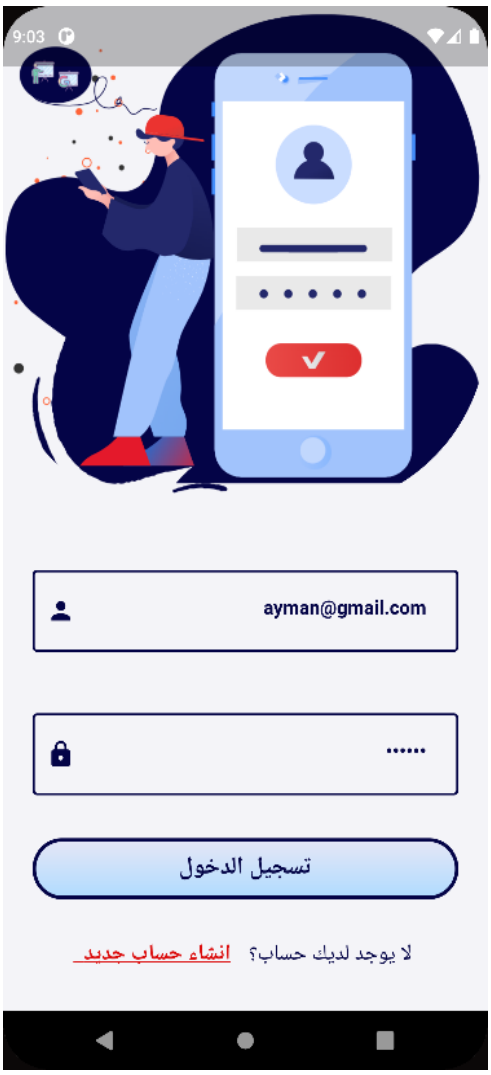

Figure 4.33: Logging in as a Tutor

Figure 4.34: Tutor Home Page

Figure 4.35: Tutor Home Page

4.4.1 Tutor's Account

On this page he will be able to view his rating and edit his email, password, his own private sessions price, his account name and the place of work which is the school he works in.

Figure 4.36: Tutor Account Page

Figure 4.37: Tutor Account Page

4.4.2 Tutor Drawer Page

The drawer will appear on every page as a way to enter the other pages.

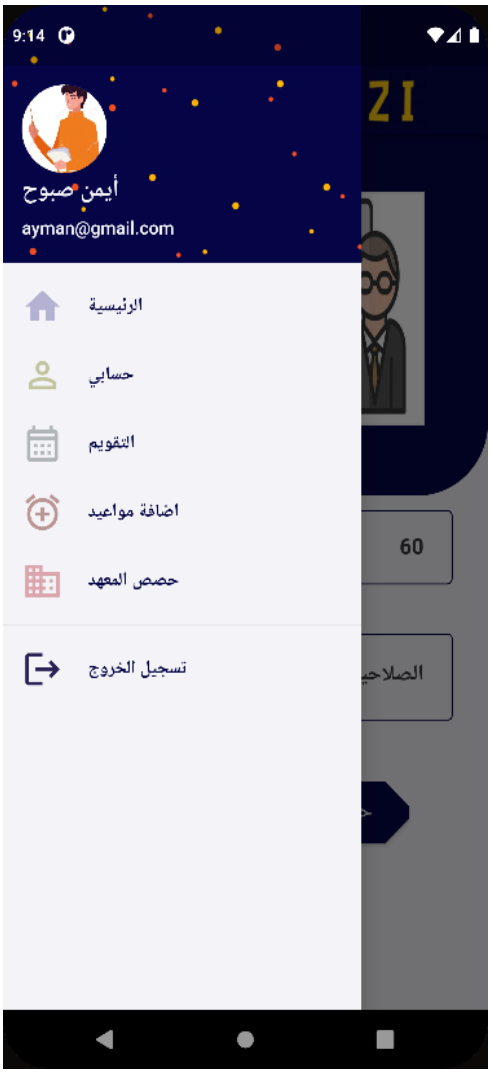

Figure 4.38: Tutor Drawer Page

4.4.3 Tutor Calendar Page

The tutor on this page will be able to view all the appointments of his private education sessions that have been booked by the students, also there are different views to the calendar, as shown in the figure below:

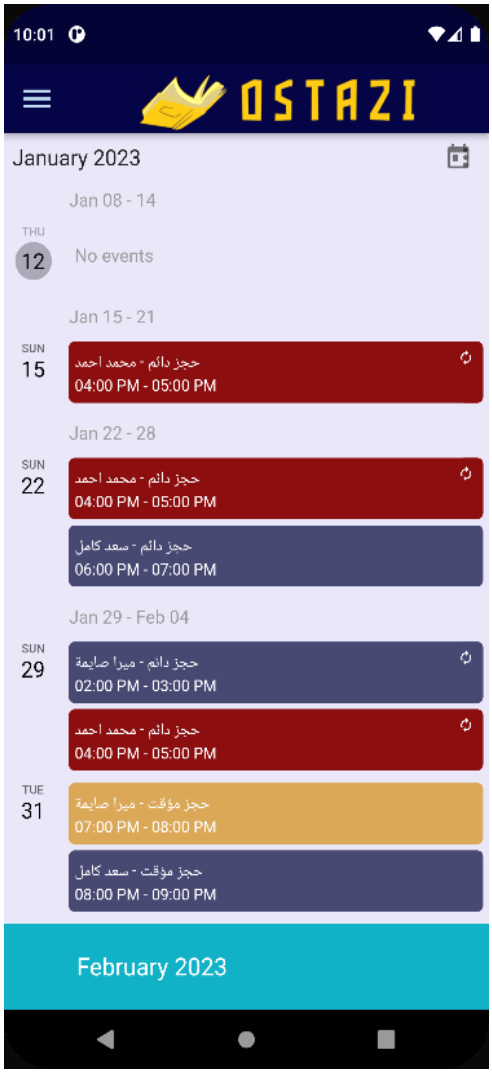

Figure 4.39: Tutor Calendar Page

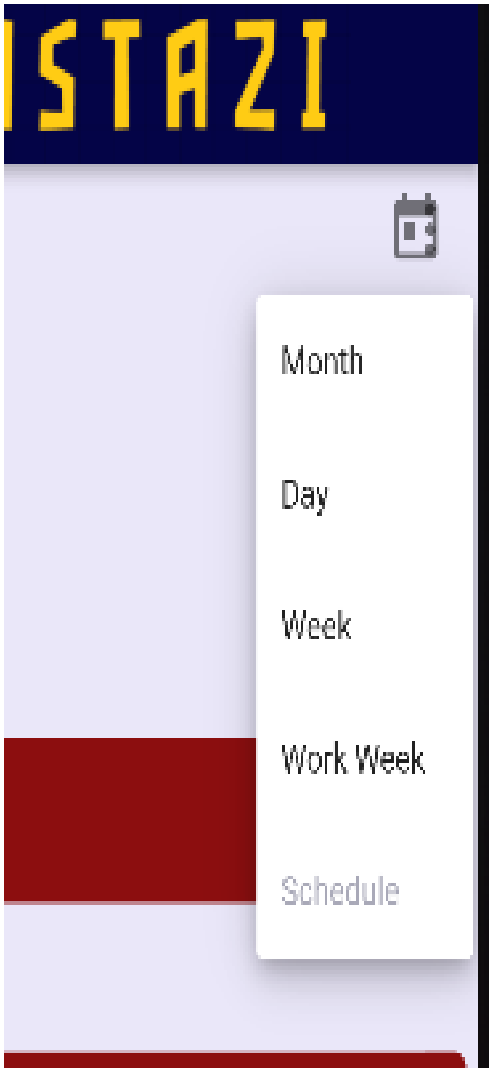

Figure 4.40: Tutor Calendar Page views

4.4.4 Adding New Sessions

Through this page, the tutor will be able to custom his own private sessions, their dates and time and how many time they will be repeated throughout the semester, and he will be able to view them in the calendar.

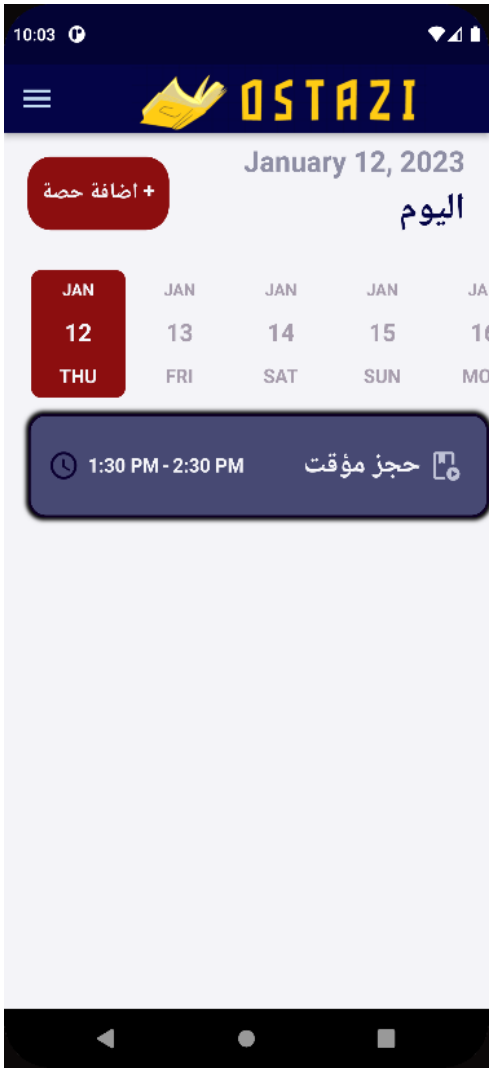

Figure 4.41: Tutor Sessions Page

Figure 4.42: Tutor Add Specific Session

Also, as a matter of fact, there are two types of sessions, temporary and permanent, the permanent session is a session that will be taken weekly at the same time till the end of the semester, but the temporary one is a one time/day session.

Figure 4.43: Tutor Sessions Type

The tutor can repeat the newly created session daily, weekly or no repeat at all throughout the calendar, it's an easy way for him to organize things in a better and easier way.

Figure 4.44: Tutor Sessions Repeating

Also, he will be able to delete any session he created simply by clicking on it, as shown:

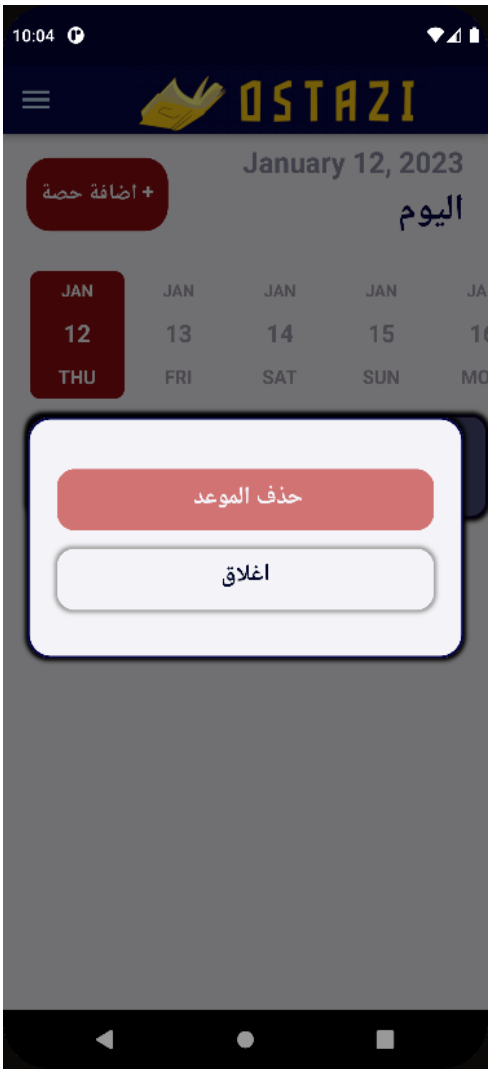

Figure 4.45: Tutor Sessions Deleting

4.4.5 Tutor's Institute Sessions

The tutor can see all of his sessions that are related to/ with the institute, and each session date and time.

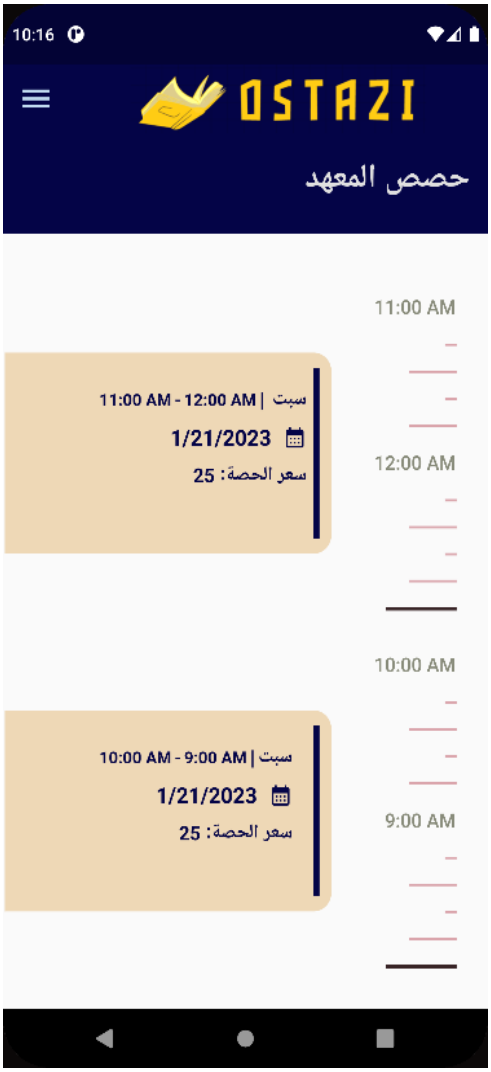

Figure 4.46: Tutor Institute Sessions

4.4.6 Tutor's Chats

Like the Student's side of the application also here the tutor is able chat with the students.

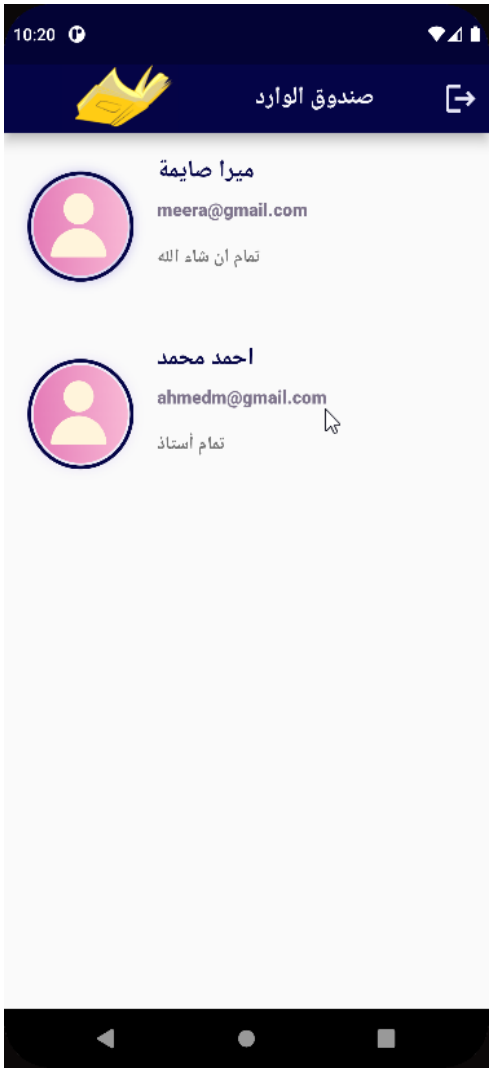

Figure 4.47: Tutor Inbox Page

Figure 4.48: Tutor Chat Page

4.5 Desktop Side

4.5.1 Institute

The Desktop side of the application is for the person who is responsible for the institute, this side is considered as the admin, first thing is that the log in will be from one email and it is recognized in the database as the admin's email for the website, the home page here is just a normal with nothing very much important in it.

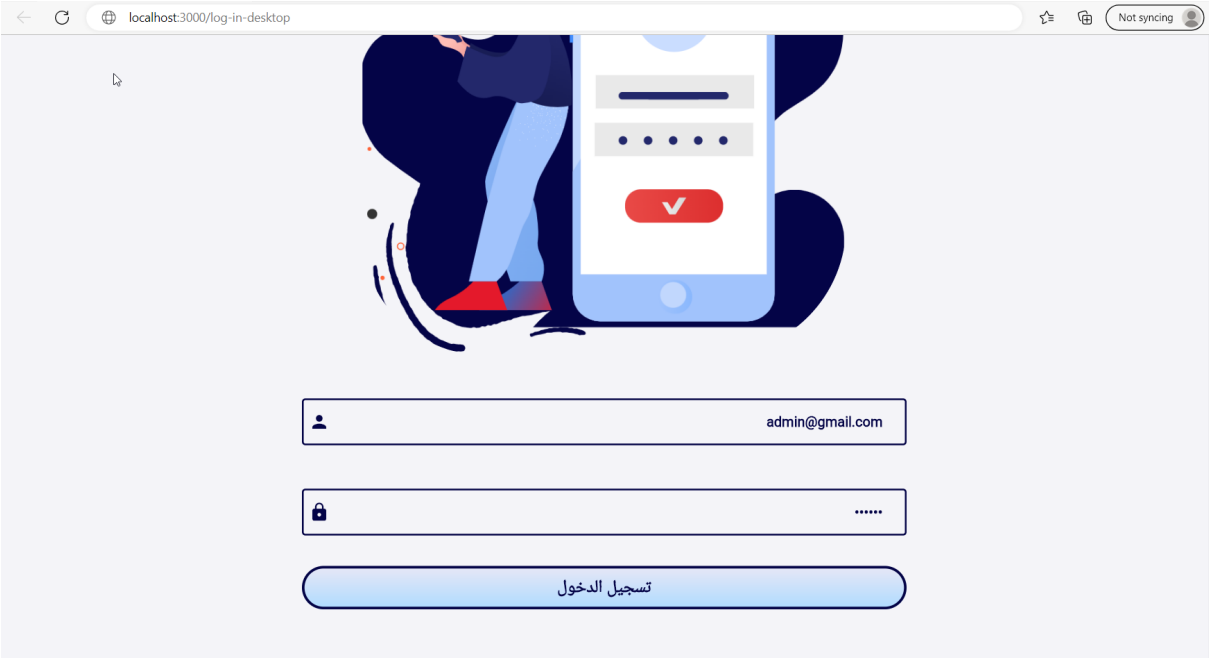

Figure 4.49: Austazi Desktop, Logging in as the admin of the institute

Figure 4.50: Austazi Desktop, Home Page

Admin - View All Students

The admin is able to view all the students who registered in the application and search them by their name, also can hide any student, the hide here will make the student not able to do anything with the application until it's reversed

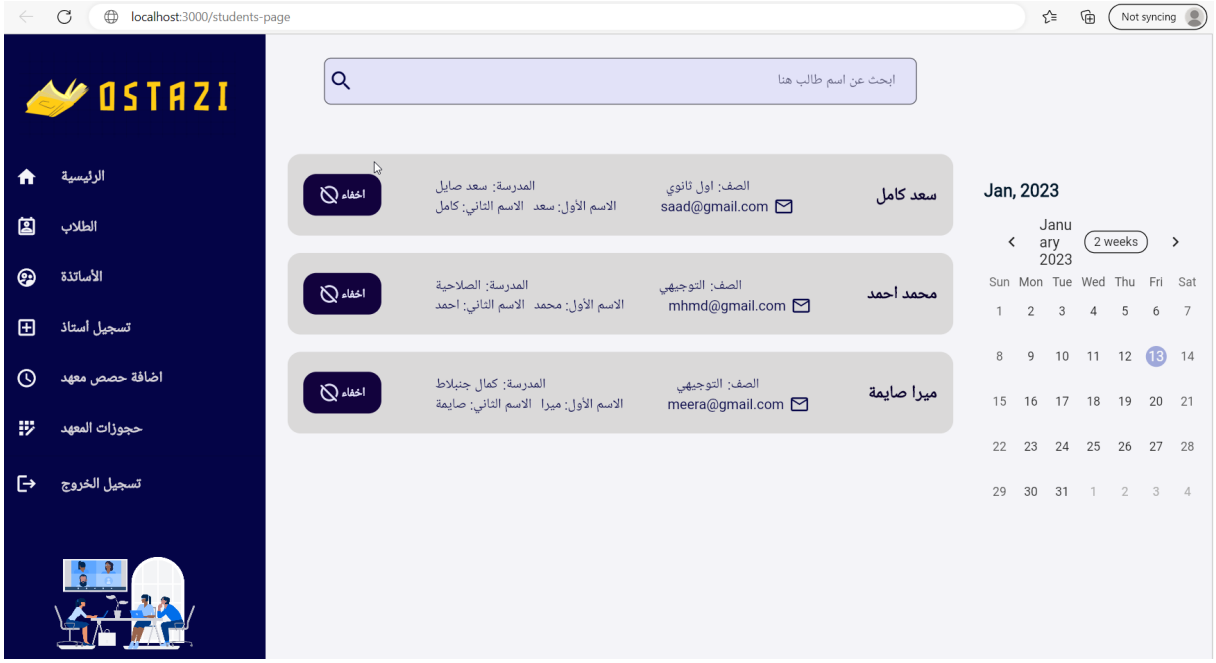

Figure 4.51: Austazi Desktop, All Students

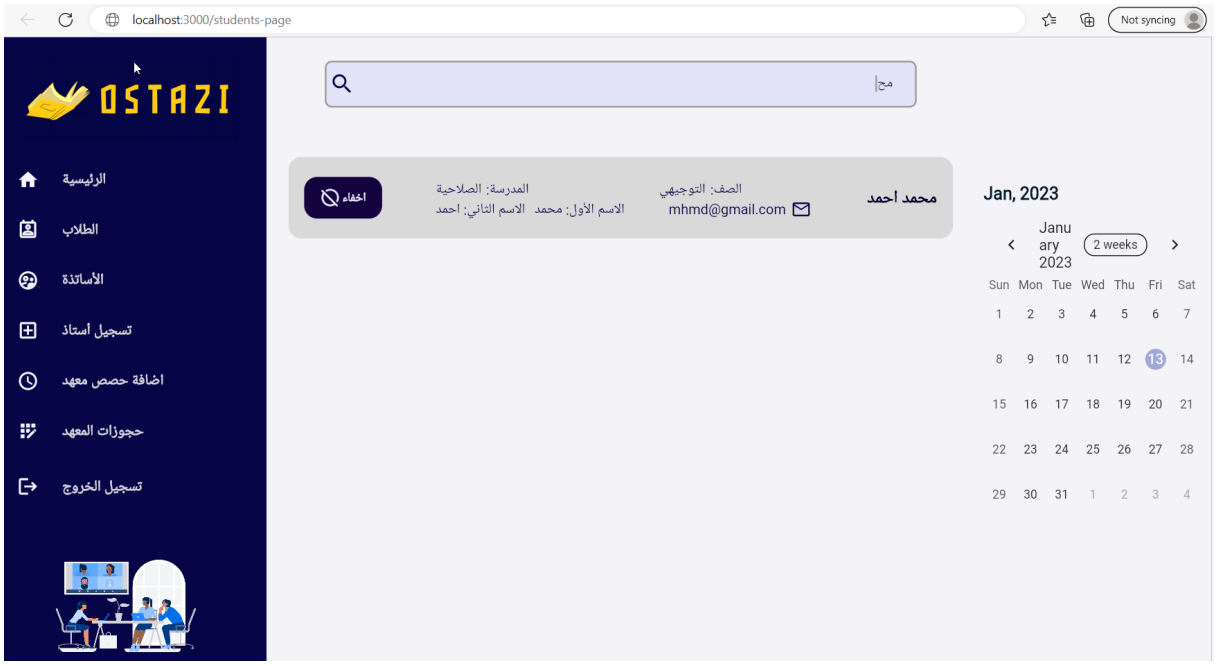

Figure 4.52: Search for a student by Their Name

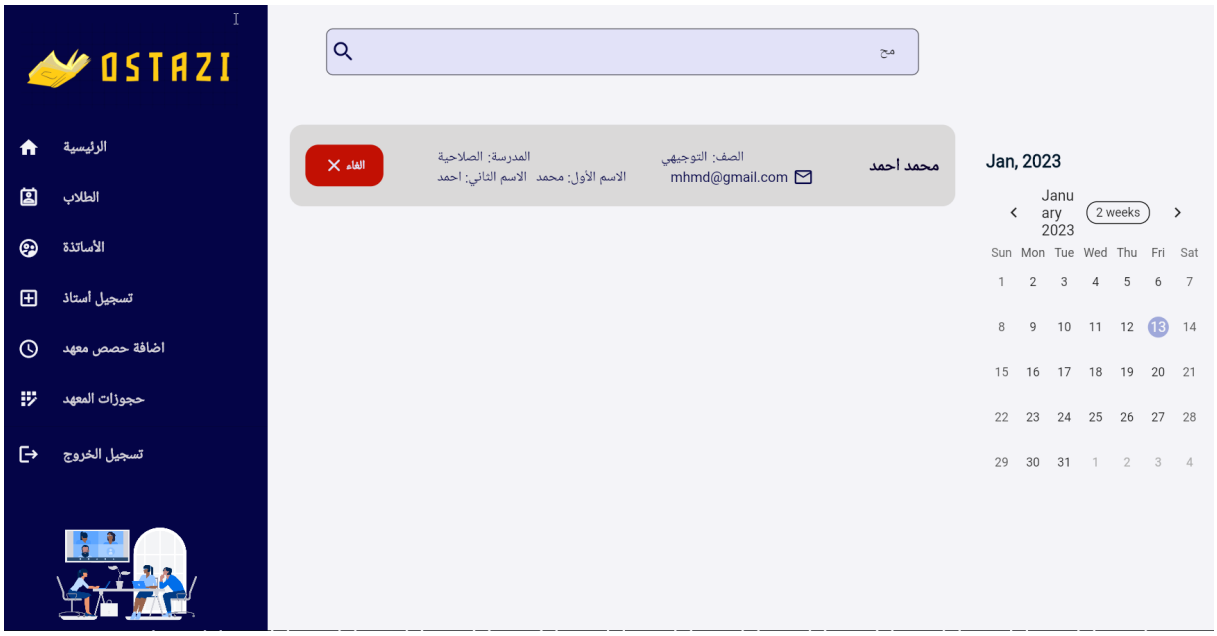

Figure 4.53: hide a Student

4.5.2 Admin - View All Tutors

Also, the admin is able to view all the tutors in the institute and their information, and is able to hide any one of them if it is necessary and search for a tutor by their name, as shown:

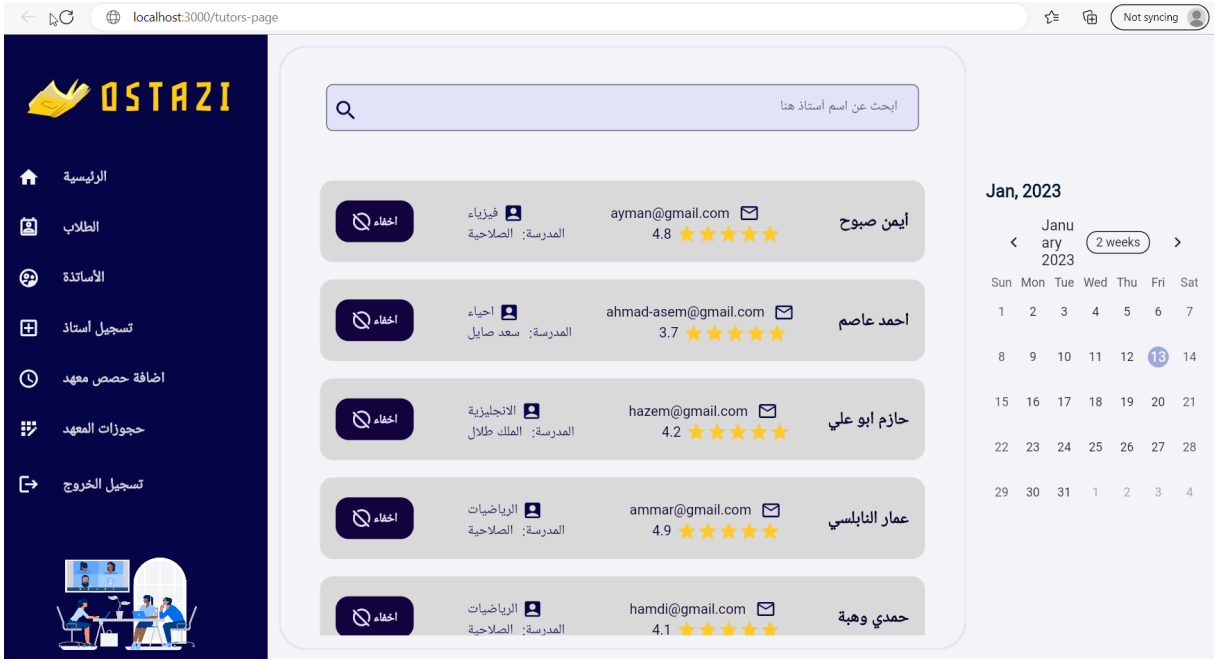

Figure 4.54: Austazi Desktop, All Tutors

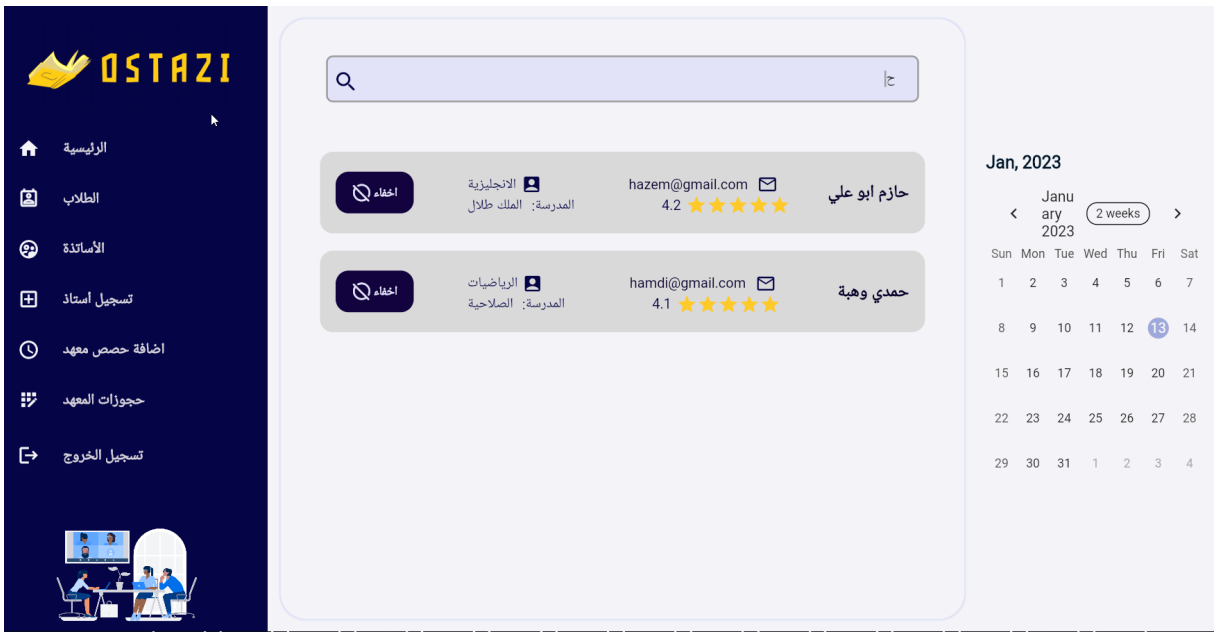

Figure 4.55: Search for a Tutor by Their Name

4.5.3 Registering a New Tutor to The Institute

To maintain more security and be sure no one would pretend to be a teacher the registering of a new tutor to the application will be through the institute, and of course, he will enter his information and password privately as seen before he can edit any of them through his own profile.

Figure 4.56: Austazi Desktop, register a tutor

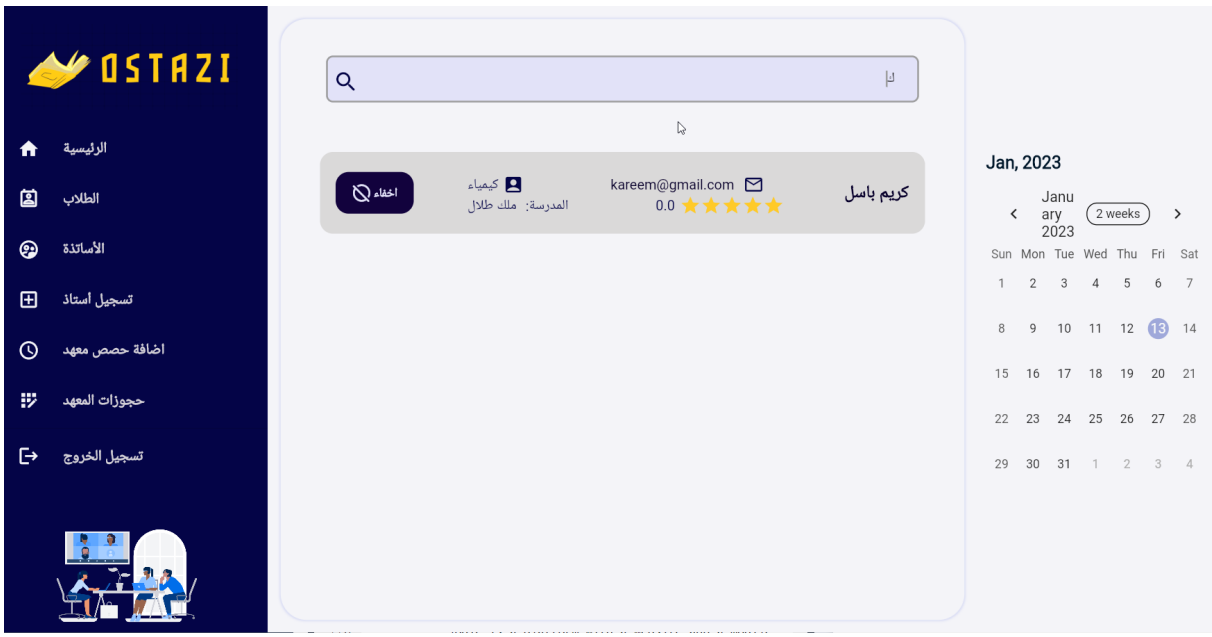

Figure 4.57: The new tutor as seen from the tutor's page is added

4.5.4 Adding and Viewing Institute's Sessions

As seen in the figures below, the admin can view the courses of the institute through the Date Picker Calendar and can also add a course with all of its necessary information tutor's name, subject, the session's price, date, day, the beginning and end of the session:

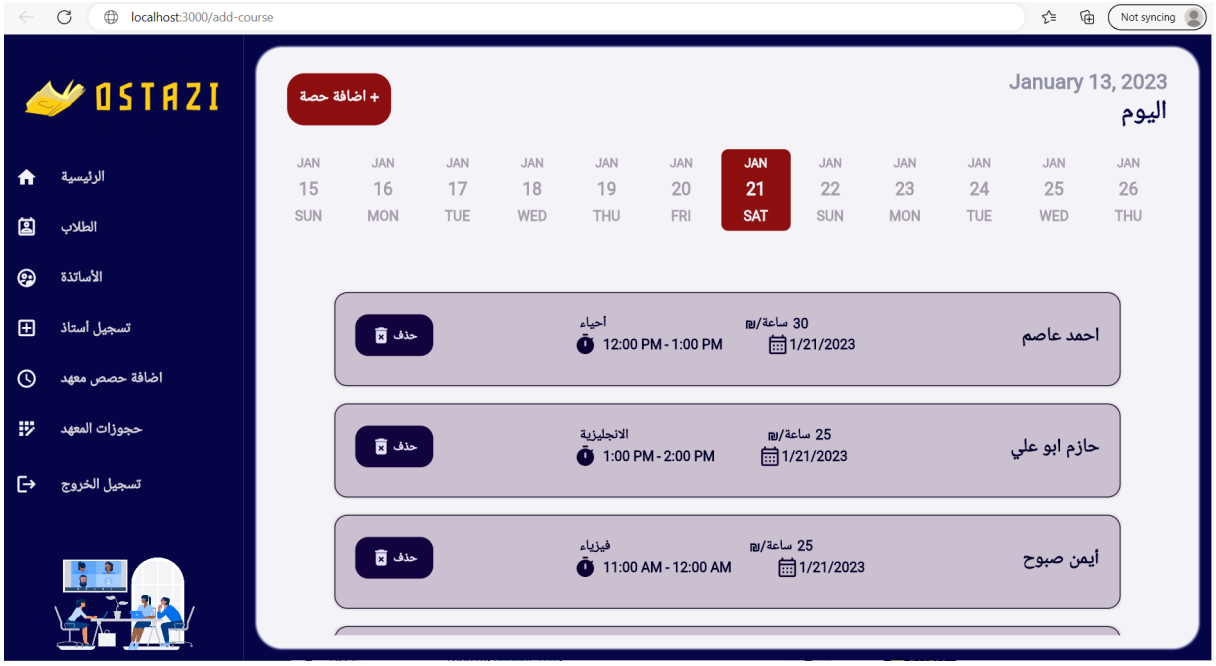

Figure 4.58: Austazi Desktop, Viewing All Sessions of The Institute

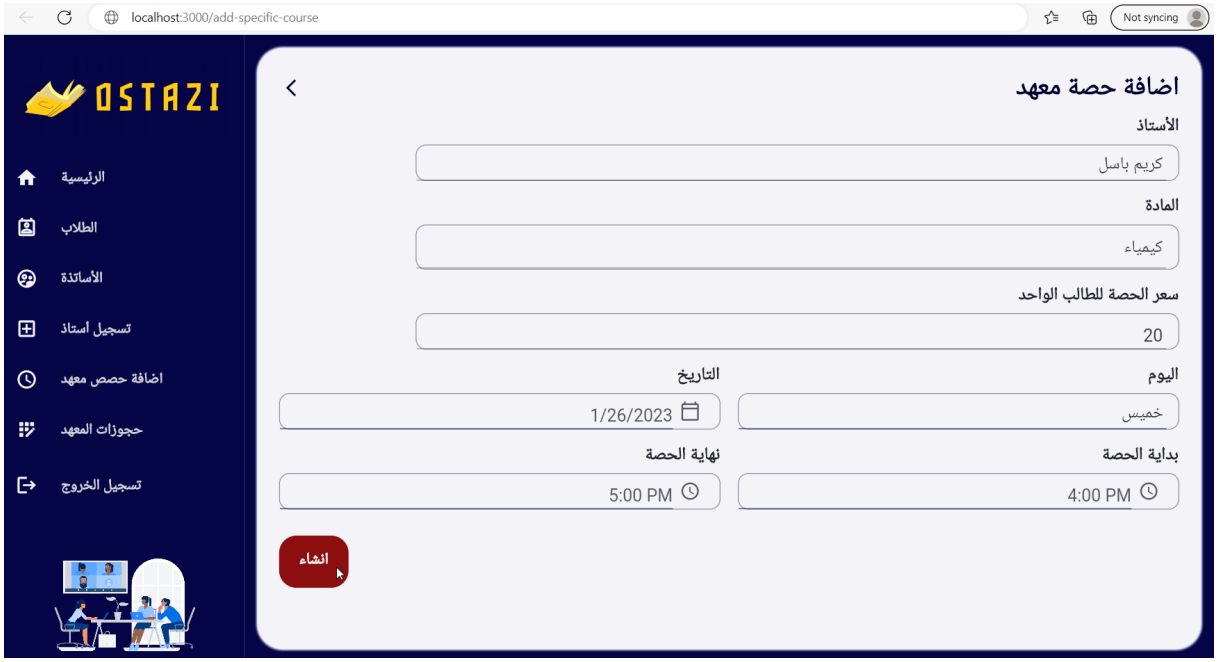

Figure 4.59: Adding a New Institute's Session

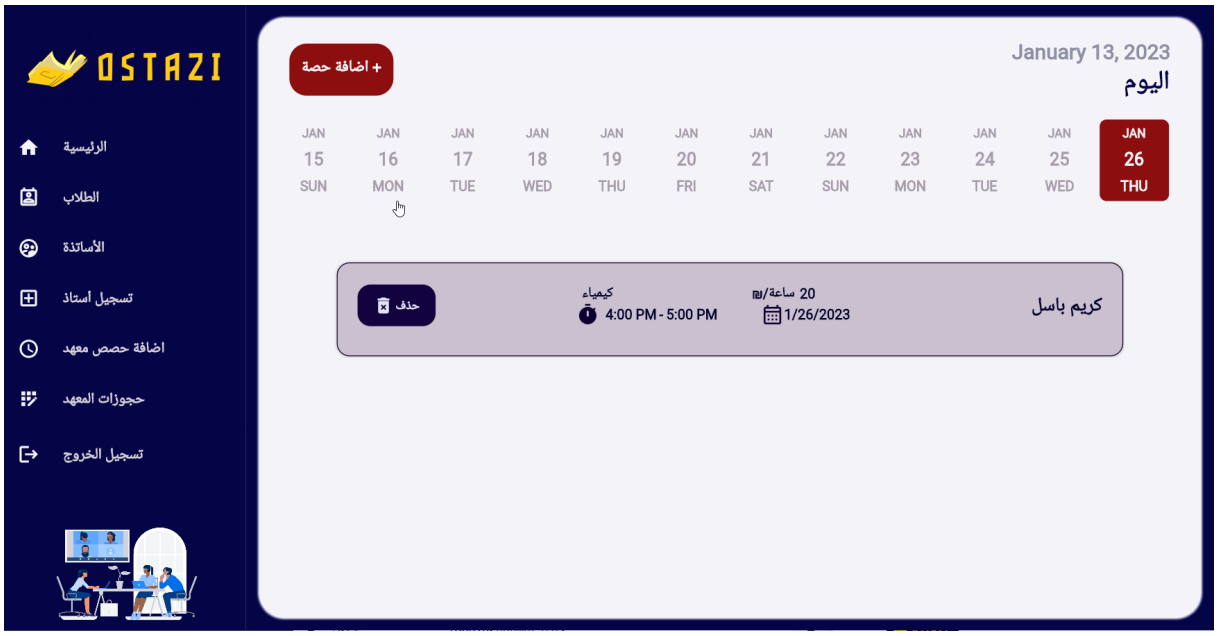

Figure 4.60: The New Session Is Added

4.5.5 View Students Bookings For Institute Sessions

Through the date picker calendar the admin can view all the students who have booked an institute course and can find the number of these students and the amount of money they will be getting that day, and also find the amount of money for a specific tutor by searching its name in the search bar:

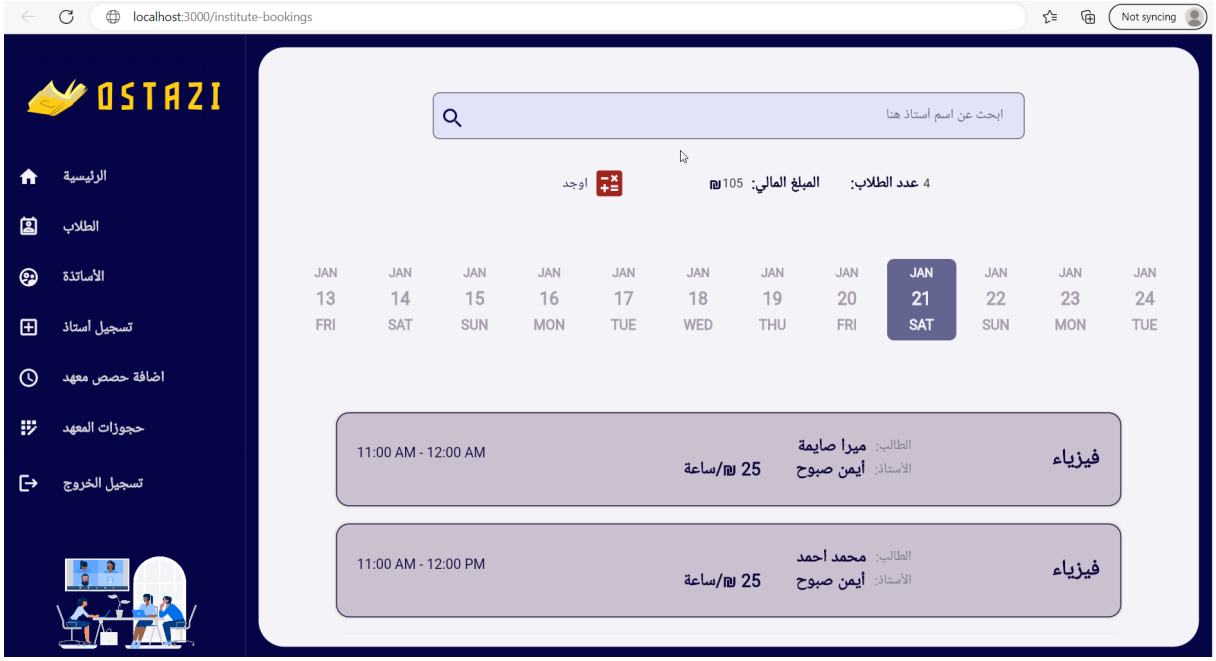

Figure 4.61: All Student's booking and the amount of money on a specific date

Figure 4.62: The number and money for a specific tutor in a day

Chapter 5

Results & Discussion

5.1 Results

Austazi is a platform with a website and a mobile app that allows Students and tutors of the institute to perform the following:

1. Creating an account and personalizing it by entering basic information such as an email, school, and grade if the user is a student.
2. Allow the institute to customise their sessions on a particular date and time as an easy way to announce them to their students.
3. Tutors that are registered through the institute will be able to both give private education sessions and sessions with the institute.
4. Tutors can organize their private education sessions in a much easier way with all the specific information for their students.
5. Students can easily book the sessions online without having to go to the institute or the tutor.
6. Tutors who are on the platform are fully trusted since they will be registered through the institute.

5.2 Discussion

Austazi most likely supplied the following:

1. Providing an easy-to-use platform for students, tutors and institutes regardless of their technical and scientific knowledge.
2. Organizing the sessions for all the parties.
3. Fast, easy and trustful access to the tutors in the institute.

Chapter 6

Conclusion & Future Work

6.1 Conclusion

Austazi is a service platform especially for tutors and students of the institute to organize their sessions and bookings as a substitute for all the handwritten papers and bookings which are so much hard to follow and organize, also it is designed with the native language on the Arabian people. Furthermore, many options do not include persons who lack technical and computer abilities.

Optimistically, Austazi has served the purpose for which it was designed. We had hoped to incorporate a modest set of minor features into the project, but it was omitted due to lack of time and focus on more important features, hopefully, they will be added in the future

6.2 Future Work

There are various areas that Austazi might improve, including:

1. Using Google Maps for the students to easily get to the institute and if the tutors will give the session in the student's house.
2. Introducing online payment system.
3. Adding more to the application settings as a separate part from the profile.
4. Implementing online courses and sessions.