



CS353 FINAL REPORT

National Judiciary System

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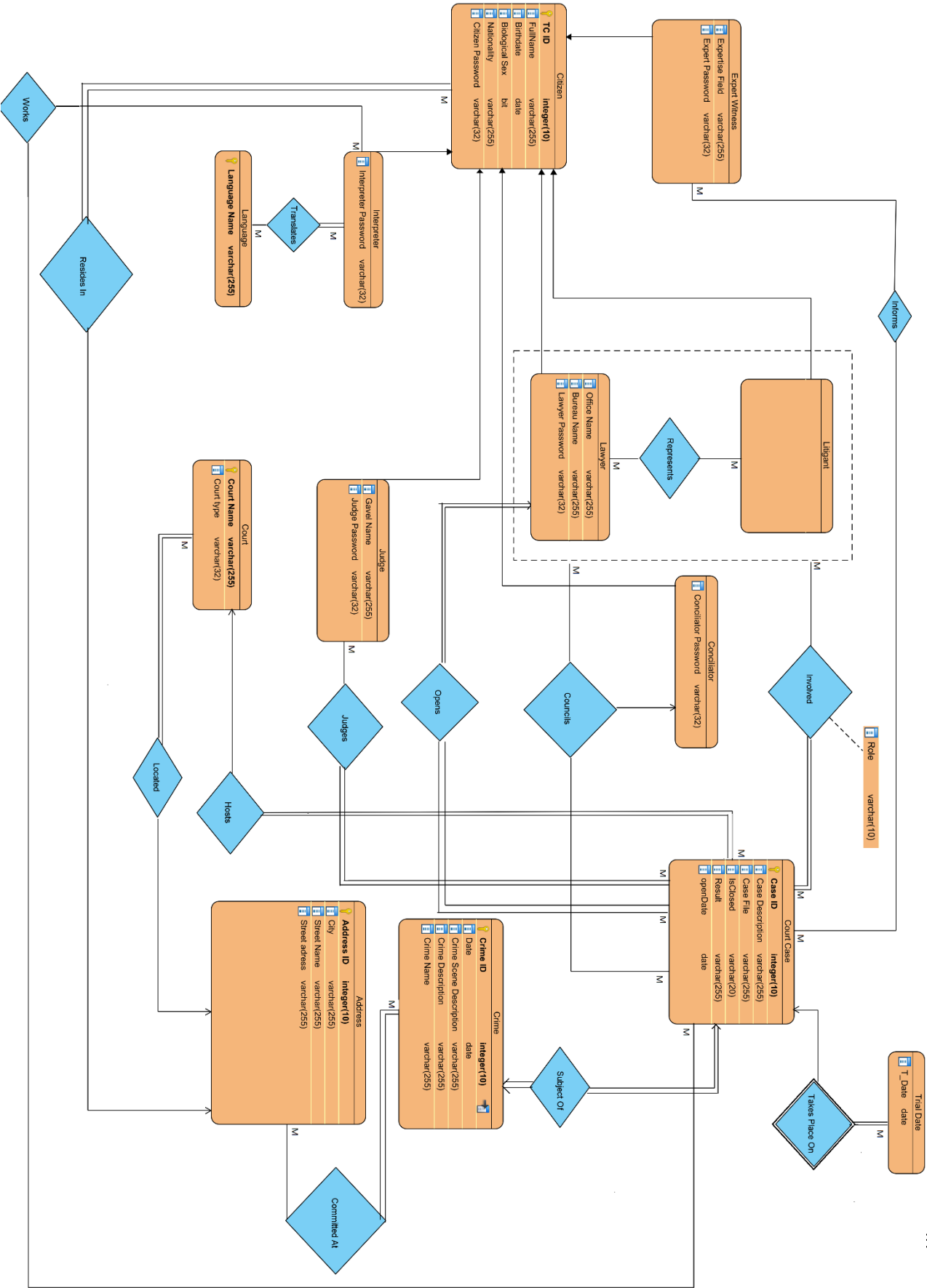
1. DESCRIPTION OF APPLICATION SYSTEM

UYAP2 is a national judiciary informatics system which is similar to the currently used system in Turkey (UYAP). There are 6 login pages in the portal. For citizens, lawyers, interpreters, expert witnesses, judges, and conciliators. There are no signup pages for any of the users except for citizens, as accounts other than citizens' would be automatically with a different password for security reasons and it will be added to the database by the government. The signup page for the citizens is for demonstrating the signup process as the system allows the signup process but it is unnecessary because as observed in Turkey, when an infant born, they are added to E-Devlet.

After logging in, each of the users will see their cases depending on their role. If the user is a citizen, they will see their open cases where they are either victim or suspect. They will also see their closed cases at the bottom of their main page. The citizens will also be able to update their personal information and if a conciliator is assigned for any of their cases, they can accept conciliation as well. As for the other users, they can see the cases they currently participate. Unlike other users, lawyers and judges can search for other users by their TC from their main page and see the past and present cases of the found person. Lawyers also can assign themselves as the lawyer of suspects from this page. The judges are able to freely change their gavel name as well.

The users can inspect a case in more detail by clicking the "GO" button that is located on the right of that case's preview. In that page, the users can see various information about the participants of the case and about the crime. Judges can request an interpreter for a specific language or an expert witness for a specific expertise field in an open case. After these requests are made, the system will automatically assign an interpreter/expert witness depending on the language they interpret/their field of expertise. Judges can also finalize a case with their verdict or postpone a case to a future date. The conciliators can also finalize a case if all of the suspects and victims have accepted their conciliations.

2. FINAL E/R DIAGRAM



3. FINAL LIST OF TABLES

3.1. Address

Relational Model: Address(Address_ID, City, Street_Name, Street_Address)

Foreign Key: None

3.2. Court_Case

Relational Model: Court_Case(Case_ID, Case_Description, Case_file, IsClosed, Result, Court_Name, Open_Date, Case_State, Crime_ID)

Foreign Key: Court_Name references Court

Foreign Key: Crime_ID references Crime

3.3. Crime

Relational Model:

Crime(Crime_ID, Date, Crime_Scene_Description, Crime_Description, Crime_Name)

Foreign Key: None

3.4. Court

Relational Model: Court(Court_Name, Court_Type, Address_ID)

Foreign Key: Address_ID references Address

3.5. Language

Relational Model: Language(Language_Name)

Foreign Key: None

3.6. Citizen

Relational Model: Citizen(TC_ID, FullName, Birthdate, Biological_Sex, Nationality, Address_ID, Citizen_Password)

Foreign Key: Address_ID references Address

3.7. Judge

Relational Model: Judge(TC_ID, Gavel_Name, Judge_Password)

Foreign Key: TC_ID references Citizen

3.8. Litigant

Relational Model: Litigant(TC_ID)

Foreign Key: TC_ID references Citizen

3.9. Conciliator

Relational Model: Conciliator(TC_ID, Conciliator_Password)

Foreign Key: TC_ID references Citizen

3.10. Expert_Witness

Relational Model: Expert_Witness(TC_ID, Expertise_Field, Expert_Password)

Foreign Key: TC_ID references Citizen

3.11. Lawyer

Relational Model: Lawyer(TC_ID, Office_Name, Bureau_Name, Lawyer_Password)

Foreign Key: TC_ID references Citizen

3.12. Trial_Date

Relational Model: Trial_Date(T_Date)

Foreign Key: TC_ID references Citizen

3.13. Interpreter

Relational Model: Interpreter(TC_ID, Interpreter_Password)

Foreign Key: TC_ID references Citizen

3.14. Represents

Relational Model: Represents(Lawyer_ID, TC_ID)

Foreign Key: Lawyer_ID references Lawyer(TC_ID)

Foreign Key: TC_ID references Litigant(TC_ID)

3.15. Councils

Relational Model: Councils(Conciliator_ID, Litigant_ID, Case_ID, Lawyer_ID, Agreed)

Foreign Key: Conciliator_ID references Conciliator(TC_ID)

Foreign Key: Case_ID references Case

Foreign Key: Litigant_ID references Litigant(TC_ID)

Foreign Key: Lawyer_ID references Lawyer(TC_ID)

3.16. Involved

Relational Model: Involved(Litigant_ID, Case_ID, Lawyer_ID, Role)

Foreign Key: Case_ID references Court_Case

Foreign Key: Litigant_ID references Litigant(TC_ID)

Foreign Key: Lawyer_ID references Lawyer(TC_ID)

3.17. Committed_At

Relational Model: Committed_At(Crime_ID, Address_ID)

Foreign Key: Crime_ID references Crime

Foreign Key: Address_ID references Address

3.18. Judges

Relational Model: Judges(TC_ID, Case_ID)

Foreign Key: TC_ID references Judge

Foreign Key: Case_ID references Court_Case

3.19. Informs

Relational Model: Informs(TC_ID, Case_ID)

Foreign Key: TC_ID references Expert_Witness

Foreign Key: Case_ID references Court_Case

Foreign Key: None

3.20. Works

Relational Model: Works(TC_ID, Case_ID)

Foreign Key: TC_ID references Interpreter

Foreign Key: Case_ID references Court_Case

3.21. Translates

Relational Model: Translates(TC_ID, Language_Name)

Foreign Key: TC_ID references Interpreter

Foreign Key: Language_Name references Language

3.22. TakesPlaceOn

Relational Model: TakesPlaceOn (Case_ID, T_Date)

Foreign Key: Case_ID references Court_Case

Foreign Key: T_Date references Trial_Date

4. IMPLEMENTATION DETAILS

During our design report stage, we decided to use Java Server Pages for backend and Oracle SQL for our RDBMS. We created the tables in Java and made some insertions to the database there for easier testing during implementation. However, during the implementation stage, we decided not to use Java Server Pages as it was unnecessary and we decided to use MySQL since we were already familiar with it after the programming assignment. We still used HTML, CSS, JavaScript and PHP for our front end.

Compared to our proposal and design stage, we changed several things in the design of the application system. We added several other features to our system such as updating the personal information and the ability to finalize a case as conciliator. For icons, we used material icons since style of some of the icons were suitable with our design. In order to use them, we simply gave the source of the icons and set the class of the components to the desired icon's class.

While implementing the project, we encountered several problems. For instance, while implementing the signup page, we forgot to insert into some of the tables which resulted in corrupting other information in the database and forced us to rerun the Java code. We also needed to consider not to allow the users to be the translator/interpreter/conciliator of their own case. For example, if the case has victims with TC 00000000001 and 00000000002, these victims cannot have another role in the case. We also did the same thing in the creating a new case page as we forgot to check it at first. At the beginning of the implementation, we divided the work into HTML/CSS and PHP/RDBMS. Due to that, we encountered several problems when merging them back together. This caused us to rewrite some parts of the HTML/CSS and PHP.

5. ADVANCED DATABASE FEATURES

-Secondary Indices

We used secondary indices in two tables: Involved and Councils. The secondary indices are constructed over the attribute, Lawyer_ID, which is a non-key attribute. We perform many searches in these tables related to Lawyer_ID to query the lawyer of a litigant, and we display the said lawyer on almost every page. Having a secondary index therefore increases the speed of our queries. The secondary indices are created in our JDBC driver code as follows:

```
/* SECONDARY INDICES ON LAWYER_ID */  
stmt.executeQuery( s: "ALTER TABLE Involved ADD INDEX Lawyer_ID (Lawyer_ID)");  
stmt.executeQuery( s: "ALTER TABLE Councils ADD INDEX Lawyer_ID (Lawyer_ID)");
```

-Views

We used views to speed up common queries by automatically joining three tables. We used three separate views for our pages, namely Litigant_View, Suspect_View, and Victim_View. We construct the views in our JDBC driver code in the following way:

```
String suspectView = "CREATE VIEW Suspect_View AS " +  
    "SELECT * " +  
    "FROM Involved NATURAL JOIN TakesPlaceOn NATURAL JOIN Court_Case " +  
    "WHERE Role = 'Suspect' " +  
    "GROUP BY Case_ID ";  
String victimView = "CREATE VIEW Victim_View AS " +  
    "SELECT " +  
    " * FROM " +  
    " Involved NATURAL JOIN TakesPlaceOn NATURAL JOIN Court_Case" +  
    " WHERE Role = 'Victim'" +  
    " GROUP BY Case_ID ";  
String litigantView = "CREATE VIEW Litigant_View AS" +  
    " SELECT * " +  
    "FROM Involved NATURAL JOIN TakesPlaceOn NATURAL JOIN Court_Case " +  
    "GROUP BY Case_ID";
```

These views are frequently used in our webpages to list the victims and suspects of a particular court case. Whenever we wish to display this information, we query the views instead of the actual tables. The results of using these tables are easily demonstrated on any page of the system. The following is an example from search_judge.php. The output of the query on the view is as follows:

Active Cases					
Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information
2	2019-05-21	Veli	Suleyman	2019-05-31	GO
5	2019-05-21	Veli	Faruk	2019-05-31	GO

Closed Cases					
Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information
4	2019-05-21	Veli	Hamza Riza	2019-05-31	GO

- Constraints

We implemented the constraints that we proposed in our design reports in our PHP scripts. When assigning a judge, the system takes into account that a judge can not have more than 5 active cases, for instance. If such an assignment is tried, it is not allowed, and the system will prompt the user to wait for judges to become available.

The only explicit constraint in table definitions is about ensuring that TC IDs are positive BIGINT values, which is simply

```
CHECK(TC_ID > 0)
```

6. USER MANUAL


Currently, the website runs on a localhost since we do not have a domain yet. Therefore, this user manual assumes that the website runs on its own domain with a remote database server.

6.1. Works



From this page, several users(Citizen, Conciliator, Interpreter, Judge, Lawyer and Expert Witness) can login from their respective login pages. Also For demonstration purposes, signup for citizen also exists.

6.2. Login Page



UYAP2

Login as **Citizen**


TC NO:

Password:

Submit

In this page users can login to their account. The passwords for users with roles (Conciliator, Interpreter, Judge, Lawyer and Expert Witness) have different passwords for their Citizen accounts and respective role accounts.

6.3. Signup Page



UYAP2

Create A New Account

TC:

Full Name:

Password:

Confirm Password:

Birth Date:

dd-----yyyy

Sex: ☒ Male ☐ Female

Nationality:

Turkey ▼

Address

City:

Istanbul ▼

Street Name:

Street Address:

Sign up

From this page, a new citizen account can be created. The TC, Full name, password, birth date, sex and the address of the new user must be set.

6.4. Main Page for Citizen

Faruk 0000000007

Citizen

Logout

Active Cases

Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information	Agree on Conciliation
2	2019-05-21	Faruk	Hamza	2019-05-31	GO	Accept Offer

Closed Cases

Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information
---------	--------------	-----------	------------	--------------	------------------

The citizens can access this page after they log in. They can see their active or closed cases which they are either a victim or a suspect. In order to view the case in more detail, they can press the case information button to go to the case view page. They can also accept conciliation if there is a conciliator in that case and they did not accept it yet.

6.5. Main Page For Lawyer

Veli 00000000001 A Barosu X Ofisi

Search By TC

Go

Lawyer

Logout

Active Cases


Case ID	Latest Trial	Client(s)	Opening Date	Case Information
4	2019-05-31	Riza Hans	2019-05-21	GO

Closed Cases


Case ID	Latest Trial	Client(s)	Opening Date	Case Information
---------	--------------	-----------	--------------	------------------

In this page, lawyers can see the cases where they represent a client. They can also open a new case from the button next to the personal information. Search for a citizen is also possible for lawyers and they must search for it in order to become the representative of a suspect.

6.6. Main Page for Judge



Riza 0000000004



Judicator 3000

Search By TC

Go

Judge

Logout

Active Cases


Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information
2	2019-05-21	Faruk	Hamza	2019-05-31	GO
3	2019-05-21	Ali	Veli	2019-05-31	GO

Closed Cases

Case ID	Latest Trial	Victim(s)	Suspect(s)	Opening Date	Case Information
1	2008-11-11	Suleyman	Hamza	1973-01-02	GO

This page is almost identical to the lawyer main page but instead of opening a new case, judges can change the name of their gavels from this page.

6.7. Case View for Citizen



Faruk 0000000007

Citizen

Logout

Case ID	Judge TC	Judge Name		Gavel Name
2	4	Riza		Judicator 3000

Suspect TC	Suspect Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	Agreed to Conciliation
3	Hamza	1978-09-09	1	Turkiye	0	Ali	NO

Victim TC	Victim Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	Agreed to Conciliation
7	Faruk	1969-04-01	1	Turkiye	0	Ali	NO

Crime ID	Crime Date	Crime Scene Description	Crime Description	Crime Name
2	2019-05-23	gaaggf	sdgagagrag	asdasdasd

Case Description	Case File	Result	Court Name	Opening Date	Status
farrrrrr	asdasdas		Mahkeme1	2019-05-21	On-Going

Conciliator TC	Conciliator Name	Interpreter TC	Interpreter Name	Interpreter Language	Expert Witness TC	Expert Witness Name	Expert Witness Field
5	Seladdin	6	Hans	Almanca	7	Faruk	Fizik

Trial Dates							
2019-05-31							

This is the case view page used for citizens, interpreters and expert witnesses. All the information regarding a case can be seen from here. The case view page for conciliators is also similar to this page but they can also finalize a case if every client agreed to conciliations. It is possible to see this information next to the clients.

6.8. Case View for Judge

Riza 00000000004 Judicator 3000 Search By TC Go Judge Logout							
Case ID		Judge TC		Judge Name		Gavel Name	
4		4		Riza		Judicator 3000	
Suspect TC	Suspect Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	Agreed to Conciliation
6	Hans	1969-03-01	1	Almanya	-	-	
Victim TC	Victim Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	Agreed to Conciliation
4	Riza	1970-01-01	1	Turkiye	0	Ali	
Crime ID	Crime Date	Crime Scene Description		Crime Description		Crime Name	
4	2019-05-03	dsa		fsa		fsa	
Case Description		Case File	Result	Court Name	Opening Date	Status	
das		fas		Mahkeme1	2019-05-21	On-Going	
Conciliator TC	Conciliator Name	Interpreter TC	Interpreter Name	Interpreter Language	Expert Witness TC	Expert Witness Name	Expert Witness Field
Assign Conciliator	-	Assign Interpreter	-	-	Assign Expert Witness	-	-
Trial Dates							
2019-05-31							

In the case view for judge, in addition to the case information, they can assign a conciliator, interpreter and expert witness to that specific case. The language which will be translated and the expertise field must be specified as well.

6.9. Search Case View For Lawyer

Veli 00000000001 A Barosu X Ofisi Search By TC Go Lawyer Logout							
Case ID		Judge TC		Judge Name		Gavel Name	
4		4		Riza		Judicator 3000	
Suspect TC	Suspect Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	Get Case
6	Hans	1969-03-01	1	Almanya	-	-	<button>Get Case</button>
Victim TC	Victim Name	Birth Date	Sex	Nationality	Lawyer ID	Lawyer Name	
4	Riza	1970-01-01	1	Turkiye	0	Ali	
Crime ID	Crime Date	Crime Scene Description		Crime Description		Crime Name	
4	2019-05-03	dsa		fsa		fsa	
Case Description		Case File	Result	Court Name	Opening Date	Status	
das		fas		Mahkeme1	2019-05-21	On-Going	
Conciliator TC	Conciliator Name	Interpreter TC	Interpreter Name	Interpreter Language	Expert Witness TC	Expert Witness Name	Expert Witness Field
-	-	-	-	-	-	-	-
Trial Dates							
2019-05-31							

This page is only accessible to lawyers. From this page lawyers can get the representative rights of a suspect. By doing so, they are automatically assigned as the lawyer for that suspect. Judges see the same page as the lawyers but they do not have the get case button.

6.10. Open a New Case

The screenshot shows a web interface for opening a new case. At the top, there is a header bar with a user profile (Ali B Barosu Y Ofisi), a search bar (Search By TC), and a 'Go' button. On the right, there are links for 'Lawyer' and 'Logout'. The main form area has a light yellow background. It starts with two buttons: 'Victim TC' (blue) and 'Suspect TC' (red). Below these is a large text area for 'Case Description:'. Further down are three input fields: 'Case File:', 'Crime Name:', and 'Crime Date:' (with a date format 'dd-----yyyy'). Below these are two more text areas: 'Crime Description:' and 'Crime Scene Description:'. At the bottom, there are three input fields: 'Crime City:' (a dropdown menu showing 'Istanbul'), 'Crime Street Name:', and 'Crime Street Address:'.

This is the page where a lawyer can open a new case. They can enter additional victims/suspects from the button next to the entry bar. They must specify details about the case and the crime in order to open a case.

6.11. Search for Citizen

The screenshot shows a web interface for searching for a citizen. At the top, there is a header bar with a user profile (Veli 00000000001 A Barosu X Ofisi), a search bar (Search By TC), and a 'Go' button. On the right, there are links for 'Lawyer' and 'Logout'. The main content area has a light yellow background. It starts with a section titled 'Active Cases' in a blue header. Below this is a table with the following data:

Case ID	Latest Trial	Client(s)	Opening Date	Case Information
4	2019-05-31	Rıza Hans	2019-05-21	GO

Below the 'Active Cases' section is another section titled 'Closed Cases' in a blue header. Below this is a table with the following data:

Case ID	Latest Trial	Client(s)	Opening Date	Case Information
---------	--------------	-----------	--------------	------------------

This is the page that appears after searching for a citizen by their TC. This page is only accessible to lawyers and judges for privacy of the citizens.