# multi-client server.

A **multi-client server** is type of software architecture for computer networks where client request information from a server computer.

the tiers in a multi-tier application include the following:
 -Presentation tier: Provides basic user interface and application access services
-Application processing tier: Possesses the core business or application
-logic Data access tier: Provides the mechanism used to access and process data
-Data tier: Holds and manages data that is at rest This division allows each component/tier to be separately developed, tested, executed and reused.
The pattern we choice for not match our system is Pipe and Filter is architectural pattern, which has independent entities called filters (components) which perform transformations on data and process the input they receive, and pipes, which serve as connectors for the stream of data being transformed, each connected to the next component in the pipeline.
transformations of streams of data. As you can see in the diagram:
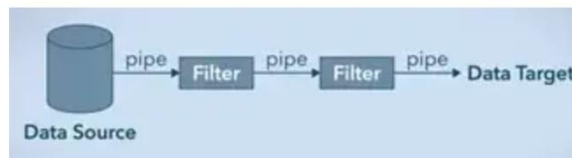
Data transformation in a pipe and filter architecture.

The functional requirement
1-user shall be able to register in the system.
-when the user open the website will show the register interface this in Presentation tier when user start to enter his\her information will go to Data tier where the data saved

2- user shall be able to log into the system.
-when user show button to login to the system from Presentation tier

3-should be able to edit his profile.
-if user want to edit in her\his profile from logic Data access tier this tier help the user to access to data

4- Should be able to perform a service search.
-when user search for serves will start from Presentation tier

5-user should be able to see the list of services.
-when user want to see the list the Presentation tier will helps

6- user should be able to enter personal data.
-in logic Data access tier help in this step and Data tier help to save the data

7-user should be able to book an appointment in the selected services.
-when user want to book an appointment the Data tier help to edit and manage the information

8- user should be able to cancel her/his reservation within a week.
-Data tier help to edit and manage the information when user want to delete reservation the logic Data access tier helps to access to the data and Data tier help to saved and manage the data

9- user should be able to see his infractions.
-the Data tier helps to in this step

10- user should be able to update his data.

-the Data tier help to hold and manage and update the user data-

11-the user should be able to manage and book a new appointment whether it was a (passports/civil affairs/inmate visit/shaheed on duty) type of appointments .
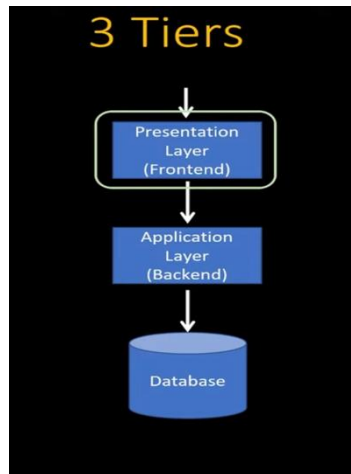
- User can browse different appointments and the application could be running at any type of web server. this is (presentation layer)where user can access the application.

- As soon as the user pick an appointment the presentation layer calls the application where a

 bunch of business logic is running .

-When users picks an appointment they should fill required data that will be saved and retrieved

From the database .

12- The user should be able to mange and issue an authentication .

-presentation Tier will presents the authentications to users for them to mange or issue one.

Then it'll call the application tier where a bunch of business logic is running. Then the database will help to save and retrieve data if needed.

13- The user should be able to log on using touch ID or face ID.

-This requirement depends on what device you're using to login to the application so the presentation tier will play a role in this requirement.

14- The user shall be able to report a missing document in case he/she lost a certain document .

- Presentation tier calls the application tier where a bunch of business logic is running and data are saved or retrieved from the database.

15- The user also should be able to request a document replacement for the lost document.

- Presentation tier communicate with application tier where there will be workflows and data saved or retrieved from the database

16- The users should be able to add their other cards as a digital card on the system and delete/ update them anytime they want.

- The presentation tier will present the card options and if a user wanted to updated or delete the application tier will be called and a bunch of business logic will be running. Needed data will be saved or retrieved from the database

17- The system should provide an option for users where they can make a donations through Furijat.

- Presentation tier will show the user the option if a user wants to donate the application tier will be called and the data will be saved and retrieved form the database if needed

18- The users should be able to view all their traffic violations (the paid violations/resolved disputes).

- Presentation tier plays a role in this requirement because users can browse different types of violations.

19- The system should be able to send notifications to users.

- Presentation tier plays a role in this requirement because users can browse different types of notification and if a user wanted to delete a Notification, the application tier will be called and bunch of business logic is performed .

20- The user should be able to make a request on Taqdeer service .

- Presentation tier will call the application tier where there will be workflows and data are saved / retrieved from the database if needed.

21- The user shall be able to change the system's language (English / Arabic)

-Presentation tier will call the application tier where there will be workflows and data are saved / retrieved from the database if needed.

22- The user shall be able to change the system's calendar (Gregorian/ Hijri).

-Presentation tier will call the application tier where there will be workflows and data are saved / retrieved from the database if needed.

23- The user should be able to inquire about general transactions.

-Presentation tier play a role in this requirement where a user will be able to inquire any type of transactions.

24-User should be able to report lost

Presentation tier will call the application tier where there will be workflows and data are saved / retrieved from the database if needed.

25-the user shall Possibility to recover password

-Presentation tier will call the application tier where there will be workflows and data are saved / retrieved from the database to recover the password

26- the user should be Providing the application for the Absher Business platform for commercial establishments and companies

-Presentation tier will call the application tier where a bunch of business logic is performed and data are saved / retrieved from the database to recover the password

27-The application should linked to Absher devices to activate the account for one time

-All of the data are saved in a database so this requirement is easy because the data will be retrieved from the database every time.

28- the application shall Connect with Absher devices to change the password and update the mobile number

-Presentation tier will call the application tier where a bunch of business logic is performed and data are saved or retrieved from the database to recover the password .

29-The user shall able to enter the application through the gateway

This requirement is all about the presentation tier because it's about where are accessing the application from.

30- the application should provide a service to inquire about travel restrictions and

stop services

-Users will browse the services (Presentation tier) and if they made an update or book a service, the application tier will be called where a bunch of business logic is performed and data are saved or retrieved from the database.

Nonfunctional requirement :

1-The system shall not grant access until the user creates a strong password.

-User will be shown "weak password" (presentation tier) until a strong password is created the the application tier is called where bunch of business logic is performed.

2-The system should process each request within 4 seconds or less 99% of the time.

-all of the 3 tier are performed within 4 seconds or less so we can achieve this requirement.

3-System shall be accessible 98% of time

- the presentation tire helps in this step because it must to be accessible to user to allows him/her use the services

4-System shall be accessible from different platforms (mobile, tabs, computers)

-in this the data of user can hold in database and use it in different platforms use the logic data access tier

5-System shall be accessible on safari, Firefox, Opera and google chrome

-This requirement is all about presentation tier because it's concerned with where the user will be accessing the application from.

6-the final user should log out; also, the logging in information and password that are provided to the system should be secure and remembered

-Presentation tier will call the application tier where there will be workflows and data are saved and retrieved from the database whenever is needed.