Block Diagram

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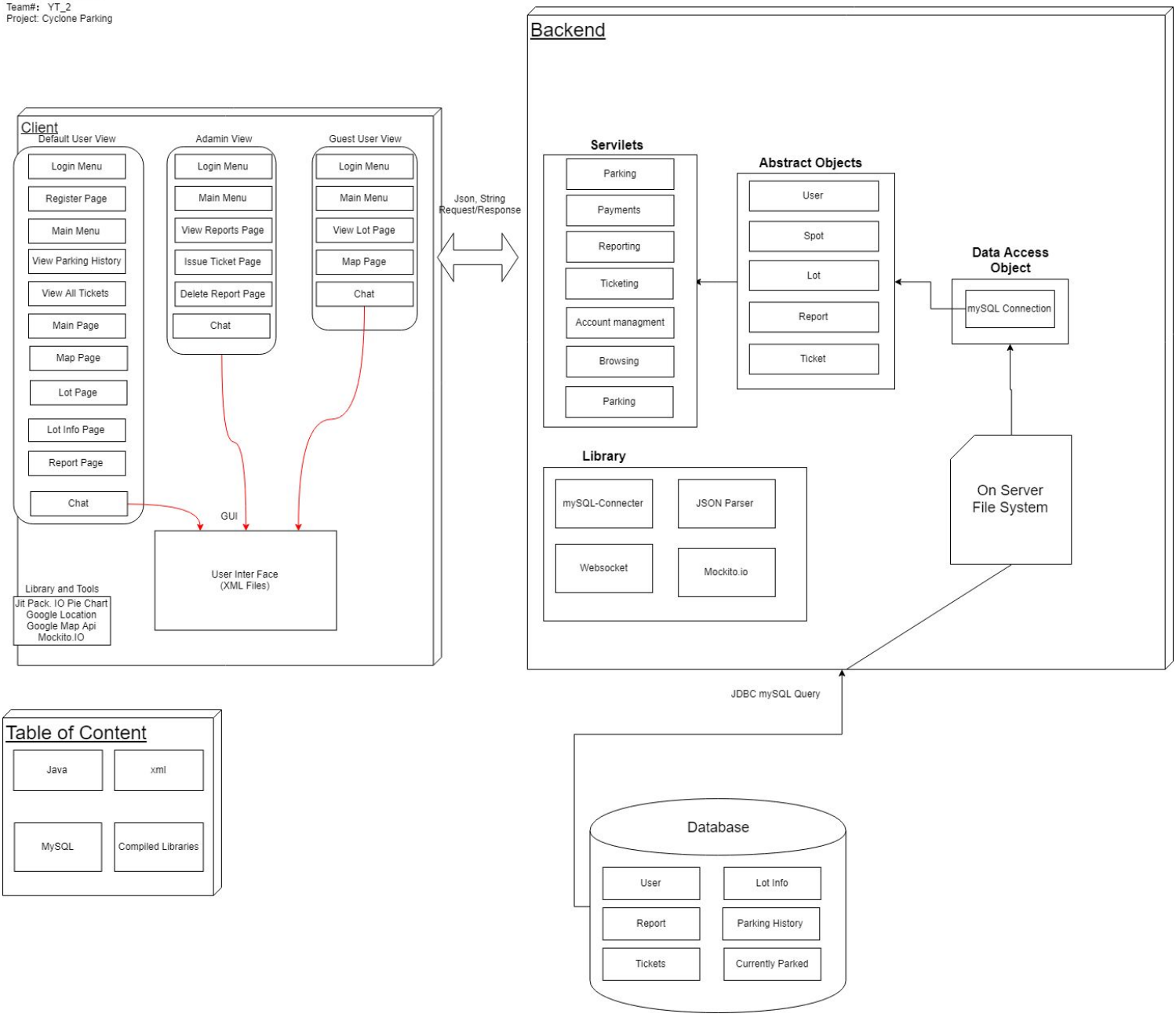

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Client:

In our client, three types users will have three different interfaces. For example, the guest Users are not supposed to park and default users are not suppose to view reports.

Default User View: This view contains the following activities:

- Login Page: User enter their username and password to log in
- Register Page: New users who want to create new account
- Main Menu: this page will have a dashboard for user to choose to go to the corresponding pages.
- View Available Spots Page: this page contains a pie chart and spinner to letting user select the info they want for a specific lot and parse the information into the pie chart. Also, this page allows the user to enter the parking lot page or map page when the user selected so.
- View Parking History: Users can view their parking history over this page
- View All Tickets: Users can view their tickets over this page
- Map Page: Users can view the google map and this map page has all the lot markers with info regarding to the lot.
- Lot Page: This page will display the user selected lot's info and display all spots as a grid view.
- Lot Info Page: This page will be entered after user parked. Then this page will display the current spot information. The timer at this page will display the time that the user has spent on this spot.
- Report Page: This page will let users to file reports.
- Chat: This page will let users who logged in to chat in a chat room

Admin User View: The admin user view will contain the Login Page, Main Menu, View All reports, delete reports page and issue tickets page.

- Delete Reports: the adamin will be able to delete reports at this page.
- Issue Tickets Page: The adamin will be able to issue tickets at this page.

Guest User View: The guest users share the most common pages as the default user, Expect they can not park which means they can not click at the gridview in parking lot Page.

In our client side, we used java as the main language for constructing the pages. The IDE that we were using is Android Studio. For libraries, we used the Google Map Api to construct our map page. Also, the pie chart in our parking lot page is constructed with Jit.IO PieChart library.

Server:

In our server side, the following servilets are as following:

- Parking: This handler handle the parking requests. Take spot, leave spot. Also, this handler provides the information about the selected parking lot.
- Payment: This handler serves as the pseudo payment.
- Reporting: This handler records all the reports and distribute them to the reported user. Also, it allows the adamin to view and delete the reports.

- Tickets: This handler records the tickets that the adamin issued and record them, distribute them to the corresponding users, and handle the request when the corresponding users are resolving their tickets.
- Account Management: This handler will handle the requests from the users to manage their account, such as change password, register a new car etc
- Browsing: This handler will provide the data to parking lots that when users are browsing them.

The objects that we used in this server is the following:

- User: three types of user, default, guest and admins.
- Spot: the spot in the parking lot
- Lot: Parking lot
- Report: the report that one/multiple users file against the other user.
- Ticket: the adamin assign the ticket to violated user
- Parking Log: A log containing past parking session information

For connecting the database to the server, our team used the mySQL connection. The On server file system is where we store the jar file.

For libraries, we used mySQL connecter to connect the SQL database, and Volley to allow GET and POST requests from the client. Also, OkHTTP3 for websockets is implemented for the chat lobby, and Mockito and Espresso for testing.