Crime Report System
Architecture Documentation

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1. **Introduction**

   Crime report system aims at enabling civilians handedly report crime through the mobile app, accordingly, LEA staff resolved reported case on web system. Meanwhile, civilians are able to get a statistical result of regional crime to get an insight of the region.

   This is a summary architecture description documentation.

2. **High-Level Architecture Diagram**

   As the fig.1 below, the crime report system includes two main modules: web system for LEA staffs and mobile system for users. The web system provides functional interfaces to the mobile app and provides data transfer objects to implement CRUD.

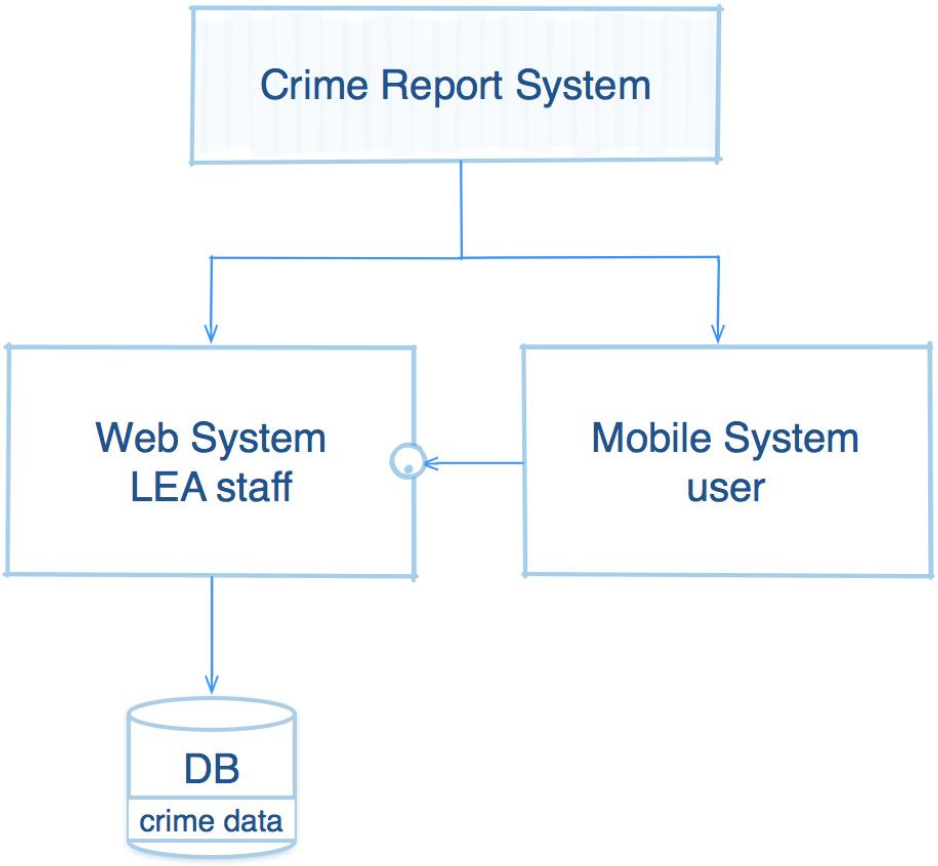

Fig.1 High-level system architecture

3. **Website Architecture**

   Technique: PHP

   Framework: Yii 2.0 Advance Framework

   In the website project, there are three main modules includes frontend, backend, api. The all have a private form that extends common models, which are used to implement database operations. The controller layer implements logical control of each module and the view layer provides page rendering.

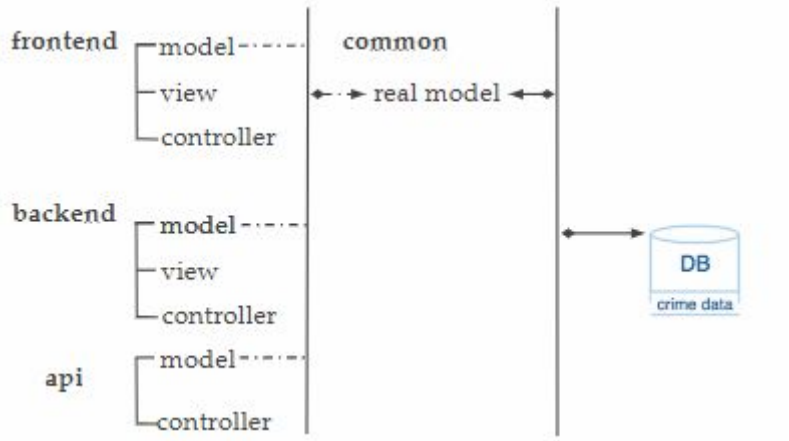

fig.2 High-level website architecture

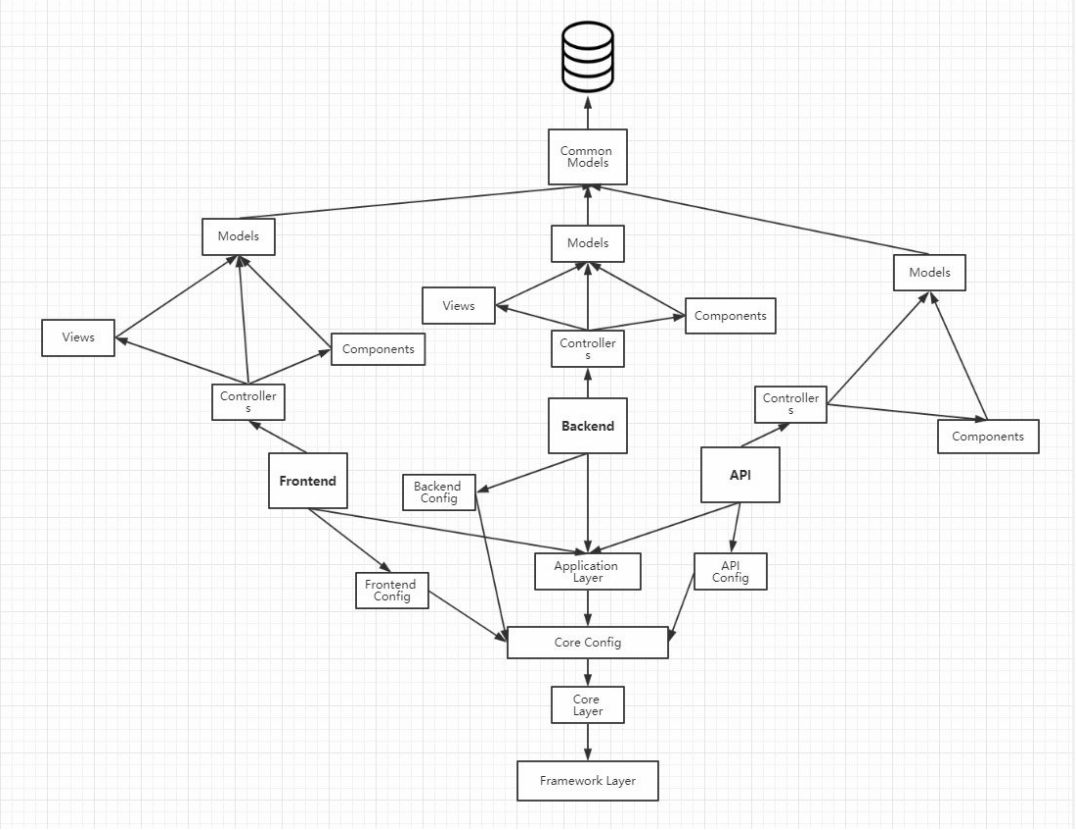

fig.3 Detailed website architecture

As fig.3 above, you can change all system level configuration such as database URL and password in the core config(common config). The module level configuration can be changed in corresponding configuration files(frontend config, backend config and api config) if you want to modify the URL style, allowed request methods or response actions of requests.

All reusable widgets are stored in widgets folder of each module and invocated in the controller.

API URL is coded according to RESTful style, which provides several functions for the mobile app. Request methods and request URL are listed below:

User register: POST http://api.casereport.com/users/reg
User login: POST http://api.casereport.com/users/login

Image upload: POST http://api.casereport.com/posts/upload
Create case: POST http://api.casereport.com/posts/new
View all posts: GET http://api.casereport.com/posts
View posts by post ID: GET http://api.casereport.com/posts/(id)

Get analysis data: GET http://api.casereport.com/tags

4. Mobile Architecture

Technique: Android Verison:API24
Tools & Resource :
For Network request: HttpURLConnection
For Statsitic Chart: HelloChart

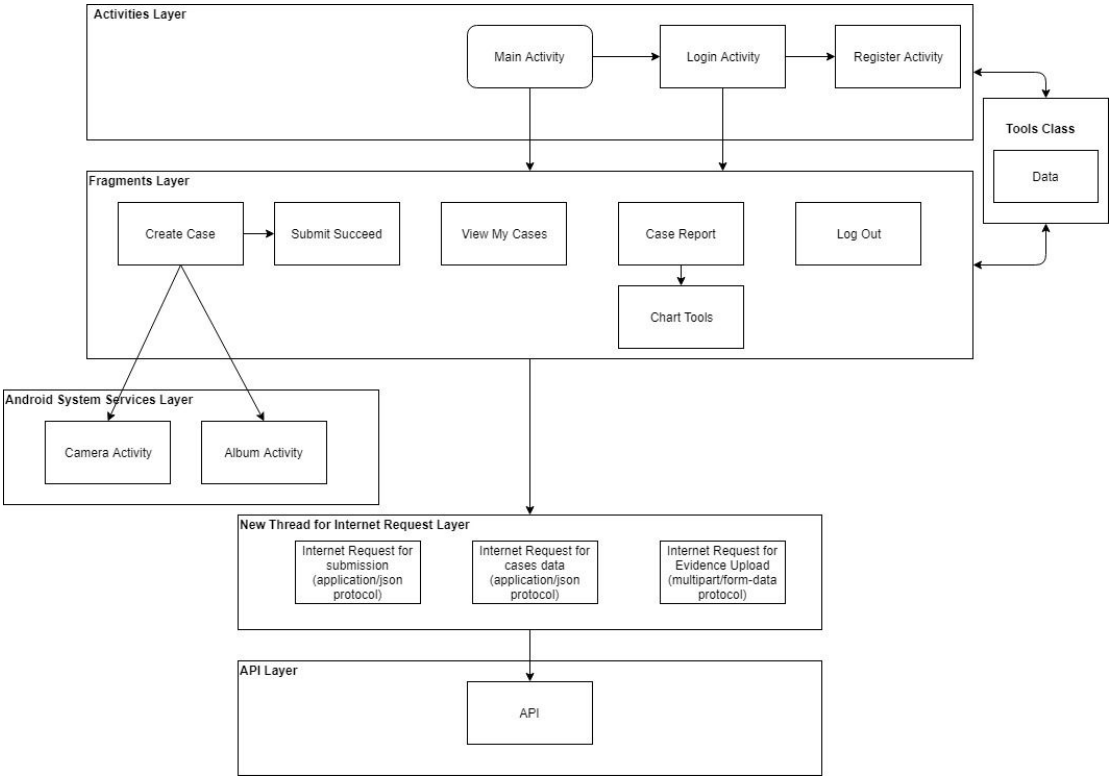

fig.4 Detailed mobile app architecture

As fig.4 above, the architecture of mobile application can be divided into page interaction part and function part.

For page interaction, the application is based on bottom navigation menu and fragments. All the fragments are based on the main activity where a public method is provided for fragment replacements. Every activity or fragment has only one related

resource design file (.xml file) which are listed in the layout folder. The related relationship can be found at the initialise methods of every activity or fragment class.

For functional part, the network request is based in tool class named HttpURLConnection provided by Android. The protocols used are application/json (for most request) and multipart/form-data (for file submission). All the user information are stored in a tool class named Data. The application also called internal activity for camera and album.