Phone Book

—Android Project

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## Project scope

The basic functions of my project includes two parts: contacts and call records. The call records will contain some basic information such as name, phone number, time, type and number attribution. They will display together. The contacts are alphabetically sorted. They support fast search of the first letter and also support universal search. The call records statistics function is the most fundamental and important needs to the project all the time. The project will show the number of calls and call duration over a period of time. The project will remind you that the special dates are coming. For example, the app will remind you to call home on Mid-Autumn Festival and it will also remind you of your friend’s birthday. You can add contacts by scanning business cards or QR codes. You can also turn on “Do Not Disturb mode” to block non-whitelist calls for a certain period of time.

## Requirement analysis

According to the requirement of customers’ examples, I think the phone book app should be divided into five sections. They are respectively call record interface, contact interface, contact detail interface, contact editing interface and special date reminder module.

In the call record interface, you can view not only all calls, but also all missed calls individually. You can delete the call record in bulk, and you can call the corresponding phone directly according to the call record. For those unknown calls, you can create a new contact, save it to an existing contact, send a message, copy the number, edit before calling, add it to whitelist or delete the call record. For those known contacts, you can send a message, copy the number, edit before calling, add it to whitelist, or delete the call record. There is a dial in the call record interface. The dial can be retracted or expanded. When you click the calling button on the dial, you will dial the number you called last time.

In the contact interface, the contacts are displayed in alphabetical sequence with their names. You can search for contacts directly by their pinyin initials or Chinese characters. You can also scroll through the alphabetic list on the right to find contacts. You can add contacts by scanning a QR code or share your contacts via QR codes. You can click a contact to enter the contact detail interface.

In the contact detail interface, you can edit contacts, generate QR code to share contacts, add them to whitelist, erase contact trace, create shortcuts or delete contacts. You can look over the call records you made to that contact, and you can delete them.

In the contact editing interface, you can edit name, number, birthday, avatar and whitelist. You can also add emails, notes, personal website, assistants and special ringtones.

In the special date reminder module, according to the current system date, it can judge whether it is a holiday or a contact’s birthday. If so, it will alert you by a popover.

## Object diagram



## Sequence diagram



## State diagram



## Activity diagram

1. Look over call records



When the user clicks the app or switches to the call record interface, the app will read all the call records from the database and then display them on the screen. If there is no call record in the database, it will display “No Call Record”.

1. Delete call records



When the user presses a call record for a while and selects the delete operation, the app will delete the designated call record in the database, refresh the call record interface and display all the remaining call records.

1. Create a new contact



When the user clicks the “+” button or presses the unknown phone number to select “New Contact”, the app will enter the contact editing interface and wait for user to fill in the information such as name, number, birthday and whether to join the whitelist. After the user clicks “Save” button, the app will search the attribution of the number online, store the information in the database and finally exit the contact editing interface.

1. Save to existing contact



When the user presses a call record for a while and chooses to save it to an existing contact, the app will enter the contact interface and wait for the user to select a contact. Then the app will enter the contact editing interface. The user can modify the information of the contact. After the user completes the modification, the app will search the attribution of the number online. It will store the information in the database and finally exit the contact editing interface.

1. Add to whitelist



When the user presses the call record in the call record interface to select the whitelist operation, or the user selects the whitelist operation in the contact detail interface, the app will update the information in the databasse according to the selected phone number.

1. Make a phone call



When the user is ready to make a call, the app will call the dialing function of the Android system according to the phone number entered or selected by the user. After the user finishes the call, the call record will be updated in the database. The app will exit the system dialing interface.

1. Search for contacts



1. Share contacts



1. Delete contacts



1. Edit contacts



1. Delete your contact’s call records



1. Look over your contact’s call records



## Class diagram



## Architecture diagram



This project adopts MVC mode to separate human-computer interaction from core functions. Users can’t observe the model but can observe the view. The interaction between users and models is realized through the safe methods provided by the controllers.