

# AutoBill Proposal

## Architecture

### Major components:

UI: android application, where software interact with users.

Middleware: transfer data between UI and Database by specific format.

Database: store information and data

Microservies: process data

### Logical architecture:

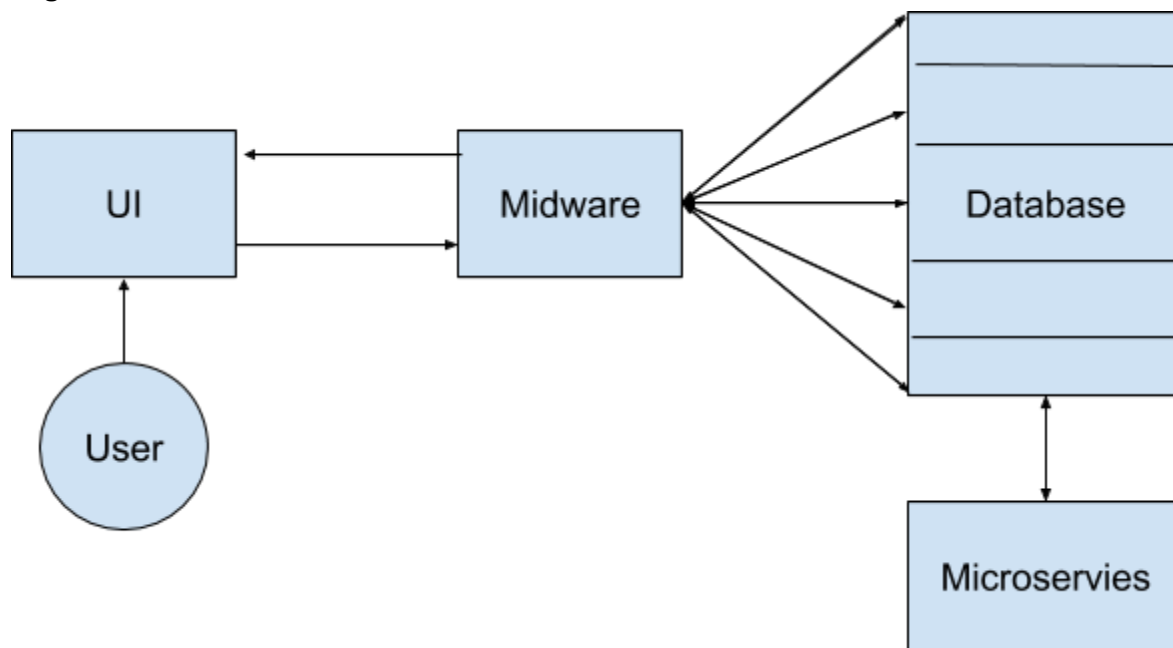
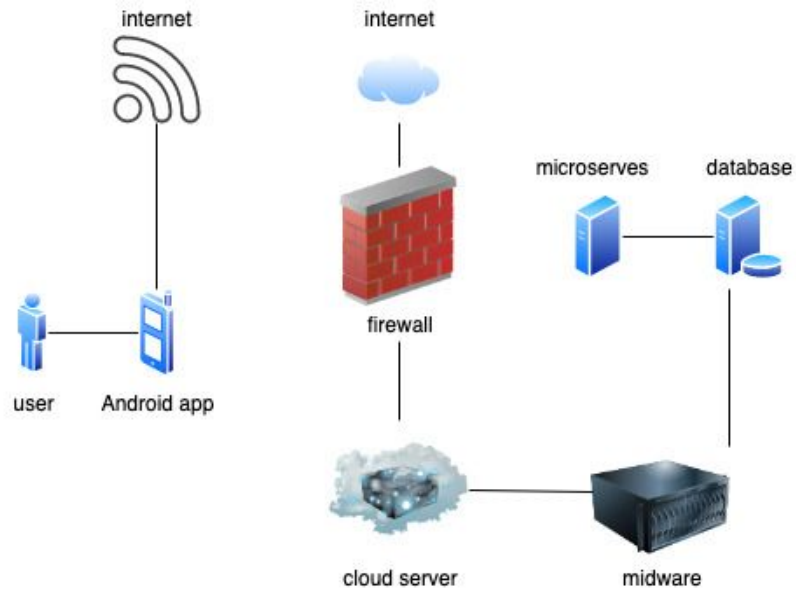


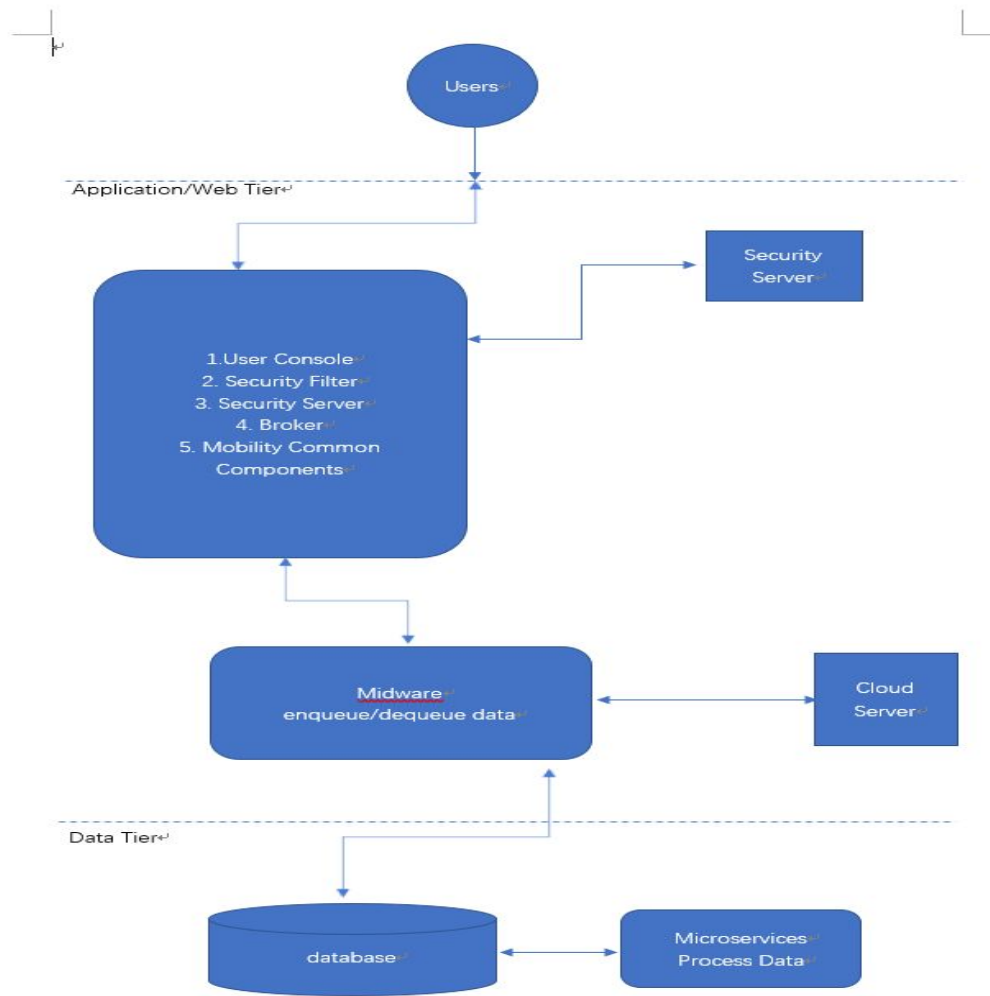
Diagram 1: logical architecture

- UI to Middleware: user send data to Middleware through UI.
- Middleware to Database: according to data type, send data to different tables in Database.
- Database to Microservices: according to request, send data to microservices.
- Microservices to Database: return the processed data.
- Database to Middleware: return the required data to middleware.
- Middleware to UI: return the data to UI

### Physical architecture:



### Deployment architecture:



**Technology stack:**

Virtual machine: Docker  
Front end: Java, Android  
Back end: Python  
Database: MySql  
Microservices: Python  
Tool: AndroidStudio  
Testing: unit test, travis CI

**Thoughts on how you'll address non-functional concerns (e.g. security, authentication/authorization, scalability, ...)**

**Security:** We will protect users' private information through making sure their data stored in our APP and related banks safe even though those banks are hacked.

**Authentication:** We will use verification code to verify the users by email and text. Or, users register with SSN and ID number, which also called real-name authentication.

**Scalability:** We will leave some accessible ports for future functions, which will help us to enlarge the ability of our application.

**Customizable:** We will customize our product on different customer types.

**Maintainability:** There are two ways to make our APP maintainable. One is to eliminate existing errors, and the other is to reflect the new software requirements into the existing system. An easy to maintain system can effectively reduce the cost of technical support.

**Customer Experience:** We will make our product easy to use, convenient to split bill and efficient to create bill statement weekly/monthly.

**Roles and Responsibilities**

Development Lead	
Buildmeister	Cheng Tian
Architect	
Developers	Puzhuo Li, Xinghan Qin, Qizhan Liu, Jia Wen
Testers	Chih-Yu Lee, Cheng Tian
Documentation	All
Documentation Editor	Puzhuo Li
Designer	Xinghan Qin
User advocate	Cheng Tian
Risk Management	Jia Wen, Qizhan Liu
Modification Request Board	All
Requirements Resource	Chih-Yu Lee

**Method**

Software: AndroidStudio