SMART MIRROR
FOR SKIN HEALTH CARE

Introduction to Software Engineering Team 13
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Contents

001
Motivation

Motivation

Mask cause skin trouble

자료에 따르면 지난해 피부과 원외 처방 시장은 2500억2000만 원으로 전년 동기 (2243억 원)보다 11% 증가했다. 2018~2019년 2년 간 1.5% 늘어난 데 비하면 크게 성장했다. 회사는 "유비스트로 진료과 처방코드 '피부과'를 설정, 집계했다"고 설명했다.

성장 원인에 대한 업계 의견은 다양했다. 주로 "코로나19로 장시간 마스크 착용하게 되니 안면 부위 모낭염과 피부 트러블을 호소해 병·의원에 내원하는 사례 때문일 것"이라고 예상했다.

Interest in skin care has increased due to wearing masks.

Motivation

Self skin tests save life

Skin cancer can often be diagnosed and evaluated from visual inspection.
Such technology speeds up diagnosis time, leaving more room for treatment and therefore saving lives.
- Student researchers at Cornell Tech (2018,08)

"**Self skin tests play an important role in early detection of skin cancer and other disease**. We recommend regular skin examination so that everyone can detect changes early."
- American Academy of Dermatology Chairman, Ken Tomecki

Several diseases like skin cancer can be detected by analysis of skin condition.

So, regular skin examination is helpful for healthcare.

Motivation

High cost of dermatology clinic

Type	Cost(KRW)
Maximum	18,900
Average	6,647
Minimum	1,500

The cost of examination of dermatology clinic(2022)

The cost of examination varies greatly from hospital to hospital.
It is generally expensive and burdensome.

Motivation

Objective self skin examination using
Smart Mirror at home

002
Implementation

Implementation

Back-End

- Check the user Account
- Data preprocessing ()
- Make model learn new training set when input is real result
- Manage the database

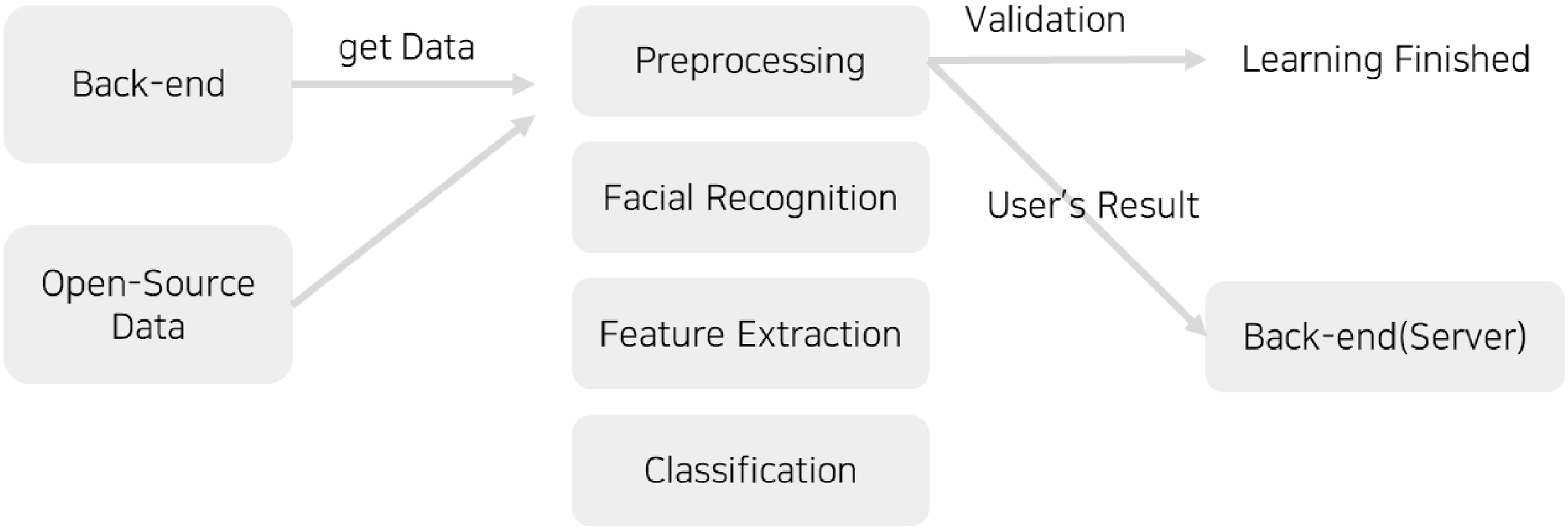
Implementation

AI for skin analysis

- Learning
  → Use Open-Souce data and personal data obtained from Smart Mirror
- Prediction
  → Using data, predict categorications of user’s skin and return the results to server
- Transmit user’s results
  → In order to store results’ data predicted through personal data, send result informations to server
- Communication with Front-End
  → Send results to application, which enables to check analysis of skin

Implementation

AI for skin analysis



Implementation

Front-End including Application

- Connection with the smart mirror in home
- Each user can check their own facial information with facial recognition
- User’s own facial health information
- User can enter more information about their facial health for improvement of AI.

Implementation

Front-End Demo Design

You can log in using smart mirror.

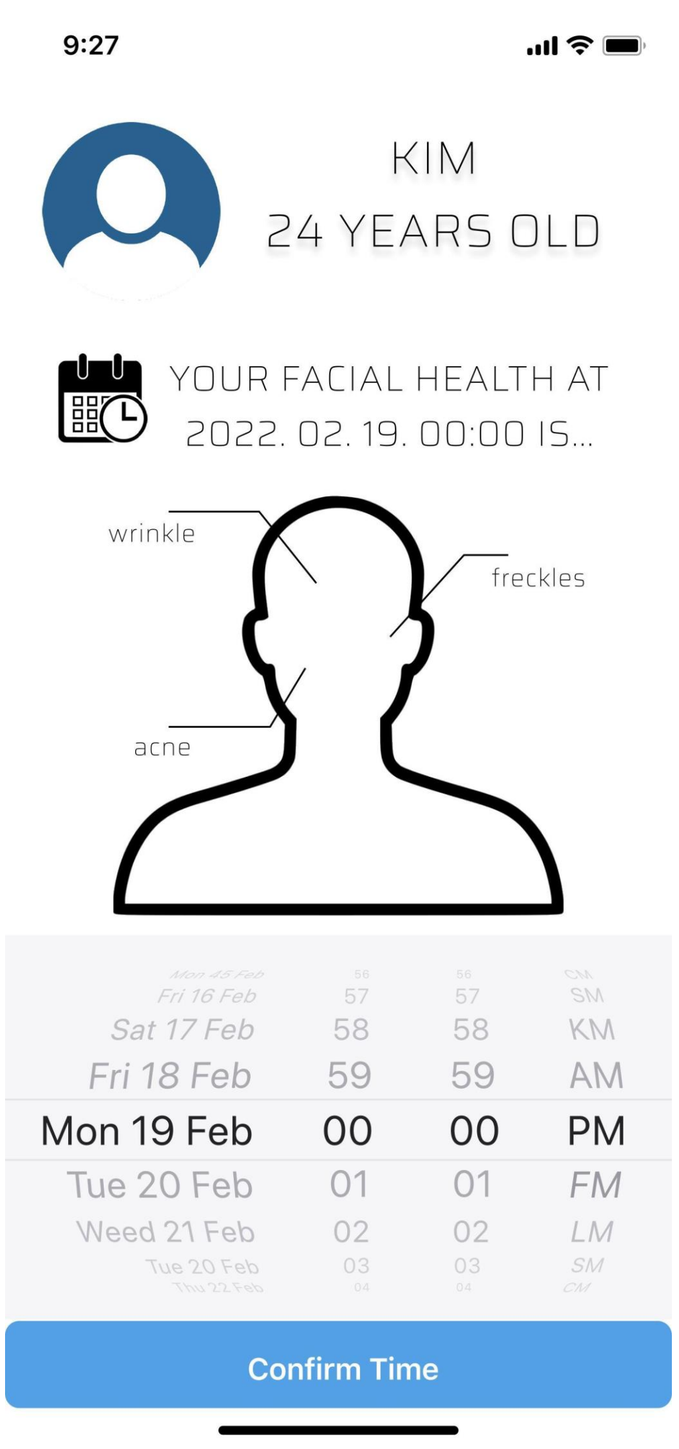
Implementation

Front-End Demo Design

After log in,
Get personal facial health data from server.

Implementation

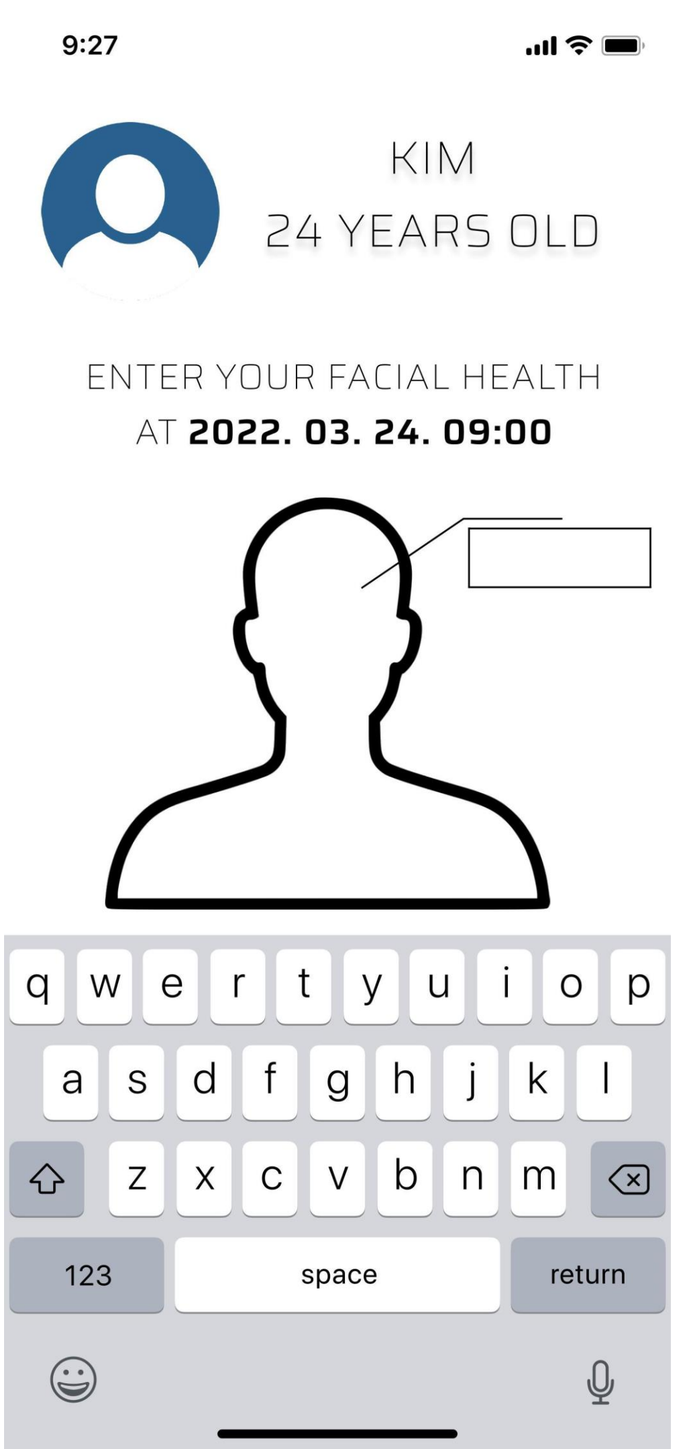
Front-End Demo Design



Inside the application, you can check history of facial health data.

Implementation

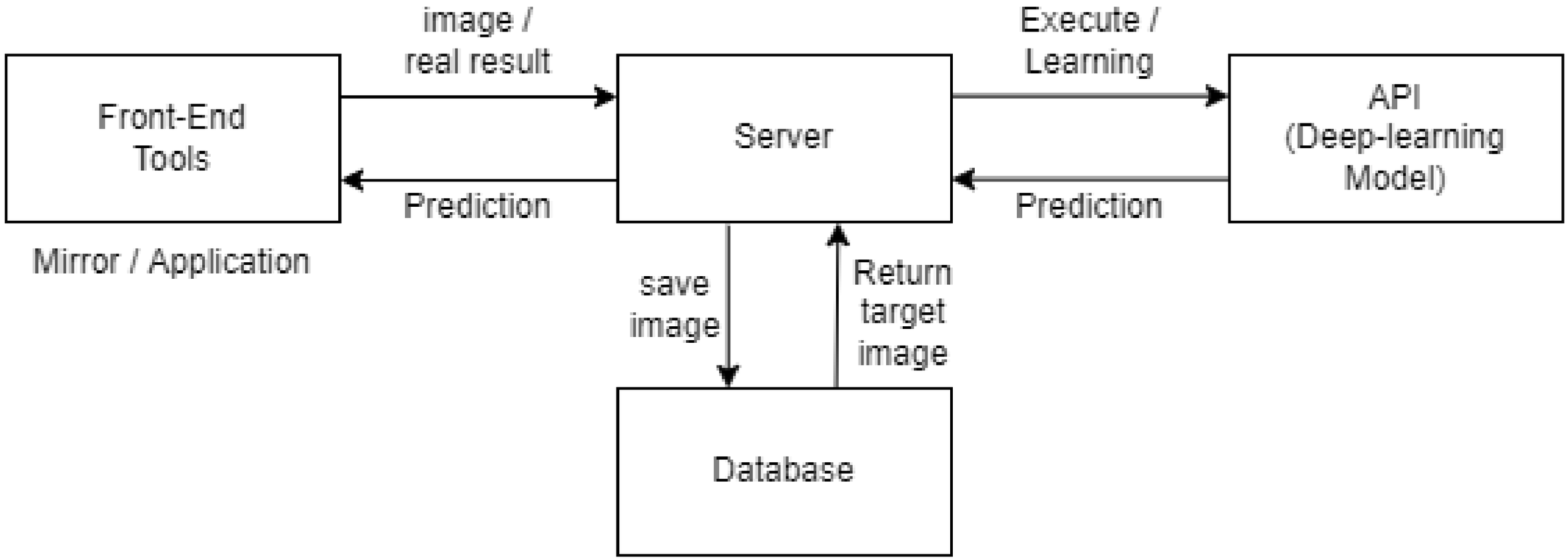
Front-End Demo Design



If you had skin disease before, you could add that information to improve accuracy.

Implementation

Overall Architecture



Implementation

Tools for implementation

For Collaboration

server

Database

CI/CD

For AI

Xcode

Android Studio

REST API

003
Plan

Plan

Member Role

AI

이재혁
설채은
백송현

Back-End

정민석
박민서

Mobile Application

조재훈
Vincent Pan

Plan

Project Schedule

Process	Mar-22				Apr-22				May-22				Jun-22			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Requirement Analysis																
Service Design																
Implementation(AI)																
Implementation(Back-End)																
Implementation(Front-End)																
Unit Testing																
Integration Testing																
System Testing																
Acceptance Testing																
Deployment																

004
Expectation

Expectation

Early Diagnosis & Health Care

Convenience

Time & Cost Saving

Thank you for listening!