Team 2

SKKUEM

Online RTS Exam Manager

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Overview

1 Overview
Background

Due to the Covid-19 Situation, Schools and Universities (including SKKU) open online classes.

Then, how is the exam going?

1

Overview

Currently using platforms

LearningX/Canvas/iCampus

For taking exams

Video conferencing apps

For Supervision - Ex) Webex

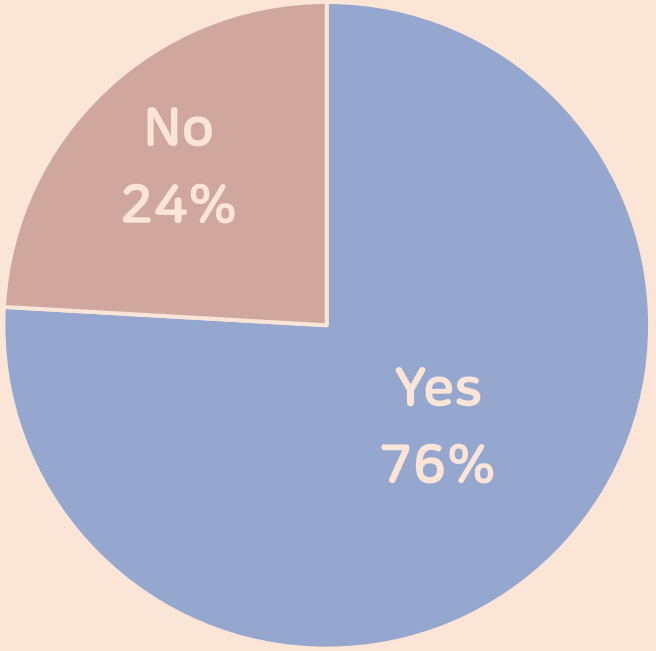
1

Overview

Market research

Q1 Have you ever participated in real-time online exams?

: Yes → Q2

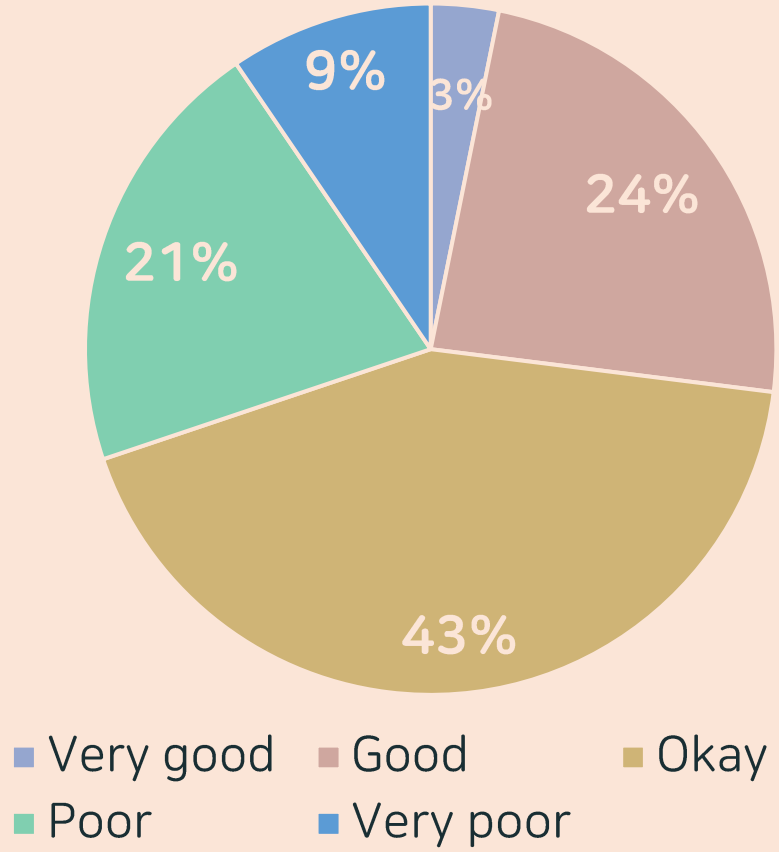


1 Overview

Market research

Q2 Are you satisfied with the real-time online exam?

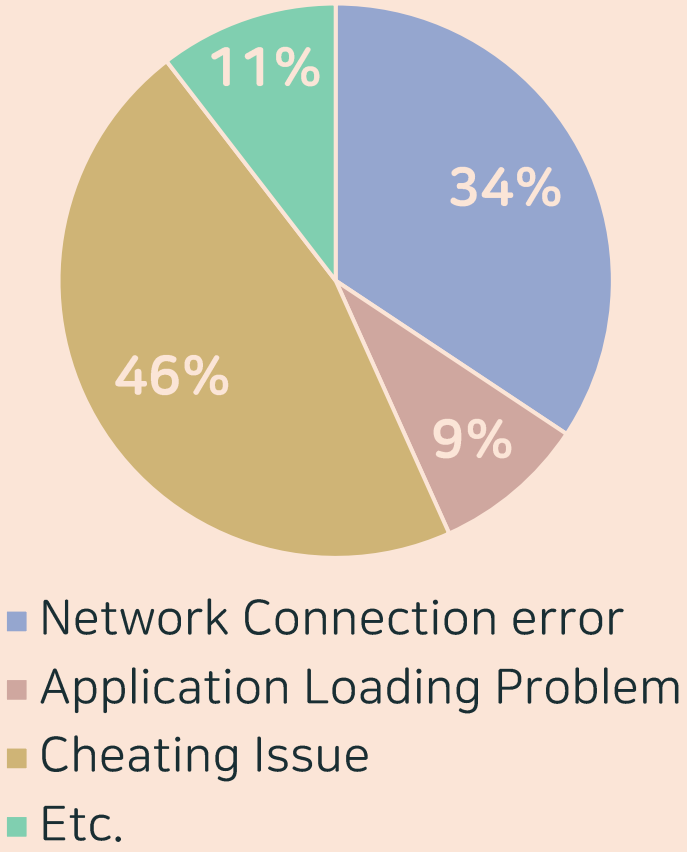
: Okay / Poor / Very poor → Q3



1 Overview

Market research

Q3 What inconvenience did you experience?



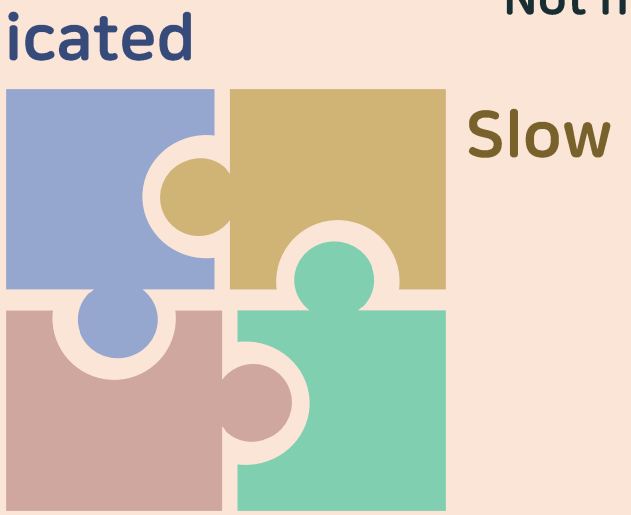
1 Overview
Problems

Use too **many resources**
Ex) RAM, Internet, etc.

Can be a **burden** to
device with **low specs**

Resource-hogging coming from **bloat**
Ex) videos of other students

Not necessary for exam



Lag and Webex **crashing**

Can **fail** the exam

Muted mic dilemma
Muted : easy to cheat
Unmuted : distracting

Can **circumvent monitoring** using a **blind spot**
Screen sharing + webcam is not enough

Strict Rules
Showing both monitor and body

Can cause **awkward position**
Hard to **place camera**

Goals

Final Goal

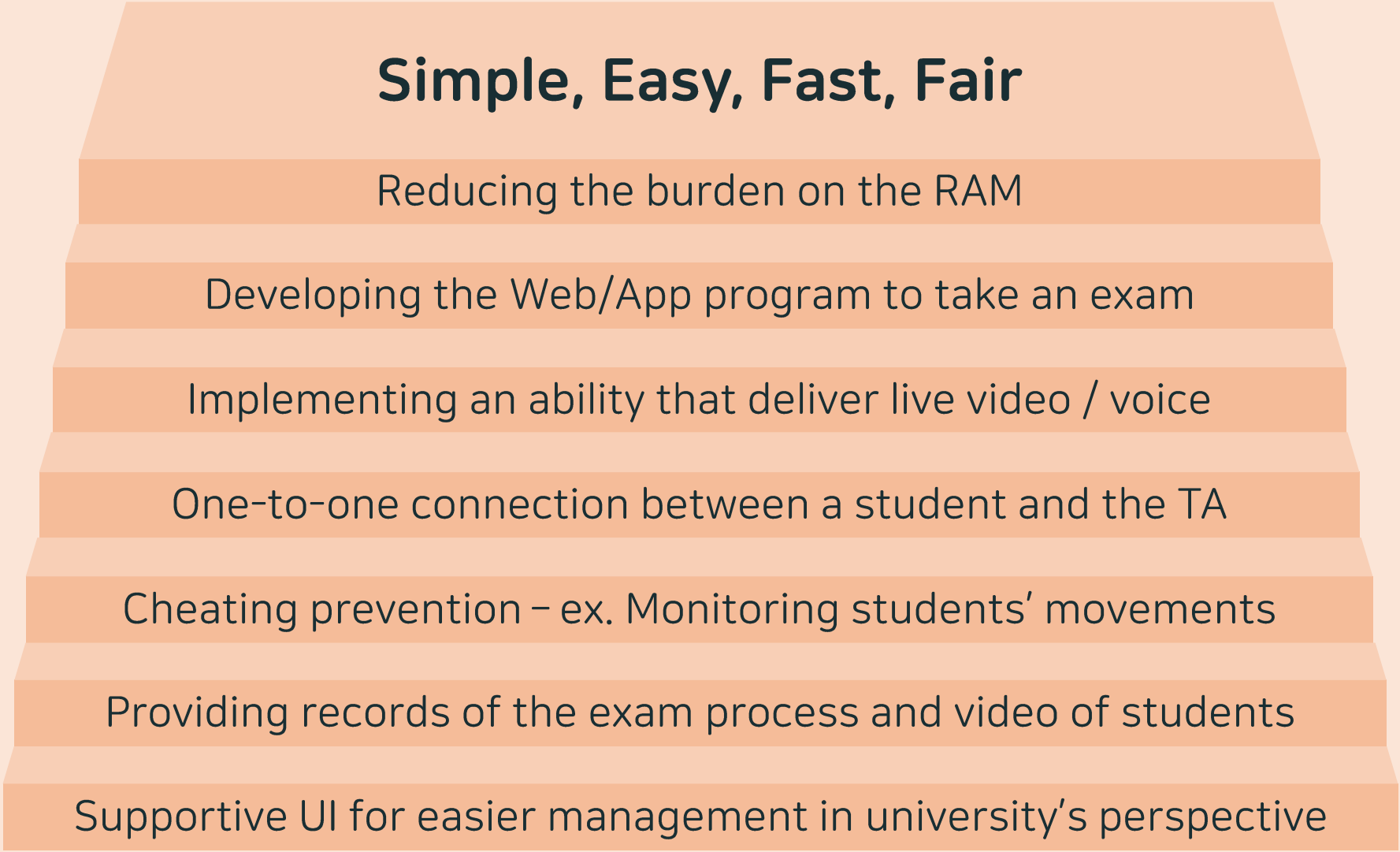
Simple, Easy, Fast, Fair

Online exam management application

2

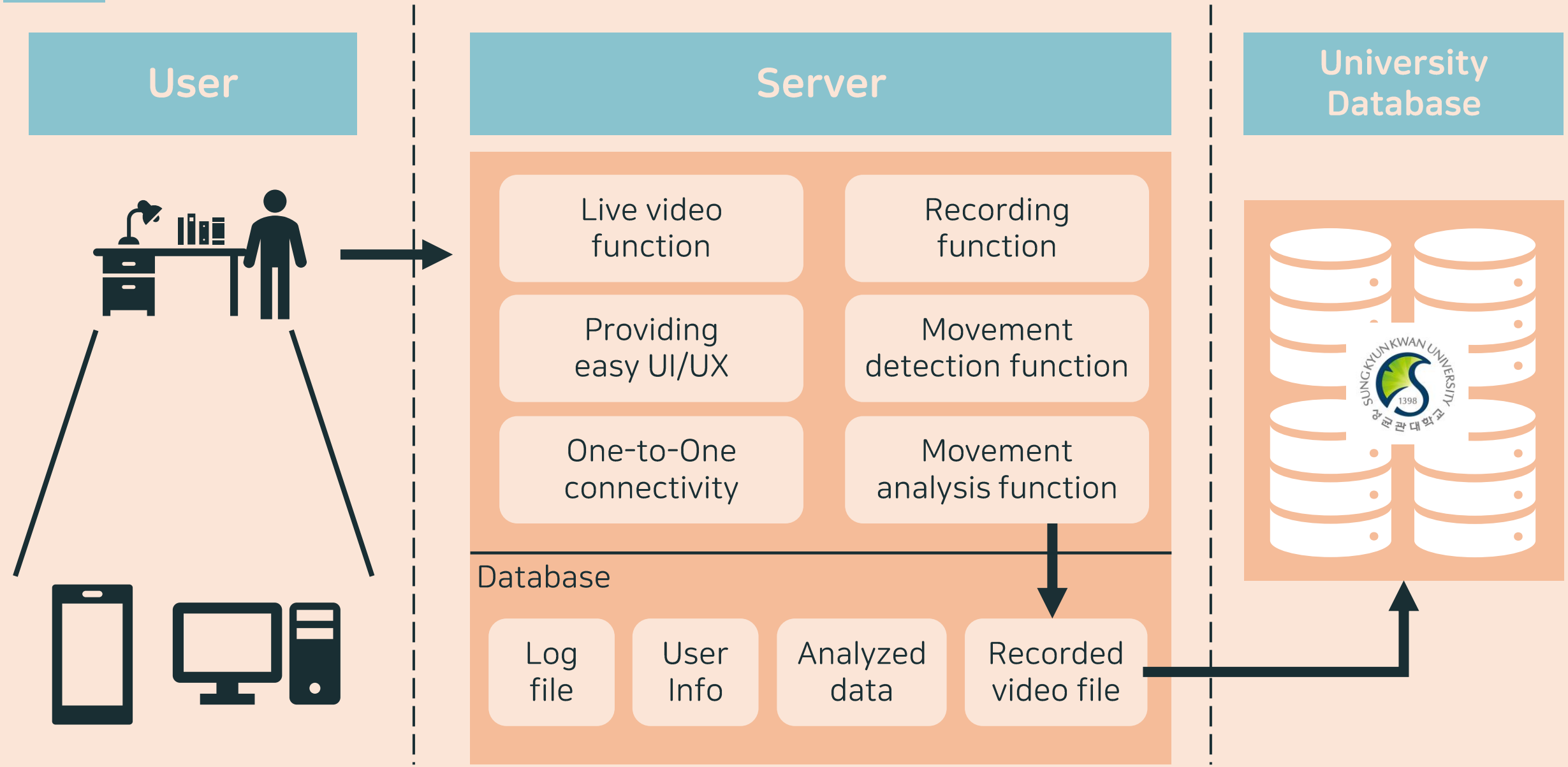
Goals

Detailed Goals

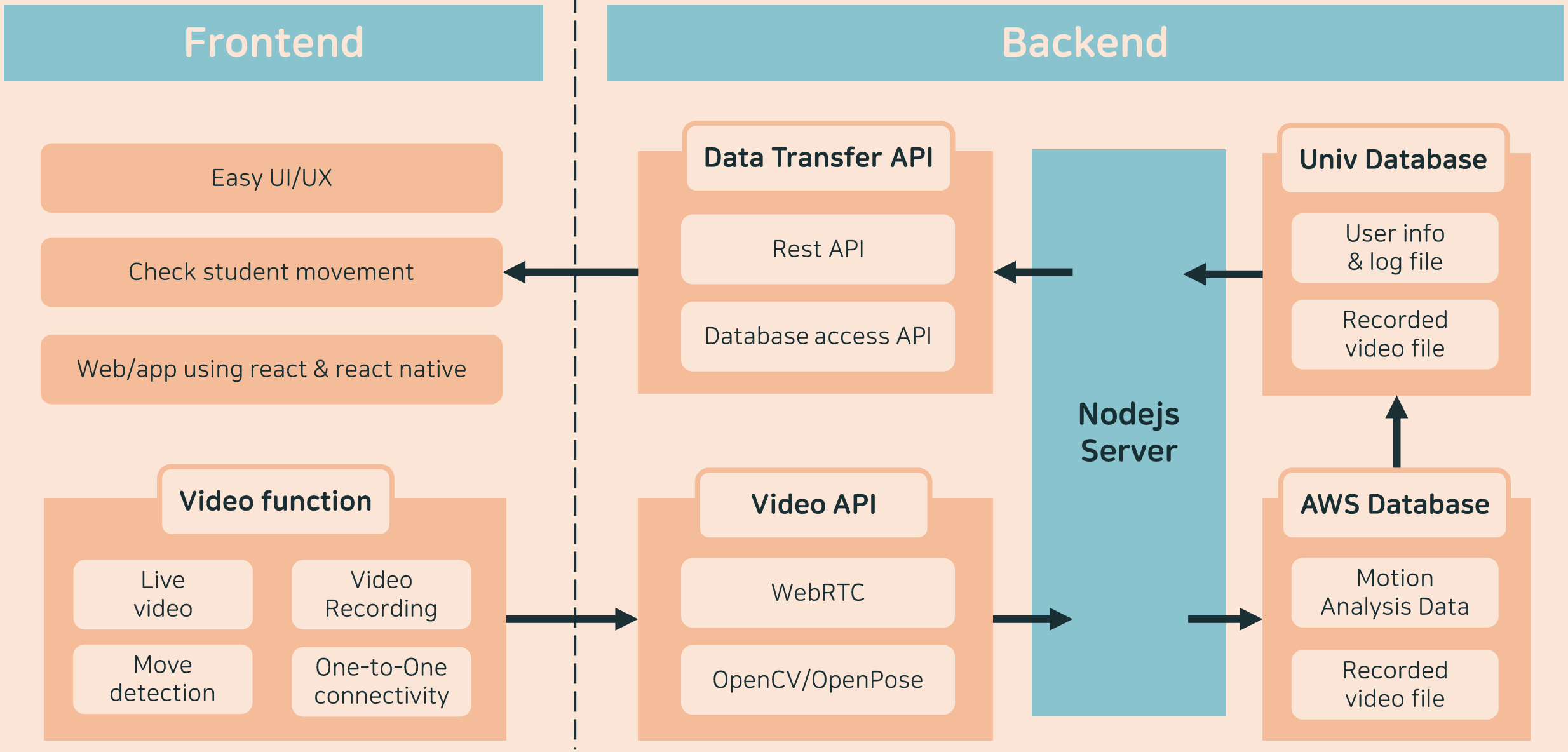


Methods

3 Methods
Service Flow



3 Methods
Service Architecture



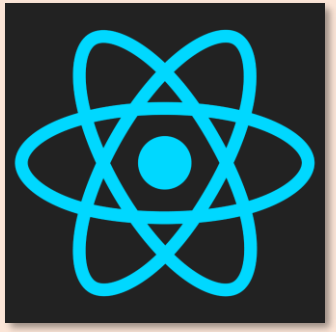
3 Methods
Frontend Tools

Adobe PhotoShop

Designing component

Figma

Designing UI/UX



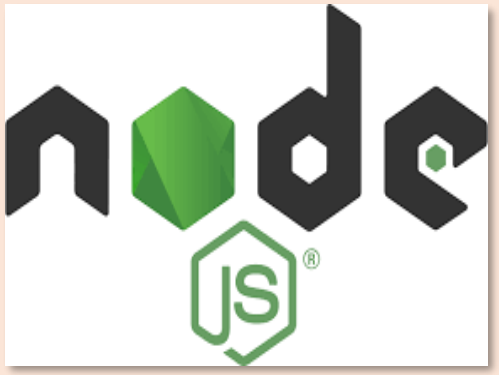
React & React Native

Web publishing and
Android/iOS developing

3 Methods
Backend Tools

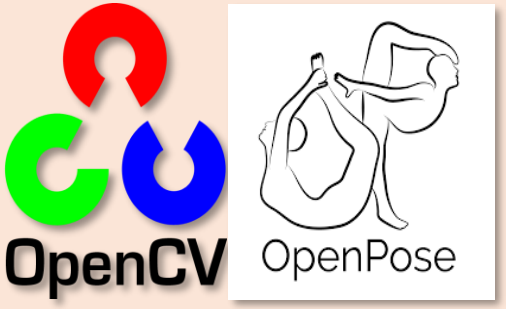
WebRTC

Developing video conferencing



Nodejs

Developing server



OpenCV & OpenPose

Analysing motion

AWS

Server deploying, Data collection and Management

Team & Strategy

4

Team & Strategy

Team formation

Kyunghee Ko

Android/iOS UX/UI development

Designing the Android/iOS structure

Hyungjun Joo

Design web app design

Designing the structure and design of the application

Luke

Android/iOS app development

Implementing Android/iOS app functions

Seungyeon Cho

Web app development

Implementing the function of the application

Jeongmin Lee

Computer-vision based developer

Developing a program that detects user behavior

Eunsu Kang

Network development

Developing a function that supports 1:1 connection between users and servers.

4

Team & Strategy

Planning Strategy

	3/22 ~3/28	3/29 ~4/4	4/5 ~4/11	4/12 ~4/18	4/19 ~4/25	4/26 ~5/2	5/3 ~5/9	5/10 ~5/16	5/17 ~5/23	5/24 ~5/30
Identification of customer groups										
Investigation of necessity										
customer requirement engineering										
specification of requirement										
design architecture of system										
Planning tests based on requirements and design										

4

Team & Strategy

Quantitative evaluation of goals

Indicator	Quantative	Importance
Survey on the convenience students after using the program	80%↑	20%
Survey on the convenience of assistants after using the program	80%↑	20%
The percentage of cheating activities that occurred after using the program	3%↓	30%
The percentage of ram usage compared to webex	70%↓	15%
The percentage of network error or application - force- quit compared to webex	50%↓	15%

Plan & Effect

5

Plan & Effect

Plans after development

Expanded application

Can take **offline exams** remotely
Ex) national examination, certified exam

Even if **Unavoidable / Unexpectable circumstances** occurs
Ex) accident, family funeral, natural disasters

Fix weak points

Development of smartphone's **camera**
→ Can see **wider range**

Development of **computer-vision** technology
→ Get **higher accuracy** of detecting strange behavior

5 Plan & Effect
Benefit

TAs & Professors

- **Easy to manage** students while taking exam
- **One-to-one** monitoring possible
- **Automatically save** recorded video during the test
- **No need to detect** strange behavior themselves

Students

- Can take exam on **offline mode** even if a network error occurs
- Don't have to **doubt** others' **cheating**
- **Reduce the burden** of online exams
- **Minimize** the function runs on students' application
- Don't worry about **RAM problem** - Ex) Turn off automatically
- **One-to-one** connection with an TA

Thank You