

Capstone Design Project

Final Presentation

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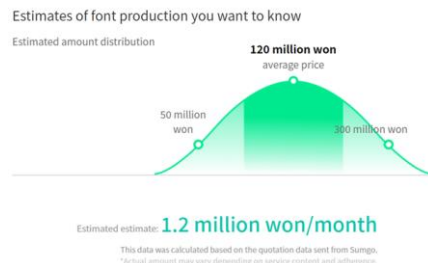
08. Evaluation

09. Demonstration

01 Objective

Motivation

[Previous font production]



Huge time and cost consume

[AI based font make service]



Clova

(Temporal Event)



온글앞°

(High cost)



Objective

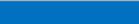








Focus on the customized Service
Provide a service where users can easily create own fonts

Overcome limitations of existing font production

Add entertainment point by mixing fonts from multiple users

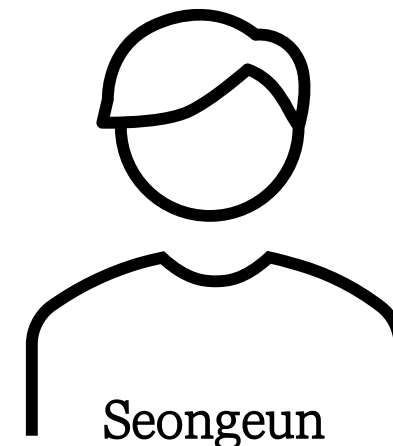
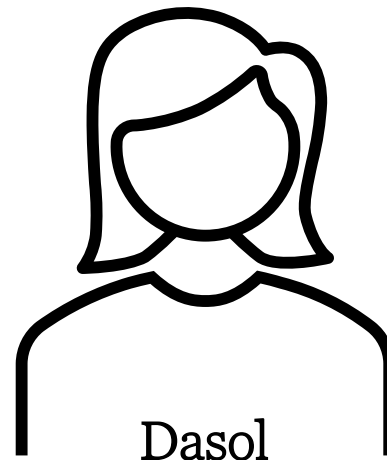
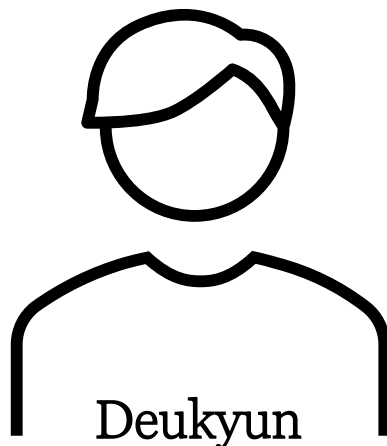
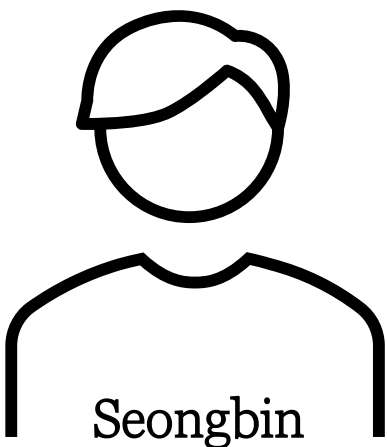
Schedule milestone

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	week1	Week2	Week3	Week4	Week5	Week6	Week7	Week8	Week9	Week10	Week11
	9/27-10/2	10/4-10/9	10/11-10/16	10/18-10/23	10/25-10/30	11/1-11/6	11/8-11/13	11/15-11/20	11/22-11/27	11/29-12/4	12/6-
Planning Project											
Frontend/ Backend											
Create web with React											
Build server with flask											
Connection											
Deep Learning Model											
Transform file format											
Apply DM-font											
Integration											

02

Role of each member



Implement on font generation by applying DM-font
Automate file format transformation process

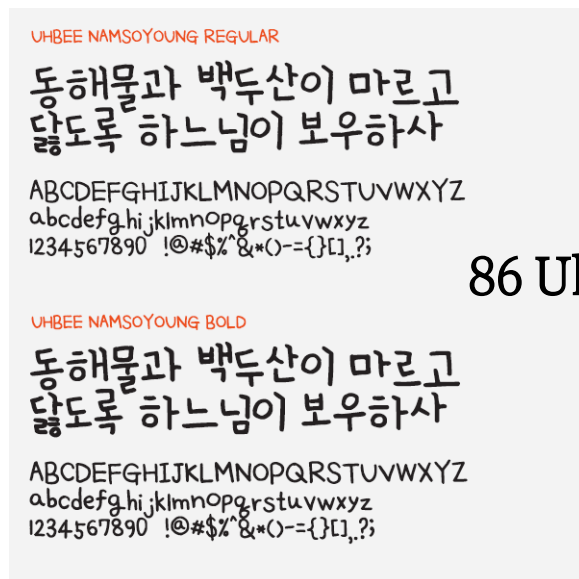
<FrontEnd and Backend>

Develop Web application using React
Connect Servers and Construct Backend(Flask, Nodejs)

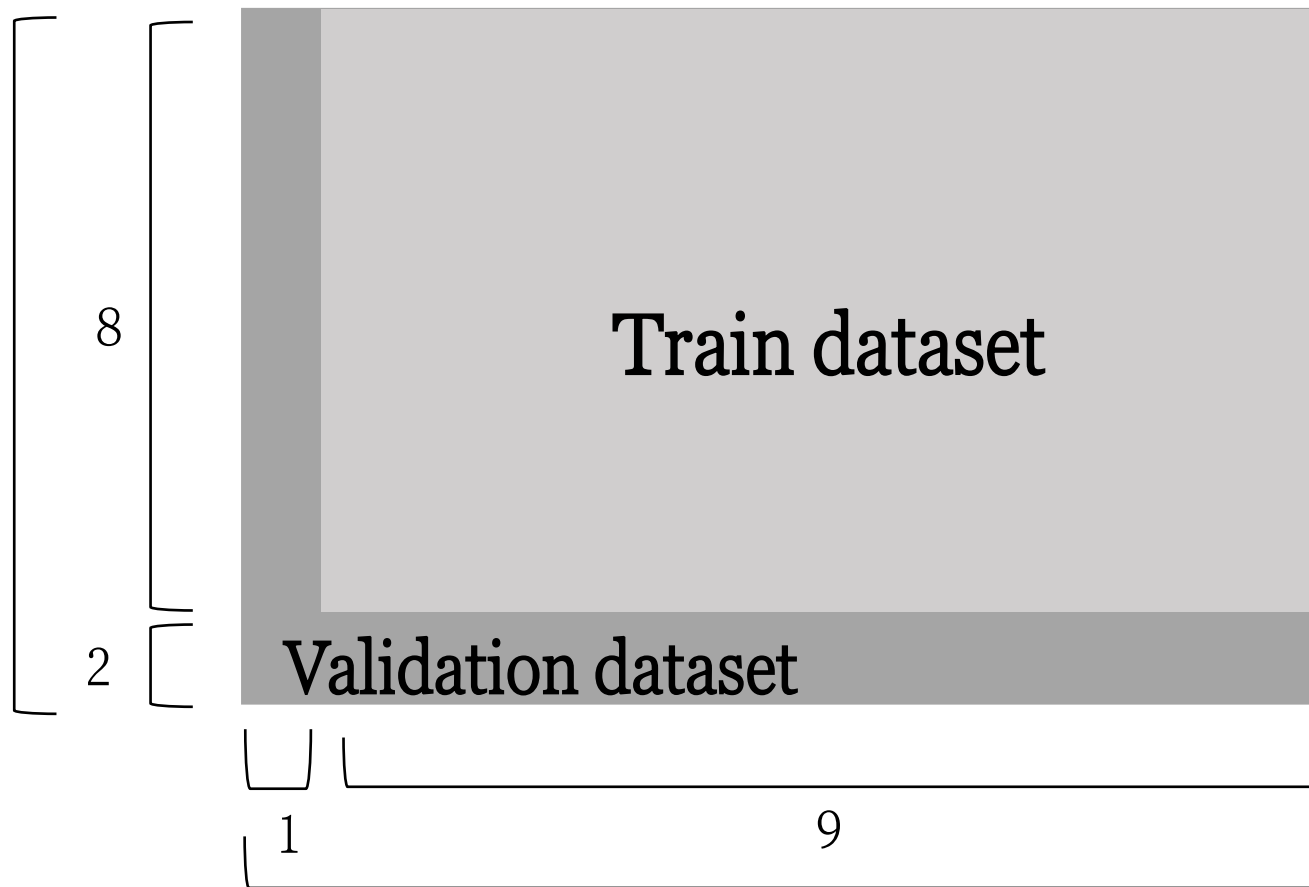
<Integration>

Integrate the codes of each functions and build an executable environment

[Dataset]



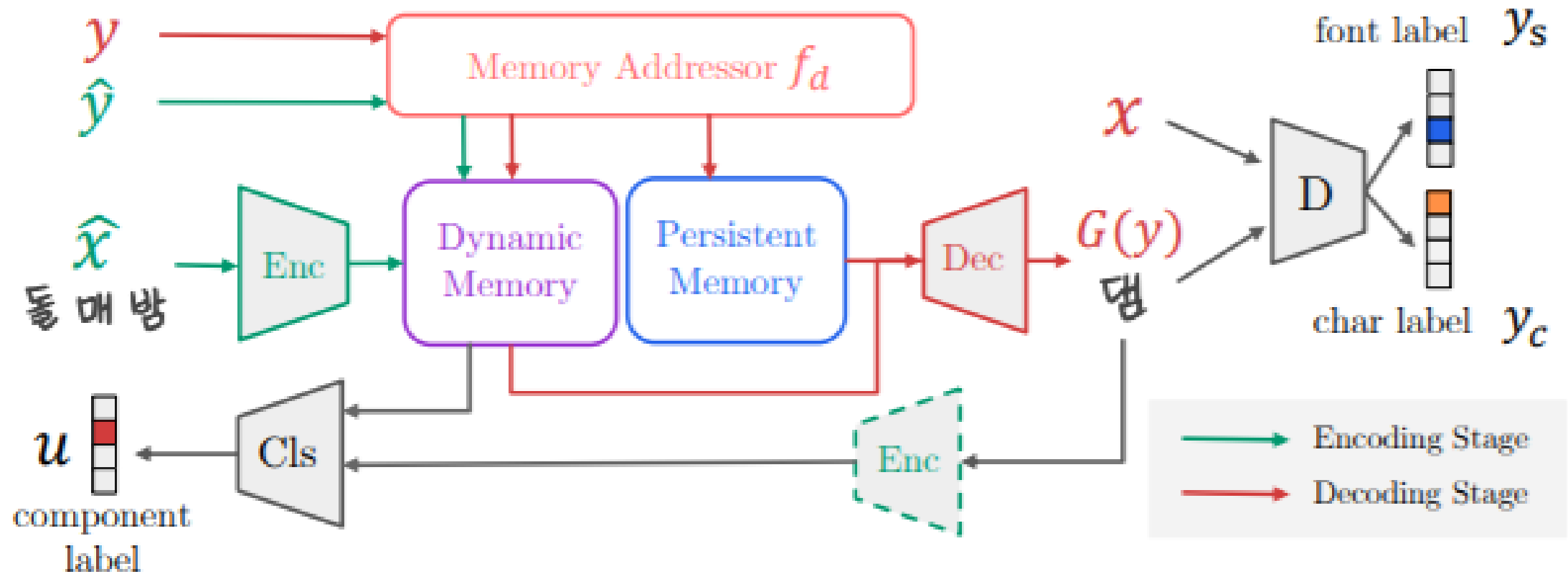
86 Uhbee Font

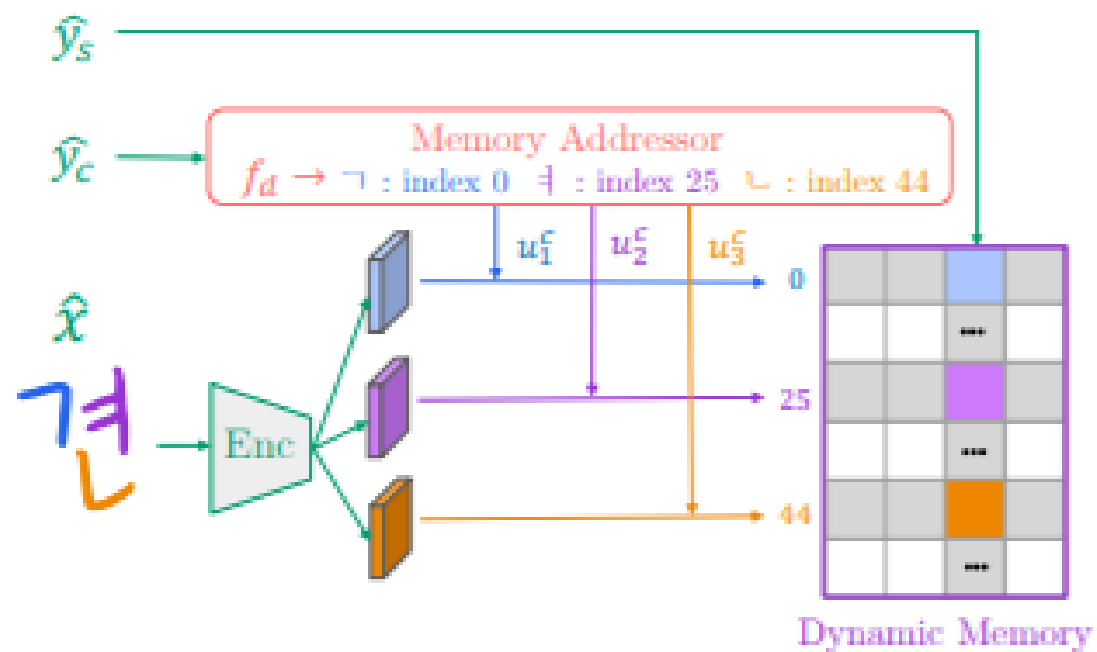


2,448 widely-used Korean glyphs

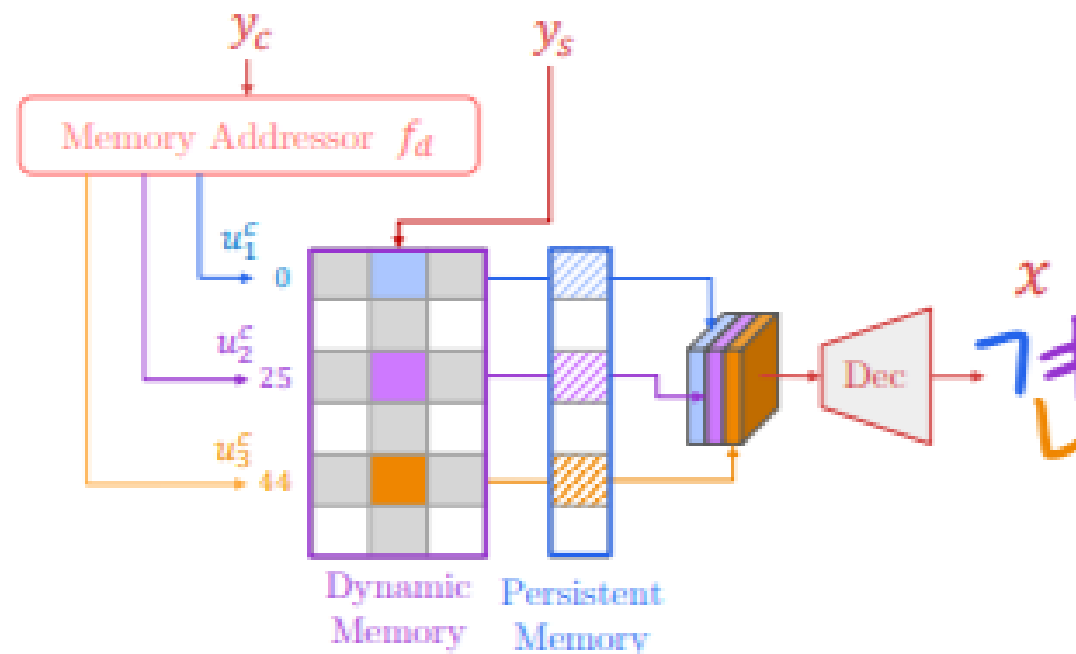
가, 각, 겹, 나, 납, 농, 땀, 등, 되 ..

[Architecture overview]





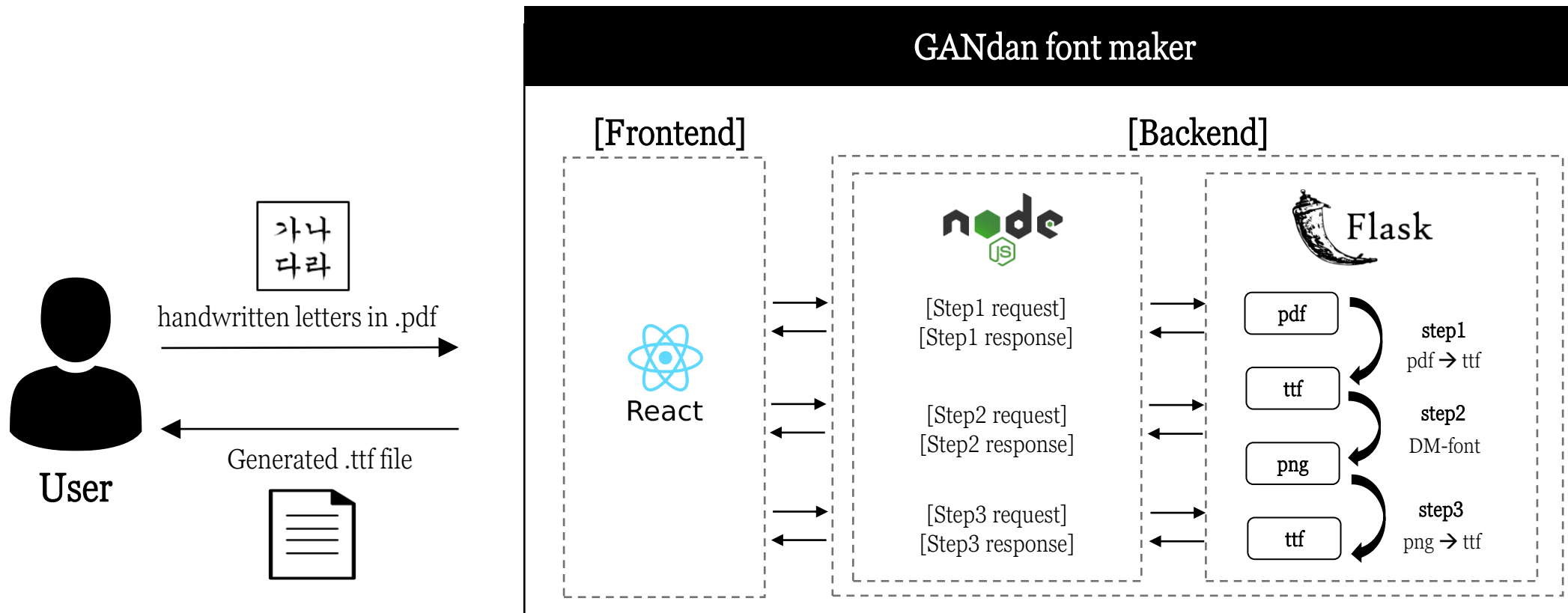
[Encoding phase details]



[Decoding phase details]

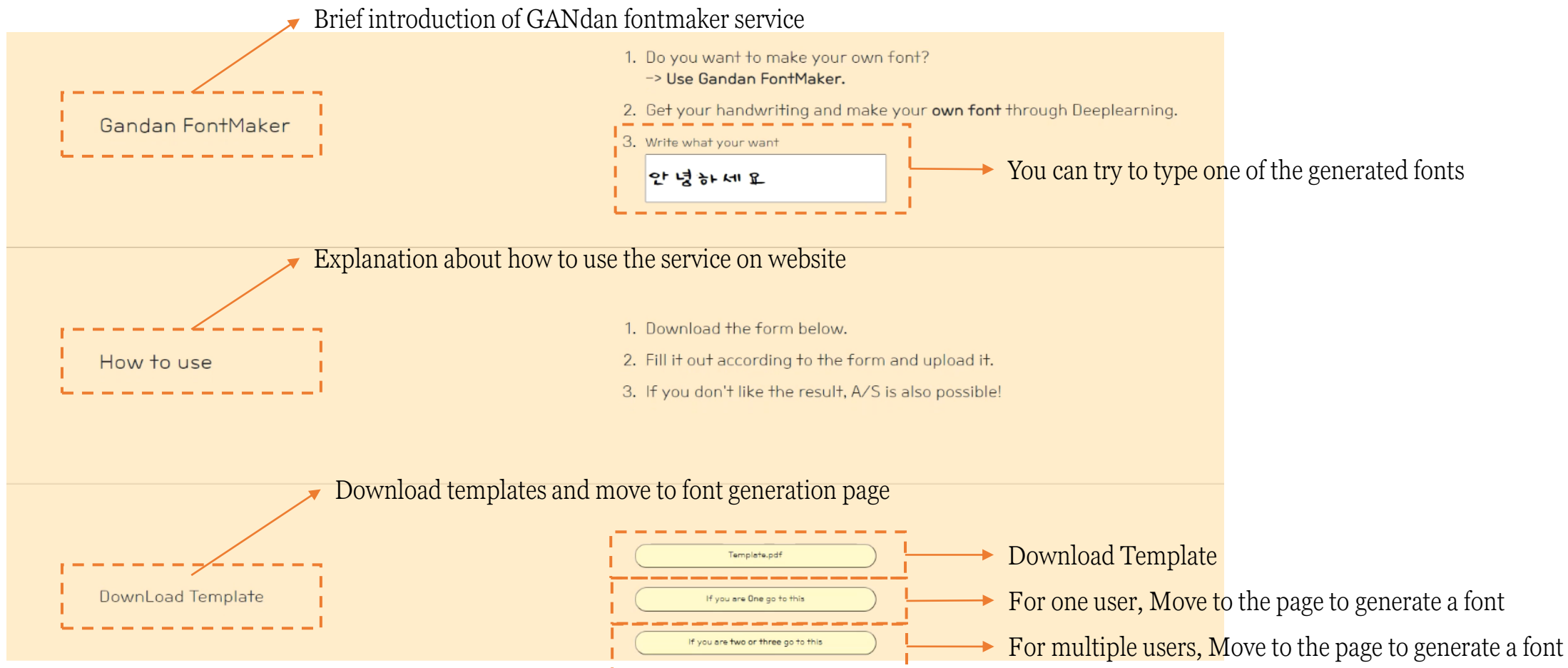
04

Overall Structure

**[steps in Flask server]**

- Step1: Split user input(pdf file) to pngs and generate .ttf for DM-font input
- Step2: Apply DM-font → png files generated
- Step3: Generate the actual usable ttf file for a user

Main Page



GANdan fontmaker with multiple users

Submit your template

FONT NAME

E-mail

The number of handwriting(2 or 3) ☒ 2 ☐ 3

Upload File and Choose the gan of consonant respectively * jpeg

파일 선택	<input type="text" value="seongbin.pdf"/>	<input checked="" type="checkbox"/> initial <input type="checkbox"/> medial <input type="checkbox"/> final
파일 선택	<input type="text" value="hyenni.pdf"/>	<input type="checkbox"/> initial <input checked="" type="checkbox"/> medial <input checked="" type="checkbox"/> final
파일 선택	<input type="text" value="선택된 파일 없음"/>	<input type="checkbox"/> initial <input type="checkbox"/> medial <input type="checkbox"/> final

Initial, medial, final

Submit

amam556@naver.com's font is generating...

png -> ttf font model running... png -> ttf

amam556@naver.com's font is generating...

png -> ttf font model running... png -> ttf

amam556@naver.com's font is generating...

png -> ttf font model running... png -> ttf

04 Final Design

GANdan fontmaker with one user + AS service

Submit your template

FONT NAME

seongbin

E-mail

amam556@naver.com

Upload File and Choose the gan of consonant respectively * .jpeg

파일 선택

sungbin.pdf

Submit

Submit

amam556@naver.com's font is generating...

png -> ttf font model running... png -> ttf

다람쥐헌젓바
퀴에타고파요

Do you want to give AS?

YES NO

Select whether to get an AS service or not

If yes, move to AS service page

If no, create a link to download .ttf file right away

A/S Service

Select the consonants that you want to revise

Initial	ㄱ	ㅋ	ㆁ	ㄷ	ㅌ	ㄴ	ㄷ	ㄹ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㅇ
Media	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ
final	ㄱ	ㅋ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ	ㄷ	ㅌ

Get

Write the letters below and submit pdf including them.

하학학학한한한한할할

→ 하학학학한한한한할할

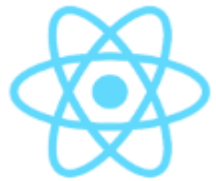
Upload File and Choose the gan of consonant respectively * jpeg

파일 선택

seongbin.pdf

Submit

[Frontend Part]



React

React: Javascript Library

1. Create Webpages

- Get users' information and return the result
- Use Bootstrap(Navbar, Button ...)

2. Connect with NodeJs

- Make information in JSON format
- > Axios(Post Method to NodeJs)

[Backend Part]



Nodejs

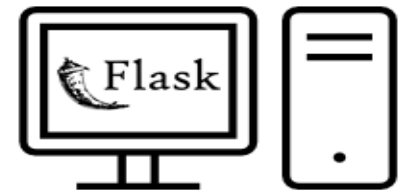
Nodejs: server based on Javascript

1. Get template and user data from React

Template includes the handwritten words of user

2. Network of Nodejs and Flask

Axios(Nodejs) and RestAPI(Flask)



Flask

Flask: server based on Python

1. Execute AI model

[Font generation process]

Step1: pdf -> png -> svg -> ttf

Step2: Model

Step3: png -> svg -> ttf

2. Save font result and post to Nodejs

05

Implementation – model

Mix handwritings of multiple users



Seongbin's handwriting

Result of font mixing

Hyenni's handwriting

05

Implementation - model

AS service to improve quality

[Before]



Add 10 glyphs with 'ㅎ'

[After]



1. Develop service to mix multiple users' font

To attract users' interest and fun, create a font by combining handwritings of multiple users
The characteristics of the several handwritings are appropriately mixed on the font.

2. Change quality improvement method

Since ensemble technique isn't appropriate to apply on our model, improve performance by adding more glyphs of input
Supply more data for poor quality components at initial, medial, final respectively

3. Several API call among React, Nodejs and Flask

Apply several API call to increase user interface and check where the error occurred
Inform progress steps to the user through communication between React ↔ Nodejs ↔ Flask

1. After Service for a mixed font with multiple users

In the case of a font made by one person's handwriting, AS service is possible
However, due to limitations of the model, AS service is impossible for fonts of multiple users

2. Deployment

As we utilize various external application, the program is tailored to operate in a local environment
Also, it does not work normally when one is processed, and another request is made before the former is finished.

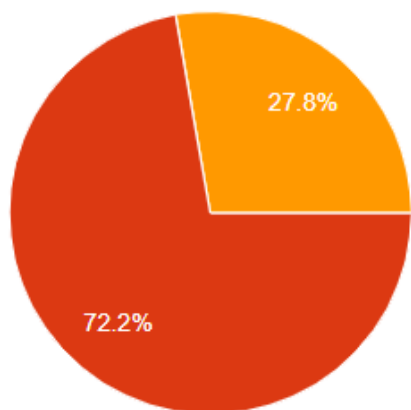
Human Evaluation – User Satisfaction Survey

The number of responses of survey: 18

The recruitment route: Everytime – Sungkyunkwan University community

Amount of template letters to fill in

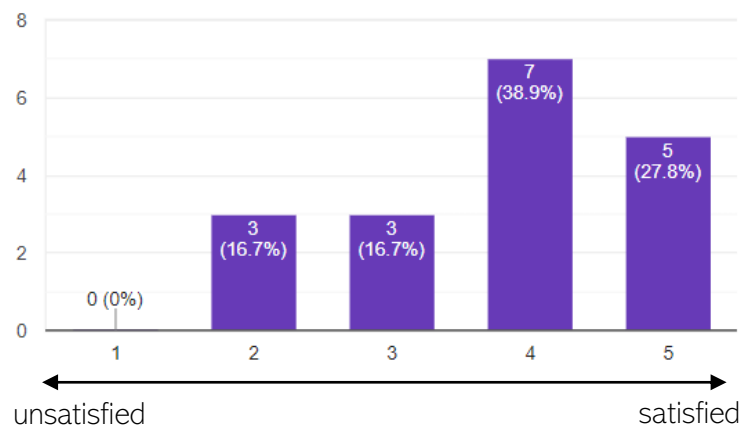
18 responses



- 부담스러울 정도로 많이 요구했다 = too many
- 적당한 양을 요구했다 = normal
- 더 받아도 될만큼 적었다 = a few

Are you satisfied with provided font?

18 responses



Feel free to write your opinions on the fonts you received!

완전 맘에 듭니다!! ㅎㅎ 한번 너무 얇게 써서 다시 작성해야 했는데도 잘 해주셔서 너무 좋았어요~ 특별한 폰트를 얻은 것 같아 기뻐요!

우선 흥미로운 프로젝트 감사드립니다. 바쁘실텐데 빠르게 작업해주셔서 놀랐어요! 글자 쓸 때는 처음에는 욕심이 생겨서 예쁘게 적어야지 했다가 100글자마다 심혈을 기울이기에는 좀 어려웠네요. 하지만 더 예쁜 글씨, 정확한 폰트를 위해서라면 100글자 쓸 수 있습니다.....

1. 겹받침 글씨가 잘 보이지 않아요. 뭉개지는 듯한 느낌? (ㅃ, ㅆ 등)
2. PPT에서는 문제 없이 사용할 수 있었습니다. 그런데 포토샵에서 사용하려 했을 때는 띄어쓰기 대신 네모 표기가 되더라고요. 그리고 폰트 이름도 이상하게 표기가 되었어요ㅠ
3. 프로젝트 자체는 너무 재밌었어요. 제 글씨체와 완벽히 일치하지는 않지만 어딜가도 없는 나만의 폰트라는 건 즐거운 일이잖아요. 이런 프로젝트에 참여할 수 있어서 즐거웠습니다. 감사합니다. 프로젝트 화이팅이에요!

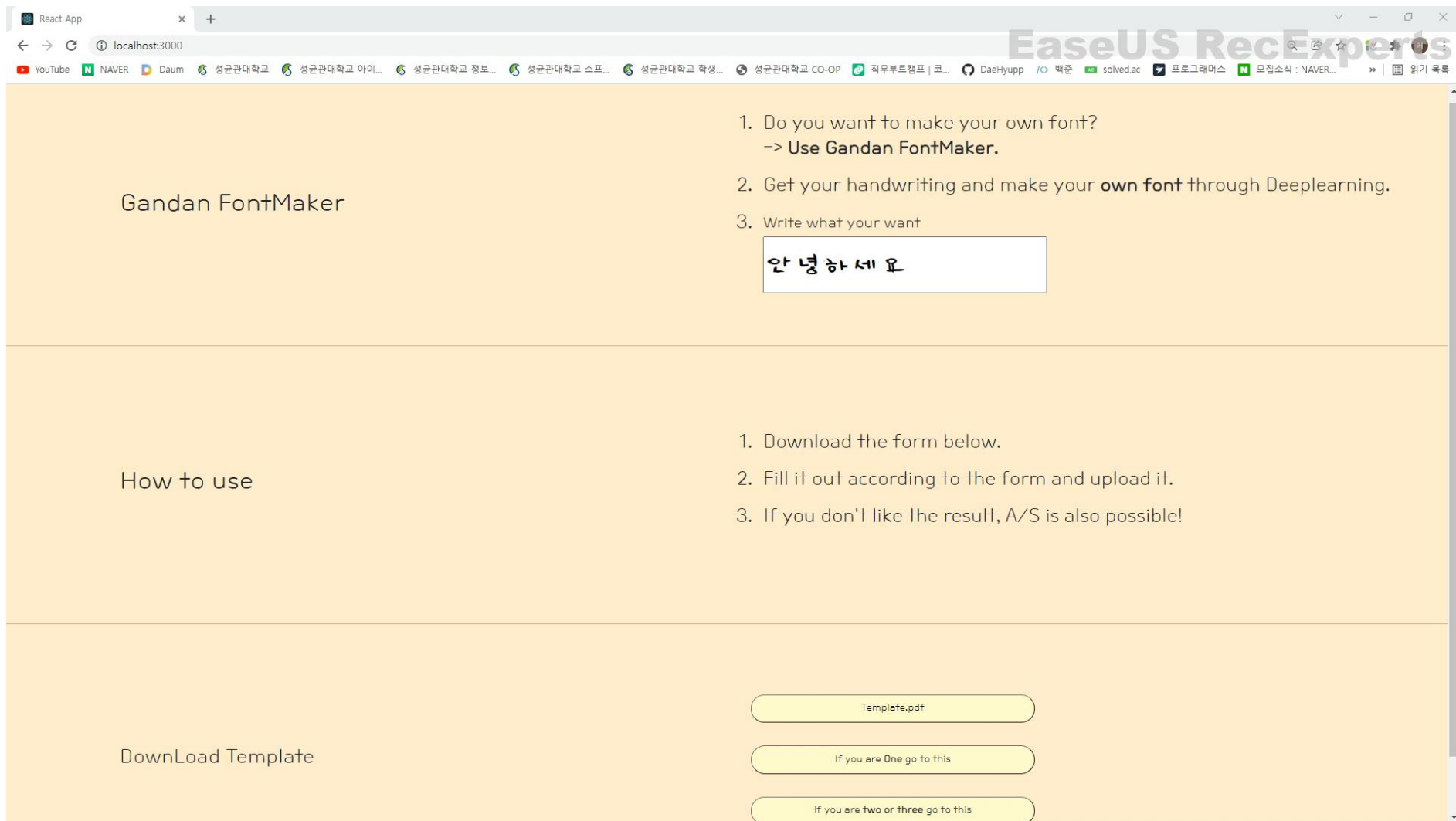
110자로 저만의 폰트를 만들 수 있었던 좋은 기회였습니다 ㅎㅎ 제 글씨체와 많이 유사해서 놀랐어요!

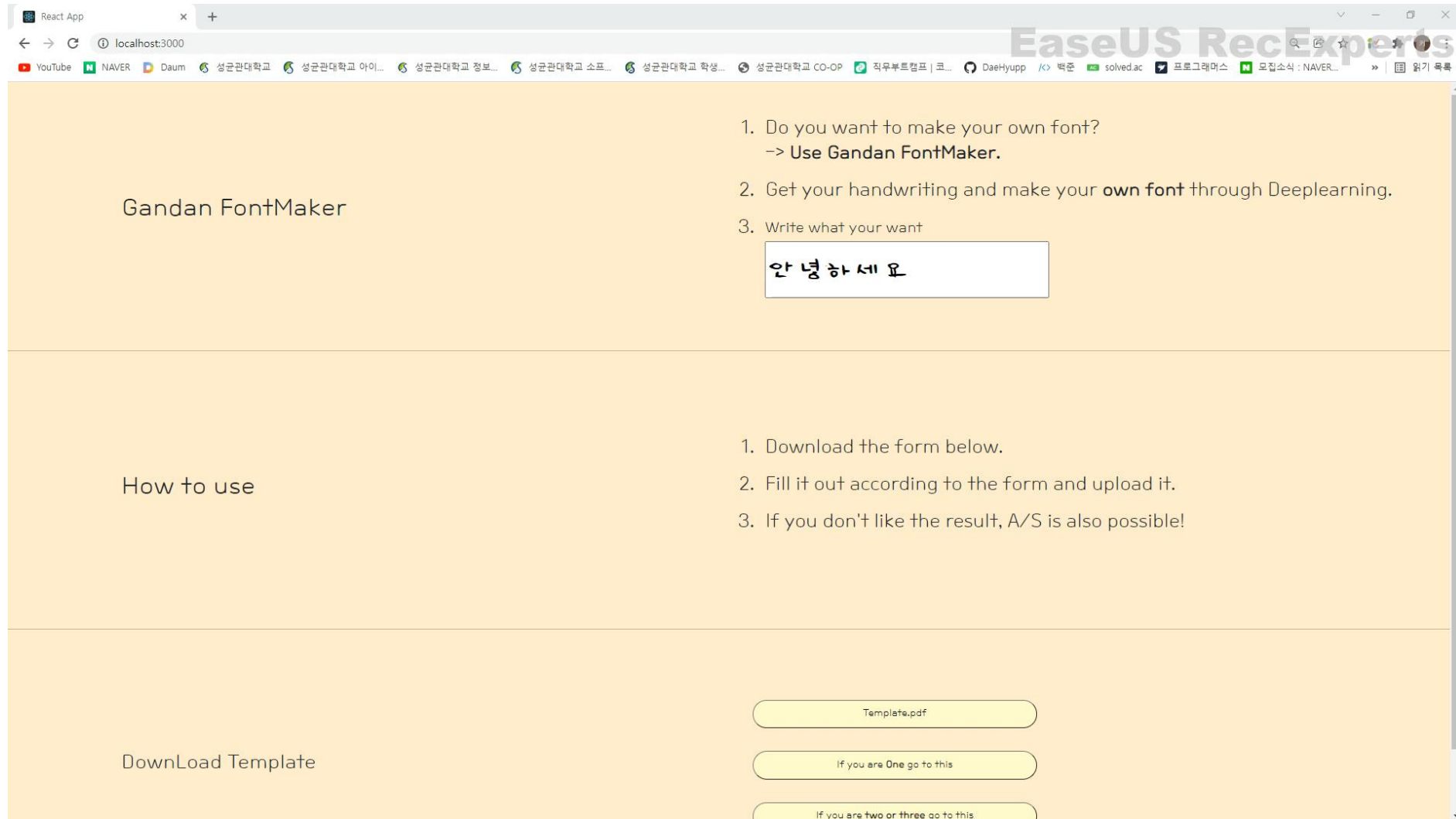
폰트 귀엽게 잘나왔어요! 번거로우셨을텐데 여러번 봐주셔서 정말 감사합니다 ㅎㅎㅎ 제출해서 적은 글자랑은 또 다른 느낌이었는데 특히 ㅎ 들어간 단어들이 되게 귀엽게 나와서 만족합니다 ㅎㅎㅎ 기존에 있던 폰트를 쓰는게 아닌 제가 적은 글씨가 폰트화가 됐다는 점에서 되게 특별하고 좋은 경험이었고 나중에 따로 공부해서 폰트한번 제작해보고싶네요 ㅎㅎㅎ 감사합니다!!

살면서 처음 써보는 글자들도 많아서 조금 힘들었지만 괜찮았어요.

받은 폰트는 손글씨 같아서 귀여워요.
몇몇 글자는 획이 지워졌거나 열룩이 묻어나오는 경우가 있지만 전체적으로 만족스러워요.

시간 나면 더 많은 글자를 입력해서 숫자나 자주 쓰이는 기호를 포함해서 더 많은 글자를 지원하는 폰트를 만들어보고 싶어요.





Thank you