포팅메뉴얼

팀 C102	소정현(팀장), 김대현, 노은영, 서은지, 임상은, 전윤희
담당 컨설턴트	박세영 컨설턴트
프로젝트 기간	2022.09.10 ~ 2022.10.21 [자율, 6주]

목차

1. 프로젝트 기술 스택

이슈 관리

- Jira

형상 관리

- Gitlab

커뮤니케이션

- Mattermost
- Notion
- Webex

개발 환경

OS

- Window 10

IDE

- IntelliJ 7.5.1
- Visual Studio Code
- UI/UX : Figma

Database

- MySQL 8.0.31
- Redis 7.0.5

Server

- AWS EC2(Ubuntu 20.04.5 LTS)

Backend

- Java 1.8
- Spring Boot 2.7.5
- Spring Data JPA 2.7.5
- Spring Security 2.7.5

Frontend

- HTML5
- Scss 1.55.0
- React 18.2.0
- TypeScript 4.6.4
- react-redux 8.0.4
- react-router-dom 6.4.2
- reduxjs/tookit 1.8.6
- vite 3.1.0

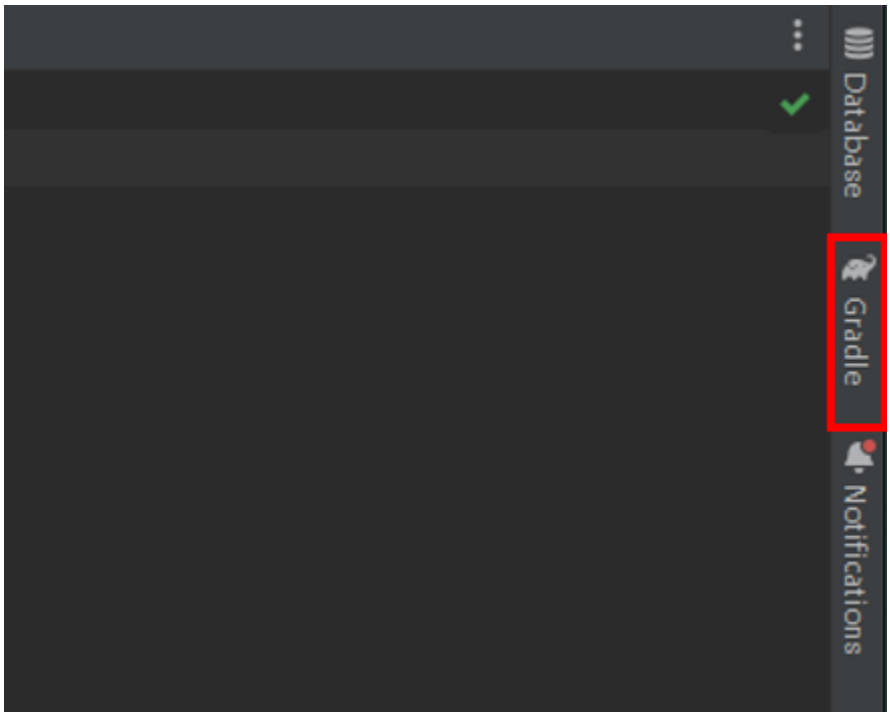
Deployment

- Docker 20.10.21
- Jenkins 2.361.1
- Docker Compose 1.24.1
- Nginx 1.18.0

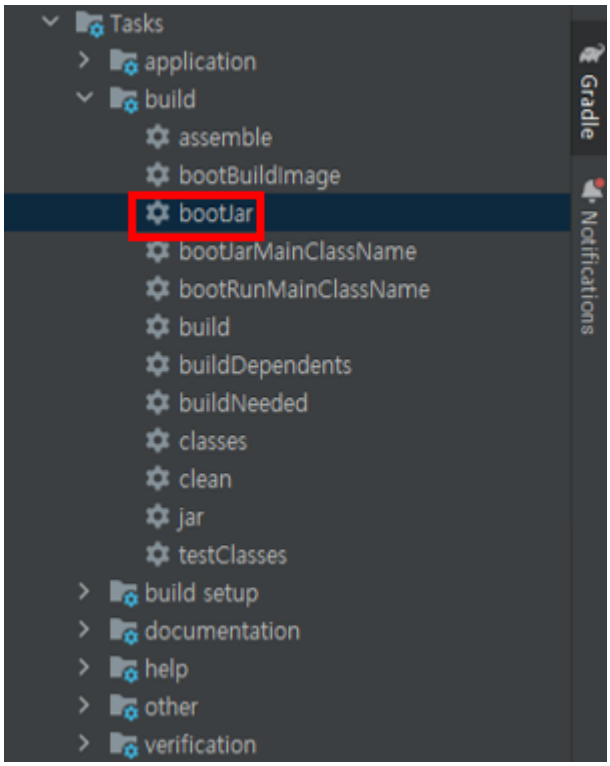
2. 빌드 상세

Backend

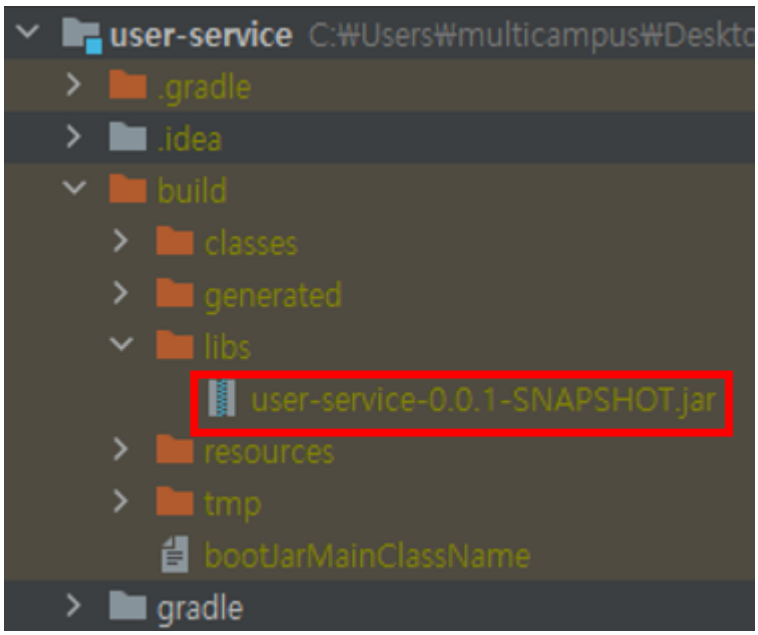
- 화면 우측 Gradle 클릭



- 프로젝트 하위 Tasks > build > bootjar 실행



- build > libs에 생성된 jar 확인



Frontend

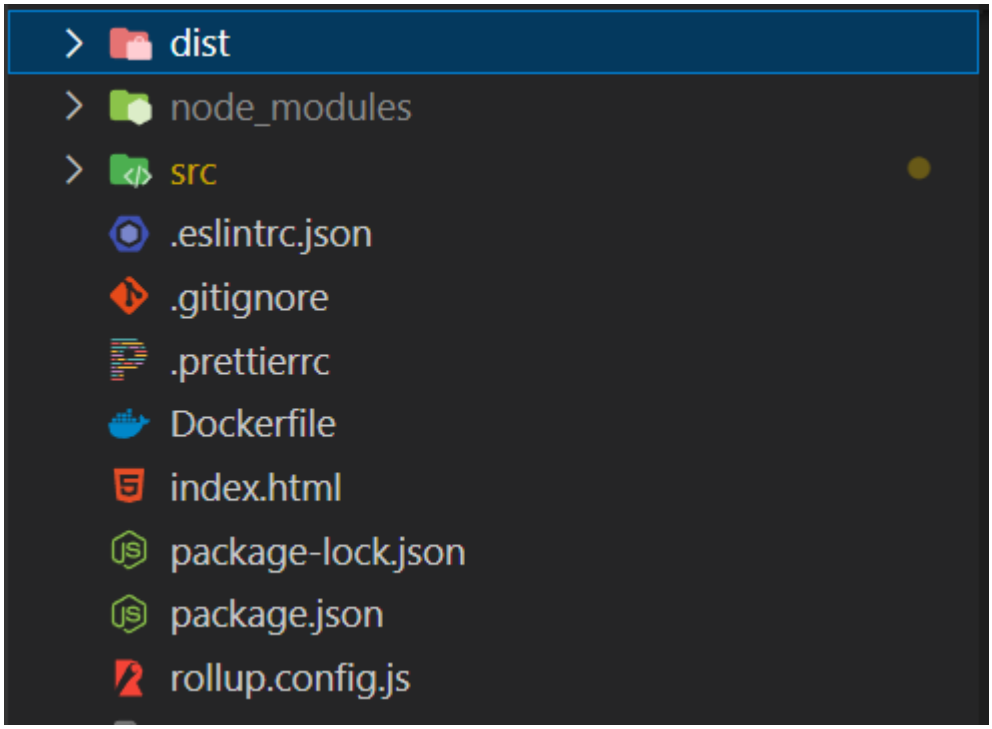
- node_modules를 위한 install

```
npm install
```

- 빌드하기

```
npm run build
```

- root > dist에 빌드 산출물 존재



3. EC2 설정

초기 설정

```
sudo apt update
sudo apt upgrade
sudo apt install build-essential
```

timezone 설정

```
sudo rm /etc/localtime
sudo ln -s /usr/share/zoneinfo/Asia/Seoul /etc/localtime
```

Docker 설치

```
# 설치
sudo apt update
sudo apt install apt-transport-https ca-certificates curl software-properties-common
sudo wget -qO- https://get.docker.com/ | sh
# 서비스 실행 및 부팅 시 자동 실행
sudo systemctl start docker
sudo systemctl enable docker
```

```
# Docker 그룹에 계정 추가
sudo usermod -aG docker ${USER} # ${USER}에 ubuntu
sudo systemctl restart docker
```

Docker Compose 설치

```
# 설치
sudo curl -L "https://github.com/docker/compose/releases/download/1.24.1/docker-compos
e-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
# 권한 설정
sudo chmod +x /usr/local/bin/docker-compose
# 심볼릭 링크 설정
sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
```

Nginx 설치

```
sudo apt update
sudo apt install nginx
```

SSL 인증서

이메일, 서비스 약관 동의 후 https 설정 질문에 http 연결을 https로 redirect 시키도록 설정합니다.

```
sudo add-apt-repository ppa:certbot/certbot
sudo apt install python3-certbot-nginx
sudo certbot --nginx -d oh-marking.com k7c102.p.ssafy.io
```

/ect/nginx/sites-available/default

```
server {
        listen 80 default_server;
        listen [::]:80 default_server;

        root /var/www/html;

        index index.html index.htm index.nginx-debian.html;

        server_name _;

        # 모든 http 연결은 https로 리다이렉트
        location / {
                try_files $uri $uri/ =404;
```

```
        }
}

server {
        root /var/www/html;

        index index.html index.htm index.nginx-debian.html;
    server_name oh-marking.com k7c102.p.ssafy.io; # managed by Certbot


        location / {
                charset utf-8;
                proxy_redirect off;
                proxy_set_header X-Real-Ip $remote_addr;
                proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                proxy_set_header X-Forwarded-Proto $scheme;
                proxy_set_header X-NginX-Proxy true;
                client_max_body_size 10M;
                proxy_pass http://oh-marking.com:3000;
        }

        location /login {
                charset utf-8;
                proxy_redirect off;
                proxy_set_header X-Real-Ip $remote_addr;
                proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                proxy_set_header X-Forwarded-Proto $scheme;
                proxy_set_header X-NginX-Proxy true;
                client_max_body_size 10M;
                proxy_pass http://oh-marking.com:8082/login;

        }

        location /logout {
                charset utf-8;
                proxy_redirect off;
                proxy_set_header X-Real-Ip $remote_addr;
                proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                proxy_set_header X-Forwarded-Proto $scheme;
                proxy_set_header X-NginX-Proxy true;
                client_max_body_size 10M;
                proxy_pass http://oh-marking.com:8082/logout;

        }

        location /logic {
                charset utf-8;
                proxy_redirect off;
                proxy_set_header X-Real-Ip $remote_addr;
                proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                proxy_set_header X-Forwarded-Proto $scheme;
                proxy_set_header X-NginX-Proxy true;
                client_max_body_size 10M;
                proxy_pass http://oh-marking.com:8000/logic;
        }

        location /user {
                charset utf-8;
```

```
                proxy_redirect off;
                proxy_set_header X-Real-Ip $remote_addr;
                proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
                proxy_set_header X-Forwarded-Proto $scheme;
                proxy_set_header X-NginX-Proxy true;
                client_max_body_size 10M;
                proxy_pass http://oh-marking.com:8000/user;
        }

    listen [::]:443 ssl ipv6only=on; # managed by Certbot
    listen 443 ssl; # managed by Certbot
    ssl_certificate /etc/letsencrypt/live/k7c102.p.ssafy.io/fullchain.pem; # managed b
y Certbot
    ssl_certificate_key /etc/letsencrypt/live/k7c102.p.ssafy.io/privkey.pem; # managed
by Certbot
    include /etc/letsencrypt/options-ssl-nginx.conf; # managed by Certbot
    ssl_dhparam /etc/letsencrypt/ssl-dhparams.pem; # managed by Certbot



}
server {
    if ($host = oh-marking.com) {
        return 301 https://$host$request_uri;
    } # managed by Certbot


    if ($host = k7c102.p.ssafy.io) {
        return 301 https://$host$request_uri;
    } # managed by Certbot


        listen 80 ;
        listen [::]:80 ;
    server_name oh-marking.com k7c102.p.ssafy.io;
    return 404; # managed by Certbot
}
```

Jenkins 컨테이너 실행

- /home/jenkins와 컨테이너의 /var/jenkins_home 볼륨 연결
- /home/ubuntu/.ssh와 컨테이너의 /root/.ssh 볼륨 연결
- /var/run/docker.sock와 컨테이너의 /var/run/docker.sock 연결(컨테이너 바깥의 docker을 jenkins 컨테이너 속 docker에서도 사용할 수 있도록 합니다.)

```
docker pull jenkins/jenkins:lts
docker run -d --name jenkins -p 8080:8080 -p 50000:50000 -v /home/jenkins:/var/jenkins
_home -v /home/ubuntu/.ssh:/root/.ssh -v /var/run/docker.sock:/var/run/docker.sock
```

4. 배포 특이사항

젠킨스에 프론트엔드와 백엔드 아이템을 각각 파이프라인으로 등록하고, GitLab webhook을 이용해 각 브랜치에 변동사항이 push될 때마다 자동으로 배포되도록 구성합니다.
Docker Compose를 이용하여 Docker 컨테이너 관리를 용이하게 하였습니다.

Docker-compose.yml

```
version: '3'

services:
  redis_user:
    container_name: redis_user
    image: redis
    command: redis-server --requirepass <password> --port 6380
    ports:
      - "6380:6380"
    networks:
      - back_net

  mysql_user:
    container_name: mysql_user
    image: mysql
    environment:
      MYSQL_DATABASE: ohmarking
      MYSQL_ROOT_HOST: '%'
      MYSQL_ROOT_PASSWORD: <password>
      TZ: 'Asia/Seoul'
    ports:
      - "3307:3307"
    command:
      - "mysqld"
      - "--character-set-server=utf8mb4"
      - "--collation-server=utf8mb4_unicode_ci"
    networks:
      - back_net

  mysql_logic:
    container_name: mysql_logic
    image: mysql
    environment:
      MYSQL_DATABASE: ohmarking
      MYSQL_ROOT_HOST: '%'
      MYSQL_ROOT_PASSWORD: <password>
      TZ: 'Asia/Seoul'
    ports:
      - "3308:3308"
    command:
      - "mysqld"
      - "--character-set-server=utf8mb4"
      - "--collation-server=utf8mb4_unicode_ci"
    networks:
      - back_net
```

```
  discovery-service:
    container_name: discovery-service
    image: discovery-image
    ports:
      - "8761:8761"
    depends_on:
      - mysql_user
      - mysql_logic
      - redis_user
    networks:
      - back_net

  gateway-service:
    container_name: gateway-service
    image: gateway-image
    ports:
      - "8000:8000"
    depends_on:
      - discovery-service
    networks:
      - back_net

  user-service:
    container_name: user-service
    image: user-image
    ports:
      - "8082:8082"
    restart: always
    environment:
      SPRING_DATASOURCE_URL: jdbc:mysql://mysql_user:3307/ohmarking?useSSL=false&serve
rTimezon=Asia/Seoul&useUnicode=true&characterEncoding=UTF-8
      SPRING_DATASOURCE_USERNAME: "root"
      SPRING_DATASOURCE_PASSWORD: "<password>"
    depends_on:
      - gateway-service
    networks:
      - back_net

  business-service:
    container_name: business-service
    image: business-image
    ports:
      - "8083:8083"
    restart: always
    environment:
      SPRING_DATASOURCE_URL: jdbc:mysql://mysql_logic:3308/ohmarking?useSSL=false&serv
erTimezon=Asia/Seoul&useUnicode=true&characterEncoding=UTF-8
      SPRING_DATASOURCE_USERNAME: "root"
      SPRING_DATASOURCE_PASSWORD: "<password>"
    depends_on:
      - user-service
    networks:
      - back_net

networks:
  back_net:
```

Backend

Jenkinsfile

```
pipeline {
    agent any

  tools {
    gradle 'gradle'
  }

  stages {
    stage('Prepare') {
      steps {
        checkout scm
      }
      post {
          success {
            echo " prepare stage success"
          }
          failure {
            echo "prepare stage failed"
          }
      }
    }
    stage('Backend Build') {
      steps {
        dir('discoveryservice') {
          echo "here is discovery-service"
          // 기존에 실행중이던 컨테이너를 중지하고, 컨테이너와 이미지를 삭제합니다.
          sh 'docker stop discovery-service || true && docker rm discovery-service ||
 true && docker rmi discovery-image || true'
          // 프로젝트를 빌드합니다.
          sh 'gradle clean build -x test -b build.gradle'
          // 도커 이미지를 빌드합니다.
          sh 'docker build -t discovery-image .'
        }
        dir('./api-gateway'){
          echo "here is api-gateway"
          sh 'docker stop gateway-service || true && docker rm gateway-service || true
&& docker rmi gateway-image || true'
          sh 'gradle clean build -x test -b build.gradle'
          sh 'docker build -t gateway-image .'
        }
        dir('./user-service'){
          echo "here is user-service"
          sh 'docker stop user-service || true && docker rm user-service || true && do
cker rmi user-image || true'
          sh 'gradle clean build -x test -b build.gradle'
          sh 'docker build -t user-image .'
        }
        dir('./business'){
          echo "here is business-service"
```

```
          sh 'docker stop business-service || true && docker rm business-service || tr
ue && docker rmi business-image || true'
          sh 'gradle clean build -x test -b build.gradle'
          sh 'docker build -t business-image .'
        }
      }
      post {
        always {
          echo "build stage complete"
        }
        failure {
          echo "build failed"
        }
        success {
          echo "build success"
        }
      }
    }

    stage('Deploy') {
      steps {
        echo "deploy start"
        // docker-compose.yml이 있는 위치로 이동합니다.
        sh 'cd /'
        // docker-compose를 실행합니다.
        sh 'docker-compose up -d'
      }
      post {
        always {
          echo "deploy stage complete"
        }
        failure {
          echo "deploy failed"
        }
        success {
          echo "deploy success"
        }
      }
    }
  }
}
```

Dockerfile

```
FROM openjdk:8-jdk-alpine
VOLUME /tmp
ARG JAR_FILE=build/libs/<프로젝트 명>-0.0.1-SNAPSHOT.jar
COPY ${JAR_FILE} app.jar
EXPOSE <포트번호>
ENTRYPOINT ["java","-jar","/app.jar"]
```

Frontend

Jenkinsfile

```
pipeline {
    agent any

  stages {
    stage('Prepare') {
      steps {
        checkout scm
      }
      post {
          success {
            echo " prepare stage success"
          }
          failure {
            echo "prepare stage failed"
          }
      }
    }
   stage('Frontend') {
      steps {
        dir('frontend'){
          echo "here is frontend dir"
          // 기존에 실행중이던 컨테이너를 중지 및 삭제합니다.
          sh 'docker stop frontend || true && docker rm frontend || true'
          // 기존 이미지를 삭제합니다.
          sh 'docker rmi frontend-image || true'
          // 도커 이미지를 빌드합니다.
          sh 'docker build -t frontend-image .'
          // 도커 컨테이너를 실행합니다.
          sh 'docker run -d --name frontend -p 3000:3000 frontend-image'
        }
      }
      post {
        always {
          echo "frontend stage complete"
        }
        failure {
          echo "failed"
        }
        success {
          echo "success"
        }
      }
    }
  }
}
```

Dockerfile

```
FROM node:16.16.0-alpine

WORKDIR "/usr/src/app"
```

```
COPY package.json ./
RUN npm install
COPY ./ ./
CMD  ["npm","run","dev"]
```

5. 외부 서비스

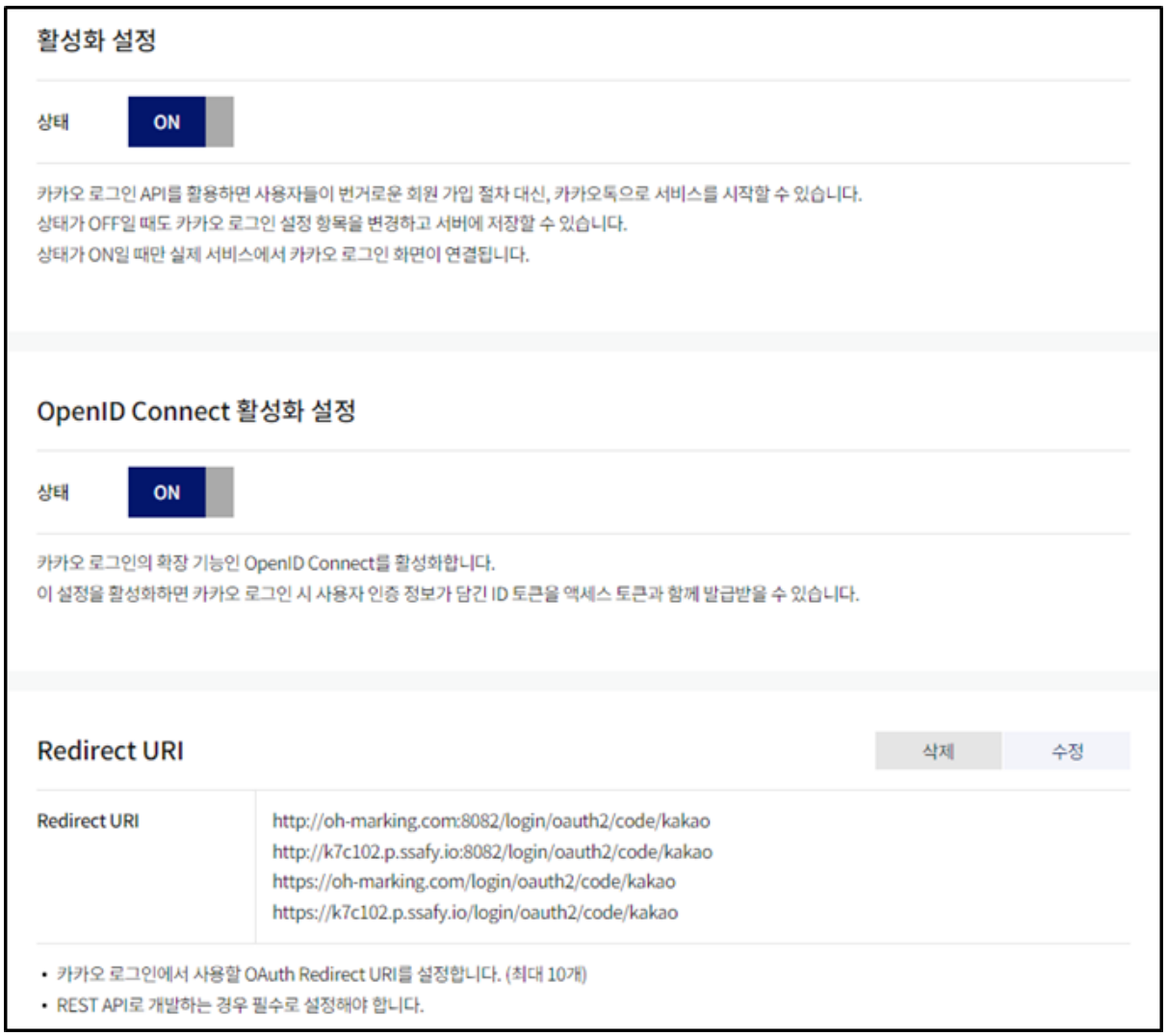
카카오

카카오 로그인으로 회원 가입 절차를 없애 서비스의 접근성을 높였습니다.

- 애플리케이션 추가

- 도메인 등록

- 카카오 로그인, OpenID Connect 활성화 및 Redirect URI 설정



- 개인정보 및 접근권한 동의 항목 설정