

# Deployment

## Deployment General Info

- We merge frontend and backend branches to main once after every standup.
- After all the branches are merged, Michael will deploy the main branch on Heroku and test whether the frontend and backend are working properly
- Heroku URL: <https://crm-c-and-h.herokuapp.com/>

## Deployment Details

### 1. Monorepo

As we have frontend and backend in the same repository, we need to set our repo to be a **Monorepo** so that it can deploy the frontend and the backend as a collective to Heroku. The detail of how to create a **Monorepo** can be found here: <https://medium.com/softup-technologies/how-to-deploy-a-monorepo-to-multiple-heroku-apps-using-github-actions-65e87dc27878>

Since we are using spring boot (java) as our backend, which is different from Node.js used in <https://medium.com/softup-technologies/how-to-deploy-a-monorepo-to-multiple-heroku-apps-using-github-actions-65e87dc27878>, more details on how to deploy are described below.

### 2. More Details on how to deploy

1. You need to have a Heroku account and install Heroku CLI(Command Line Interface) from this link: <https://devcenter.heroku.com/articles/heroku-cli#download-and-install>
2. After the installation, run `heroku login` in the terminal and login using your account.
3. After you log in, you need to run `heroku create --buildpack https://github.com/heroku/heroku-buildpack-java.git`, this command will help you create a java buildpack in your Heroku account. After it successfully creates the buildpack, it will return you a random app name, you need to run `heroku apps:rename newname --app oldname` to a meaningful name. Here, for demonstration purposes, I will run `heroku apps:rename api --app oldname`, the new name here is **api**. We will use this name in steps 5, 6, 8.
4. Also, run `heroku create --buildpack https://github.com/mars/create-react-app-buildpack.git` to create a buildpack for the frontend and rename the generated random app name to a more meaningful name using `heroku apps:rename newname --app oldname`. Here, for demonstration purposes, I will run `heroku apps:rename client --app oldname`, as this app is for our frontend server and the new name here is **client**. We will use this name in steps 5, 6, 8.
5. Run these commands to help Heroku recognize our repository is a monorepo:
  - a. `heroku buildpacks:add -a api https://github.com/lstoll/heroku-buildpack-monorepo -i 1`
  - b. `heroku buildpacks:add -a client https://github.com/lstoll/heroku-buildpack-monorepo -i 1`
6. After you finish step 5, you need to specify where your API is located in your repository, run this command `heroku config:set -a api APP_BASE=src/api`, api in here is the API that you have named previously. Also set APP\_BASE for the frontend app: `heroku config:set -a client APP_BASE=src/client`
7. Add environment variables for the frontend and backend, more detail of what environment variable can be found in our GitHub [README](https://github.com/C-and-H/comp30022). [md filehttps://github.com/C-and-H/comp30022](https://github.com/C-and-H/comp30022).
8. After setting all the required environment variables for the frontend and backend, you need to run these commands in order to connect your Github repository to Heroku:
  - a. `git remote add heroku-web-client https://git.heroku.com/you_app_name.git`, in our case, you\_app\_name is **client**.
  - b. `git remote add heroku-api https://git.heroku.com/you_app_name.git`, in our case, you\_app\_name is **api**.
9. Then run these commands in order to push our main branch to the remote branch:
  - a. `git push heroku-web-client main`
  - b. `git push heroku-api main`

### 3. Deployment Pipeline (Continuous Deployment)

A file call `deploy.yml` is placed in our repository with path: `./.github/workflows/deploy.yml`

The structure of the file is as follows:

```

name: Deploy

on:
  push:
    branches:
      - main

jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v2
      - uses: akhileshns/heroku-deploy@v3.12.12 # This is the action
        with:
          heroku_api_key: ${secrets.HEROKU_API_KEY}
          heroku_app_name: "crm-c-and-h-backend" #Must be unique in
Heroku
          heroku_email: ${secrets.HEROKU_API_KEY}
      - uses: actions/checkout@v2
      - uses: akhileshns/heroku-deploy@v3.12.12
        with:
          heroku_api_key: ${secrets.HEROKU_API_KEY}
          heroku_app_name: "crm-c-and-h" #Must be unique in Heroku
          heroku_email: ${secrets.HEROKU_API_KEY}

```

This file can automatically deploy to Heroku every time we push our commits into the main branch(specified at [line 3 to line 6](#)).

As our repo is **monorepo**, it connects to two Heroku app and hence we need to repeat the code at [line 12 to line 17](#) so that we deploy our repo to both frontend and backend.

The `HEROKU_API_KEY` is set in our repo as a secret key so that our repo can connect to Heroku successfully.

The details of how to do this can be found here: <https://github.com/AkhileshNS/heroku-deploy>

Also, you can view our history of deployment and pipeline in the **Actions** section of our repository.

