Sep 22 Lecture Preparation

Fork our web app on GitHub, clone it and get it running locally:
Fork this repo into your own GitHub account: https://github.com/rchatley/BasicWebApp
Clone your fork locally. Import the code into an IDE. It's a Java / Maven project.
In your IDE, build the project and run the main() method in WebServer, or see the next page for the command line invocation.

You should see the app running at http://localhost:8080 . If your port 8080 is already in use (e.g., if you have Teedy running on 8080), then see the next page for customizing the port number.

Push a change to trigger GitHub Actions:
The repository contains a .github directory that configures a GitHub Actions build pipeline. The file .github/workflows/build.yml configures the build and deploy pipeline. To enable GitHub Actions to run on your fork, navigate to the "Actions" tab in your forked repository (github.com/<username>/BasicWebApp/actions) and then click the green button to allow

workflows: I understand my workflows, go ahead and enable them

Now, if you push a change to the Java code (e.g. IndexPage.java) you should see the build pass, but the deploy stage will probably fail, as we need to set up a few more things.

If you aren't familiar with build pipelines or GitHub Actions you can check the documentation online here: https://docs.github.com/en/actions / https://docs.github.com/en/actions/quickstart

Setting up deployment to the cloud:
Create an account on Heroku at heroku.com (you'll get a confirmation email etc). Create an app on Heroku (either through the web UI or by installing the command line client). Choose a unique name (e.g. we chose nameless-forest-60668).

Setting up automatic deployment to Heroku with GitHub Actions:
In the build.yml, change the last two lines to specify your Heroku app name and your email address. Get your Heroku API key (from Account settings > API Key > Reveal) and add it to GitHub as a secret variable for your build pipeline. See the build.yml file for the name of the secret key.

Make a change to your application (e.g. change some HTML in IndexPage). Commit, push and check it is deployed (e.g. at https://nameless-forest-60668.herokuapp.com/).

Pushing changes through the pipeline:
Now make a change to QueryProcessor (and its corresponding unit test) to make the app respond to a new query. When the tests pass, commit, push and deploy again. Try intentionally breaking the build to make sure that only green builds are deployed.

Troubleshooting

- To launch the Web server from the terminal, in the BasicWebApp directory first run `mvn install` and then run:

```
mvn exec:java -Dexec.mainClass="com.develogical.WebServer"
```

- If you see the following error when you run the **above command**,

```
java.net.BindException: Address already in use
```

run the following command instead of the above

```
PORT="8081" mvn exec:java -Dexec.mainClass="com.develogical.WebServer
```

- If you see the following error when you run main() in your **IDE**,

```
java.net.BindException: Address already in use
```

search for `8080` in class WebServer, change the port (e.g., 8081), and run again.

- If you encounter the following error when you push your change after updating your Heroku information,

```
! [remote rejected] main -> main (refusing to allow a Personal Access
Token to create or update workflow `.github/workflows/build.yml`
without `workflow` scope)
```

you have to update the scopes of your access token. Go to your Github Account Settings > Developer settings and select the access token you're using, and check **workflow**.