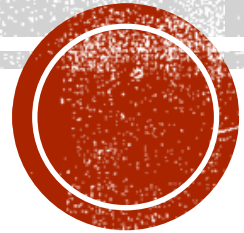
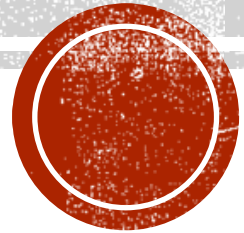
NOTES & HINTS



EXTRA-CREDIT SOLUTION

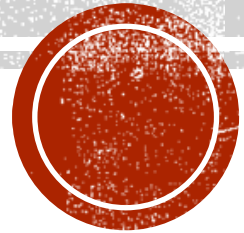


EXTRA-CREDIT MINI-PROJECT SAMPLE SOLUTION

- The following GitHub repository contains sample solution for the extra-credit mini-project.
- This solution is owned by Stefon Miller and was added to my GitHub repository to protect the identity of Stefon's repository.
- You may find this solution helpful in deploying containers on Kubernetes for your course project.

- https://github.com/mohamedfarag/14-848-extra-credit-project

COURSE PROJECT DISCUSSION



COURSE PROJECT NOTES – OPTION I

- You may need to spend some time in order to find the proper docker images on Docker Hub.
- Make sure to test the image, by running a docker container from the selected image, and see if it contains the binaries you are looking for:
  - E.g. try Hadoop to test that the image has Hadoop installed on it.
- If you can't find an exact docker image that matches your need, choose an image that is close to your "ideal image" and capture all the commands you need to run and add them to your Dockerfile.
- By default, docker containers are isolated. There are many ways to make them talk to each other. One way is to put them on the same network. Check this article for more information.

COURSE PROJECT NOTES – OPTION I – CONT'D

- You will need to build either the terminal application or the Graphical User Interface. Don't build both!
- If you build the terminal application, the user will have the option to kick-off an application by typing in the terminal:
  - E.g. The user chose to run Hadoop. You will have one of two options:
    - Navigate the user to a new browser tab with Hadoop User Interface open for them.
    - Navigate the user to a terminal inside the other pod/container so they can execute Hadoop commands.
    - If you can't navigate the user yourself, it will be acceptable that you print a URL on the terminal for the user to navigate to it manually in their web browser.
- If you are using M1 Machines, you may need to check this article for information on how to build docker images for M1 machines.

COURSE PROJECT NOTES – OPTION II

- In order to provide safe communication between the client side docker image and the GCP cluster, you may need to authenticate the applications.
- The following URL lists the steps for generating JSON file that can be used for authentication between your client-application and the cluster.
  - https://cloud.google.com/docs/authentication/getting-started#cloud-console
  - In the article above, there is a need to set an environment variable named GOOGLE_APPLICATION_CREDENTIALS.
    - You may need to set this environment variable and make it available in your container. You may add it to your Dockerfile (Check the RUN command).
- Graphical User Interface is optional but If you would like to go for building Graphical User Interface using desktop-based application, you will need to install XQuartz (for Mac) and Xming (for Windows).
  - If your Graphical User Interface is web-based, you don't need to install either!