Build a Serverless Github Bot in GCP

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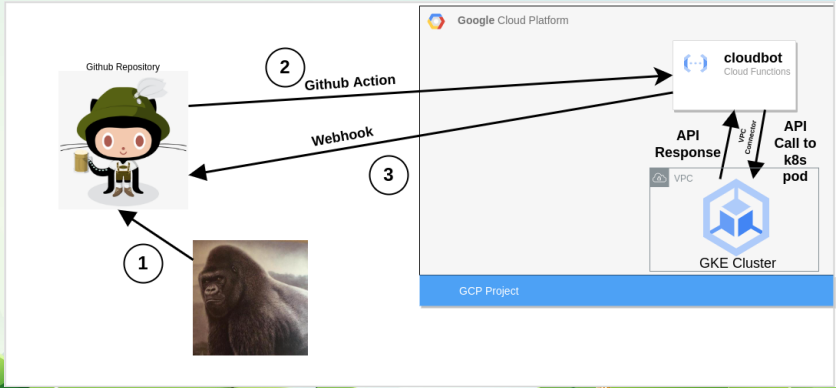
INTRODUCTION

Overview: Usage

The big picture for operation.



Overview: Deployment

The big picture for deployment.

Outline

A high level overview of the learning path is as follows:

- Prerequisites
- Github setup.
- Set up a development environment.
- Review the Python source for the bot.
- Configure Terraform and deploy the bot.
- Test it out.
- Explore possibilities for extending the functionality.


PRE-WORK

Setup: VSCode

VSCode (https://code.visualstudio.com)

- Windows 64 bit User Installer: VSCodeUserSetup-x64-1.73.1.exe
- Mac Universal: VSCode-darwin-universal.zip
- Linux (Debian, Ubuntu): code_1.73.1-1667967334_amd64.deb
- Linux (Red Hat, Fedora, SUSE): code-1.73.1-1667967421.el7.x86_64.rpm

Click this link for details on using dev containers in VSCode

Setup: git

GIT (https://git-scm.com/downloads)

- Windows 32 Bit: Git-2.38.1-64-bit.exe
- Windows 64 Bit: Git-2.38.1-32-bit.exe
- Mac: git-2.15.0-intel-universal-mavericks.dmg

Setup: Docker Desktop

Docker Desktop (https://www.docker.com/)

- Windows: Docker Desktop Installer.exe
- MacOS (Intel Chip): Docker.dmg
- MacOS (M1 Chip): Docker.dmg
- Linux instructions can be found: here

Click here to see Docker setup steps from Microsoft

Setup: Clone and Open the Project Repository

- Time to clone the repository.
- Click this link for the Github repository
- In VSCode, press F1 and enter the command “Dev Containers: Open Folder in Container”
  - You can also choose “Dev Containers: Open Workspace in Container”
  - Here is the Microsoft VSCode dev containers tutorial
- From the top menu select “Terminal – New Terminal”
- Now “cd /workspaces/workshop-codemash-2023/bin” and type “setup-dev-env.sh”

Google Cloud: Account Setup

- Sign up for a free tier GCP account.
- Navigate to https://cloud.google.com/ and make sure you have a usable project to work in.
- Here is some infomration about creating projects in GCP

IN CLASS SETUP

Google Cloud: Update Project Name and Login

- Update your project name in the file "/workspaces/workshop-codemash-2023/.envrc"
- Update your project name in the file "/workspaces/workshop-codemash-2023/src/config.ini"
- Type the command "direnv allow ." to reload the ENV variables.
- In the dev container, run the command "gcloud auth login" and follow the directions there.
- Verify you are connected to GCP with the command "gcloud auth list"

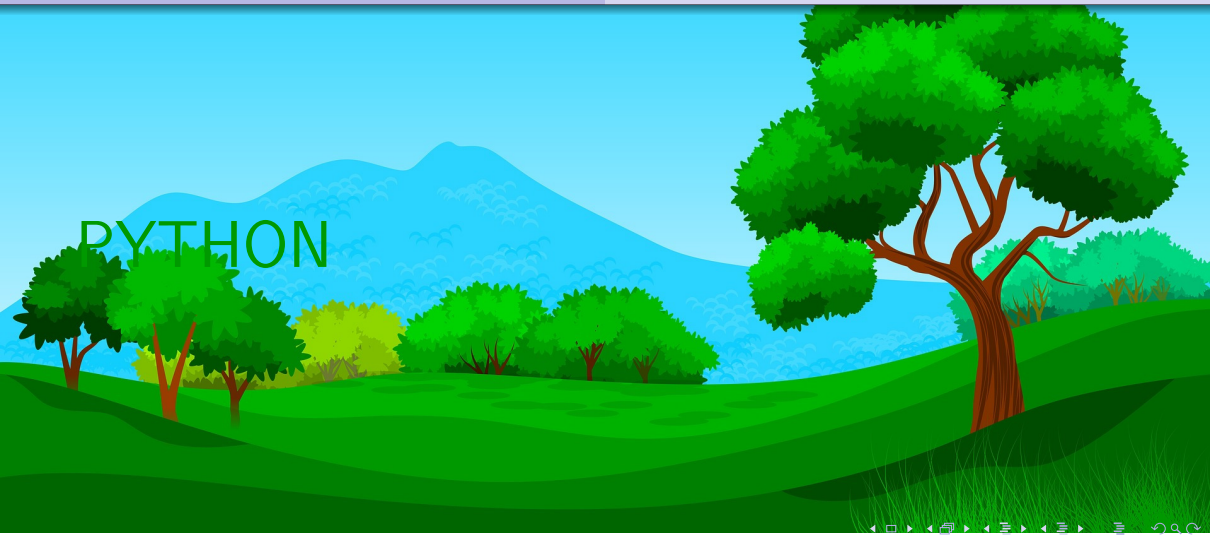
Google Cloud: Create Service User

We create a service user in GCP with limited scope of permissions.

Google Cloud: Create Secret in Secrets Mgr

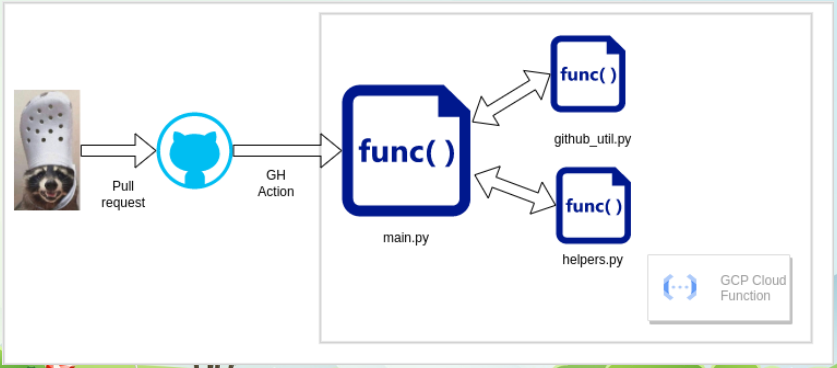
- The Cloud Function is expecting us to create a secret named “gh_secret_token”.

PYTHON



Overview: Python Functions

The big picture for the Python code files.



The Python Application

Discuss the code for the cloud function, see how all that works.

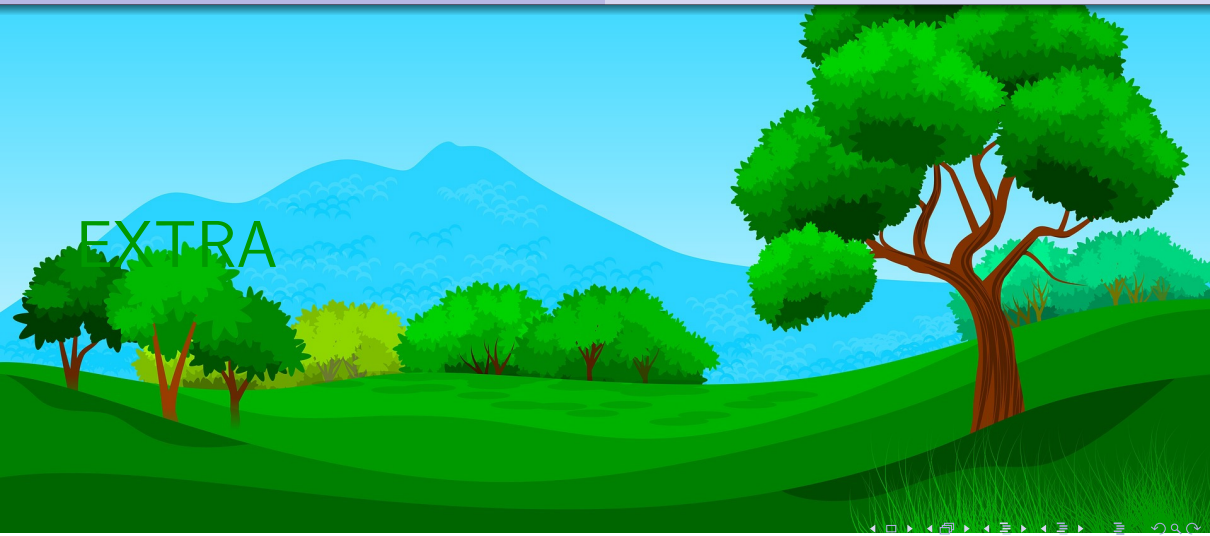
TERRAFORM

The Terraform Installer

We use Terraform to automate the Cloud Function installation.

Deploying with Terraform

Let's do a Terraform deployment.


EXTRA

Extra: Dockerfile and docker-compose.yml

Check out the docker container and framework, see how all that works.

Extra: Connect it to your GKE cluster

I can demo this or we can try it if we have time.

Extra: GNU Autotools

Wow we must be super bored letś play with GNU Autotools.

Future: Scan the PR comments for commands

The Cloud Function could monitor the PR for certain strings, using these to trigger actions.

Resources

Click here for Session Details

Project source files are available:
`https://github.com/devsecfranklin/workshop-codemash-2023`

Prerequisites are available at this link.

Contact

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