

Cloud application development. Assignment 2 report

Google app engine

Deploy a simple web application on google app engine

app.py – the source code of the web application that deploying on google app engine

```
app.py 1 X
Ubuntu-20.04 > home > togzhan > myapp > app.py > ...
1  from flask import Flask
2  app = Flask(__name__)
3
4  @app.route('/')
5  def hello_world():
6      return 'Hello, World!'
7
8  if __name__ == '__main__':
9      app.run(host='0.0.0.0', port=8080, debug=True)
10
```

app.yaml – configuration file for google app engine

```
app.py 1  ! app.yaml X
Ubuntu-20.04 > home > togzhan > myapp > ! app.yaml
1  runtime: python39
2  entrypoint: gunicorn -b :$PORT app:app
3
4  handlers:
5  - url: /*
6    script: auto
```

POSITIONAL ARGUMENTS

[*DEPLOYABLES* ...]

The yaml files for the services or configurations you want to deploy. If not given, defaults to `app.yaml` in the current directory. If that is not found, attempts to automatically generate necessary configuration files (such as `app.yaml`) in the current directory.

gcloud app deploy

```
togzhan@LAPTOP-BSR7ABG2:~/myapp$ gcloud app deploy
(gcloud.app.deploy) Permissions error fetching application [apps/cloudapp-project-123]. Please make
sure that you have permission to view applications on the project and that beldeubaevtogzhan17@gmail
has the App Engine Deployer (roles/appengine.deployer) role.
```

```
ERROR: (gcloud.app.deploy) PERMISSION_DENIED: Read access to project 'cloudapp-project-123' was denied:
please check billing account associated and retry. This command is authenticated as beldeubaevtogzhan17
@gmail.com which is the active account specified by the [core/account] property
```

Prediction

(Uploading

Deployment successful

View your application at <https://....>)

Building with google cloud functions

Create a google cloud function that processes HTTP requests

index.js

```
togzhan@LAPTOP-BSR7ABG2:~$ cd helloWorldFunction
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ nano index.js
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ nano index.js
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ cat index.js
exports.helloWorld = (req, res) => {
res.send('Hello, World!');
}
```

package.json

```
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ touch package.json
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ nano pckage.json
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ cat package.json
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ nano package.json
togzhan@LAPTOP-BSR7ABG2:~/helloWorldFunction$ cat package.json
{
  "name": "helloWorldFunction",
  "version": "1.0.0",
  "main": "index.js",
  "dependencies": {}
}
```

gcloud functions deploy helloWorldFunction --runtime nodejs18 --trigger-http

```
togzhan@LAPTOP-BSR7ABG2:~$ gcloud functions deploy helloWorldFunction --runtime nodejs18 --trigger-http
API [cloudfunctions.googleapis.com] not enabled on project [cloudapp-project-123]. Would you like to enable and retry
(this will take a few minutes)? (y/N)? Y
Enabling service [cloudfunctions.googleapis.com] on project [cloudapp-project-123]...
Operation "operations/acf.p2-828252158991-e6fc70c4-f829-4655-b7c1-044daaf59367" finished successfully.
In a future Cloud SDK release, new functions will be deployed as 2nd gen functions by default. This is equivalent to currently deploying new with the --gen2 flag. Existing 1st gen functions will not be impacted and will continue to deploy as 1st gen functions.
You can preview this behavior in beta. Alternatively, you can disable this behavior by explicitly specifying the --no-gen2 flag or by setting the functions/gen2 config property to 'off'.
To learn more about the differences between 1st gen and 2nd gen functions, visit:
https://cloud.google.com/functions/docs/concepts/version-comparison
ERROR: (gcloud.functions.deploy) ResponseError: status=[403], code=[0k], message=[Write access to project 'cloudapp-project-123' was denied: please check billing account associated and retry]
```

Prediction

Deploy the function

Curl – command for executing https requests from the command line.

```
vbnet Копировать код

Deploying function (may take a while - up to 2 minutes)...done.
availableMemoryMb: 256
entryPoint: helloWorldFunction
httpsTrigger:
  url: https://REGION-PROJECT_ID.cloudfunctions.net/helloWorldFunction
serviceAccount: your-service-account@project-id.iam.gserviceaccount.com
timeout: 60s
```

Containerizing applications

Containerize a simple application using Docker

app.py

```
app.py x ▶
C: > Users > HP > AppData > Local > Google > Cloud SDK > lab2 > ex3 > app.py
1 print ("Hello from inside the container!")
```

Dockerfile

```
app.py dockerfile x ▶ □
C: > Users > HP > AppData > Local > Google > Cloud SDK > lab2 > ex3 > dockerfile
1 # Use an official Python runtime as a parent image
2 FROM python:3.9-slim
3
4 # Set the working directory in the container
5 WORKDIR /app
6
7 # Copy the current directory contents into the container at
8 COPY . /app
9
10 # Run the application
11 CMD ["python", "app.py"]
12
```

docker build -t hello-world-app

```
C:\Users\HP\AppData\Local\Google\Cloud SDK\lab2\ex3>docker build -t hello-world-app .
[+] Building 19.4s (8/8) FINISHED                                docker:desktop-linux
=> [internal] load build definition from dockerfile              0.0s
=> => transferring dockerfile: 307B                             0.0s
=> [internal] load metadata for docker.io/library/python:3.9-slim 3.3s
=> [internal] load .dockerignore                                0.0s
=> => transferring context: 2B                                    0.0s
=> [1/3] FROM docker.io/library/python:3.9-slim@sha256:2851c06da1fdc3c451784beef8aa31d1a313d8e3fc122e4a1891085a 15.7s
=> => resolve docker.io/library/python:3.9-slim@sha256:2851c06da1fdc3c451784beef8aa31d1a313d8e3fc122e4a1891085a1 0.0s
=> => sha256:0fa26e0a6c779a41b265beaf4e11ac2899b82fc487fde96e28dec51f08fd831e 3.51MB / 3.51MB 1.2s
=> => sha256:a657783e238bbb29a690f2f314f9eb40a7bf9ab06f795e95590adf1f86413919 14.74MB / 14.74MB 8.9s
=> => sha256:2851c06da1fdc3c451784beef8aa31d1a313d8e3fc122e4a1891085a104b7c7b 10.41kB / 10.41kB 0.0s
=> => sha256:d465e807ab2e72c74ec6fa81d1d2751108c7861a9c041f072e3d24b5aaf91fcb 1.75kB / 1.75kB 0.0s
=> => sha256:397ed8d3163622f16a7ad7f8d235cb365b893a589ce31d79f9d6e61d2a5ae31a 5.22kB / 5.22kB 0.0s
=> => sha256:a2318d6c47ec9cac5acc500c47c79602bcf953cec711a18bc898911a0984365b 29.13MB / 29.13MB 13.7s
=> => sha256:b665d04ddefb24a5af0c944a98df2ebfb1e3a26e0a546573041f84e0a4a2150e 251B / 251B 1.5s
=> => extracting sha256:a2318d6c47ec9cac5acc500c47c79602bcf953cec711a18bc898911a0984365b 1.0s
=> => extracting sha256:0fa26e0a6c779a41b265beaf4e11ac2899b82fc487fde96e28dec51f08fd831e 0.1s
=> => extracting sha256:a657783e238bbb29a690f2f314f9eb40a7bf9ab06f795e95590adf1f86413919 0.6s
=> => extracting sha256:b665d04ddefb24a5af0c944a98df2ebfb1e3a26e0a546573041f84e0a4a2150e 0.0s
=> [internal] load build context                                0.0s
=> => transferring context: 384B                                   0.0s
=> [2/3] WORKDIR /app                                         0.2s
=> [3/3] COPY . /app                                          0.0s
=> exporting to image                                         0.0s
=> => exporting layers                                           0.0s
=> => writing image sha256:ff4e3d02136b47ccfd0f17762276d5f9e10781e3d824e48758e86346ad8ea34 0.0s
=> => naming to docker.io/library/hello-world-app             0.0s
```

What's next:

View a summary of image vulnerabilities and recommendations → [docker scout quickview](#)

docker run --rm hello-world-app

```
C:\Users\HP\AppData\Local\Google\Cloud SDK\lab2\ex3>docker run --rm hello-world-app
Hello from inside the container!
```

The screenshot shows the Docker Desktop application window. At the top, there's a search bar and navigation icons. Below that, a notification bar says "To access the latest features, [sign in](#)". The main content area displays the container details for "elated_sutherland" with the image "hello-world:latest". The container ID is "77d92f56e38d". The status is "Exited (0) (1 second ago)". Below this, there are tabs for "Logs", "Inspect", "Bind mounts", "Exec", "Files", and "Stats". The "Logs" tab is selected, showing a log entry: "2024-09-19 10:33:25 Hello from inside the container!". On the right side of the logs, there are icons for search, copy, refresh, and delete.