

Exercise 1

The image displays two screenshots of the Google Cloud console interface, showing the setup of a Hello World application on Cloud Run.

Top Screenshot: The console shows the 'HelloWorldApp' project. The 'app.py' file is open in the Cloud Shell Editor, displaying the following Python code:

```
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
```

The Explorer pane shows the project structure:

- gcp-intro
 - app.py
 - app.yaml
 - README-cloudshell.txt

The bottom status bar indicates the file is at Ln 10, Col 1, with 4 spaces, UTF-8 encoding, LF line endings, Python 3.12.3 64-bit, and US layout.

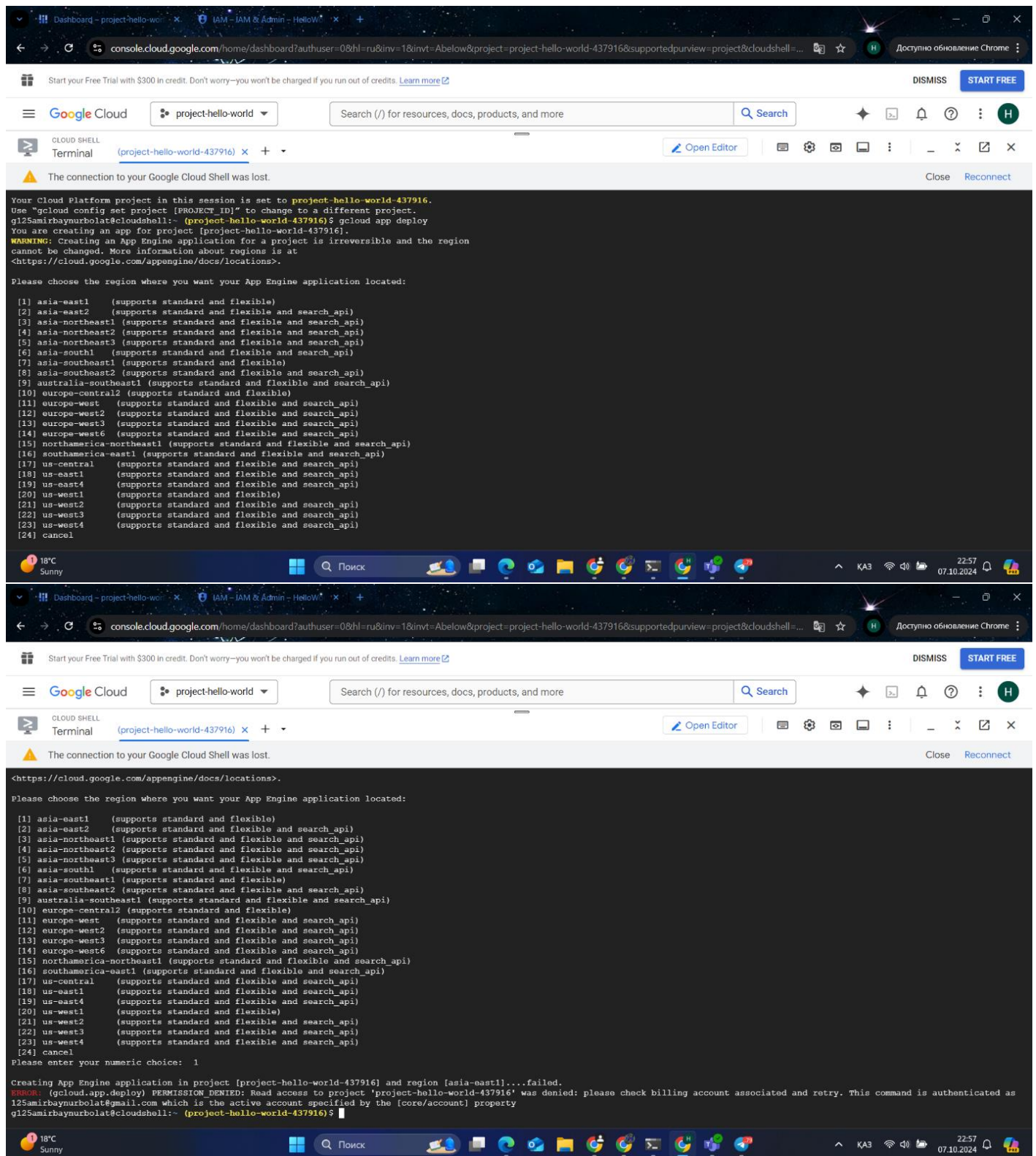
Bottom Screenshot: The console shows the 'app.yaml' file open in the Cloud Shell Editor, displaying the following YAML configuration:

```
1 runtime: python39
2 handlers:
3   - url: /*
4     script: auto
5
```

The Explorer pane shows the project structure:

- gcp-intro
 - app.py
 - app.yaml
 - README-cloudshell.txt

The bottom status bar indicates the file is at Ln 5, Col 1, with 2 spaces, UTF-8 encoding, LF line endings, YAML layout, and US layout.



Expected Output:

Services to deploy:

descriptor: [/path/to/app.yaml]

source: [/path/to/app]

target project: [project-hello-world-437916]

target service: [default]

target version: [20241006t123456]

target url: [https:// project-hello-world-437916.appspot.com]

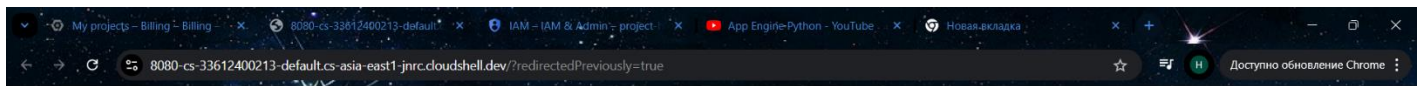
Do you want to continue (Y/n)?

Beginning deployment of service [default]...

- deploying...

- done.

Deployed service [default] to [https:// project-hello-world-437916.appspot.com]



Exercise 2

The screenshot displays the Google Cloud console interface. The top navigation bar includes the Google Cloud logo, a search bar, and a 'START FREE' button. The main content area is titled 'Cloud Run functions' and shows a list of functions. A message indicates that the Cloud Functions API is disabled and that the user will be able to enable it once they create their first function. A 'Setting up your account.' dialog box is visible in the center. On the right side, there is a 'Get started with Cloud Run functions' section with links to 'Cloud Run functions overview', 'Quickstart', 'Use cases for Cloud Run functions', 'Configuring Cloud Run functions', and 'Local Development'. Below the main content area, a terminal window is open, showing the Cloud Shell environment. The terminal output includes the welcome message and the command to create a new function named 'index.js'.

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Cloud Run functions Functions + CREATE FUNCTION REFRESH LEARN RELEASE NOTES

Please make sure to enable billing before creating a function.

Sign up for the free trial to start using Cloud Functions

DISMISS START FREE

LEARN Tutorial

Get started with Cloud Run functions

Cloud Run functions overview

Help document

Write simple, single-purpose functions that are triggered by events and run in a fully managed environment.

Quickstart

Tutorial 5 min

Create a function that is triggered by an HTTP request.

Use cases for Cloud Run functions

Help document

Explore use cases, best practices, and industry solutions.

Configuring Cloud Run functions

Help document

Use configuration options to control the behavior of your Cloud Run functions.

Local Development

Help document

Develop your Cloud Run functions locally.

Filter Filter functions

Cloud Functions API is disabled. You will be able to enable it once you create your first function.

Environment	Name	Last deployed	Region	Recommendation	Trigger	Runtime	Memory allocated	Executed function	Actions
No rows to display									

Setting up your account.

18°C Sunny

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Cloud Shell Terminal (function-project-437919) + Open Editor

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to function-project-437919.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
g12Samirbaynurbolat@cloudshell:~(function-project-437919)$ cd function
g12Samirbaynurbolat@cloudshell:~/function (function-project-437919)$ nano index.js
g12Samirbaynurbolat@cloudshell:~/function (function-project-437919)$
```

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The screenshot shows the Google Cloud console interface. At the top, there's a navigation bar with the Google Cloud logo and a search bar. Below it, the 'Terminal' tab is active, showing a Cloud Shell session. The terminal displays the following content:

```
GNU nano 7.2 index.js
exports.helloWorld = (req, res) => {
  res.send('Hello, World!');
}

Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to function-project-437919.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
g12Samiirbaynurbolat@cloudshell:~ (function-project-437919)$ cd function
g12Samiirbaynurbolat@cloudshell:~/function (function-project-437919)$ nano index.js
g12Samiirbaynurbolat@cloudshell:~/function (function-project-437919)$ gcloud functions deploy helloWorldFunction --runtime nodejs18 --trigger-http --allow-unauthenticated
API [cloudfunctions.googleapis.com] not enabled on project [function-project-437919]. Would you like to enable and retry (this will take a few minutes)? (y/N)? y

Enabling service [cloudfunctions.googleapis.com] on project [function-project-437919]...
Operation "operations/acf.p2-1706440705048-d5349ebf-5804-4d61-9c63-91d8aad81f09" finished successfully.
As of this 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 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) Invalid value for [--source]: Provided source directory does not have file [package.json] which is required for [nodejs18]. Did you specify the right source?
g12Samiirbaynurbolat@cloudshell:~/function (function-project-437919)$
```

helloWorldFunction: The name of the function.

--runtime nodejs18: Specifies the Node.js runtime environment (version 18).

--trigger-http: Specifies that the function will be triggered by HTTP requests.

--allow-unauthenticated: Allows unauthenticated users to access the function.

Expected Output:

Deploying function (may take a while - up to 2 minutes)...done.

availableMemoryMb: 256

entryPoint: helloWorld

httpsTrigger:

url: <https://asia-east1-function-project-437919.cloudfunctions.net/helloWorldFunction>

...

The most important part is the URL to access the function:

<https://asia-east1-function-project-437919.cloudfunctions.net/helloWorldFunction>

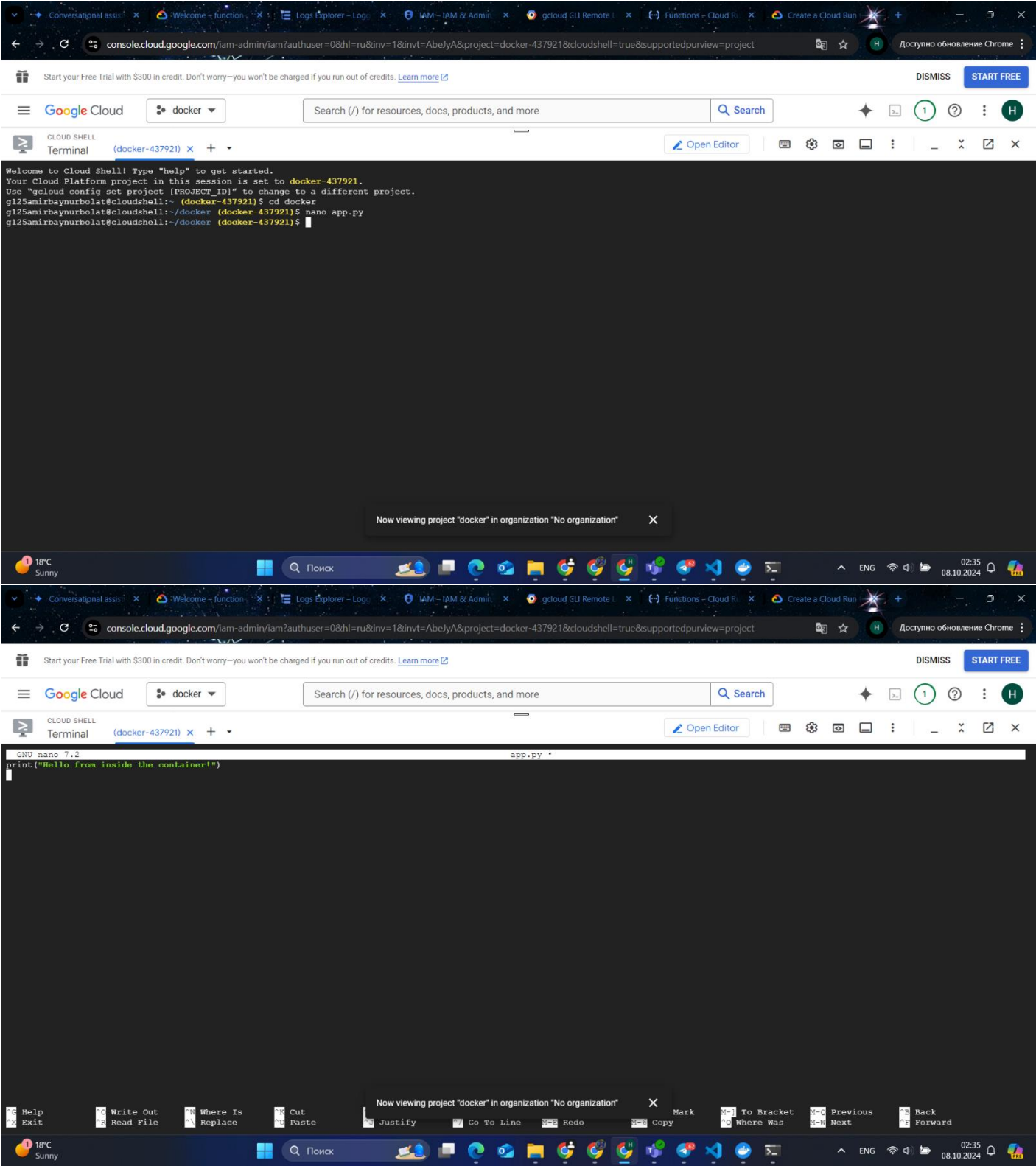
Using curl in the Terminal:

curl <https://asia-east1-function-project-437919.cloudfunctions.net/helloWorldFunction>

The terminal should display:

Hello, World!

Exercise 3



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CLOUD SHELL Terminal (docker-437921) Open Editor

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to docker-437921.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
g125amirbaynurbolat@cloudshell:~ (docker-437921) $ cd docker
g125amirbaynurbolat@cloudshell:~/docker (docker-437921) $ nano app.py
g125amirbaynurbolat@cloudshell:~/docker (docker-437921) $ nano Dockerfile
g125amirbaynurbolat@cloudshell:~/docker (docker-437921) $
```

Now viewing project "docker" in organization "No organization"

18°C Sunny Поиск ENG 02:36 08.10.2024

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CLOUD SHELL Terminal (docker-437921) Open Editor

```
GNU nano 7.2 Dockerfile
# Use official Python runtime as a parent image
FROM python:3.9-slim

# Set the working directory in the container
WORKDIR /app

# Copy the current directory contents into the container at /app
COPY . /app

# Run the application
CMD ["python", "app.py"]
```

Now viewing project "docker" in organization "No organization"

Help Exit Write Out Read File Where Is Replace Cut Paste Justify Go To Line Redo Copy Mark To Bracket Where Was Previous Next Back Forward

18°C Sunny Поиск ENG 02:36 08.10.2024


```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to docker-437921.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
g125amirbaynurbolat@cloudshell:~ (docker-437921)$ cd docker
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ nano app.py
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ nano Dockerfile
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ docker build -t hello-world-app .
[+] Building 8.1s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 296B
=> [internal] load metadata for docker.io/library/python:3.9-slim
=> [internal] load .dockerignore
=> transferring context: 2B
=> [1/3] FROM docker.io/library/python:3.9-slim@sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc
=> resolve docker.io/library/python:3.9-slim@sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc
=> sha256:4c0965d3919510b506d8856ebc050a96e996c7dae96e4fb420882d8e7e037e67 3.51MB / 3.51MB
=> sha256:fdeec85abbad3878f2008f9445f15a19a5a224d1b7e7715ac6b923072333e57 14.74MB / 14.74MB
=> sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc 10.41kB / 10.41kB
=> sha256:93ab151da4e5310ea79c4ecf306ece628262b86a4d7a49cc601664f19fe44e36 1.75kB / 1.75kB
=> sha256:4c0965d3919510b506d8856ebc050a96e996c7dae96e4fb420882d8e7e037e67 5.20kB / 5.20kB
=> sha256:302e3ee498053a7b5332ac79e8efebec16e900289f1c6d1c754ce8fa047fcab 29.13MB / 29.13MB
=> sha256:62a08b8dd4f53ad5493dabf2af00cde91abb3771fb2187040bcf2fe94a7ced7 248B / 248B
=> extracting sha256:302e3ee498053a7b5332ac79e8efebec16e900289f1c6d1c754ce8fa047fcab 2.0s
=> extracting sha256:4c0965d3919510b506d8856ebc050a96e996c7dae96e4fb420882d8e7e037e67 0.2s
=> extracting sha256:fdeec85abbad3878f2008f9445f15a19a5a224d1b7e7715ac6b923072333e57 1.2s
=> extracting sha256:62a08b8dd4f53ad5493dabf2af00cde91abb3771fb2187040bcf2fe94a7ced7 0.0s
=> [internal] load build context
=> transferring context: 373B
=> [2/3] WORKDIR /app
=> [3/3] COPY . /app
=> exporting to image
=> exporting layers
=> writing image sha256:74c0b15c6ee8cfff92837d130e03ed2bfc9f2a852a6f7d2e5a817d9f4818c7c11
=> naming to docker.io/library/hello-world-app
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$
```

```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to docker-437921.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
g125amirbaynurbolat@cloudshell:~ (docker-437921)$ cd docker
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ nano app.py
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ nano Dockerfile
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ docker build -t hello-world-app .
[+] Building 8.1s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 296B
=> [internal] load metadata for docker.io/library/python:3.9-slim
=> [internal] load .dockerignore
=> transferring context: 2B
=> [1/3] FROM docker.io/library/python:3.9-slim@sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc
=> resolve docker.io/library/python:3.9-slim@sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc
=> sha256:4c0965d3919510b506d8856ebc050a96e996c7dae96e4fb420882d8e7e037e67 3.51MB / 3.51MB
=> sha256:fdeec85abbad3878f2008f9445f15a19a5a224d1b7e7715ac6b923072333e57 14.74MB / 14.74MB
=> sha256:49f94609e5a997dc16086a66ac9664591854031d48e375945a9dbf4d1d53abbc 10.41kB / 10.41kB
=> sha256:93ab151da4e5310ea79c4ecf306ece628262b86a4d7a49cc601664f19fe44e36 1.75kB / 1.75kB
=> sha256:9d8cb7037cd8e90893e5f430ce4c048a872511e414580c7641675f2dad0a0351 5.20kB / 5.20kB
=> sha256:302e3ee498053a7b5332ac79e8efebec16e900289f1c6d1c754ce8fa047fcab 29.13MB / 29.13MB
=> sha256:62a08b8dd4f53ad5493dabf2af00cde91abb3771fb2187040bcf2fe94a7ced7 248B / 248B
=> extracting sha256:302e3ee498053a7b5332ac79e8efebec16e900289f1c6d1c754ce8fa047fcab 2.0s
=> extracting sha256:4c0965d3919510b506d8856ebc050a96e996c7dae96e4fb420882d8e7e037e67 0.2s
=> extracting sha256:fdeec85abbad3878f2008f9445f15a19a5a224d1b7e7715ac6b923072333e57 1.2s
=> extracting sha256:62a08b8dd4f53ad5493dabf2af00cde91abb3771fb2187040bcf2fe94a7ced7 0.0s
=> [internal] load build context
=> transferring context: 373B
=> [2/3] WORKDIR /app
=> [3/3] COPY . /app
=> exporting to image
=> exporting layers
=> writing image sha256:74c0b15c6ee8cfff92837d130e03ed2bfc9f2a852a6f7d2e5a817d9f4818c7c11
=> naming to docker.io/library/hello-world-app
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$ docker run --rm hello-world-app
Hello from inside the container!
g125amirbaynurbolat@cloudshell:~/docker (docker-437921)$
```