

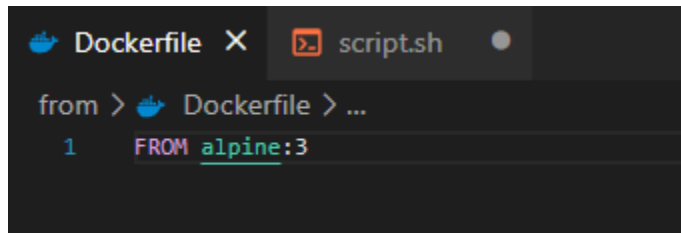
Nama : Alpian Roymundus Siringo-ringo

NIM : 11211009

Tugas Dockerfile

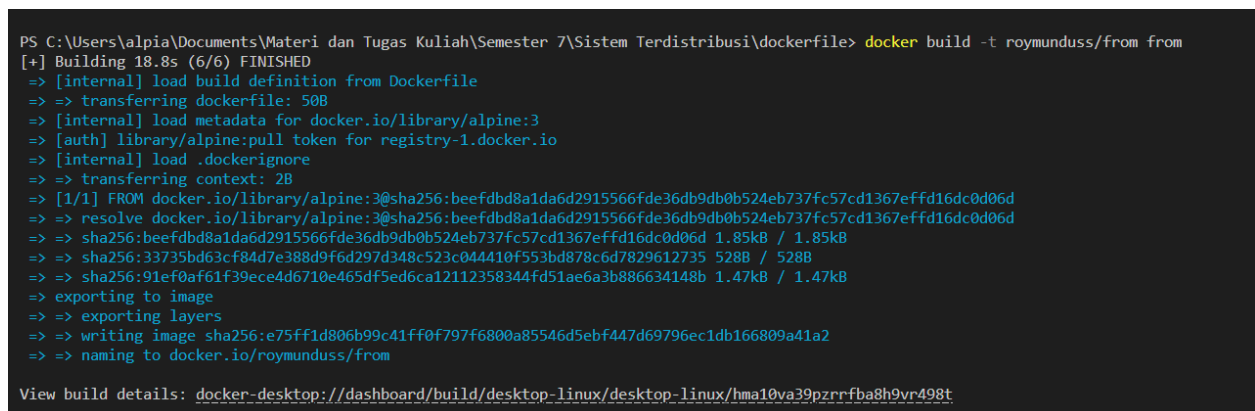
Sistem Terdistribusi A

1. FROM instruction



```
Dockerfile X script.sh
from > Dockerfile > ...
1 FROM alpine:3
```

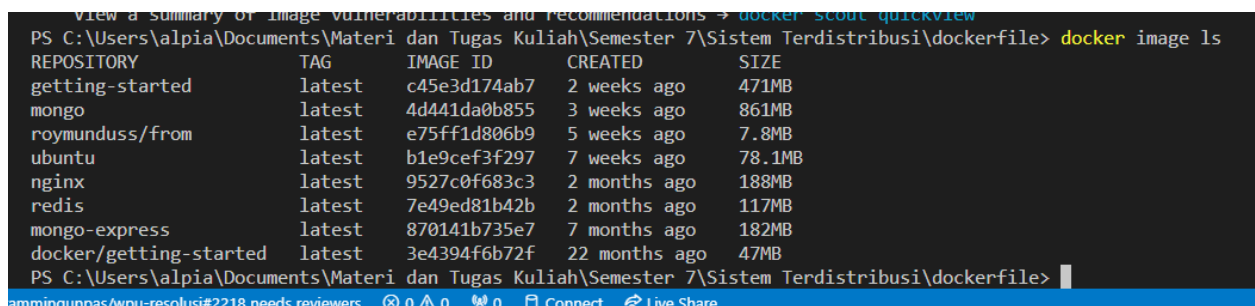
2. Docker Build



```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/from from
[+] Building 18.8s (6/6) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 50B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/1] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> => resolve docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> => sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d 1.85kB / 1.85kB
=> => sha256:33735bd63cf84d7e388d9f6d297d348c523c044410f553bd878c6d7829612735 528B / 528B
=> => sha256:91ef0af61f39ece4d6710e465df5ed6ca12112358344fd51ae6a3b886634148b 1.47kB / 1.47kB
=> exporting to image
=> => exporting layers
=> => writing image sha256:e75ff1d806b99c41ff0f797f6800a85546d5ebf447d69796ec1db166809a41a2
=> => naming to docker.io/roymunduss/from

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/hma10va39pzrrfba8h9vr498t
```

Perintah ini membangun sebuah image Docker dari direktori yang berisi file Dockerfile dengan instruksi FROM, dan memberi tag roymunduss/from pada image tersebut.



```
view a summary of image vulnerabilities and recommendations -> docker scout quickview
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker image ls
REPOSITORY          TAG         IMAGE ID      CREATED       SIZE
getting-started      latest      c45e3d174ab7  2 weeks ago  471MB
mongo                latest      4d441da0b855  3 weeks ago  861MB
roymunduss/from      latest      e75ff1d806b9  5 weeks ago  7.8MB
ubuntu               latest      b1e9cef3f297  7 weeks ago  78.1MB
nginx                latest      9527c0f683c3  2 months ago 188MB
redis                latest      7e49ed81b42b  2 months ago 117MB
mongo-express        latest      870141b735e7  7 months ago 182MB
docker/getting-started latest      3e4394f6b72f  22 months ago 47MB
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

Melihat docker image yang ada

3. Run Instruction

```
run > Dockerfile > ...  
1 FROM alpine:3  
2  
3 RUN mkdir hello  
4 RUN echo "Hello World" > "hello/world.txt"  
5 RUN cat "hello/world.txt"
```

4. Docker Build

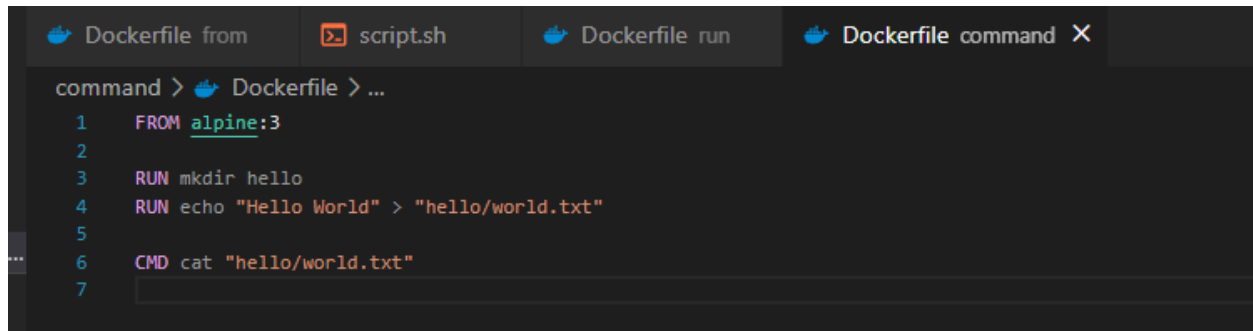
```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymundus/run run  
[+] Building 4.7s (9/9) FINISHED  
=> [internal] load build definition from Dockerfile  
=> => transferring dockerfile: 140B  
=> [internal] load metadata for docker.io/library/alpine:3  
=> [auth] library/alpine:pull token for registry-1.docker.io  
=> [internal] load .dockerignore  
=> => transferring context: 2B  
=> CACHED [1/4] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d  
=> [2/4] RUN mkdir hello  
=> [3/4] RUN echo "Hello World" > "hello/world.txt"  
=> [4/4] RUN cat "hello/world.txt"  
=> exporting to image  
=> => exporting layers  
=> => writing image sha256:1f582c642cbe807681a3ce2f08bb60f4bd91ffebfd5a9e9485e9652d893474f3  
=> => naming to docker.io/roymundus/run  
  
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/6q74nx1m9qtr4y416unlyn6ex
```

Membangun image Docker berdasarkan instruksi di file Dockerfile yang menggunakan RUN untuk menjalankan perintah pada saat build.

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymundus/run run --progress=plain --no-cache  
#0 building with "desktop-linux" instance using docker driver  
  
#1 [internal] load build definition from Dockerfile  
#1 transferring dockerfile: 140B 0.0s done  
#1 DONE 0.0s  
  
#2 [internal] load metadata for docker.io/library/alpine:3  
#2 DONE 3.3s  
  
#3 [internal] load .dockerignore  
#3 transferring context: 2B done  
#3 DONE 0.0s  
  
#4 [1/4] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d  
#4 CACHED  
  
#5 [2/4] RUN mkdir hello  
#5 DONE 0.4s  
  
#6 [3/4] RUN echo "Hello World" > "hello/world.txt"  
#6 DONE 0.5s  
  
#7 [4/4] RUN cat "hello/world.txt"  
#7 0.406 Hello World  
#7 DONE 0.4s  
  
#8 exporting to image  
#8 exporting layers 0.1s done  
#8 writing image sha256:c009f86465e534ba096da74c36441c881415e49f2e06c38d95bf5a9252f9a4d3 done  
#8 naming to docker.io/roymundus/run done  
#8 DONE 0.1s  
  
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/uf1klc4yj8rk56ac8ta47z7td
```

Membangun image Docker yang sama seperti di atas, tetapi tanpa menggunakan cache (--no-cache) dan menampilkan progress build dengan lebih detail (--progress=plain).

5. Command Instruction



```
command > Dockerfile > ...
1 FROM alpine:3
2
3 RUN mkdir hello
4 RUN echo "Hello World" > "hello/world.txt"
5
6 CMD cat "hello/world.txt"
7
```

6. Docker Build

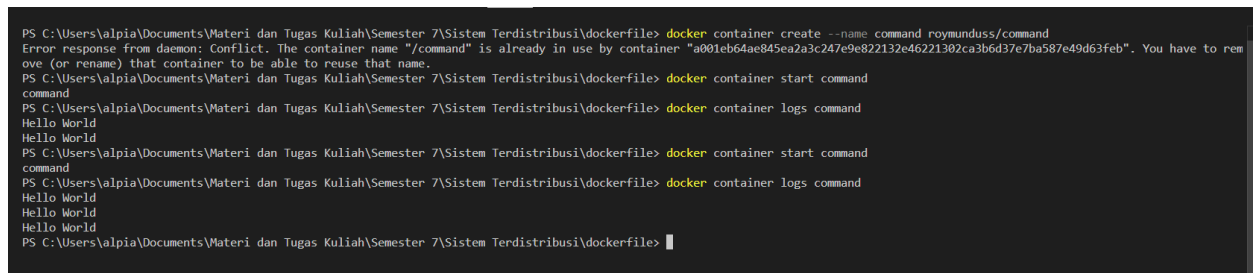


```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/command command
[+] Building 3.0s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 144B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d291556fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> CACHED [2/3] RUN mkdir hello
=> CACHED [3/3] RUN echo "Hello World" > "hello/world.txt"
=> exporting to image
=> => exporting layers
=> => writing image sha256:6e2f1bf742bc4d7536c0802b64ca02d2d69c7befc5993ca8d6c44e5e3be03af0
=> => naming to docker.io/roymunduss/command

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/ro839ofaq1a1bgdjnwcdil3o0
```

Membangun image Docker dari instruksi CMD, yang menentukan perintah default yang akan dijalankan saat container dibuat dari image ini.

7. Docker Container



```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name command roymunduss/command
Error response from daemon: Conflict. The container name "/command" is already in use by container "a001eb64ae845ea2a3c247e9e822132e46221302ca3b6d37e7ba587e49d63feb". You have to rem
ove (or rename) that container to be able to reuse that name.
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start command
command
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs command
Hello World
Hello World
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start command
command
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs command
Hello World
Hello World
Hello World
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

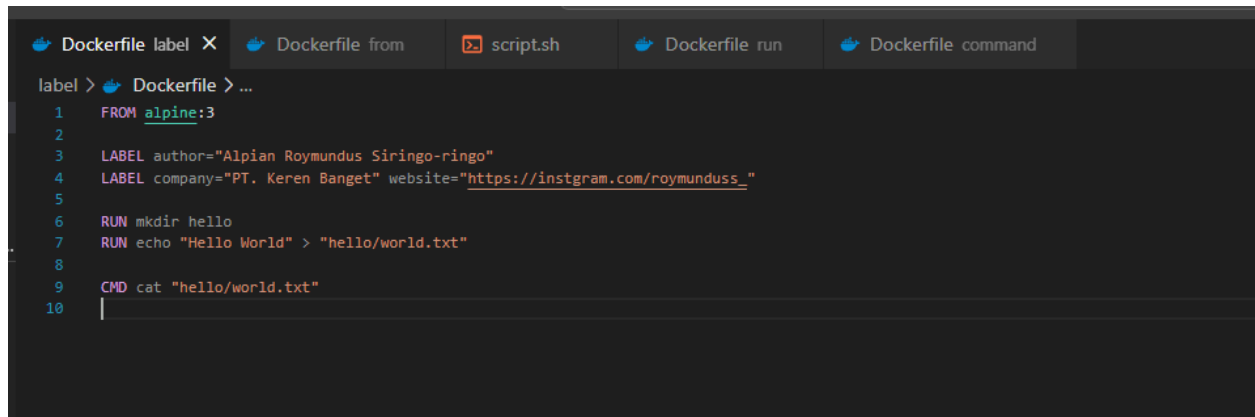
docker image inspect roymunduss/command: Menampilkan detail metadata dari image roymunduss/command.

docker container create --name command roymunduss/command: Membuat container baru bernama command dari image roymunduss/command.

docker container start command: Menjalankan container command.

docker container logs command: Menampilkan output log dari container command.

8. LABEL Instruction



```
label > Dockerfile > ...
1 FROM alpine:3
2
3 LABEL author="Alpian Roymundus Siringo-ringo"
4 LABEL company="PT. Keren Banget" website="https://instagram.com/roymunduss_"
5
6 RUN mkdir hello
7 RUN echo "Hello World" > "hello/world.txt"
8
9 CMD cat "hello/world.txt"
10
```

9. Docker Build

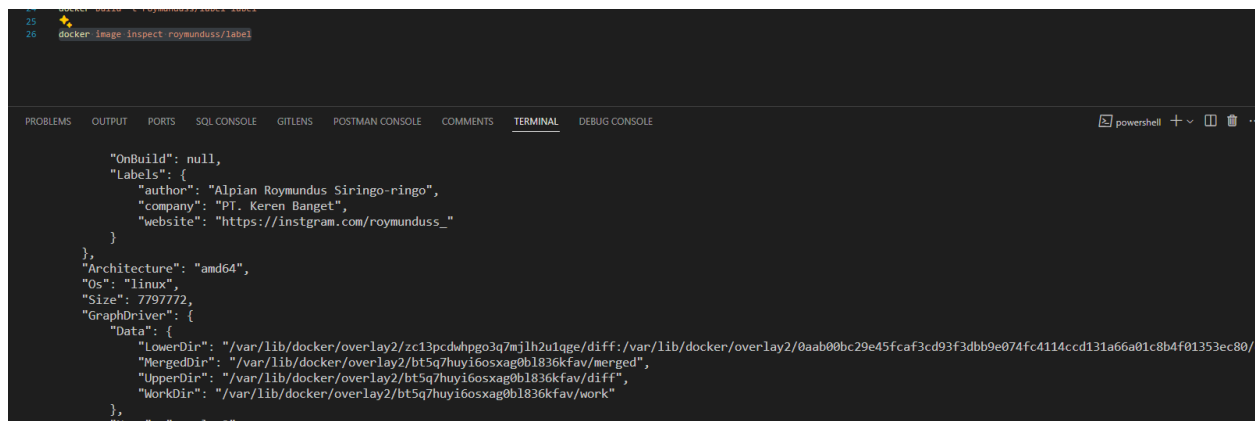


```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/label label
[+] Building 6.9s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 272B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> CACHED [2/3] RUN mkdir hello
=> CACHED [3/3] RUN echo "Hello World" > "hello/world.txt"
=> exporting to image
=> => exporting layers
=> => writing image sha256:a391ac87bce5c77513758c8b361ac76ad803f13f5ceb5509d89eb714087c25b3
=> => naming to docker.io/roymunduss/label

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/dabawcyd17g2s613l0yivgqv1
```

Membangun image Docker dengan menggunakan LABEL untuk menambahkan metadata pada image.

10. Inspect Docker Image



```
25
26 docker image inspect roymunduss/label

[
  {
    "OnBuild": null,
    "Labels": {
      "author": "Alpian Roymundus Siringo-ringo",
      "company": "PT. Keren Banget",
      "website": "https://instagram.com/roymunduss_"
    },
    "Architecture": "amd64",
    "Os": "linux",
    "Size": 7797772,
    "GraphDriver": {
      "Data": {
        "LowerDir": "/var/lib/docker/overlay2/zc13pcdwhpg03q7mjlh2u1qge/diff:/var/lib/docker/overlay2/8aab00bc29e45fcaf3cd93f3dbb9e074fc4114ccd131a66a01c8b4f01353ec80/",
        "MergedDir": "/var/lib/docker/overlay2/bt5q7huyi6osxag0b1836kfav/merged",
        "UpperDir": "/var/lib/docker/overlay2/bt5q7huyi6osxag0b1836kfav/diff",
        "WorkDir": "/var/lib/docker/overlay2/bt5q7huyi6osxag0b1836kfav/work"
      },
      "Name": "overlay2"
    }
  }
]
```

Menampilkan detail metadata dari image roymunduss/label.

11. ADD Instruction

```
Dockerfile label Dockerfile from script.sh world.txt Dockerfile add X
add > Dockerfile > ...
1 FROM alpine:3
2
3 RUN mkdir hello
4
5 ADD text/*.txt hello
6 |
7 CMD cat "hello/world.txt"
```

12. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/add add
[+] Building 3.5s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 122B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> [internal] load build context
=> => transferring context: 153B
=> CACHED [2/3] RUN mkdir hello
=> [3/3] ADD text/*.txt hello
=> exporting to image
=> => exporting layers
=> => writing image sha256:b9587e02ca46995213683d4132ed27f0aa925757ae69f4c3085787126284adef
=> => naming to docker.io/roymunduss/add

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/nod2zodv9lzt7didw40owtxjr
```

Membangun image Docker dengan menggunakan instruksi ADD untuk menambahkan file atau direktori dari host ke image.

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name add roymunduss/add
6628c2cc95ee50a92865243f114307bd2fc1abb028065a15b34f6a840619295c
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
>> docker container start add
add
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs add
Hello World
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> |
```

Membuat container bernama add dari image roymunduss/add.

docker container start add: Menjalankan container add.

docker container logs add: Menampilkan log dari container add.

13. COPY Instruction

```
copy > Dockerfile > ...
1 FROM alpine:3
2
3 RUN mkdir hello
4
5 COPY text/*.txt hello
6
7 CMD cat "hello/world.txt"
```

14. Docker Build

```
3 | RUN mkdir hello
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/copy copy
[+] Building 2.6s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 124B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> [internal] load build context
=> => transferring context: 153B
=> CACHED [2/3] RUN mkdir hello
=> [3/3] COPY text/*.txt hello
=> exporting to image
=> => exporting layers
=> => writing image sha256:89fe45c3d7231ac0c510acaf224fe2e4e6f1bbdc08545055df22d140b6e19cf5
=> => naming to docker.io/roymunduss/copy

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/0ui7647ido86tu1n7rm2n0ju5
```

Membangun image Docker menggunakan instruksi COPY untuk menyalin file dari host ke image Docker.

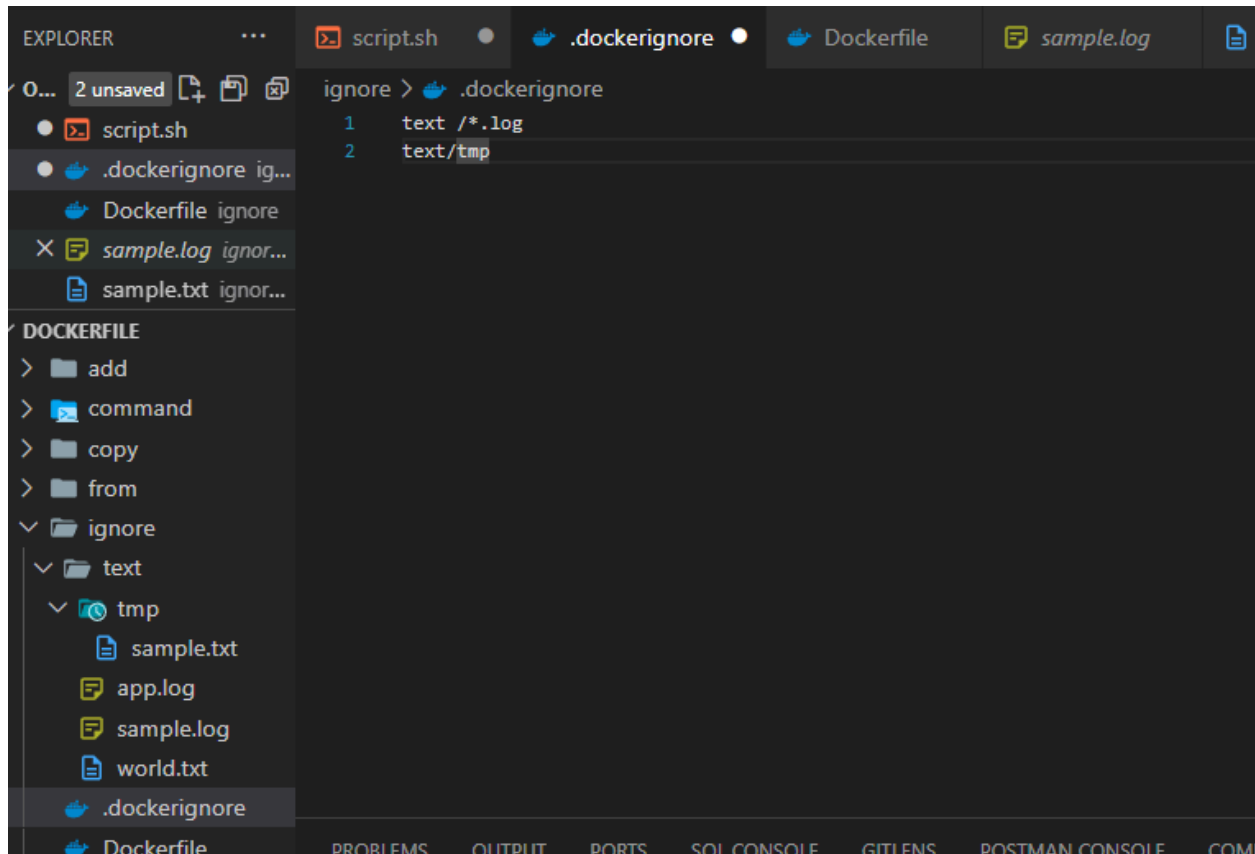
```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name copy roymunduss/copy
1971f430c2410601e3cbe52c41ddbca867f5357f6b11eca4cda1facfe34b34df
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start copy
copy
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs copy
Alpian Roymundus Siringoringo
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> |
```

Membuat container bernama copy dari image roymunduss/copy.

docker container start copy: Menjalankan container copy.

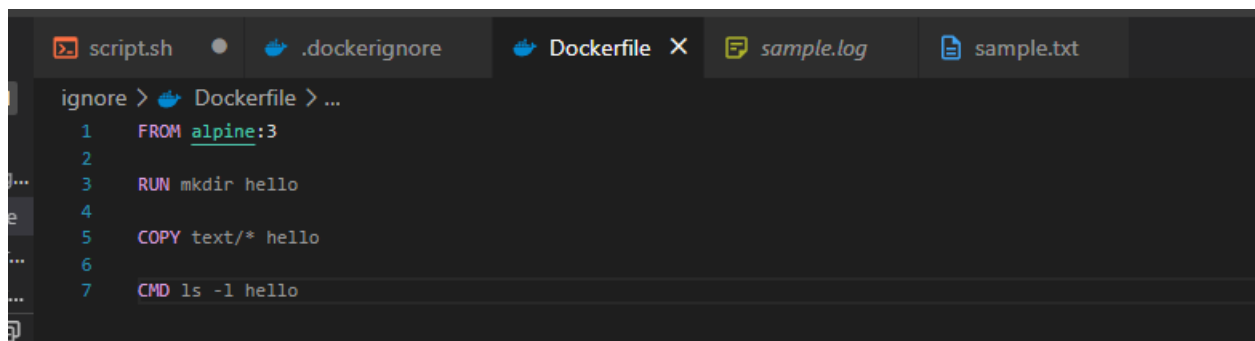
docker container logs copy: Menampilkan log dari container copy.

15. Dockerignore File



Membuat struktur file

16. Dockerfile



17. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/ignore ignore
[+] Building 3.1s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 110B
=> [internal] load metadata for docker.io/library/alpine:3
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 34B
=> [1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> [internal] load build context
=> => transferring
=> CACHED [2/3] RUN docker-desktop://dashboard/build/desktop-linux/desktop-
=> [3/3] COPY text/ linux/xiw8s4ough7n9m1qjmu89fq8 (ctrl + click)
=> exporting to image
=> => exporting layers
=> => writing image sha256:d3973b719ca94ee79f79330f953c6201759df22f1484e496fbca13ae01c6c48f
=> => naming to docker.io/roymunduss/ignore

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/xiw8s4ough7n9m1qjmu89fq8
1 warning found (use docker --debug to expand):
```

Membangun image Docker dengan menggunakan file .dockerignore untuk mengabaikan file tertentu saat membangun image.

18. Docker Container Logs

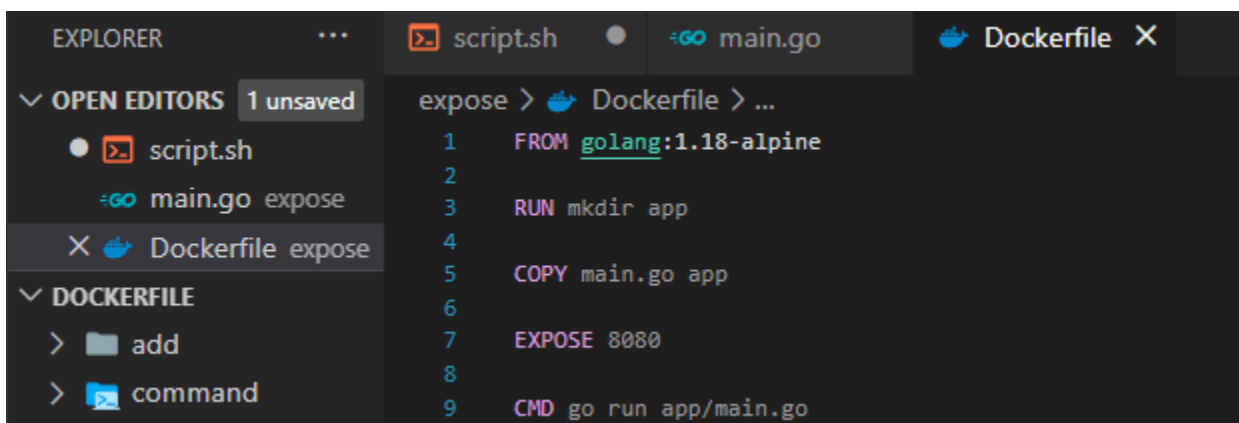
```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name ignore roymunduss/ignore
>> c5e901ebd4bc5b6ca218e26e2ac0c442337132ccfcd9fa828fa049d072e583
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start ignore
>> ignore
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs ignore
total 8
-rwxr-xr-x 1 root root 0 Oct 18 04:50 app.log
-rwxr-xr-x 1 root root 19 Oct 18 04:52 sample.log
-rwxr-xr-x 1 root root 13 Oct 18 04:51 world.txt
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

docker container create --name ignore roymunduss/ignore: Membuat container bernama ignore dari image roymunduss/ignore.

docker container start ignore: Menjalankan container ignore.

docker container logs ignore: Menampilkan log dari container ignore.

19. Expose Instruction



The screenshot shows the Visual Studio Code interface with a Dockerfile open. The Explorer sidebar on the left shows the file structure with 'script.sh', 'main.go', and 'Dockerfile'. The Dockerfile editor on the right contains the following instructions:

```
1 FROM golang:1.18-alpine
2
3 RUN mkdir app
4
5 COPY main.go app
6
7 EXPOSE 8080
8
9 CMD go run app/main.go
```


20. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/expose expose
[+] Building 558.5s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 142B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> => resolve docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> => sha256:8921db27df2831fa6eaa85321205a2470c669b855f3ec95d5a3c2b46de0442c9 3.37MB / 3.37MB
=> => sha256:a2f8637abd914a8a62416e027a351293d0472bc4b4f44383c6f425fd0e03861c 284.81kB / 284.81kB
=> => sha256:4ba80a8cd2c7b1695ffb2166c58c8d0f0d4562c943fdb929d22467df250536bb 115.40MB / 115.40MB
=> => sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807 1.65kB / 1.65kB
=> => sha256:ab5685692564e027aa84e2980855775b2e48f8c82c1590c0e1e8cbc2e716542 1.16kB / 1.16kB
=> => sha256:a77f45e5f987fb7def8755903ad89fe37a38105dcf475be26550d7d86364e166 5.01kB / 5.01kB
=> => sha256:dbc2308a458705184f3d2a5000ced1c12609903c00c09a9cf01284764b57315b 155B / 155B
=> => extracting sha256:8921db27df2831fa6eaa85321205a2470c669b855f3ec95d5a3c2b46de0442c9
=> => extracting sha256:a2f8637abd914a8a62416e027a351293d0472bc4b4f44383c6f425fd0e03861c
=> => extracting sha256:4ba80a8cd2c7b1695ffb2166c58c8d0f0d4562c943fdb929d22467df250536bb
=> => extracting sha256:dbc2308a458705184f3d2a5000ced1c12609903c00c09a9cf01284764b57315b
```

Membangun image yang menggunakan instruksi EXPOSE untuk mendeklarasikan port yang digunakan oleh container.

21. Docker Image Inspect

```
PROBLEMS OUTPUT PORTS SQL CONSOLE GITLENS POSTMAN CONSOLE COMMENTS TERMINAL DEBUG CONSOLE

"Domainname": "",
"User": "",
"AttachStdin": false,
"AttachStdout": false,
"AttachStderr": false,
"ExposedPorts": {
  "8080/tcp": {}
},
"Tty": false,
"OpenStdin": false,
"StdinOnce": false,
"Env": [
  "PATH=/go/bin:/usr/local/go/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
  "GOLANG_VERSION=1.18.10",
  "GOPATH=/go"
],
"Cmd": [
  "/bin/sh",
  "-c",
  "go run app/main.go"
]
```

Menampilkan metadata dari image roymunduss/expose.

22. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name expose -p 8080:8080 roymunduss/expose
380ef33aff82219b9228d24bee2f1a8db025a853b0bae174e9e953eb053352
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start expose
expose
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                   NAMES
380ef33aff8    roymunduss/expose  "/bin/sh -c 'go run ..." About a minute ago Up 52 seconds  0.0.0.0:8080->8080/tcp  expose
```

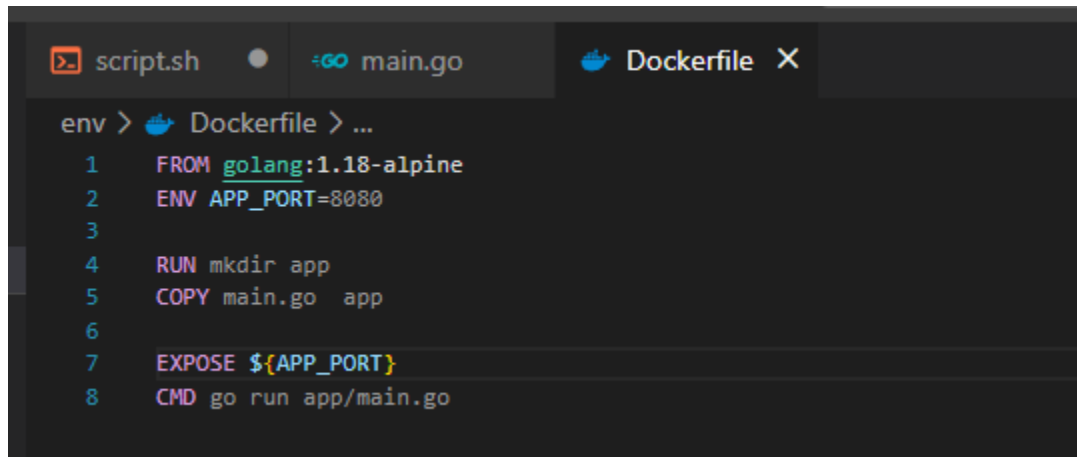
docker container create --name expose -p 8080:8080 roymunduss/expose: Membuat container expose dan memetakan port 8080 di container ke port 8080 di host.

docker container start expose: Menjalankan container expose.

docker container ls: Menampilkan daftar container yang sedang berjalan.

docker container stop expose: Menghentikan container expose.


23. ENV Instruction



The screenshot shows a code editor with three tabs: 'script.sh', 'main.go', and 'Dockerfile'. The 'Dockerfile' tab is active, displaying the following content:

```
env > Dockerfile > ...  
1 FROM golang:1.18-alpine  
2 ENV APP_PORT=8080  
3  
4 RUN mkdir app  
5 COPY main.go app  
6  
7 EXPOSE ${APP_PORT}  
8 CMD go run app/main.go
```

24. Docker Build



The screenshot shows a terminal window with the following output:

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/env env  
[+] Building 3.3s (9/9) FINISHED  
=> [internal] load build definition from Dockerfile  
=> => transferring dockerfile: 162B  
=> [internal] load metadata for docker.io/library/golang:1.18-alpine  
=> [auth] library/golang:pull token for registry-1.docker.io  
=> [internal] load .dockerignore  
=> => transferring context: 2B  
=> CACHED [1/3] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807  
=> [internal] load build context  
=> => transferring context: 384B  
=> [2/3] RUN mkdir app  
=> [3/3] COPY main.go app  
=> exporting to image  
=> => exporting layers  
=> => writing image sha256:5d46f4b0ed82967e8f3b5e880bad78f5d71801557f509a32e045d0fc78e15efd  
=> => naming to docker.io/roymunduss/env  
  
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/78ezov33d8om4m3smeyczg6m0
```

Membangun image yang menggunakan instruksi ENV untuk mendefinisikan variabel lingkungan.

25. Inspect Docker Image

```
PROBLEMS OUTPUT PORTS SQL CONSOLE GITLENS POSTMAN CONSOLE COMMENTS TERMINAL DEBUG CONSOLE

},
  "Tty": false,
  "OpenStdin": false,
  "StdinOnce": false,
  "Env": [
    "PATH=/go/bin:/usr/local/go/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
    "GOLANG_VERSION=1.18.10",
    "GOPATH=/go",
    "APP_PORT=8080"
  ],
  "Cmd": [
    "/bin/sh",
    "-c",
    "go run app/main.go"
  ],
  "ArgsEscaped": true,
  "Image": "",
  "Volumes": null,
  "WorkingDir": "/go",
  "Entrypoint": null,
  "OnBuild": null,
```

docker image inspect roymunduss/env: Menampilkan metadata dari image roymunduss/env

26. Docker Container

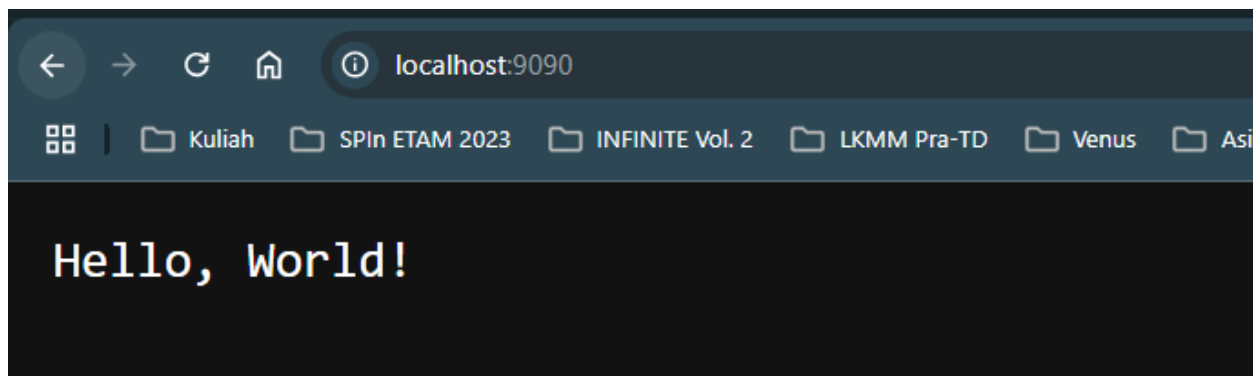
```
PROBLEMS OUTPUT PORTS SQL CONSOLE GITLENS POSTMAN CONSOLE COMMENTS TERMINAL DEBUG CONSOLE

PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name env --env APP_PORT=9090 -p 9090:9090 roymunduss/env
2fb27a8d01fc3e0c984a435cd37e4cbb542c353298a0df6549eec48c9d12c78b
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start env
env
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
2fb27a8d01fc   roymunduss/env  "/bin/sh -c 'go run ...'"  27 seconds ago  Up 3 seconds  8080/tcp, 0.0.0.0:9090->9090/tcp    env
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs env
Run app in port : 9090
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> |
```

docker container create --name env --env APP_PORT=9090 -p 9090:9090 roymunduss/env: Membuat container bernama env, mengeksport variabel lingkungan APP_PORT=9090, dan memetakan port 9090.

docker container start env: Menjalankan container env

docker container logs env: Menampilkan log dari container env.



27. Volume Instruction

```

volume > Dockerfile > ...
1 FROM golang:1.18-alpine
2 ENV APP_PORT=8080
3 ENV APP_DATA=/logs
4
5 RUN mkdir ${APP_DATA}
6 RUN mkdir app
7 COPY main.go app
8
9 EXPOSE ${APP_PORT}
10 VOLUME ${APP_DATA}
11 CMD go run app/main.go

```

28. Docker Build

```
PS C:\Users\alpia\Documents\Wateri dan Tugas Kuliah\Semester 7\Sistem Terdistribusi> docker build -t roymunduss/volume volume
[+] Building 2.5s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 227B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453df0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 29B
=> CACHED [2/4] RUN mkdir /logs
=> CACHED [3/4] RUN mkdir app
=> CACHED [4/4] COPY main.go app
=> exporting to image
=> => exporting layers
=> => writing image sha256:003bc7a30005546b9562d3ffcb7b0807c3e7591135cc20f842332b99fc54558
=> => naming to docker.io/roymunduss/volume
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/pewhym6z7a4pq1n9eqqbtzx5
```

Membangun image Docker yang menggunakan VOLUME untuk membuat mount point di dalam container.

29. Docker Image Inspect

```

    "Image": "",
    "Volumes": {
      "/logs": {}
    },
    "WorkingDir": "/go",
    "Entrypoint": null,
    "OnBuild": null,
    "Labels": null
  },
  "Architecture": "amd64",
  "Os": "linux",
  "Size": 329708288,
  "GraphDriver": {
    "Data": {
      "LowerDir": "/var/lib/docker/overlay2/rar5tvvtrifziq0wdzlhxt28d/diff:/var/lib/docker/overlay2/r43knf0yret5xzj36mmf093a5faf977e5fee7095a78f785f991d9a68c71affad0db/diff:/var/lib/docker/overlay2/4cdf66ce27101dffd78617daf87b1bc81632625a992522abdbf093a5faf977e5fee7095a78f785f991d9a68c71affad0db/diff:/var/lib/docker/overlay2/432eb0c7237aabf490d0076e5d8cb0478838d49ee7

```

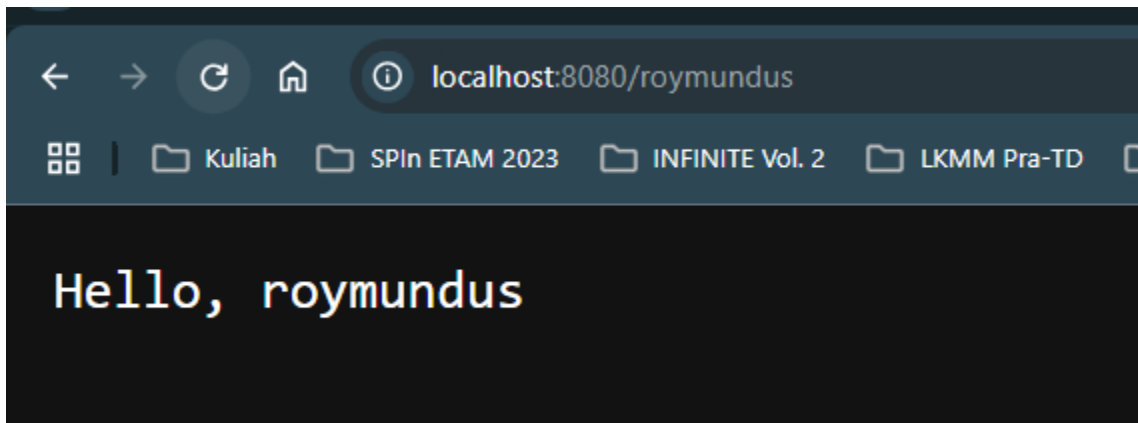
Menampilkan metadata dari image roymunduss/volume.

30. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name volume -p 8080:8080 roymunduss/volume
cac924cb4fd3ff76d9bbd92e28b884dfb4491260d4e1ed3d8df6ced3a589d54
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start volume
volume
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs volume
Run app in port : 8080
DONE Write File : /logs/.txt
DONE Write File : /logs/favicon.ico.txt
DONE Write File : /logs/alpian.txt
DONE Write File : /logs/favicon.ico.txt
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs volume
Run app in port : 8080
DONE Write File : /logs/.txt
DONE Write File : /logs/favicon.ico.txt
DONE Write File : /logs/alpian.txt
DONE Write File : /logs/favicon.ico.txt
DONE Write File : /logs/roymundus.txt
DONE Write File : /logs/favicon.ico.txt
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> █
```

docker container create --name volume -p 8080:8080 roymunduss/volume: Membuat container bernama volume dan memetakan port 8080.

docker container start volume: Menjalankan container volume.



31. Docker Container Inspect

```
PROBLEMS OUTPUT PORTS SQL CONSOLE GITLENS POSTMAN CONSOLE COMMENTS TERMINAL DEBUG CONSOLE

"Mounts": [
  {
    "Type": "volume",
    "Name": "6643a833ca0d42f757afef3ffe070565b4a2908a89b1896197c0395b1fd5425a",
    "Source": "/var/lib/docker/volumes/6643a833ca0d42f757afef3ffe070565b4a2908a89b1896197c0395b1fd5425a/_data",
    "Destination": "/logs",
    "Driver": "local",
    "Mode": "",
    "RW": true,
    "Propagation": ""
  }
],
"Config": {
  "Hostname": "cac924cb4fd3",
  "Domainname": "",
  "User": "",
  "AttachStdin": false,
  "AttachStdout": true,
  "AttachStderr": true,
  "ExposedPorts": {
    "8080/tcp": {}
  }
}
```

docker container inspect volume: Menampilkan informasi detail dari container volume.

32. Docker Volume

```
94
95 docker container inspect volume
96 6643a833ca0d42f757afef3ffe070565b4a2908a89b1896197c0395b1fd5425a
```

PROBLEMS	OUTPUT	PORTS	SQL CONSOLE	GITLENS	POSTMAN CONSOLE	COMMENTS	TERMINAL	DEBUG CONSOLE
DRIVER	VOLUME NAME							
local	00daeb51d626bde381a492f82b27e4ddbfbac60368460082ed8c032cbe500ea							
local	6ee8c93b01b4656b76632a80abbcc11111146a957b56b8f91fa8bcb200fab1a							
local	21d498188bafd848bdf26fd1e134781a3746e0473ac19bfe2d0a5377f6adb281							
local	703f4c5af90b0cbb1891068be3e62a68a110f8c0188c9c8951d76573593c4252							
local	6088c54b6fe2082aeaf371f086f72071ff4d3fb3b18bcf064dcff4787bf19be2							
local	6643a833ca0d42f757afef3ffe070565b4a2908a89b1896197c0395b1fd5425a							
local	859594885fb12797e5041eba6882fe2315dffc7907257e2aad3950d988eb2e6c							
local	c9c3f93cfc992465354c91e393ab37f1efaffd650b7dc9c4d35ddc28d68c4f8							
local	mongodata							
local	mongodatabackup							

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

Melihat bahwa nama Volume sesuai dan sudah ada.

33. Working Directory Instruction

```
script.sh  main.go  Dockerfile X
```

```
workdir > Dockerfile > ...
1 FROM golang:1.18-alpine
2
3 WORKDIR /app
4 COPY main.go /app
5
6 EXPOSE 8080
7 CMD go run main.go
```

34. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES
cac924cb4fd3   roymunduss/volume  "/bin/sh -c 'go run ..."  7 hours ago   Up 7 hours   0.0.0.0:8080->8080/tcp   volume
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container stop volume
volume
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

Memastikan tidak ada docker container yang berjalan.

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/workdir workdir
[+] Building 3.5s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 130B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> CACHED [1/3] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 290B
=> [2/3] WORKDIR /app
=> [3/3] COPY main.go /app
=> exporting to image
=> => exporting layers
=> => writing image sha256:4a0b1609940c00a445ea87e72fe29d84f62c9e72769fff579d5efe0b3c4cb42f
=> => naming to docker.io/roymunduss/workdir

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/fcypczx0ssgaatvg9a29i68ol
```

Membangun image yang menggunakan WORKDIR untuk menetapkan direktori kerja default dalam container.

35. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name workdir -p 8080:8080 roymunduss/workdir
workdir
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container exec -i -t workdir /bin/sh
/app # pwd
/app
/app # exit
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

Menjalankan shell interaktif di dalam container workdir.

36. User Instructions

```
script.sh Dockerfile user X main.go Dockerfile workdir
user > Dockerfile > ...
1 FROM golang:1.18-alpine
2
3 RUN mkdir /app
4
5 RUN addgroup -S humangroup
6 RUN adduser -S -D -h /app humanuser humangroup
7 RUN chown -R humanuser:humangroup /app
8 USER humanuser
9
10 COPY main/go /app
11
12 EXPOSE 8080
13 CMD go run /app/main.go
14
```

37. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/user user
[+] Building 2.5s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 277B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 29B
=> [1/6] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> CACHED [2/6] RUN mkdir /app
=> CACHED [3/6] RUN addgroup -S humangroup
=> CACHED [4/6] RUN adduser -S -D -h /app humanuser humangroup
=> [5/6] RUN chown -R humanuser:humangroup /app
=> [6/6] COPY main.go /app
=> exporting to image
=> => exporting layers
=> => writing image sha256:4a0b1609940c00a445ea87e72fe29d84f62c9e72769fff579d5efe0b3c4cb42f
=> => naming to docker.io/roymunduss/user

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/g098khc5pe3qur4sww4117ccw
```

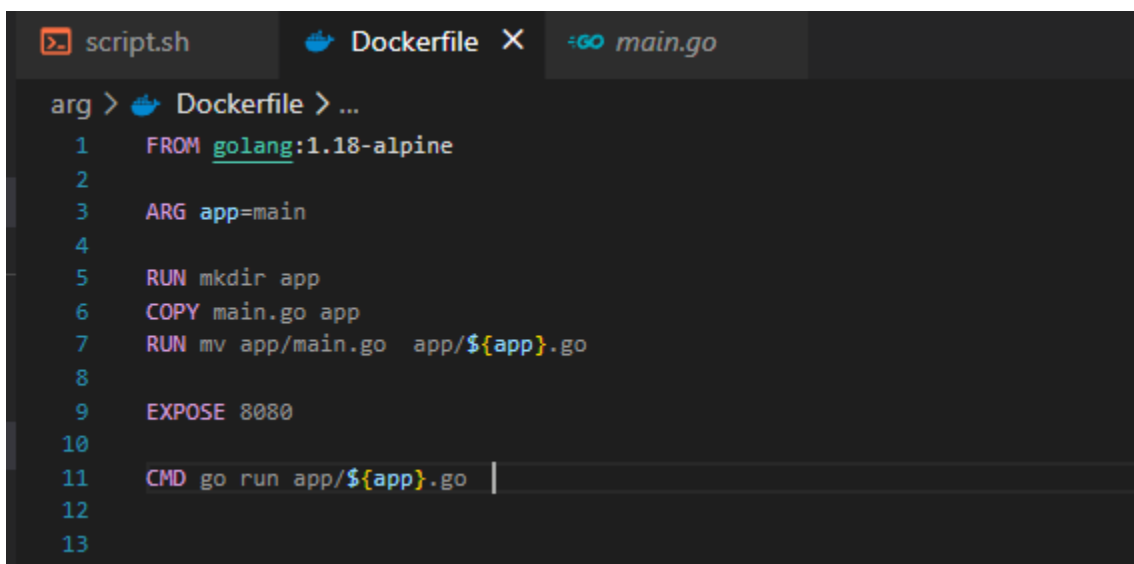
Membangun image yang menggunakan instruksi USER untuk menetapkan pengguna yang akan menjalankan container.

38. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name user -p 8080:8080 roymunduss/user
23c34db9aa6054a5a67f13ee74e8a63d9e5160676619b92d7d0902662bbb6a04
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start user
user
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container exec -i -t user /bin/sh
/go $ whoami
humanuser
/go $ exit
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> 
```

Menjalankan shell interaktif di dalam container user.

39. Argument Instruction



```
script.sh Dockerfile X main.go
arg > Dockerfile > ...
1 FROM golang:1.18-alpine
2
3 ARG app=main
4
5 RUN mkdir app
6 COPY main.go app
7 RUN mv app/main.go app/${app}.go
8
9 EXPOSE 8080
10
11 CMD go run app/${app}.go
12
13
```

40. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/arg arg --build-arg app=humanuser
[*] Building 4.2s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 197B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> CACHED [1/4] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 290B
=> [2/4] RUN mkdir app
=> [3/4] COPY main.go app
=> [4/4] RUN mv app/main.go app/humanuser.go
=> exporting to image
=> => exporting layers
=> => writing image sha256:63d92fea368d54cede0be53387120f5219ee9e8e9c12fca26e3a94e88d5e79cc
=> => naming to docker.io/roymunduss/arg
View build details: docker-desktop:///dashboard/build/desktop-linux/desktop-linux/90omha7b35zdew1k6vr2t8vf0
```

Membangun image dengan argumen build-time app=humanuser, yang dapat digunakan di dalam Dockerfile dengan instruksi ARG.

41. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name arg -p 8080:8080 roymunduss/arg
e3e9149cbeb86b8f3093c7658d9bca6608b55d50be27a05c62f0335015c92018
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start aarg
Error response from daemon: No such container: aarg
Error: failed to start containers: aarg
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start arg
arg
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container exec -i -t arg /bin/sh
Error response from daemon: container e3e9149cbeb86b8f3093c7658d9bca6608b55d50be27a05c62f0335015c92018 is not running
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container log arg

Usage:  docker container COMMAND

Manage containers

Commands:
  attach      Attach local standard input, output, and error streams to a running container
  commit      Create a new image from a container's changes
  cp          Copy files/folders between a container and the local filesystem
```

Membangun image dengan argumen build-time `app=humanuser`, yang dapat digunakan di dalam Dockerfile dengan instruksi `ARG`.

42. Argument dan Environment Instruction

```
PROBLEMS  OUTPUT  PORTS  SQL CONSOLE  GITLENS  POSTMAN CONSOLE  COMMENTS  TERMINAL  DEBUG CONSOLE

"TTY": false,
"OpenStdin": false,
"StdinOnce": false,
"Env": [
  "PATH=/go/bin:/usr/local/go/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
  "GOLANG_VERSION=1.18.10",
  "GOPATH=/go"
],
"Cmd": [
  "/bin/sh",
  "-c",
  "go run app/${app}.go"
],
"ArgsEscaped": true,
"Image": "",
"Volumes": null
```

```
script.sh  Dockerfile X  GO main.go

arg > Dockerfile > ...
1  FROM golang:1.18-alpine
2
3  ARG app=main
4
5  RUN mkdir app
6  COPY main.go app
7  RUN mv app/main.go app/${app}.go
8
9  EXPOSE 8080
10
11
12  ENV app=${app}
13  CMD go run app/${app}.go
14
15
```

```

PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/arg arg --build-arg app=humanuser
[*] Building 3.0s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 215B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 29B
=> CACHED [2/4] RUN mkdir app
=> CACHED [3/4] COPY main.go app
=> CACHED [4/4] RUN mv app/main.go app/humanuser.go
=> exporting to image
=> => exporting layers
=> => writing image sha256:743b3d023dcb1f1e7f7bcc8b2b3e43e5a210cd080062a225d0257c94c2683e89
=> => naming to docker.io/roymunduss/arg
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/n8xan207330abyff2juazpnr6

```

```

"Domainname": "",
"User": "",
"AttachStdin": false,
"AttachStdout": false,
"AttachStderr": false,
"ExposedPorts": {
    "8080/tcp": {}
},
"TTY": false,
"OpenStdin": false,
"StdinOnce": false,
"Env": [
    "PATH=/go/bin:/usr/local/go/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
    "GOLANG_VERSION=1.18.10",
    "GOPATH=/go",
    "app=humanuser"
],
"Cmd": [
    "/bin/sh",
    "-c",
    "go run app/${app}.go"
]

```

```

PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name arg -p 8080:8080 roymunduss/arg
e1b448f05142b14b7f78c72b3df9536cf037f38b61bc6080c249855847f8a618
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start arg
arg
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container exec -i -t arg /bin/sh
/go # cd /app
/bin/sh: cd: can't cd to /app: No such file or directory
/go # cd app
/go/app # ls -l
total 4
-rwxr-xr-x 1 root root 254 Oct 18 14:51 humanuser.go
/go/app # exit
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container stop arg
arg
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>

```

43. Health Check Instruction

```
script.sh Dockerfile X
health > Dockerfile > ...
1 FROM golang:1.18-alpine
2
3 RUN apk --no-cache add curl
4 RUN mkdir app
5
6 COPY main.go app
7
8 EXPOSE 8080
9
10 HEALTHCHECK --interval=5s --start-period=5s CMD curl -f http://localhost:8080/health
11
12 CMD go run app/main.go
```

44. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/health health
[+] Building 8.3s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 257B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> CACHED [1/4] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 531B
=> [2/4] RUN apk --no-cache add curl
=> [3/4] RUN mkdir app
=> [4/4] COPY main.go app
=> exporting to image
=> => exporting layers
=> => writing image sha256:3bc4d36018bf27643bcf0d0d43ec73f403c2b930321fb39ae5fe9b6d083edaf3
=> => naming to docker.io/roymunduss/health
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/ssfr5sdohaizigemeze01cgp
```

Membangun image yang menggunakan instruksi HEALTHCHECK untuk menentukan mekanisme pemantauan kesehatan container.

45. Docker Container

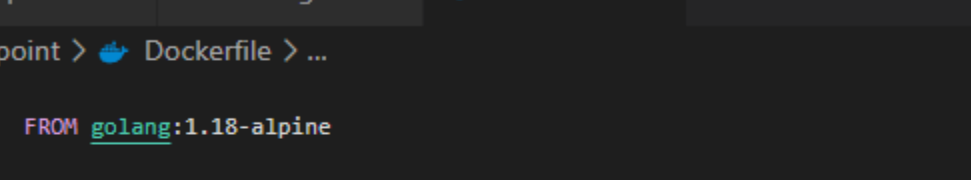
```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name health -p 8080:8080 roymunduss/health
9226f0069d24258b0b43ec1a41ccf446cd064a08f8df2310643e11bf0b892c759
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start health
health
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
9226f0069d24   roymunduss/health "/bin/sh -c 'go run ..." 26 seconds ago Up 7 seconds (healthy) 0.0.0.0:8080->8080/tcp health
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
9226f0069d24   roymunduss/health "/bin/sh -c 'go run ..." 37 seconds ago Up 19 seconds (healthy) 0.0.0.0:8080->8080/tcp health
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
9226f0069d24   roymunduss/health "/bin/sh -c 'go run ..." About a minute ago Up About a minute (unhealthy) 0.0.0.0:8080->8080/tcp health
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
9226f0069d24   roymunduss/health "/bin/sh -c 'go run ..." About a minute ago Up About a minute (unhealthy) 0.0.0.0:8080->8080/tcp health
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

46. Docker Container Inspect

[illegible]

Menampilkan informasi kesehatan dan status dari container health.

47. Entrypoint Instruction



The screenshot shows a terminal window with a dark background. At the top, there are three tabs: 'script.sh', 'main.go', and 'Dockerfile'. The 'Dockerfile' tab is active. The terminal prompt is 'entrypoint >'. Below the prompt, the content of the Dockerfile is displayed line by line, numbered 1 through 11. The Dockerfile instructions are: FROM golang:1.18-alpine, RUN mkdir /app/, COPY main.go /app/, EXPOSE 8080, ENTRYPOINT ["go", "run"], and CMD ["/app/main.go"].

```
entrypoint > Dockerfile > ...
1
2 FROM golang:1.18-alpine
3
4 RUN mkdir /app/
5 COPY main.go /app/
6
7 EXPOSE 8080
8
9 ENTRYPOINT ["go", "run"]
10
11 CMD ["/app/main.go"]
```

48. Docker Build

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/entrypoint entrypoint
[+] Building 3.3s (9/9) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 170B
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> CACHED [1/3] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd5f60a510165f3be89c901ace90453fd0f1c5a45691f6cb1528807
=> [internal] load build context
=> => transferring context: 275B
=> [2/3] RUN mkdir /app/
=> [3/3] COPY main.go /app/
=> exporting to image
=> => exporting layers
=> => writing image sha256:eb7a0da61e666e5db98c6e2e3608faf3976129d70464500f24fa28c03b0477e
=> => naming to docker.io/roymunduss/entrypoint
View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/1k1w7hnc57oe26n0xe2w98ta
```

```
PROBLEMS OUTPUT PORTS SQL CONSOLE GITLENS POSTMAN CONSOLE COMMENTS TERMINAL DEBUG CONSOLE

    "ArgsEscaped": true,
    "Image": "",
    "Volumes": null,
    "WorkingDir": "/go",
    "Entrypoint": [
        "go",
        "run"
    ],
    "OnBuild": null,
    "Labels": null
  },
  "Architecture": "amd64",
  "Os": "linux",
  "Size": 329707878,
  "GraphDriver": {
    "Data": {
```

Membangun image dengan instruksi ENTRYPOINT, yang menentukan program default yang akan dijalankan saat container dimulai.

49. Docker Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name entrypoint -p 8080:8080 roymunduss/entrypoint
c58a8e399833ee473b3d5cac2f9e25238e7381ce5c747456d32621016d8e42b2
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start entrypoint
entrypoint
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container logs entrypoint
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container exec -i -t entrypoint /bin/sh
/go # exit
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

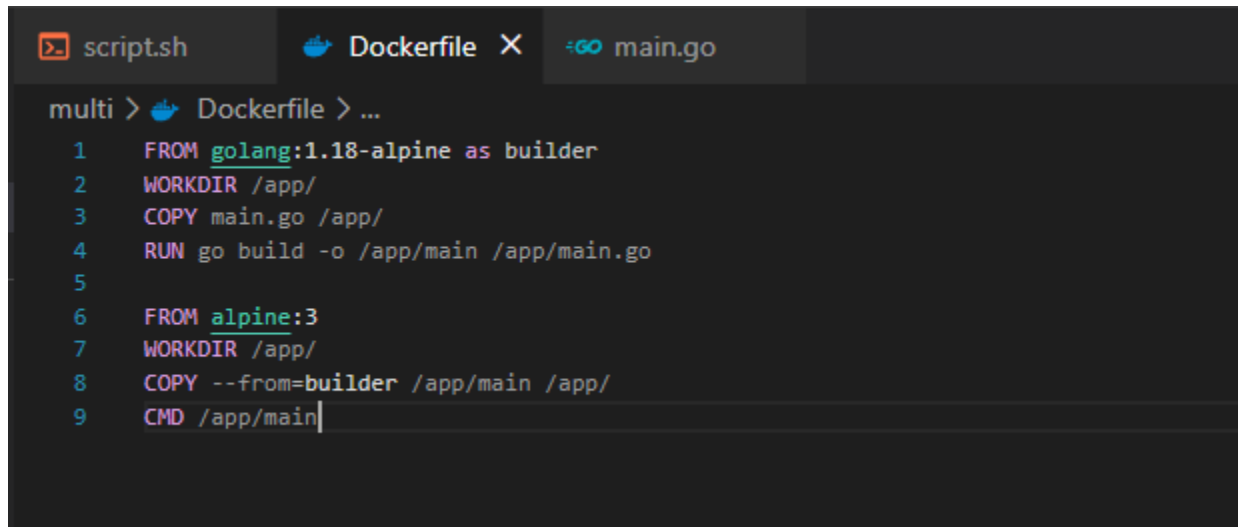
50. Image Size

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker image ls
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
roymunduss/entrypoint	latest	eb7a0da61e66	6 minutes ago	330MB
roymunduss/health	latest	3bc4d36018bf	20 minutes ago	332MB
roymunduss/arg	latest	743b3d023dcb	45 minutes ago	330MB
roymunduss/user	latest	d4ab9cac7b44	55 minutes ago	330MB
roymunduss/workdir	latest	4a0b1609940c	2 hours ago	330MB
<none>	<none>	d07ada86fcc3	9 hours ago	330MB
roymunduss/volume	latest	003bc7a30005	9 hours ago	330MB
roymunduss/env	latest	5d46f4b0ed82	10 hours ago	330MB
roymunduss/expose	latest	899acffcb42e	10 hours ago	330MB
roymunduss/ignore	latest	9c3a40eccb35	10 hours ago	7.8MB
<none>	<none>	d3973b719ca9	10 hours ago	7.8MB
roymunduss/copy	latest	89fe45c3d723	20 hours ago	7.8MB
roymunduss/add	latest	b9587e02ca46	2 days ago	7.8MB
roymunduss/command	latest	6e2f1bf742bc	2 days ago	7.8MB
roymunduss/label	latest	a391ac87bce5	2 days ago	7.8MB
roymunduss/run	latest	c009f86465e5	2 days ago	7.8MB
<none>	<none>	1f582c642cbe	2 days ago	7.8MB
getting-started	latest	c45e3d174ab7	2 weeks ago	471MB
mongo	latest	4d441da0b855	4 weeks ago	861MB
roymunduss/from	latest	e75ff1d806b9	6 weeks ago	7.8MB
ubuntu	latest	b1e9cef3f297	7 weeks ago	78.1MB
nginx	latest	9527c0f683c3	2 months ago	188MB
redis	latest	7e49ed81b42b	2 months ago	117MB
mongo-express	latest	870141b735e7	7 months ago	182MB

Melihat image yang ada

51. Multi Stage Build

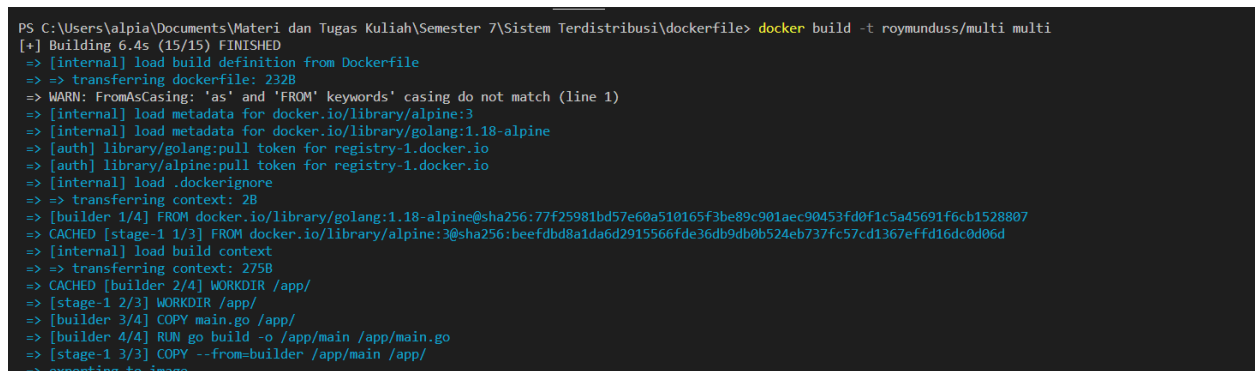


```
script.sh Dockerfile X main.go

multi > Dockerfile > ...

1 FROM golang:1.18-alpine as builder
2 WORKDIR /app/
3 COPY main.go /app/
4 RUN go build -o /app/main /app/main.go
5
6 FROM alpine:3
7 WORKDIR /app/
8 COPY --from=builder /app/main /app/
9 CMD /app/main
```

52. Docker Build



```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker build -t roymunduss/multi multi
[+] Building 6.4s (15/15) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 232B
=> WARN: FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 1)
=> [internal] load metadata for docker.io/library/alpine:3
=> [internal] load metadata for docker.io/library/golang:1.18-alpine
=> [auth] library/golang:pull token for registry-1.docker.io
=> [auth] library/alpine:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [builder 1/4] FROM docker.io/library/golang:1.18-alpine@sha256:77f25981bd57e60a510165f3be89c901aec90453fd0f1c5a45691f6cb1528807
=> CACHED [stage-1 1/3] FROM docker.io/library/alpine:3@sha256:beefdbd8a1da6d2915566fde36db9db0b524eb737fc57cd1367effd16dc0d06d
=> [internal] load build context
=> => transferring context: 275B
=> CACHED [builder 2/4] WORKDIR /app/
=> [stage-1 2/3] WORKDIR /app/
=> [builder 3/4] COPY main.go /app/
=> [builder 4/4] RUN go build -o /app/main /app/main.go
=> [stage-1 3/3] COPY --from=builder /app/main /app/
=> exporting to image
```

Membangun image menggunakan teknik multi-stage build untuk mengoptimalkan ukuran dan layer image.

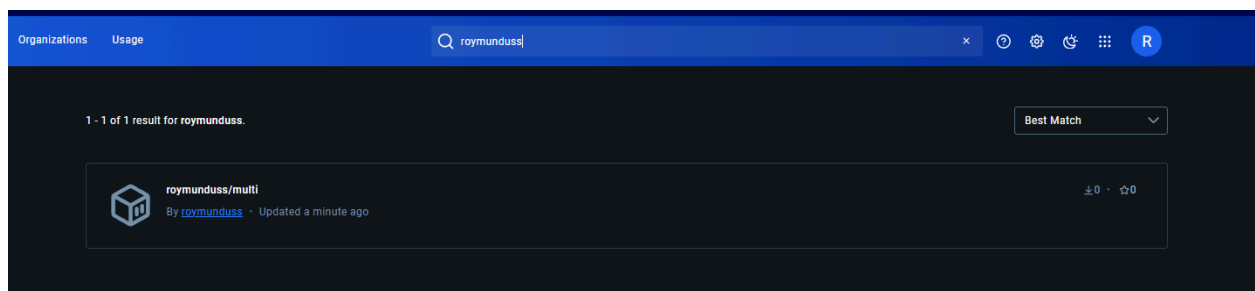
53. Docker Image & Container

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker image
REPOSITORY          TAG          IMAGE ID       CREATED        SIZE
roymunduss/multi     latest       980d47849356   44 seconds ago 14.1MB
roymunduss/entrypoint latest       eb7a0da61e66   15 minutes ago 330MB
roymunduss/health     latest       3bc4d36018bf   29 minutes ago 332MB
roymunduss/arg        latest       743b3d023dcb   54 minutes ago 330MB
roymunduss/user        latest       d4ab9cac7b44   About an hour ago 330MB
roymunduss/workdir    latest       4a0b1609940c   3 hours ago    330MB
<none>               <none>      d07ada86fcc3   9 hours ago    330MB
roymunduss/volume     latest       003bc7a30005   9 hours ago    330MB
roymunduss/env        latest       5d46f4b0ed82   10 hours ago   330MB
roymunduss/expose     latest       899acffcb42e   10 hours ago   330MB
roymunduss/ignore     latest       9c3a40eccb35   11 hours ago   7.8MB
<none>               <none>      d3973b719ca9   11 hours ago   7.8MB
roymunduss/copy        latest       89fe45c3d723   21 hours ago   7.8MB
roymunduss/add         latest       b9587e02ca46   2 days ago     7.8MB
roymunduss/label      latest       a391ac87bce5   2 days ago     7.8MB
roymundus/run         latest       c009f86465e5   2 days ago     7.8MB

docker/getting-started latest 3e4394f0072f 22 months ago 47MB
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container create --name multi -p 8080:8080 roymunduss/multi
Error response from daemon: Conflict. The container name "/multi" is already in use by container "cfd56424614d50f72d267e3f036023775ca8d2d9f02121494750ff972549689f". You have to remov
e (or rename) that container to be able to reuse that name.
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start multi
Error response from daemon: driver failed programming external connectivity on endpoint multi (20ecff2bc74d36334cc712005ed3a3c07aa4dd2cffe21d360ae156147303f0c): Bind for 0.0.0.0:808
0 failed: port is already allocated
Error: failed to start containers: multi
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container stop multi
multi
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container start multi
Error response from daemon: driver failed programming external connectivity on endpoint multi (7584f4f0f8c06427ed0d8f43490d9f9fd93b6e6df6718429d17382772c0dc67): Bind for 0.0.0.0:808
0 failed: port is already allocated
Error: failed to start containers: multi
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker container stop multi
multi
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```

54. Docker Push

```
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker login -u roymunduss
Password:
Login Succeeded
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile> docker push roymunduss/multi
Using default tag: latest
The push refers to repository [docker.io/roymunduss/multi]
4105e2ec6783: Pushed
88780845d09c: Pushed
63ca1fbb43ae: Mounted from library/alpine
latest: digest: sha256:c3fe991cfae6b81daa98f859262b8107e5f0bbfb97f83bdf43fe7cd7f61bce48 size: 945
PS C:\Users\alpia\Documents\Materi dan Tugas Kuliah\Semester 7\Sistem Terdistribusi\dockerfile>
```



Melakukan login ke akun Dockerhub dan melakukan push container.