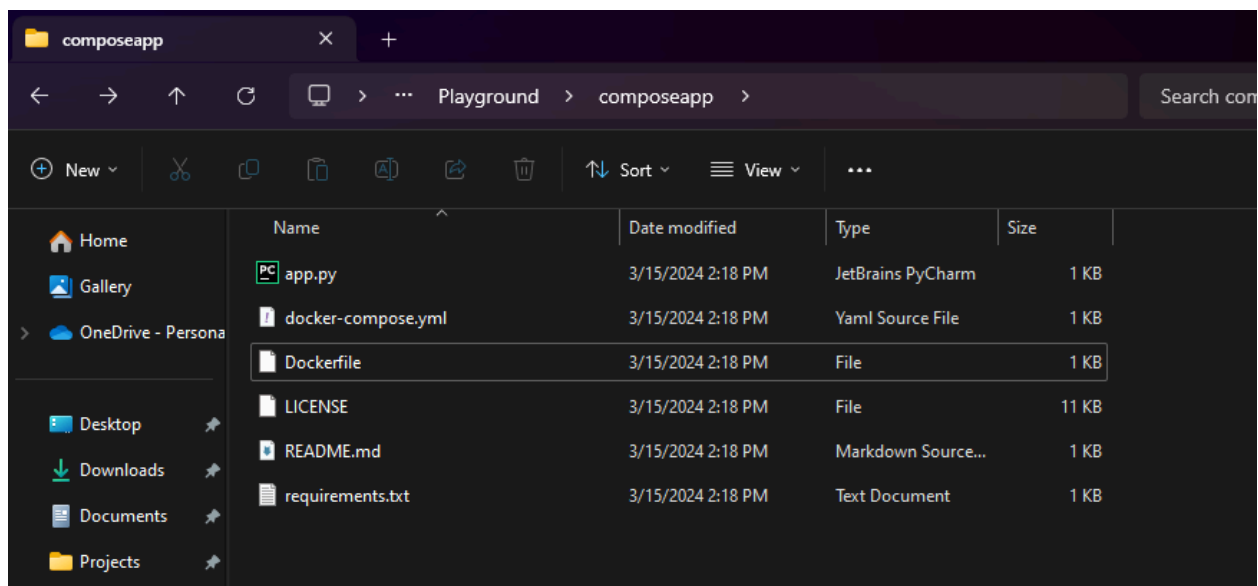# КИИИ Лаб 3

Class Assignment / Homework

- Install Docker Compose:
  - If you're using Windows / macOS, you already have Compose with Docker Desktop;
    - You can check the exact version via "About Docker Desktop" from the Docker menu;
  - If you're using a UNIX / Linux based OS, you can install the Compose plugin using this guide;
- Go through Chapter 7 in the Docker Book, and do the exercises one by one.
  - Start on page 254, and stop on page 270, when you reach "Consul, Service Discovery and Docker";

PROOF OF LAB

Docker build -t beratahmetaj/composeapp .

```
Start a build
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playground\compo
seapp> docker build -t beratahmetaj/composeapp .
[+] Building 14.7s (5/9)                                                                                    docker:default
 => [internal] load build definition from Dockerfile                                                                  0.0s
 => => transferring dockerfile: 198B                                                                                  0.0s
 => [internal] load metadata for docker.io/library/python:3.12                                                       2.2s
 => [auth] library/python:pull token for registry-1.docker.io                                                        0.0s
 => [internal] load .dockerignore                                                                                     0.0s
 => => transferring context: 2B                                                                                       0.0s
 => [internal] load build context                                                                                    0.1s
 => => transferring context: 11.28kB                                                                                  0.0s
 => [1/4] FROM docker.io/library/python:3.12@sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e     12.4s
 => => resolve docker.io/library/python:3.12@sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e9     0.0s
 => => sha256:91b4916e08589d8890d85c61c296482d26925dc65f03b5056f41f6d88fa88043 2.01kB / 2.01kB                       0.0s
 => => sha256:71215d55680cf0ab2dcc0e1dd65ed76414e3fb0c294249b5b9319a8fa7c398e4 27.26MB / 49.55MB                    12.4s
 => => sha256:3cb8f9c23302e175d87a827f0a1c376bd59b1f6949bd3bc24ab8da0d669cdfa0 20.97MB / 24.05MB                    12.4s
 => => sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e981c 2.14kB / 2.14kB                       0.0s
 => => sha256:ae29c48b74297d47dd4a2477690bc534163f76ff154d162cde49fafbb34a37fa 7.11kB / 7.11kB                       0.0s
 => => sha256:5f899db30843f8330d5a40d1acb26bb00e93a9f21bff253f31c20562fa264767 25.17MB / 64.14MB                    12.4s
```

```
=> [internal] load metadata for docker.io/library/python:3.12                                                        2.2s
=> [auth] library/python:pull token for registry-1.docker.io                                                         0.0s
=> [internal] load .dockerignore                                                                                      0.0s
=> => transferring context: 2B                                                                                        0.0s
=> [internal] load build context                                                                                     0.1s
=> => transferring context: 11.28kB                                                                                   0.0s
=> [1/4] FROM docker.io/library/python:3.12@sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e      73.6s
=> => resolve docker.io/library/python:3.12@sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e9      0.0s
=> => sha256:91b4916e08589d8890d85c61c296482d26925dc65f03b5056f41f6d88fa88043 2.01kB / 2.01kB                        0.0s
=> => sha256:71215d55680cf0ab2dcc0e1dd65ed76414e3fb0c294249b5b9319a8fa7c398e4 49.55MB / 49.55MB                     20.7s
=> => sha256:3cb8f9c23302e175d87a827f0a1c376bd59b1f6949bd3bc24ab8da0d669cdfa0 24.05MB / 24.05MB                     13.7s
=> => sha256:336461f63f4eb1100e178d5acbfea3d1a5b2a53dea88aa0f9b8482d4d02e981c 2.14kB / 2.14kB                        0.0s
=> => sha256:ae29c48b74297d47dd4a2477690bc534163f76ff154d162cde49fafbb34a37fa 7.11kB / 7.11kB                        0.0s
=> => sha256:5f899db30843f8330d5a40d1acb26bb00e93a9f21bff253f31c20562fa264767 64.14MB / 64.14MB                     32.2s
=> => sha256:567db630df8d441ffe43e050ede26996c87e3b33c99f79d4fba0bf6b7ffa0213 211.14MB / 211.14MB                   62.9s
=> => sha256:d68cd2123173935e339e3feb56980a0aefd7364ad43ca2b9750699e60fbf74c6 6.39MB / 6.39MB                       24.8s
=> => extracting sha256:71215d55680cf0ab2dcc0e1dd65ed76414e3fb0c294249b5b9319a8fa7c398e4                             3.5s
=> => extracting sha256:3cb8f9c23302e175d87a827f0a1c376bd59b1f6949bd3bc24ab8da0d669cdfa0                             1.0s
=> => sha256:63941d09e5322b88281f3a325eff9ced5bf2ee45b691aaf8ec2f829bafbd8021 22.71MB / 22.71MB                     35.4s
=> => sha256:097431623722383300c03bb41fd162d32346bf6a02a053263f51969eb9746e3d 244B / 244B                           32.8s
=> => extracting sha256:5f899db30843f8330d5a40d1acb26bb00e93a9f21bff253f31c20562fa264767                             4.1s
=> => sha256:09527fa4de8dd73399164c307942cc43652a01fc2bb370e38ae0f806b42b4b18 2.70MB / 2.70MB                       34.7s
=> => extracting sha256:567db630df8d441ffe43e050ede26996c87e3b33c99f79d4fba0bf6b7ffa0213                             8.3s
=> => extracting sha256:d68cd2123173935e339e3feb56980a0aefd7364ad43ca2b9750699e60fbf74c6                             0.4s
=> => extracting sha256:63941d09e5322b88281f3a325eff9ced5bf2ee45b691aaf8ec2f829bafbd8021                             0.9s
=> => extracting sha256:097431623722383300c03bb41fd162d32346bf6a02a053263f51969eb9746e3d                            0.0s
=> => extracting sha256:09527fa4de8dd73399164c307942cc43652a01fc2bb370e38ae0f806b42b4b18                             0.4s
=> [2/4] ADD . /composeapp                                                                                           1.1s
=> [3/4] WORKDIR /composeapp                                                                                          0.0s
=> [4/4] RUN pip install -r requirements.txt                                                                         5.4s
=> exporting to image                                                                                                0.2s
=> => exporting layers                                                                                               0.2s
=> => writing image sha256:d0100b7bc703b8958c93cb94e86e527274c36a403fff89b95b30fbac6edfaabe                          0.0s
=> => naming to docker.io/beratahmetaj/composeapp                                                                    0.0s

View build details: docker-desktop://dashboard/build/default/default/nir7xxvltaifqmdf5miltr0v7

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playground\compo
seapp>
```
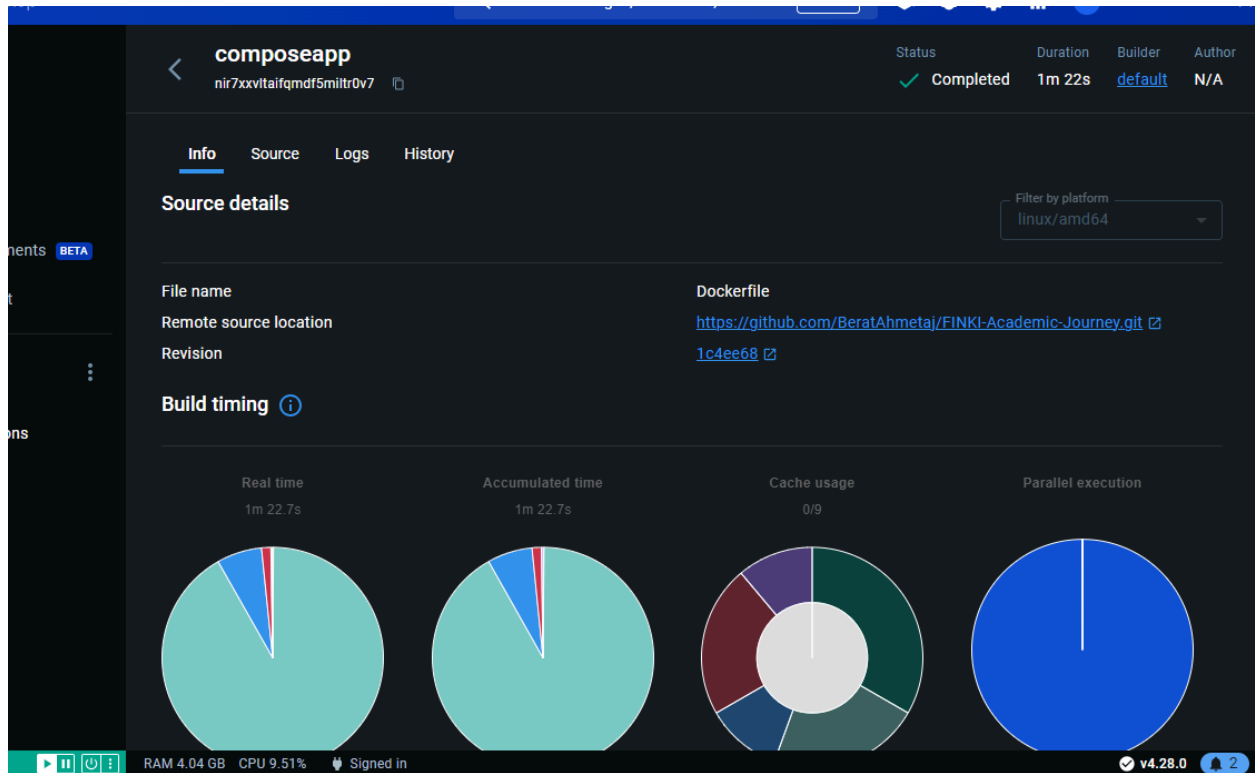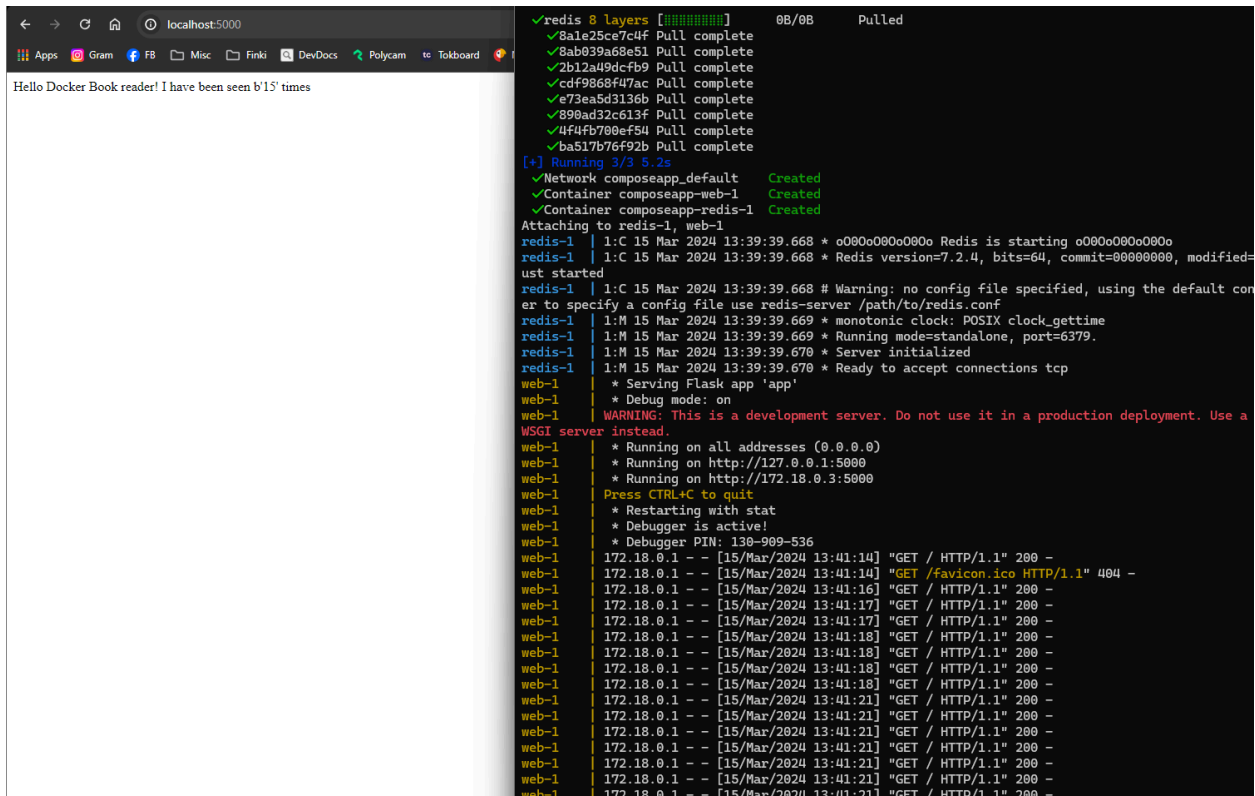
Docker-compose.yml


```yaml
version: '3'
services:
  web:
    image: beratahmetaj/composeapp
    command: python app.py
    ports:
      - "5000:5000"
    volumes:
      - .:/composeapp
  redis:
    image: redis
```

Docker compose up

```
        ✓8ab039a68e51 Download complete
                        0.7s
        ✓2b12a49dcfb9 Download complete
                        0.7s
            ac Download complete
            [+] Running 6/9- redis 8 layers [▓▓▓▓.▓▓▓▓] 26.66MB/49.96MB Pulling
 - redis 8 layers [▓▓▓▓.▓▓▓▓] 26.87MB/49.96MB Pulling
        8.2s
        - 8a1e25ce7c4f Downloading      [=======================================>          ]...
        5.4s
        ✓8ab039a68e51 Download complete
        0.7s
        ✓2b12a49dcfb9 Download complete
        0.7s
[+] Running 9/9ac Download complete
    ✓redis 8 layers [▓▓▓▓▓▓▓▓▓]      0B/0B      Pulled                                                      13.2s
        ✓8a1e25ce7c4f Pull complete                                                                         6.8s
        ✓8ab039a68e51 Pull complete                                                                         0.7s
        ✓2b12a49dcfb9 Pull complete                                                                         0.7s
        ✓cdf9868f47ac Pull complete                                                                         2.5s
        ✓e73ea5d3136b Pull complete                                                                         9.3s
        ✓890ad32c613f Pull complete                                                                         3.3s
        ✓4f4fb700ef54 Pull complete                                                                         4.3s
        ✓ba517b76f92b Pull complete                                                                         5.2s
[+] Running 3/3 5.2s
    ✓Network composeapp_default      Created                                                                0.1s
    ✓Container composeapp-web-1      Created                                                                1.0s
    ✓Container composeapp-redis-1    Created                                                                1.0s
Attaching to redis-1, web-1
redis-1  | 1:C 15 Mar 2024 13:39:39.668 * oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
redis-1  | 1:C 15 Mar 2024 13:39:39.668 * Redis version=7.2.4, bits=64, commit=00000000, modified=0, pid=1, j
ust started
redis-1  | 1:C 15 Mar 2024 13:39:39.668 # Warning: no config file specified, using the default config. In ord
er to specify a config file use redis-server /path/to/redis.conf
redis-1  | 1:M 15 Mar 2024 13:39:39.669 * monotonic clock: POSIX clock_gettime
redis-1  | 1:M 15 Mar 2024 13:39:39.669 * Running mode=standalone, port=6379.
redis-1  | 1:M 15 Mar 2024 13:39:39.670 * Server initialized
redis-1  | 1:M 15 Mar 2024 13:39:39.670 * Ready to accept connections tcp
web-1    |  * Serving Flask app 'app'
web-1    |  * Debug mode: on
web-1    | WARNING: This is a development server. Do not use it in a production deployment. Use a production
WSGI server instead.
web-1    |  * Running on all addresses (0.0.0.0)
web-1    |  * Running on http://127.0.0.1:5000
web-1    |  * Running on http://172.18.0.3:5000
web-1    | Press CTRL+C to quit
web-1    |  * Restarting with stat
web-1    |  * Debugger is active!
web-1    |  * Debugger PIN: 130-909-536
```
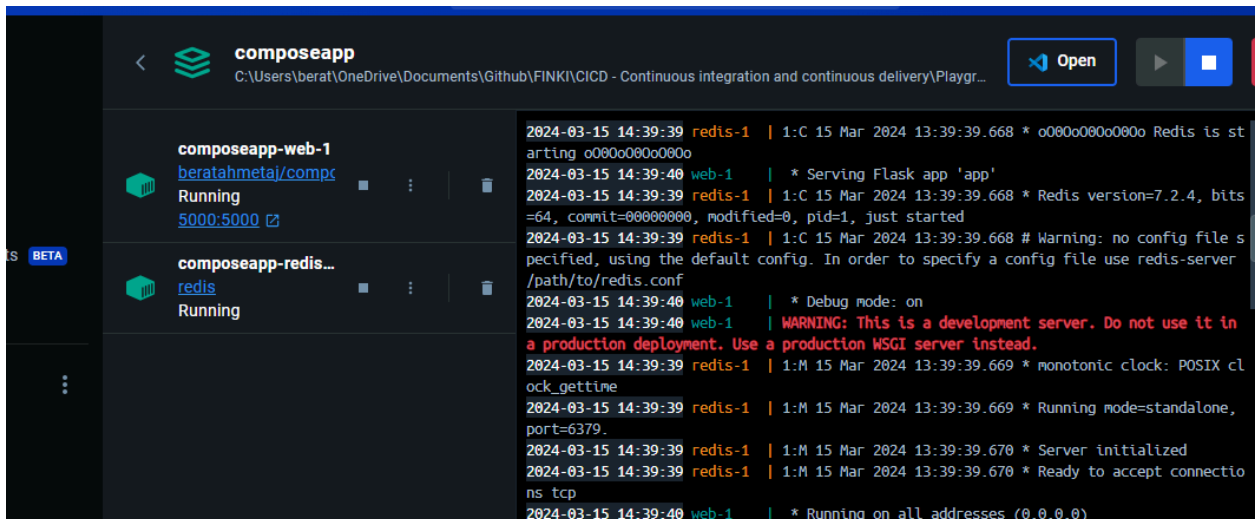
Localhost:5000 browser view on refresh:

Now with docker compose -d:

```
round\composeapp> docker compose ps
NAME                    IMAGE                       COMMAND                 SERVICE    CREATED         STATUS
     PORTS
composeapp-redis-1      redis                       "docker-entrypoint.s…"  redis      3 minutes ago   Up 34 secon
ds    6379/tcp
composeapp-web-1        beratahmetaj/composeapp     "python app.py"         web        3 minutes ago   Up 34 secon
ds    0.0.0.0:5000->5000/tcp
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playg
round\composeapp>
```

Docker compose logs:

```
web-1    | Press CTRL+C to quit
web-1    |  * Restarting with stat
web-1    |  * Debugger is active!
web-1    |  * Debugger PIN: 130-909-536
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:14] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:14] "GET /favicon.ico HTTP/1.1" 404 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:16] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:17] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:17] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:18] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:18] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:18] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:18] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    | 172.18.0.1 - - [15/Mar/2024 13:41:21] "GET / HTTP/1.1" 200 -
web-1    |  * Serving Flask app 'app'
web-1    |  * Debug mode: on
web-1    | WARNING: This is a development server. Do not use it in a production deployment. Use a production
WSGI server instead.
web-1    |  * Running on all addresses (0.0.0.0)
web-1    |  * Running on http://127.0.0.1:5000
web-1    |  * Running on http://172.18.0.2:5000
web-1    | Press CTRL+C to quit
web-1    |  * Restarting with stat
web-1    |  * Debugger is active!
web-1    |  * Debugger PIN: 654-435-521
redis-1  | 1:M 15 Mar 2024 13:42:06.601 * User requested shutdown...
redis-1  | 1:M 15 Mar 2024 13:42:06.601 * Saving the final RDB snapshot before exiting.
redis-1  | 1:M 15 Mar 2024 13:42:06.607 * DB saved on disk
redis-1  | 1:M 15 Mar 2024 13:42:06.607 # Redis is now ready to exit, bye bye...
redis-1  | 1:C 15 Mar 2024 13:42:23.055 * oO0OoO0OoO0Oo Redis is starting oO0OoO0OoO0Oo
redis-1  | 1:C 15 Mar 2024 13:42:23.055 * Redis version=7.2.4, bits=64, commit=00000000, modified=0, pid=1, j
ust started
redis-1  | 1:C 15 Mar 2024 13:42:23.055 # Warning: no config file specified, using the default config. In ord
er to specify a config file use redis-server /path/to/redis.conf
redis-1  | 1:M 15 Mar 2024 13:42:23.055 * monotonic clock: POSIX clock_gettime
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * Running mode=standalone, port=6379.
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * Server initialized
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * Loading RDB produced by version 7.2.4
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * RDB age 17 seconds
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * RDB memory usage when created 0.90 Mb
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * Done loading RDB, keys loaded: 1, keys expired: 0.
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * DB loaded from disk: 0.000 seconds
redis-1  | 1:M 15 Mar 2024 13:42:23.056 * Ready to accept connections tcp
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playg
round\composeapp>
```

Docker compose stop

```
round\composeapp> docker compose stop
[+] Stopping 2/2
  ✓Container composeapp-redis-1    Stopped
  ✓Container composeapp-web-1      Stopped
```

Docker compose rm

```
PS C:\Users\berat\OneDrive\Documents\GitHub\FINKI\CICD - Continuous Integr
? Going to remove composeapp-web-1, composeapp-redis-1 Yes
[+] Removing 2/0e composeapp-web-1, composeapp-redis-1 (y/N) y
  ✓Container composeapp-redis-1    Removed
  ✓Container composeapp-web-1      Removed
```

Docker image rm [image-name]

```
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playg
round\composeapp> docker image rm beratahmetaj/composeapp
Untagged: beratahmetaj/composeapp:latest
Deleted: sha256:d0100b7bc703b8958c93cb94e86e527274c36a403fff89b95b30fbac6edfaabe
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playg
round\composeapp> docker image rm redis
Untagged: redis:latest
Untagged: redis@sha256:3134997edb04277814aa51a4175a588d45eb4299272f8eff2307bbf8b39e4d43
Deleted: sha256:170a1e90f8436daa6778aeea3926e716928826c215ca23a8dfd8055f663f9428
Deleted: sha256:07a225c671a5a8f3c0d3f48590dbb3c9567d00a020c49fff9e60d8dbd7fdc925
Deleted: sha256:ea580ef52fceb9e8458910388ea2b0cb7793a252bd5ece4a6fbdaee97b052ccd
Deleted: sha256:36022d92671a31dbf2801a15735a4cddfe220f755e6dfc1f094faacf8d4d68ec
Deleted: sha256:5ab673946d6214ee4cca972472c8504cb7e2f606cde16d7bdc81b995f33532cc
Deleted: sha256:b4b7f9d393a71ddd2d4ee4d08c9b0abb5494158126445b5907d559b1530d8e1b8
Deleted: sha256:a73fbd0cf0721f58760274cdf40771a5380fdacd993e5448b5dfab978e06e745
Deleted: sha256:da36ef59ebafc4af9e78fce5d6ff603f937befdb2270d3733dd25aa39cb8c563
Deleted: sha256:a483da8ab3e941547542718cacd3258c6c705a63e94183c837c9bc44eb608999
PS C:\Users\berat\OneDrive\Documents\Github\FINKI\CICD - Continuous integration and continuous delivery\Playg
round\composeapp>
```