

Lab 8 Assignment

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GitHub Link: <https://github.com/nikhil-405/stt-ai-08>

Provide a Link for the uploaded images on the docker hub.

Images have been uploaded to the docker hub [here](#)

GoogleDrive public link for “dockerfile” used to create images for all three tasks.

https://drive.google.com/drive/folders/12DUMWJ_Zscq3Xi9b8qv_KpsYo25AjLft?usp=drive_link

Screenshot when performing all the tasks. (Dockerfile code, building command and its output, running container and its output)

```

g23110218@vm1:~$ sudo docker compose down
WARN[0000] /home/g23110218/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 2/2
  ✓ Container g23110218-fastapi-ui-1   Removed
    0.4s
  ✓ Network g23110218_default          Removed
    0.1s
g23110218@vm1:~$ sudo docker compose up -d --build
WARN[0000] /home/g23110218/docker-compose.yml: the attribute `version` is obsolete, it will be ignored, please remove it to avoid potential confusion
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 11.4s (10/10) FINISHED
    docker:default
=> [fastapi-ui internal] load build definition from Dockerfile
    0.0s
=> => transferring dockerfile: 251B
    0.0s
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim
    0.8s
=> [fastapi-ui internal] load .dockerignore
    0.0s
=> => transferring context: 2B
    0.0s
=> [fastapi-ui 1/4] FROM docker.io/library/python:3.9-slim@sha256:e52ca5f579cc58fed41efcbb55a0ed5dccc6
    0.0s
=> [fastapi-ui internal] load build context
    0.1s
=> => transferring context: 174.47kB
    0.1s
=> CACHED [fastapi-ui 2/4] WORKDIR /app
    0.0s
=> [fastapi-ui 3/4] COPY . /app
    0.5s
=> [fastapi-ui 4/4] RUN pip install --no-cache-dir -r requirements.txt
    9.5s
=> [fastapi-ui] exporting to image
    0.3s
=> => exporting layers
    0.3s
=> => writing image sha256:5526e35bdad21221c27ddecea8e0cd2522b10b9516ed645cc612e0a74eef8adc
    0.0s
=> => naming to docker.io/library/g23110218-fastapi-ui

```

Deleting a docker container

```

=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim
0.8s
=> [fastapi-ui internal] load .dockerignore
0.0s
=> => transferring context: 2B
0.0s
=> [fastapi-ui 1/4] FROM docker.io/library/python:3.9-slim@sha256:e52ca5f579cc58fed41efcb3
a0ed5dccc6 0.0s
=> [fastapi-ui internal] load build context
0.1s
=> => transferring context: 174.47kB
0.1s
=> CACHED [fastapi-ui 2/4] WORKDIR /app
0.0s
=> [fastapi-ui 3/4] COPY . /app
0.5s
=> [fastapi-ui 4/4] RUN pip install --no-cache-dir -r requirements.txt
9.5s
=> [fastapi-ui] exporting to image
0.3s
=> => exporting layers
0.3s
=> => writing image sha256:5526e35bdad21221c27ddecea8e0cd2522b10b9516ed645cc612e0a74eef8a
0.0s
=> => naming to docker.io/library/g23110218-fastapi-ui
0.0s
=> [fastapi-ui] resolving provenance for metadata file
0.0s
[+] Running 3/3

✓ fastapi-ui                               Built
0.0s
✓ Network g23110218_default                 Created
0.1s
✓ Container g23110218-fastapi-ui-1          Started
0.4s
g23110218@vm1:~$ sudo docker logs -f g23110218-fastapi-ui-1
INFO:      Started server process [1]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
INFO:      14.139.98.80:10401 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10400 - "GET /search?query=Chess HTTP/1.1" 200 OK

```

```

0.1s
✓ Container g23110218-fastapi-ui-1          Started
0.4s
g23110218@vm1:~$ sudo docker logs -f g23110218-fastapi-ui-1
INFO:      Started server process [1]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
INFO:      14.139.98.80:10401 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10400 - "GET /search?query=Chess HTTP/1.1" 200 OK

```

```

g23110218@vm2:~$ sudo docker compose up -d --build
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 11.9s (10/10) FINISHED                                docker:default
=> [fastapi-app internal] load build definition from Dockerfile      0.0s
=> => transferring dockerfile: 188B                                   0.0s
=> [fastapi-app internal] load metadata for docker.io/library/python:3.9-slim 0.9s
=> [fastapi-app internal] load .dockerignore                          0.0s
=> => transferring context: 2B                                         0.0s
=> [fastapi-app 1/4] FROM docker.io/library/python:3.9-slim@sha256:e52ca5f579cc58fed41efcbb55a0ed5dccb 0.0s
=> [fastapi-app internal] load build context                          0.1s
=> => transferring context: 123.38kB                                   0.1s
=> CACHED [fastapi-app 2/4] WORKDIR /app                             0.0s
=> [fastapi-app 3/4] COPY . /app                                       1.1s
=> [fastapi-app 4/4] RUN pip install --no-cache-dir -r requirements.txt 9.4s
=> [fastapi-app] exporting to image                                   0.3s
=> => exporting layers                                                0.3s
=> => writing image sha256:28fea7277d8682f2e029ab27eaf927c13ff82c9a9b620b9ffbe331a798fd78f 0.0s
=> => naming to docker.io/library/g23110218-fastapi-app             0.0s
=> [fastapi-app] resolving provenance for metadata file              0.0s
[+] Running 4/4
✓ fastapi-app                               Built                               0.0s
✓ Network elastic-network                   Created                               0.1s
✓ Container g23110218-elasticsearch-1      Healthy                              10.8s
✓ Container g23110218-fastapi-app-1        Started                              11.1s

```

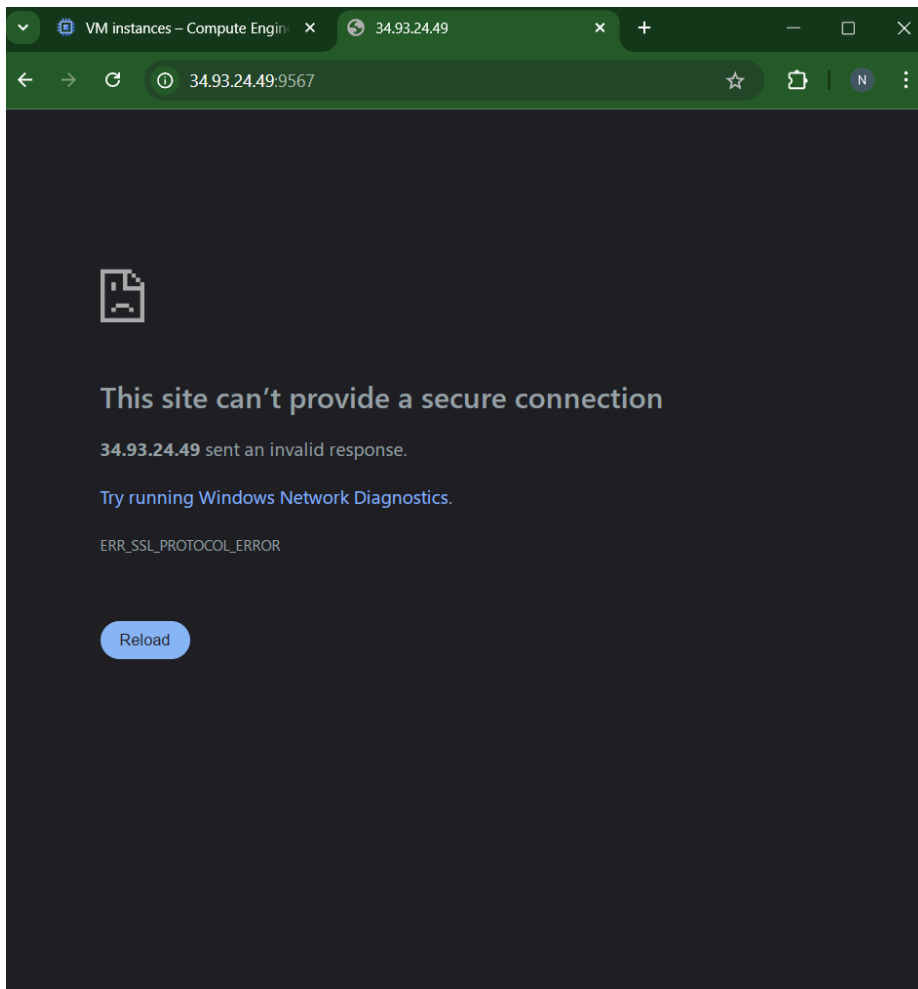
Docker file composed for backend

```

g23110218@vm1:~$ sudo docker logs -f g23110218-fastapi-ui-1
INFO:      Started server process [1]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
WARNING:   Invalid HTTP request received.
WARNING:   Invalid HTTP request received.
WARNING:   Invalid HTTP request received.
WARNING:   Invalid HTTP request received.
INFO:      14.139.98.80:10405 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10405 - "GET /favicon.ico HTTP/1.1" 404 Not Found
INFO:      14.139.98.80:10405 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10404 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10404 - "GET / HTTP/1.1" 200 OK
INFO:      14.139.98.80:10404 - "GET / HTTP/1.1" 200 OK

```

Docker logs for FastAPI getting success log



Backend not accessible

```
g23110218@vm2:~$ sudo docker login -u nikhil405

Info → A Personal Access Token (PAT) can be used instead.
To create a PAT, visit https://app.docker.com/settings

Password:

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
g23110218@vm2:~$ sudo docker tag g23110218-fastapi-app nikhil405/app
g23110218@vm2:~$ sudo docker push nikhil405/app
Using default tag: latest
The push refers to repository [docker.io/nikhil405/app]
1075be791b31: Pushed
74d7883df45c: Pushed
c2695f6438e3: Pushed
0796a33961ef: Mounted from library/python
04f6e4cfc28e: Mounted from library/python
140ec0aa8af0: Mounted from library/python
1287fbecdfcc: Mounted from library/python
latest: digest: sha256:a8d780c1f6b3b72e7dad31fc45e469a528a496c3d90522dea53d6176c961f0d9 size: 1788
g23110218@vm2:~$
```

```

g23110218@vml:~$ sudo docker login -u nikhil405

Info → A Personal Access Token (PAT) can be used instead.
       To create a PAT, visit https://app.docker.com/settings

Password:

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
g23110218@vml:~$ sudo docker tag g23110218-fastapi-ui nikhil405/ui
g23110218@vml:~$ sudo docker push nikhil405/ui
Using default tag: latest
The push refers to repository [docker.io/nikhil405/ui]
8b298cb9f334: Pushed
629dcc8a37ad: Pushed
28c72371a79f: Pushed
0796a33961ef: Mounted from library/python
04f6e4cfc28e: Mounted from library/python
140ec0aa8af0: Mounted from library/python
1287fbecdfcc: Mounted from library/python
latest: digest: sha256:912d79f0da9cca7d92c7608433e911cc93505d4e8686119603aba795fbea90ad size: 1788
g23110218@vml:~$

```

Pushing images into docker

Screenshot of what has been done to make FastAPI and ElasticSearch run on specific ports.

```

g23110218@vm2:~$ sudo docker logs -f g23110218-fastapi-app-1
INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/ [status:200 duration:0.254s]
INFO:__main__:Successfully connected Elasticsearch
INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/index [status:404 duration:0.026s]
INFO:elastic_transport.transport:PUT http://elasticsearch:9200/index [status:200 duration:0.547s]
INFO:elastic_transport.transport:PUT http://elasticsearch:9200/index/_doc/1 [status:201 duration:0.177s]
INFO:elastic_transport.transport:PUT http://elasticsearch:9200/index/_doc/2 [status:201 duration:0.025s]
INFO:elastic_transport.transport:PUT http://elasticsearch:9200/index/_doc/3 [status:201 duration:0.012s]
INFO:elastic_transport.transport:PUT http://elasticsearch:9200/index/_doc/4 [status:201 duration:0.009s]
INFO:      Started server process [8]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)

```

Frontend running on port 0.0.0.0:9567

```

if __name__ == "__main__":
    uvicorn.run(app, host = "0.0.0.0", port = 9567)

```

running fastAPI on port 9567

Screenshot of “netstat -antp | grep LISTEN” on Base Linux OS, where the container is running.

```

g23110218@vm1:~$ netstat -antp | grep LISTEN
(Not all processes could be identified, non-owned process info
 will not be shown, you would have to be root to see it all.)
tcp        0      0 127.0.0.53:53          0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:20202          0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:9567           0.0.0.0:*               LISTEN      -
tcp6       0      0 :::20201               :::*                    LISTEN      -
tcp6       0      0 :::22                  :::*                    LISTEN      -
tcp6       0      0 :::9567                :::*                    LISTEN      -
g23110218@vm1:~$

```

Screenshot of “docker images”

```

g23110218@vm1:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
g23110218-fastapi-ui latest             61447caf4b26       About a minute ago 182MB
<none>              <none>             1bb63bd7b871       5 minutes ago      182MB
<none>              <none>             6a7b916ec75a       26 minutes ago     182MB
<none>              <none>             9a10007e5ece       36 minutes ago     182MB
<none>              <none>             f98df656b353       37 minutes ago     182MB
<none>              <none>             83b05971e3a1       40 minutes ago     182MB
<none>              <none>             62ed8434221a       42 minutes ago     181MB
<none>              <none>             ec7c8555b666       51 minutes ago     181MB
<none>              <none>             14e8b620b353       58 minutes ago     181MB
<none>              <none>             2df2f3a90140       2 hours ago        181MB
<none>              <none>             555db1b27955       2 hours ago        189MB
<none>              <none>             422f2846298e       2 hours ago        196MB
<none>              <none>             c5c4dc4ec830       3 hours ago        171MB
<none>              <none>             b8b8ad158d33       3 hours ago        170MB
<none>              <none>             de072f4f34d8       3 hours ago        169MB
<none>              <none>             6e56ed39b267       3 hours ago        160MB
python             3.10.16-slim-bullseye 1e8160da9142       3 months ago       124MB

```

```

g23110218@vm2:~$ sudo docker images
REPOSITORY              TAG          IMAGE ID          CREATED
SIZE
g23110218-fastapi-app   latest       61b6e2a69ac7     28 minutes ago
179MB
<none>                  <none>       c5e7f823f694     33 minutes ago
179MB
<none>                  <none>       bff30f6cdd5d     50 minutes ago
179MB
<none>                  <none>       e90af3716275     59 minutes ago
179MB
<none>                  <none>       f50316864592     About an hour ago
179MB
<none>                  <none>       c587999bf057     2 hours ago
179MB
<none>                  <none>       a79baf4ce19d     2 hours ago
179MB
<none>                  <none>       0286d156e599     3 hours ago
179MB
<none>                  <none>       a83abd4a75be     3 hours ago
179MB
<none>                  <none>       4fd60a06895b     3 hours ago
179MB
<none>                  <none>       a68a50012411     3 hours ago
181MB
<none>                  <none>       fe8d18124a12     3 hours ago
181MB
<none>                  <none>       28fea7277d86     3 hours ago
180MB
<none>                  <none>       b42f611aa6b0     3 hours ago
180MB
<none>                  <none>       6bc44006fcd1     3 hours ago
180MB
<none>                  <none>       1064b264861c     3 hours ago
180MB
<none>                  <none>       c54a989b5136     3 hours ago
178MB
<none>                  <none>       f63d8ff3dcb7     3 hours ago
178MB
docker.elastic.co/elasticsearch/elasticsearch  7.17.9       7e1effda4391     2 years ago
620MB

```

Docker images

Screenshot when testing both get and insert query. Then stop and delete all three 3 containers and run it again, showing that the inserted query still exists. (It must be shown clearly before that the get query output is different compared to when it has been inserted later)

←

→

↻

⚠ Not secure 34.47.230.139:9567

Chess

Insert into database

Search in database

Output:

```
[
  {
    "_index": "index",
    "_type": "_doc",
    "_id": "2fa62JUBdjGFIMRa-ofe",
    "_score": 1.628014,
    "_source": {
      "text": "Chess is an abstract strategy board game for two players which involves no hidden information and no elements of chance. It is played on a square game board called a chessboard containing 64 squares arranged in an 8×8 grid. The players, referred to as \"White\" and \"Black\", each control sixteen pieces: one king, one queen, two rooks, two bishops, two knights, and eight pawns; each type of piece has a different pattern of movement. An enemy piece may be \"captured\" (removed from the board) by moving one's own piece onto the square it occupies; the object of the game is to \"checkmate\" (threaten with inescapable capture) the enemy king. There are also several ways a game can end in a draw."
    }
  }
]
```

←

→

↻

⚠ Not secure 34.47.230.139:9567

o several ways a game can end in a draw

Insert into database

Search in database

Output:

```
{
  "message": "Document inserted successfully"
}
```

Successfully able to insert and search text in database

```
Attaching to fastapi-ui-1
fastapi-ui-1 | INFO:      Started server process [1]
fastapi-ui-1 | INFO:      Waiting for application startup.
fastapi-ui-1 | INFO:      Application startup complete.
fastapi-ui-1 | INFO:      Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
fastapi-ui-1 | INFO:      14.139.98.80:10404 - "GET / HTTP/1.1" 200 OK
fastapi-ui-1 | INFO:      14.139.98.80:10403 - "GET /search?query=India%20 HTTP/1.1" 200 OK
w Enable Watch
```

Success logs

Aayush

Insert into
database

Search in
database

Output:

"Match not found in available documents!!"

Showing match not found for text that are not in the database

```
ssh.cloud.google.com/v2/ssh/projects/stt-ai-08/zones/asia-south1-c/instances/vm2?authuser=0&hl=en_US&projectNumber=1859338616...
ssh.cloud.google.com/v2/ssh/projects/stt-ai-08/zones/asia-south1-c/instances/vm2?authuser=0&hl=en_US&projectNumber=1859338616...
SSH-in-browser
SSH-in-browser
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "mess...
eve geopip database [GeoLite2-City.mmdb] from [geopip_databases] to [/tmp/elasticsearch-82109887791...
ip-databases/_wa6d2PjQfYjKVsERfV2zg/GeoLite2-City.mmdb.tmp.gz]", "cluster.uid": "rKXUtdbz8_aVCL2R...
de.id": "wa6d2PjQfYjKVsERfV2zg" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:01.352Z", "level": "INFO", "c...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "mess...
eve geopip database [GeoLite2-ASN.mmdb] from [geopip_databases] to [/tmp/elasticsearch-821098877912...
p-databases/_wa6d2PjQfYjKVsERfV2zg/GeoLite2-ASN.mmdb.tmp.gz]", "cluster.uid": "rKXUtdbz8_aVCL2R...
id": "wa6d2PjQfYjKVsERfV2zg" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.020Z", "level": "INFO", "c...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "mess...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databas...
PyjKVsERfV2zg/GeoLite2-Country.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2Pj...
V2zg" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.142Z", "level": "INFO", "c...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "mess...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databas...
PyjKVsERfV2zg/GeoLite2-ASN.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2Pj...
g" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.735Z", "level": "INFO", "c...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "mess...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databas...
PyjKVsERfV2zg/GeoLite2-City.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2Pj...
g" }
fastapi-app-1 | INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/ [status:200 du...
e]
fastapi-app-1 | INFO:_main :Successfully connected Elasticsearch
fastapi-app-1 | INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/index [status:2...
0.034s]
fastapi-app-1 | INFO: Started server process [9]
fastapi-app-1 | INFO: Waiting for application startup.
fastapi-app-1 | INFO: Application startup complete.
fastapi-app-1 | INFO: Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
fastapi-app-1 | INFO:elastic_transport.transport:POST http://elasticsearch:9200/index/_doc?refr...
atus:201 duration:0.644s]
fastapi-app-1 | INFO: 34.47.230.139:60944 - "POST /insert HTTP/1.1" 200 OK
[
]
Enable Watch
no such service: build
g23110218vml:~$ sudo docker compose up --build
WARN[0000] /home/g23110218/docker-compose.yml: the attribute 'version' is obsolete, it wi...
remove it to avoid potential confusion
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 15.9s (10/10) FINISHED
=> [fastapi-ui internal] load build definition from Dockerfile
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim
=> [fastapi-ui internal] load .dockerignore
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim$sha256:e52ca5f579cc58fed4lef...
=> [fastapi-ui internal] load build context
=> transferring context: 172.31kB
=> CACHED [fastapi-ui 2/4] WORKDIR /app
=> [fastapi-ui 3/4] COPY . /app
=> [fastapi-ui 4/4] RUN pip install --no-cache-dir -r requirements.txt
=> [fastapi-ui] exporting to image
=> => exporting layers
=> writing image sha256:1bbf3bd7b8714e6a51a9ff6df6c162e554cc3f201493fb4506a5ca992dec...
=> moving to docker.io/library/g23110218-fastapi-ui
=> [fastapi-ui] resolving provenance for metadata file
[+] Running 3/3
✔ fastapi-ui Built
✔ Network g23110218_default Created
✔ Container g23110218-fastapi-ui-1 Created
Attaching to fastapi-ui-1
fastapi-ui-1 | INFO: Started server process [1]
fastapi-ui-1 | INFO: Waiting for application startup.
fastapi-ui-1 | INFO: Application startup complete.
fastapi-ui-1 | INFO: Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "GET / HTTP/1.1" 200 OK
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "GET / HTTP/1.1" 200 OK
fastapi-ui-1 | INFO:_main :Inserting to db...
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "POST /insert HTTP/1.1" 200 OK
```

```
ssh.cloud.google.com/v2/ssh/projects/stt-ai-08/zones/asia-south1-c/instances/vm2?authuser=0&hl=en_US&projectNumber=1859338616...
ssh.cloud.google.com/v2/ssh/projects/stt-ai-08/zones/asia-south1-c/instances/vm2?authuser=0&hl=en_US&projectNumber=185...
SSH-in-browser
SSH-in-browser
eve geopip database [GeoLite2-ASN.mmdb] from [geopip_databases] to [/tmp/elasticsearch-8210988779129648296/geoi...
p-databases/_wa6d2PjQfYjKVsERfV2zg/GeoLite2-ASN.mmdb.tmp.gz]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node...
.id": "wa6d2PjQfYjKVsERfV2zg" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.020Z", "level": "INFO", "component": "...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "message": "succe...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databases/_wa6d2PjQ...
PyjKVsERfV2zg/GeoLite2-Country.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2PjQfYjKVsERfV2z...
g" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.142Z", "level": "INFO", "component": "...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "message": "succe...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databases/_wa6d2PjQ...
PyjKVsERfV2zg/GeoLite2-ASN.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2PjQfYjKVsERfV2z...
g" }
elasticsearch-1 | ["type": "server", "timestamp": "2025-03-27T17:49:02.735Z", "level": "INFO", "component": "...
o.e.i.g.DatabaseNodeService", "cluster.name": "docker-cluster", "node.name": "ddb72bf30c9", "message": "succe...
sfully reload changed geopip database file [/tmp/elasticsearch-8210988779129648296/geopip-databases/_wa6d2PjQ...
PyjKVsERfV2zg/GeoLite2-City.mmdb]", "cluster.uid": "rKXUtdbz8_aVCL2R46KWO", "node.id": "wa6d2PjQfYjKVsERfV2z...
g" }
fastapi-app-1 | INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/ [status:200 duration:0.230...
e]
fastapi-app-1 | INFO:_main :Successfully connected Elasticsearch
fastapi-app-1 | INFO:elastic_transport.transport:HEAD http://elasticsearch:9200/index [status:200 duration:
0.034s]
fastapi-app-1 | INFO: Started server process [9]
fastapi-app-1 | INFO: Waiting for application startup.
fastapi-app-1 | INFO: Application startup complete.
fastapi-app-1 | INFO: Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
fastapi-app-1 | INFO:elastic_transport.transport:POST http://elasticsearch:9200/index/_doc?refresh=true [st...
atus:201 duration:0.644s]
fastapi-app-1 | INFO: 34.47.230.139:60944 - "POST /insert HTTP/1.1" 200 OK
fastapi-app-1 | INFO:elastic_transport.transport:POST http://elasticsearch:9200/index/_doc?refresh=true [st...
atus:201 duration:0.075s]
fastapi-app-1 | INFO: 34.47.230.139:53794 - "POST /insert HTTP/1.1" 200 OK
fastapi-app-1 | INFO:elastic_transport.transport:POST http://elasticsearch:9200/index/_search [status:200 d...
uration:0.189s]
fastapi-app-1 | INFO: 34.47.230.139:32800 - "GET /search?query=Chess HTTP/1.1" 200 OK
[
]
Enable Watch
avoid potential confusion
ow delegate builds to bake for better performance.
COMPOSE_BAKE=true.
15.9s (10/10) FINISHED
[+] Building 15.9s (10/10) FINISHED
=> [fastapi-ui internal] load build definition from Dockerfile
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim
=> [fastapi-ui internal] load .dockerignore
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim$sha256:e52ca5f579cc58fed4lef...
=> [fastapi-ui internal] load build context
=> transferring context: 172.31kB
=> CACHED [fastapi-ui 2/4] WORKDIR /app
=> [fastapi-ui 3/4] COPY . /app
=> [fastapi-ui 4/4] RUN pip install --no-cache-dir -r requirements.txt
=> [fastapi-ui] exporting to image
=> exporting layers
=> writing image sha256:1bbf3bd7b8714e6a51a9ff6df6c162e554cc3f201493fb4506a5ca992dec...
=> moving to docker.io/library/g23110218-fastapi-ui
=> [fastapi-ui] resolving provenance for metadata file
[+] Running 3/3
✔ fastapi-ui Built
✔ Network g23110218_default Created
✔ Container g23110218-fastapi-ui-1 Created
fastapi-ui-1 | INFO: Started server process [1]
fastapi-ui-1 | INFO: Waiting for application startup.
fastapi-ui-1 | INFO: Application startup complete.
fastapi-ui-1 | INFO: Uvicorn running on http://0.0.0.0:9567 (Press CTRL+C to quit)
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "GET / HTTP/1.1" 200 OK
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "GET / HTTP/1.1" 200 OK
fastapi-ui-1 | INFO:_main :Inserting to db...
fastapi-ui-1 | INFO: 14.139.98.80:10409 - "POST /insert HTTP/1.1" 200 OK
fastapi-ui-1 | INFO: 14.139.98.80:10411 - "POST /insert HTTP/1.1" 200 OK
fastapi-ui-1 | INFO: 14.139.98.80:10412 - "GET /search?query=Chess HTTP/1.1" 200 OK
```

Frontend and backend logs while using get and insert button

```
Compose can now delegate builds to bake for better performance.
To do so, set COMPOSE_BAKE=true.
[+] Building 11.4s (10/10) FINISHED
docker:default
=> [fastapi-ui internal] load build definition from Dockerfile
    0.0s
=> => transferring dockerfile: 251B
    0.0s
=> [fastapi-ui internal] load metadata for docker.io/library/python:3.9-slim
    0.8s
=> [fastapi-ui internal] load .dockerignore
    0.0s
=> => transferring context: 2B
    0.0s
=> [fastapi-ui 1/4] FROM docker.io/library/python:3.9-slim@sha256:e52ca5f579cc58fed41efcbb55a0ed5dccc6
    0.0s
=> [fastapi-ui internal] load build context
    0.1s
=> => transferring context: 174.47kB
    0.1s
=> CACHED [fastapi-ui 2/4] WORKDIR /app
    0.0s
=> [fastapi-ui 3/4] COPY . /app
    0.5s
=> [fastapi-ui 4/4] RUN pip install --no-cache-dir -r requirements.txt
    9.5s
=> [fastapi-ui] exporting to image
    0.3s
=> => exporting layers
    0.3s
=> => writing image sha256:5526e35bdad21221c27dceea8e0cd2522b10b9516ed645cc612e0a74eef8adc
    0.0s
=> => naming to docker.io/library/g23110218-fastapi-ui
    0.0s
=> [fastapi-ui] resolving provenance for metadata file
    0.0s
[+] Running 3/3

✓ fastapi-ui                               Built
    0.0s
✓ Network g23110218_default                 Created
    0.1s
✓ Container g23110218-fastapi-ui-1         Started
    0.4s
g23110218@vml:~$
```

Created a docker container at 11:28 PM

Insert into database

Search in database

Output:

```
[
  {
    "index": "index",
    "type": "doc",
    "id": "2fa62JUBdjGFIMRa-ofe",
    "score": 1.628014,
    "source": {
      "text": "Chess is an abstract strategy board game for two players which involves no hidden information and no elements of chance. It is played on a square game board called a chessboard containing 64 squares arranged in an 8x8 grid. The players, referred to as \"White\" and \"Black\", each control sixteen pieces: one king, one queen, two rooks, two bishops, two knights, and eight pawns; each type of piece has a different pattern of movement. An enemy piece may be \"captured\" (removed from the board) by moving one's own piece onto the square it occupies; the object of the game is to \"checkmate\" (threaten with inescapable capture) the enemy king. There are also several ways a game can end in a draw."
    }
  }
]
```

Still able to successfully use search button at 11:32 PM

Screenshot of “docker inspect” for all the 3 tasks, both container and images. (Give the whole output in the screenshot. It is essential to verify whether the task was done properly or not)

```

python3 ./10-10-slim-wsl1.py --testcase102 4 months ago 12MB
g23110218wsl1:~$ sudo docker inspect g23110218-fastapi-ui
[
  {
    "Id": "sha256:5526e35bdad21221c27d4decea8e9cd2122b10b9516ed645cc612e8a74eaf8adc",
    "RepoTags": [
      "g23110218-fastapi-ui:latest"
    ],
    "RepoDigests": [],
    "Parent": "",
    "Comment": "Buildkit.dockerfile.v0",
    "Created": "2025-03-27T17:58:31.712141867Z",
    "DockerVersion": "",
    "Author": "",
    "Config": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "ExposedPorts": {
        "9567/tcp": {}
      },
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": [
        "PATH=/usr/local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
        "LANG=C.UTF-8",
        "GPG_KEY=10558F0F093C848B25C8484DEB9826995E310250566",
        "PYTHON_VERSION=3.9.21",
        "PYTHON_SHA256=3126f59592c9bd4798584755f2b57b081f4ca35ce7a6fea980108d752a05bb1"
      ],
      "Cmd": [
        "python3",
        "app.py"
      ],
      "ArgsEscaped": true,
      "Image": "",
      "Volumes": null,
      "WorkingDir": "/app",
      "Entrypoint": null,
      "OnBuild": null,
      "Labels": {
        "com.docker.compose.project": "g23110218",
        "com.docker.compose.service": "fastapi-ui",
        "com.docker.compose.version": "2.34.0"
      }
    },
    "Architecture": "amd64",
    "Os": "linux",
    "Size": 18212912,
    "GraphDriver": {
      "Data": {
        "LowerDir": "/var/lib/docker/overlay2/q5drgbvon5jmhr8im63arsay/diff:/var/lib/docker/overlay2/391oenlq7lfrpdcdsvihf9us/diff:/var/lib/docker/overlay2/8c30794b15e56c23be7cb2c6965ad80fb0f30e47bb81b95a2af756b92e77ff4c/diff:/var/lib/docker/overlay2/49cfc7fb797c9d5af63c3d3e14e836717c32ad89b6c3521de46f6e4fcc3ed/diff:/var/lib/docker/overlay2/e3993ff1d9eaf0f862d61c33a0637c44e4e8cc2dc8c7286c83ad6f739f8e8/diff:/var/lib/docker/overlay2/30e6e1087356283cb9f129ee6398280f42750748d4e63f69c8253011f1d9d47/diff",
        "UpperDir": "/var/lib/docker/overlay2/r114ayv3fcw21jrg20fvzmhl/diff",
        "WorkDir": "/var/lib/docker/overlay2/r114ayv3fcw21jrg20fvzmhl/work"
      }
    },
    "Name": "overlay2"
  },
  {
    "RootFS": {
      "Type": "layers",
      "Layers": [
        "sha256:1287fbecdfcc6ee8cfd436e5b3e3d86c6f68db3d9100377d499737f1b307f3",
        "sha256:140e0b8a2c9868f52b0ca492a8630986d07740ccc9294cd81e8ca1216dea9",
        "sha256:04f6e4cfc08e74355ff17ed23937c7c395a8435406994499ee3f657745a2f1a",
        "sha256:0796a33961efbdc069b7e0ba8533463c67e639c1134253f0e29ed70f04b74b2c",
        "sha256:28c72371a79fc751f87628a54cd1aa77932789e3a960a16742f11954d15379e8",
        "sha256:629dc8a37ad5541b817243e50ed128668e65a74797f61caf5db7b522e6cb4",
        "sha256:8b298cb9f334ed5cd740a8a35e2c346c4aa376e6a5a4e6a309f818a3626e"
      ]
    },
    "Metadata": {
      "LastTagTime": "2025-03-27T17:58:32.021657667Z"
    }
  }
]

```

```

python3 ./10-10-slim-wsl1.py --testcase102 4 months ago 12MB
g23110218wsl1:~$ sudo docker inspect g23110218-fastapi-app
[
  {
    "Id": "sha256:1100000000000000000000000000000000000000000000000000000000000000",
    "RepoTags": [
      "g23110218-fastapi-app:latest"
    ],
    "RepoDigests": [],
    "Parent": "",
    "Comment": "Buildkit.dockerfile.v0",
    "Created": "2025-03-27T17:58:31.712141867Z",
    "DockerVersion": "",
    "Author": "",
    "Config": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "ExposedPorts": {
        "9567/tcp": {}
      },
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": [
        "PATH=/usr/local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
        "LANG=C.UTF-8",
        "GPG_KEY=10558F0F093C848B25C8484DEB9826995E310250566",
        "PYTHON_VERSION=3.9.21",
        "PYTHON_SHA256=3126f59592c9bd4798584755f2b57b081f4ca35ce7a6fea980108d752a05bb1"
      ],
      "Cmd": [
        "python3",
        "app.py"
      ],
      "ArgsEscaped": true,
      "Image": "",
      "Volumes": null,
      "WorkingDir": "/app",
      "Entrypoint": null,
      "OnBuild": null,
      "Labels": {
        "com.docker.compose.project": "g23110218",
        "com.docker.compose.service": "fastapi-app",
        "com.docker.compose.version": "2.34.0"
      }
    },
    "Architecture": "amd64",
    "Os": "linux",
    "Size": 18212912,
    "GraphDriver": {
      "Data": {
        "LowerDir": "/var/lib/docker/overlay2/q5drgbvon5jmhr8im63arsay/diff:/var/lib/docker/overlay2/391oenlq7lfrpdcdsvihf9us/diff:/var/lib/docker/overlay2/8c30794b15e56c23be7cb2c6965ad80fb0f30e47bb81b95a2af756b92e77ff4c/diff:/var/lib/docker/overlay2/49cfc7fb797c9d5af63c3d3e14e836717c32ad89b6c3521de46f6e4fcc3ed/diff:/var/lib/docker/overlay2/e3993ff1d9eaf0f862d61c33a0637c44e4e8cc2dc8c7286c83ad6f739f8e8/diff:/var/lib/docker/overlay2/30e6e1087356283cb9f129ee6398280f42750748d4e63f69c8253011f1d9d47/diff",
        "UpperDir": "/var/lib/docker/overlay2/r114ayv3fcw21jrg20fvzmhl/diff",
        "WorkDir": "/var/lib/docker/overlay2/r114ayv3fcw21jrg20fvzmhl/work"
      }
    },
    "Name": "overlay2"
  },
  {
    "RootFS": {
      "Type": "layers",
      "Layers": [
        "sha256:1287fbecdfcc6ee8cfd436e5b3e3d86c6f68db3d9100377d499737f1b307f3",
        "sha256:140e0b8a2c9868f52b0ca492a8630986d07740ccc9294cd81e8ca1216dea9",
        "sha256:04f6e4cfc08e74355ff17ed23937c7c395a8435406994499ee3f657745a2f1a",
        "sha256:0796a33961efbdc069b7e0ba8533463c67e639c1134253f0e29ed70f04b74b2c",
        "sha256:28c72371a79fc751f87628a54cd1aa77932789e3a960a16742f11954d15379e8",
        "sha256:629dc8a37ad5541b817243e50ed128668e65a74797f61caf5db7b522e6cb4",
        "sha256:8b298cb9f334ed5cd740a8a35e2c346c4aa376e6a5a4e6a309f818a3626e"
      ]
    },
    "Metadata": {
      "LastTagTime": "2025-03-27T17:58:32.021657667Z"
    }
  }
]

```

Inspecting docker

VM creation steps are taken, and screenshots are on Google Cloud or Kutrim.

The VMs were created on the GCP Console by simply following the instructions given in the lab.

After the VMs were created, firewall rules were created for both the VMs. These rules allow us to access the external IPs of the VM.

Google Cloud stt-ai-08 Search (/) for resources, docs, products, and more Search

Compute Engine VM instances Create Instance Import VM Refresh Learn

Instances Observability Instance schedules

Your project's VMs use global DNS names by default. To reduce the risk of cross-regional outages, we recommend you use zonal DNS instead. [Learn more](#)

Use zonal DNS Dismiss

VM instances

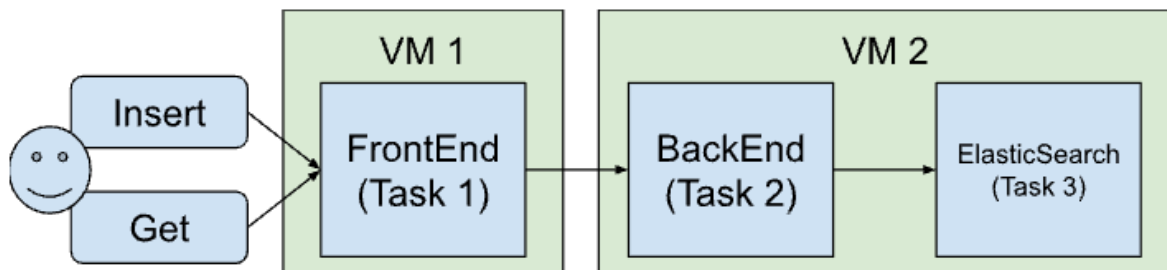
Filter Enter property name or value

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>	vm1	asia-south1-c			10.160.0.2 (nic0)	34.47.230.139 (nic0)	SSH
<input type="checkbox"/>	vm2	asia-south1-c			10.160.0.3 (nic0)	34.93.24.49 (nic0)	SSH

Related actions

- Explore Backup and DR **New**
Back up your VMs and set up disaster recovery
- View billing report
View and manage your Compute Engine billing
- Monitor VMs
View outlier VMs across metrics like CPU and network
- Explore VM logs
View, search, analyze, and download VM instance logs
- Set up firewall rules
Control traffic to and from a VM instance
- Patch management
Schedule patch updates and view patch compliance on VM instances
- Load balance between VMs
Set up Load Balancing for your applications as your traffic and users grow

Give a detailed architectural diagram.



Architecture diagram

The docker images have been optimized by using slim images of Python and deleting caches