

CLOUD COMPUTING LAB: WEEK 5

PES1201802127

Siddharth K Rao

1.) Installing Docker Engine on EC2

```
root@ip-172-31-8-31: /home/ubuntu
ubuntu@ip-172-31-8-31:~$ sudo -s
root@ip-172-31-8-31:/home/ubuntu# docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
0e03bdc26d7: Pull complete
Digest: sha256:95dddb6c31407e84e91a986b004aee40975cb0bd14b5949f6faac5d2deadb4b9
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

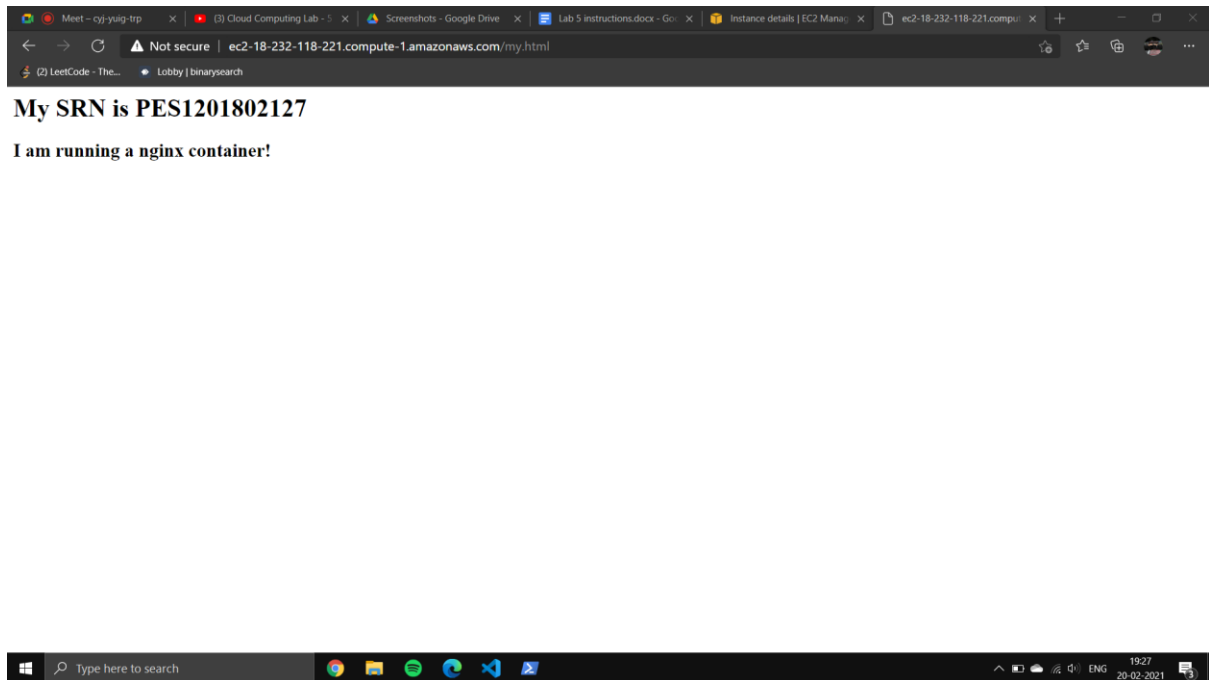
Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
root@ip-172-31-8-31:/home/ubuntu#
```

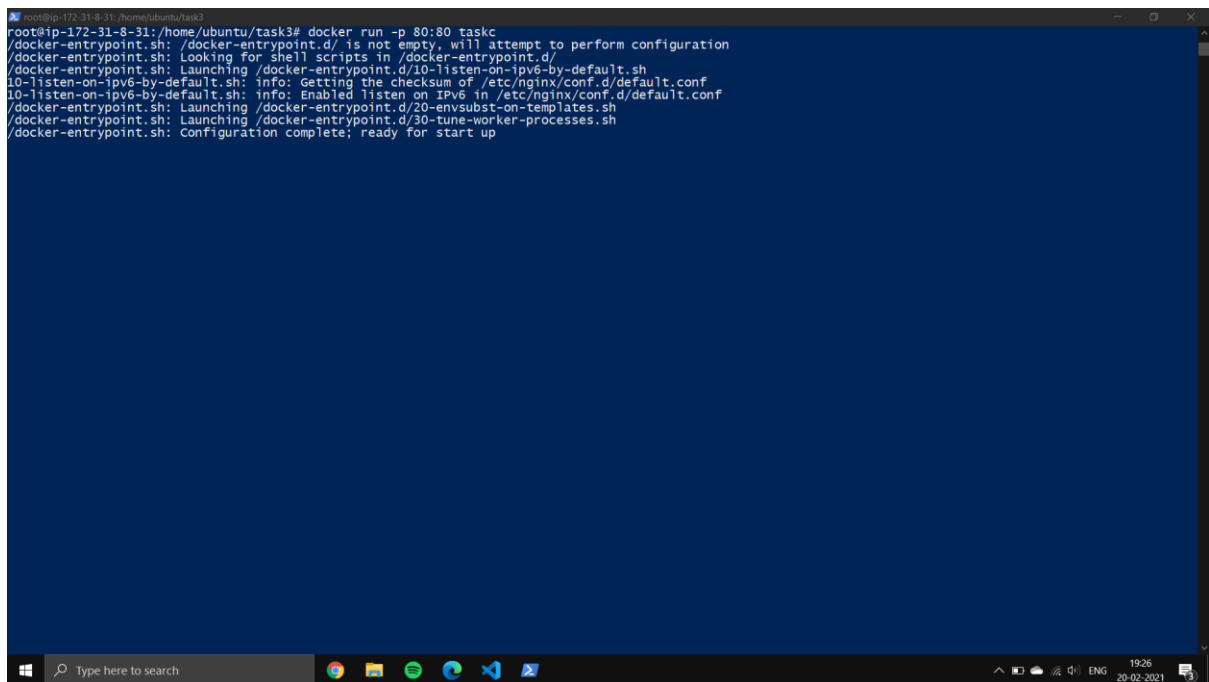
2.) Docker images and docker files

```
root@ip-172-31-8-31:/home/ubuntu/task2# root@ip-172-31-8-31:/home/ubuntu/task2# docker run task2
Running this inside a container !
My SRN is PES1201802127
root@ip-172-31-8-31:/home/ubuntu/task2#
```

3.) Exposing ports, docker networks



3a



3b

```
root@ip-172-31-8-31:/home/ubuntu/task3# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
2366e7325a93   mongo    "docker-entrypoint.s..." 6 minutes ago Up 6 minutes 0.0.0.0:27017->27017/tcp mystifying_hypatia

root@ip-172-31-8-31:/home/ubuntu/task3# docker run taskc2
Inserted into the MongoDB database!
Fetched from MongoDB: {'_id': ObjectId('603117c75ab89fd4c40349cf'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
```

3c

```
12fb0ee70f15 task2 "/a.out" 21 minutes ago Exited (0) 21 minutes ago gifted_tereshkova
022031fd1074 hello-world "/hello" 31 minutes ago Exited (0) 31 minutes ago vibrant_bohr

root@ip-172-31-8-31:/home/ubuntu/task3# docker run -dp 27017:27017 --network=my-bridge-network --name=mongodb mongo:latest
fef0a0911cd4e992eb21dbc0edf5736a2a7f3128822fe1143675297ab4f4c7535

root@ip-172-31-8-31:/home/ubuntu/task3# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
fef0a0911cd4   mongo:latest "docker-entrypoint.s..." 5 seconds ago Up 5 seconds 0.0.0.0:27017->27017/tcp mongodb
```

3d

```
root@ip-172-31-8-31:/home/ubuntu/task3#
root@ip-172-31-8-31:/home/ubuntu/task3# docker run --network=my-bridge-network taskc2
Inserted into the MongoDB database!
Fetched from MongoDB: {'_id': ObjectId('60311a10486496006a327038'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
root@ip-172-31-8-31:/home/ubuntu/task3#
```

3e

4.) Docker compose

```
is deployment"}
{"t":{"sdate":"2021-02-20T14:24:58.954+00:00"},"s":"I","c":"STORAGE","id":20320,"ctx":"initandlisten","msg":"createCollection","attr":{"na
namespace":"local.startup_log","uuidDisposition":"generated","uuid":{"uuid":{"suuid":"d951c5e3-bd70-4e3c-a0ff-f517033da092"},"options":{"capped":true,"size":10
485760}}}}
{"t":{"sdate":"2021-02-20T14:24:58.966+00:00"},"s":"I","c":"INDEX","id":20345,"ctx":"initandlisten","msg":"Index build: done building","
attr":{"buildUUID":null,"namespace":"local.startup_log","index":{"_id_","commitTimestamp":{"timestamp":{"t":"0","i":"0"}}}}
{"t":{"sdate":"2021-02-20T14:24:58.966+00:00"},"s":"I","c":"FTDC","id":20625,"ctx":"initandlisten","msg":"Initializing full-time diagno
static data capture","attr":{"dataDirectory":"/data/db/diagnostic.data"}}
{"t":{"sdate":"2021-02-20T14:24:58.968+00:00"},"s":"I","c":"STORAGE","id":20320,"ctx":"LogicalSessionCacheRefresh","msg":"createCollection
","attr":{"namespace":"config.system.sessions","uuidDisposition":"generated","uuid":{"uuid":{"suuid":"10e57bd6-22a2-412c-9ca6-e27e52cb037c"},"options":{}}}}
{"t":{"sdate":"2021-02-20T14:24:58.968+00:00"},"s":"I","c":"CONTROL","id":20712,"ctx":"LogicalSessionCacheReap","msg":"Sessions collection
is not set up; waiting until next sessions reap interval","attr":{"error":"NamespaceNotFound: config.system.sessions does not exist"}}
{"t":{"sdate":"2021-02-20T14:24:58.969+00:00"},"s":"I","c":"NETWORK","id":23015,"ctx":"listener","msg":"Listening on","attr":{"address":"/
tmp/mongodb-27017.sock"}}
{"t":{"sdate":"2021-02-20T14:24:58.969+00:00"},"s":"I","c":"NETWORK","id":23015,"ctx":"listener","msg":"Listening on","attr":{"address":"/
0.0.0.0"}}
{"t":{"sdate":"2021-02-20T14:24:58.969+00:00"},"s":"I","c":"NETWORK","id":23016,"ctx":"listener","msg":"Waiting for connections","attr":{"
port":27017,"ssl":{"off"}}}
{"t":{"sdate":"2021-02-20T14:24:58.990+00:00"},"s":"I","c":"INDEX","id":20345,"ctx":"LogicalSessionCacheRefresh","msg":"Index build: don
e building","attr":{"buildUUID":null,"namespace":"config.system.sessions","index":{"_id_","commitTimestamp":{"timestamp":{"t":"0","i":"0"}}}}
{"t":{"sdate":"2021-02-20T14:24:58.990+00:00"},"s":"I","c":"INDEX","id":20345,"ctx":"LogicalSessionCacheRefresh","msg":"Index build: don
e building","attr":{"buildUUID":null,"namespace":"config.system.sessions","index":{"_id_","commitTimestamp":{"timestamp":{"t":"0","i":"0"}}}}
{"t":{"sdate":"2021-02-20T14:24:59.239+00:00"},"s":"I","c":"NETWORK","id":22943,"ctx":"listener","msg":"Connection accepted","attr":{"remo
te":"172.19.0.3:45540","connectionId":1,"connectionCount":1}}
{"t":{"sdate":"2021-02-20T14:24:59.240+00:00"},"s":"I","c":"NETWORK","id":51800,"ctx":"conn1","msg":"client metadata","attr":{"remote":"17
2.19.0.3:45540","client":"conn1","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"
5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}
{"t":{"sdate":"2021-02-20T14:24:59.241+00:00"},"s":"I","c":"NETWORK","id":22943,"ctx":"listener","msg":"Connection accepted","attr":{"remo
te":"172.19.0.3:45544","connectionId":2,"connectionCount":2}}
{"t":{"sdate":"2021-02-20T14:24:59.242+00:00"},"s":"I","c":"NETWORK","id":22943,"ctx":"listener","msg":"Connection accepted","attr":{"remo
te":"172.19.0.3:45544","connectionId":3,"connectionCount":3}}
{"t":{"sdate":"2021-02-20T14:24:59.242+00:00"},"s":"I","c":"NETWORK","id":51800,"ctx":"conn3","msg":"client metadata","attr":{"remote":"17
2.19.0.3:45544","client":"conn3","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"
5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}
{"t":{"sdate":"2021-02-20T14:24:59.242+00:00"},"s":"I","c":"NETWORK","id":51800,"ctx":"conn2","msg":"client metadata","attr":{"remote":"17
2.19.0.3:45542","client":"conn2","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"
5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}
{"t":{"sdate":"2021-02-20T14:24:59.243+00:00"},"s":"I","c":"STORAGE","id":20320,"ctx":"conn2","msg":"createCollection","attr":{"namespace
":"sample_db.sample_collection","uuidDisposition":"generated","uuid":{"uuid":{"suuid":"6dcfe0a9-6a21-4518-8a66-be39bb69096f"},"options":{}}}}
{"t":{"sdate":"2021-02-20T14:24:59.260+00:00"},"s":"I","c":"INDEX","id":20345,"ctx":"conn2","msg":"Index build: done building","attr":{"
buildUUID":null,"namespace":"sample_db.sample_collection","index":{"_id_","commitTimestamp":{"timestamp":{"t":"0","i":"0"}}}}
pycode_1 | Inserted into the MongoDB database!
pycode_1 | Fetched from MongoDB: {'_id': ObjectId('60311bba8b9abc305450a0c6'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
{"t":{"sdate":"2021-02-20T14:24:59.742+00:00"},"s":"I","c":"-","id":20883,"ctx":"conn1","msg":"Interrupted operation as its client d
isconnected","attr":{"opId":24}}
{"t":{"sdate":"2021-02-20T14:24:59.742+00:00"},"s":"I","c":"NETWORK","id":22944,"ctx":"conn1","msg":"Connection ended","attr":{"remote":"1
72.19.0.3:45540","connectionId":1,"connectionCount":2}}
{"t":{"sdate":"2021-02-20T14:24:59.746+00:00"},"s":"I","c":"NETWORK","id":22944,"ctx":"conn3","msg":"Connection ended","attr":{"remote":"1
72.19.0.3:45544","connectionId":3,"connectionCount":0}}
{"t":{"sdate":"2021-02-20T14:24:59.746+00:00"},"s":"I","c":"NETWORK","id":22944,"ctx":"conn2","msg":"Connection ended","attr":{"remote":"1
```

4a


```
root@ip-172-31-8-31:/home/subhantu/tasks#
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.351+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn3","msg":"client metadata","attr":{"remote":"172.19.0.5:43506","client":"conn3","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.352+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.19.0.5:43508","connectionId":4,"connectionCount":4}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.353+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.19.0.4:58862","connectionId":5,"connectionCount":5}}
pycode_1 | Inserted into the MongoDB database!
pycode_1 | Fetched from MongoDB: {'_id': ObjectId('60311bba8b9abc305450a0c6'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.354+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn4","msg":"Connection ended","attr":{"remote":"172.19.0.5:43508","connectionId":4,"connectionCount":4}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.355+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.19.0.3:45564","connectionId":6,"connectionCount":5}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.355+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn6","msg":"client metadata","attr":{"remote":"172.19.0.3:45564","client":"conn6","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.356+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn5","msg":"client metadata","attr":{"remote":"172.19.0.3:45566","client":"conn5","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.357+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.19.0.3:45566","connectionId":7,"connectionCount":6}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.357+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn7","msg":"client metadata","attr":{"remote":"172.19.0.3:45566","client":"conn7","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}}
mongodb_1 | Inserted into the MongoDB database!
mongodb_1 | Fetched from MongoDB: {'_id': ObjectId('60311bba8b9abc305450a0c6'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.359+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener","msg":"Connection accepted","attr":{"remote":"172.19.0.3:45568","connectionId":8,"connectionCount":7}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.360+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn8","msg":"client metadata","attr":{"remote":"172.19.0.3:45568","client":"conn8","doc":{"driver":{"name":"PyMongo","version":"3.11.3"},"os":{"type":"Linux","name":"Linux","architecture":"x86_64","version":"5.4.0-1037-aws"},"platform":"CPython 3.9.2.final.0"}}}}
pycode_1 | Inserted into the MongoDB database!
pycode_1 | Fetched from MongoDB: {'_id': ObjectId('60311bba8b9abc305450a0c6'), 'Name': 'Siddharth K Rao', 'SRN': 'PES1201802127'}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.849+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn5","msg":"Connection ended","attr":{"remote":"172.19.0.4:58862","connectionId":5,"connectionCount":6}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.850+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn2","msg":"Connection ended","attr":{"remote":"172.19.0.4:58856","connectionId":2,"connectionCount":5}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.852+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn1","msg":"Interrupted operation as its client disconnected","attr":{"opId":18}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.852+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn1","msg":"Connection ended","attr":{"remote":"172.19.0.5:43502","connectionId":1,"connectionCount":4}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.856+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn3","msg":"Connection ended","attr":{"remote":"172.19.0.5:43508","connectionId":3,"connectionCount":3}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.859+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn6","msg":"Interrupted operation as its client disconnected","attr":{"opId":27}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.860+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn6","msg":"Connection ended","attr":{"remote":"172.19.0.3:45564","connectionId":6,"connectionCount":2}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.863+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn7","msg":"Connection ended","attr":{"remote":"172.19.0.3:45566","connectionId":7,"connectionCount":1}}
mongodb_1 | {"t":{"sdate":"2021-02-20T14:26:19.864+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn8","msg":"Connection ended","attr":{"remote":"172.19.0.3:45568","connectionId":8,"connectionCount":0}}
```