

## Cloud Computing Experiment 2

Name: Vishwa Mehul Mehta

SRN: PES2UG20CS389

Sec: F

1a.

```
vishwa@Acer-Vishwa: /mnt/c/L X vishwa@Acer-Vishwa: /mnt/c/ X + v
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3$ docker run
hello-world

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/

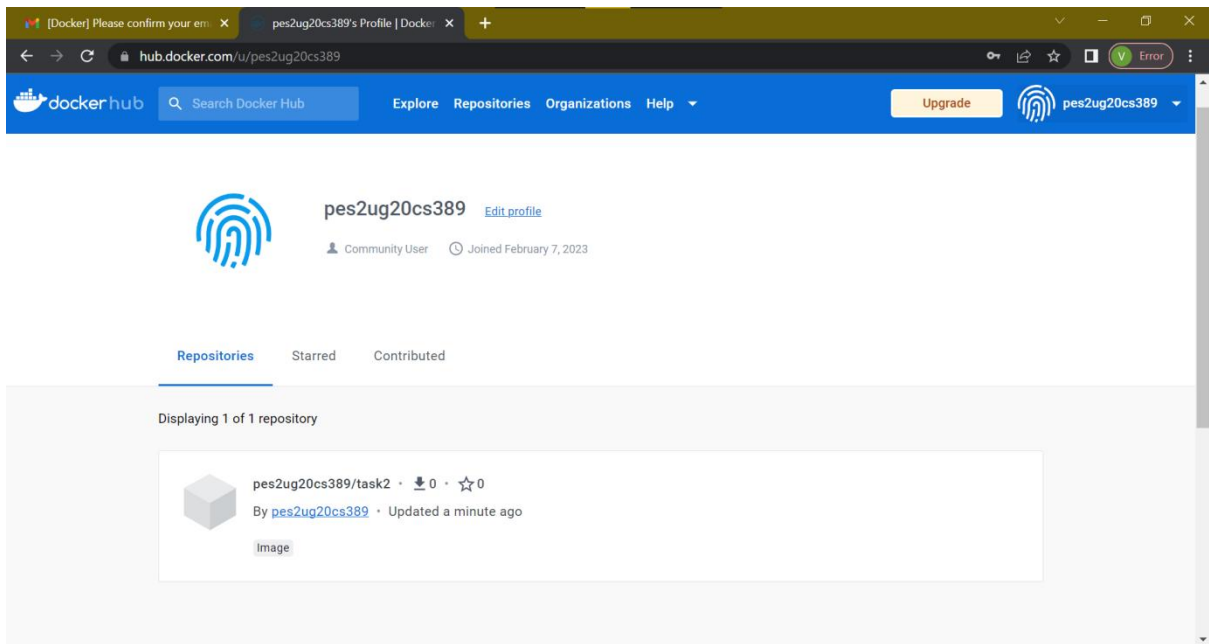
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3$
```

2a.

```
vishwa@Acer-Vishwa: /mnt/c/L X vishwa@Acer-Vishwa: /mnt/c/ X vishwa@Acer-Vishwa: /mnt/c/L X + v
=> [internal] load .dockerignore                                0.0s
=> => transferring context: 2B                                  0.0s
=> [internal] load metadata for docker.io/library/ubuntu:20.04  5.9s
=> [auth] library/ubuntu:pull token for registry-1.docker.io    0.0s
=> [internal] load build context                                0.0s
=> => transferring context: 169B                                  0.0s
=> [1/5] FROM docker.io/library/ubuntu:20.04@sha256:4a45212e9518f35983a976eead0de5eccc555a2f047134e9d 43.9s
=> => resolve docker.io/library/ubuntu:20.04@sha256:4a45212e9518f35983a976eead0de5eccc555a2f047134e9dd 0.0s
=> => sha256:b549f31133a955f68f9fa0d93f18436c4a180e12184b999a8ecf14f7eaa83309 27.50MB / 27.50MB 43.1s
=> => sha256:4a45212e9518f35983a976eead0de5eccc555a2f047134e9dd2cfc589076a00d 1.13kB / 1.13kB 0.0s
=> => sha256:bffb6799d706144f263f4b91e1226745ffb5643ea0ea89c2f709208e8d70c999 424B / 424B 0.0s
=> => sha256:e40cf56b4be35b04f620bc9cfbef80038fd7370d4ed36d90676223174ecbf0b0 2.30kB / 2.30kB 0.0s
=> => extracting sha256:b549f31133a955f68f9fa0d93f18436c4a180e12184b999a8ecf14f7eaa83309 0.7s
=> [2/5] RUN apt-get update                                     99.8s
=> [3/5] RUN apt-get install gcc -y                             103.9s
=> [4/5] COPY program.c program.c                               0.0s
=> [5/5] RUN gcc program.c                                       0.5s
=> => exporting to image                                         0.8s
=> => exporting layers                                           0.8s
=> => writing image sha256:760d539cd24ef5e96febf079c5b06612f852472a3898607ab6d7e4d857dcb0fd 0.0s
=> => naming to docker.io/library/task2                          0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3$ docker run
task2
Running this inside a container!
My SRN is PES2UG20CS389
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3$
```

2b.

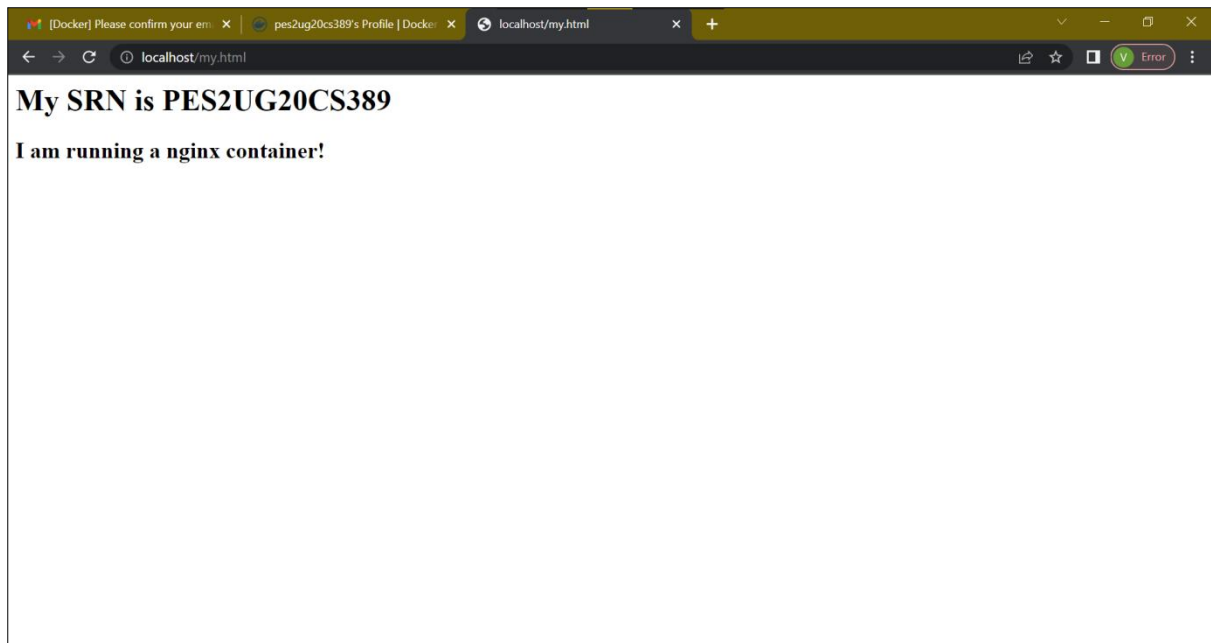


3a.

```
vishwa@Acer-Vishwa: /mnt/c/L X vishwa@Acer-Vishwa: /mnt/c/ X vishwa@Acer-Vishwa: /mnt/c/L X + v
=> => naming to docker.io/library/task3 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r run -p 80:80 task3
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2023/02/07 08:42:28 [notice] 1#1: using the "epoll" event method
2023/02/07 08:42:28 [notice] 1#1: nginx/1.23.3
2023/02/07 08:42:28 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2023/02/07 08:42:28 [notice] 1#1: OS: Linux 5.10.102.1-microsoft-standard-WSL2
2023/02/07 08:42:28 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/02/07 08:42:28 [notice] 1#1: start worker processes
2023/02/07 08:42:28 [notice] 1#1: start worker process 29
2023/02/07 08:42:28 [notice] 1#1: start worker process 30
2023/02/07 08:42:28 [notice] 1#1: start worker process 31
2023/02/07 08:42:28 [notice] 1#1: start worker process 32
2023/02/07 08:42:28 [notice] 1#1: start worker process 33
2023/02/07 08:42:28 [notice] 1#1: start worker process 34
2023/02/07 08:42:28 [notice] 1#1: start worker process 35
2023/02/07 08:42:28 [notice] 1#1: start worker process 36
```

3b.



3c.

```
vishwa@Acer-Vishwa: /mnt/c/L... vishwa@Acer-Vishwa: /mnt/c/L... vishwa@Acer-Vishwa: /mnt/c/L...
}
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r build -t task3 .
[+] Building 49.1s (9/9) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> => transferring dockerfile: 151B                                              0.0s
=> [internal] load .dockerignore                                                 0.0s
=> => transferring context: 2B                                                  0.0s
=> [internal] load metadata for docker.io/library/python:latest                0.0s
=> [1/4] FROM docker.io/library/python                                         0.1s
=> [internal] load build context                                                0.0s
=> => transferring context: 443B                                                0.0s
=> [2/4] RUN apt-get update                                                    37.6s
=> [3/4] RUN pip install pymongo                                              11.1s
=> [4/4] COPY sample.py sample.py                                             0.0s
=> exporting to image                                                         0.2s
=> => exporting layers                                                         0.2s
=> => writing image sha256:8bac16e2eb39fda1585e82ecc4410c461b05a9e42eb12b373f49b481437eb476 0.0s
=> => naming to docker.io/library/task3                                         0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r run task3
Inserted into the MongoDB database!
Fetched from MongoDB: {'_id': ObjectId('63e212b4bd95e1447a39e824'), 'Name': 'Vishwa Mehul Mehta', 'SRN': 'PE
S2UG20CS389'}
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$
```

3d.

```

vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS
a7c8fc6c4074   mongo:latest   "docker-entrypoint.s..." 27 seconds ago Up 27 seconds 0.0.0
.0:27017->27017/tcp   mongodb
0cb26f23c686   task3          "python sample.py"        3 minutes ago Exited (0) 3 minutes ago
magical_sinoussi
81f0a23d7113   mongo         "docker-entrypoint.s..." 15 minutes ago Exited (0) 2 minutes ago
quirky_lumiere
51e58ebf0b0c   be9fe00a216a   "/docker-entrypoint..." 19 minutes ago Exited (0) 17 minutes ago
agitated_lovelace
6e8eaeef2bb47   task2         "./a.out"                 2 hours ago   Exited (0) 2 hours ago
heuristic_tu
3d68bd0ca79d   hello-world    "/hello"                 2 hours ago   Exited (0) 2 hours ago
frosty_raman
3746ef324442   hello-world    "/hello"                 3 hours ago   Exited (0) 3 hours ago
adoring_kowalevski
7de343776be0   hello-world    "/hello"                 3 hours ago   Exited (0) 3 hours ago
inspiring_fermi
15b922c5e698   hello-world    "/hello"                 40 hours ago   Exited (0) 40 hours ago
kind_maxwell
e830cc2b2250   hello-world    "/hello"                 40 hours ago   Exited (0) 40 hours ago
zealous_davinci
62b8af8c89b9   docker101tutorial "/docker-entrypoint..." 40 hours ago   Exited (255) 32 hours ago 0.0.0
.0:80->80/tcp   docker-tutorial
7b932b8d6c26   alpine/git     "git clone https://g..." 40 hours ago   Exited (0) 40 hours ago
repo

```

3e.

```

7b932b8d6c26   alpine/git     "git clone https://g..." 40 hours ago   Exited (0) 40 hours ago
repo
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r build -t task3 .
[+] Building 0.2s (9/9) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> => transferring dockerfile: 37B                                              0.0s
=> [internal] load .dockerignore                                                0.0s
=> => transferring context: 2B                                                  0.0s
=> [internal] load metadata for docker.io/library/python:latest                0.0s
=> [1/4] FROM docker.io/library/python                                         0.0s
=> [internal] load build context                                                0.0s
=> => transferring context: 443B                                              0.0s
=> CACHED [2/4] RUN apt-get update                                             0.0s
=> CACHED [3/4] RUN pip install pymongo                                       0.0s
=> [4/4] COPY sample.py sample.py                                             0.0s
=> exporting to image                                                         0.0s
=> => exporting layers                                                         0.0s
=> => writing image sha256:6af93c2ac4037f78c7905688d1f513534b3dc946dc97b7e0ae84c9f87b6031b8 0.0s
=> => naming to docker.io/library/task3                                       0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$ docke
r run --network=my-bridge-network task3
Inserted into the MongoDB database!
Fetched from MongoDB: {'_id': ObjectId('63e214135d78493e345fdf06'), 'Name': 'Vishwa Mehul Mehta', 'SRN': 'PE
S2UG20CS389'}
vishwa@Acer-Vishwa: /mnt/c/Users/Vishwa/Documents/Vishwa_PES/Sem6/351_CC/Lab_and_Assignments/week3/task3$

```

4a.

```
vishwa@Acer-Vishwa: /mnt/c/rl X vishwa@Acer-Vishwa: /mnt/c/rl X vishwa@Acer-Vishwa: /mnt/c/rl X + v
1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:23.608+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx
": "conn3", "msg": "client metadata", "attr": {"remote": "172.19.0.3:56906", "client": "conn3", "doc": {"driver": {"name
": "PyMongo", "version": "4.3.3"}, "os": {"type": "Linux", "name": "Linux", "architecture": "x86_64", "version": "5.10.102.
1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:23.609+00:00"},"s":"I", "c":"STORAGE", "id":20320, "ctx
": "conn3", "msg": "createCollection", "attr": {"namespace": "sample_db.sample_collection", "uuidDisposition": "genera
ted", "uuid": {"$uuid": "ffc3f0e6-6f3f-4350-81ba-0d56388bf675"}}, "options": {}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:23.624+00:00"},"s":"I", "c":"INDEX", "id":20345, "ctx
": "conn3", "msg": "Index build: done building", "attr": {"buildUUID": null, "collectionUUID": {"$uuid": "ffc3f
0e6-6f3f-4350-81ba-0d56388bf675"}}, "namespace": "sample_db.sample_collection", "index": "_id", "ident": "index-8--
1669910383327914240", "collectionIdent": "collection-7--1669910383327914240", "commitTimestamp": null}}
task4-pycode-1 | Inserted into the MongoDB database!
task4-pycode-1 | Fetched from MongoDB: {'_id': ObjectId('63e21507d109ce64595112f3'), 'Name': 'Vishwa Mehul
Mehta', 'SRN': 'PES2UG20CS389'}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:24.107+00:00"},"s":"I", "c":"-", "id":20883, "ctx
": "conn1", "msg": "Interrupted operation as its client disconnected", "attr": {"opId": 15}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:24.108+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx
": "conn1", "msg": "Connection ended", "attr": {"remote": "172.19.0.3:56902", "uuid": "6068d18d-f851-4465-b986-59bc47a
2c467", "connectionId": 1, "connectionCount": 2}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:24.113+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx
": "conn3", "msg": "Connection ended", "attr": {"remote": "172.19.0.3:56906", "uuid": "5acfc6e6-5050-402a-9aba-f55f7bb
fa295", "connectionId": 3, "connectionCount": 1}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:08:24.113+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx
": "conn2", "msg": "Connection ended", "attr": {"remote": "172.19.0.3:56904", "uuid": "d42fc69b-20f8-489b-bc11-0a25268
53dfb", "connectionId": 2, "connectionCount": 0}}
task4-pycode-1 exited with code 0
```

4b.

```
vishwa@Acer-Vishwa: /mnt/c/rl X vishwa@Acer-Vishwa: /mnt/c/rl X vishwa@Acer-Vishwa: /mnt/c/rl X + v
rchitecture": "x86_64", "version": "5.10.102.1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.585+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn5", "msg": "client metadata",
"attr": {"remote": "172.19.0.5:34316", "client": "conn5", "doc": {"driver": {"name": "PyMongo", "version": "4.3.3"}, "os": {"type": "Linux", "name": "Linux", "a
rchitecture": "x86_64", "version": "5.10.102.1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-pycode-3 | Inserted into the MongoDB database!
task4-pycode-2 | Inserted into the MongoDB database!
task4-pycode-3 | Fetched from MongoDB: {'_id': ObjectId('63e21507d109ce64595112f3'), 'Name': 'Vishwa Mehul Mehta', 'SRN': 'PES2UG20CS389'}
task4-pycode-2 | Fetched from MongoDB: {'_id': ObjectId('63e21507d109ce64595112f3'), 'Name': 'Vishwa Mehul Mehta', 'SRN': 'PES2UG20CS389'}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.694+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener", "msg": "Connection acc
epted", "attr": {"remote": "172.19.0.3:56926", "uuid": "0d5928cc-9eca-4b81-0e69-c9dc635b325a", "connectionId": 7, "connectionCount": 7}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.695+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn7", "msg": "client metadata",
"attr": {"remote": "172.19.0.3:56926", "client": "conn7", "doc": {"driver": {"name": "PyMongo", "version": "4.3.3"}, "os": {"type": "Linux", "name": "Linux", "a
rchitecture": "x86_64", "version": "5.10.102.1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.696+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener", "msg": "Connection acc
epted", "attr": {"remote": "172.19.0.3:56928", "uuid": "c668466b-f19d-40a5-997b-47b1d2d32813", "connectionId": 8, "connectionCount": 8}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.697+00:00"},"s":"I", "c":"NETWORK", "id":22943, "ctx":"listener", "msg": "Connection acc
epted", "attr": {"remote": "172.19.0.3:56930", "uuid": "44d8cd16-7306-4328-912e-a74b3ba080ae", "connectionId": 9, "connectionCount": 9}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.697+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn8", "msg": "client metadata",
"attr": {"remote": "172.19.0.3:56928", "client": "conn8", "doc": {"driver": {"name": "PyMongo", "version": "4.3.3"}, "os": {"type": "Linux", "name": "Linux", "a
rchitecture": "x86_64", "version": "5.10.102.1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:21.697+00:00"},"s":"I", "c":"NETWORK", "id":51800, "ctx":"conn9", "msg": "client metadata",
"attr": {"remote": "172.19.0.3:56930", "client": "conn9", "doc": {"driver": {"name": "PyMongo", "version": "4.3.3"}, "os": {"type": "Linux", "name": "Linux", "a
rchitecture": "x86_64", "version": "5.10.102.1-microsoft-standard-WSL2"},"platform":"CPython 3.11.1.final.0"))}
task4-pycode-1 | Inserted into the MongoDB database!
task4-pycode-1 | Fetched from MongoDB: {'_id': ObjectId('63e21507d109ce64595112f3'), 'Name': 'Vishwa Mehul Mehta', 'SRN': 'PES2UG20CS389'}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.084+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn1", "msg": "Interrupted opera
tion as its client disconnected", "attr": {"opId": 16}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.085+00:00"},"s":"I", "c":"-", "id":20883, "ctx":"conn2", "msg": "Interrupted opera
tion as its client disconnected", "attr": {"opId": 19}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.085+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn1", "msg": "Connection ended",
"attr": {"remote": "172.19.0.4:56806", "uuid": "c39930c1-6479-46e0-8c63-fbb1d217df65", "connectionId": 1, "connectionCount": 8}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.086+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn2", "msg": "Connection ended",
"attr": {"remote": "172.19.0.5:34310", "uuid": "f49c21f2-205a-4fb2-a116-8d22c928866d", "connectionId": 2, "connectionCount": 7}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.091+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn3", "msg": "Connection ended",
"attr": {"remote": "172.19.0.4:56810", "uuid": "e4d6e098-dcb7-4913-a639-a78a7a09bde6", "connectionId": 3, "connectionCount": 6}}
task4-mongodb-1 | {"t":{"$date":"2023-02-07T09:10:22.091+00:00"},"s":"I", "c":"NETWORK", "id":22944, "ctx":"conn4", "msg": "Connection ended"
```