



**Name :Muhammad Shaheer**  
**Roll no:20p-0480**  
**Subject :Operating Systems Lab**  
**Lab TASK: 4**

Below is the attached two Applications one is a Node app and one is a Python app, run both applications using docker-compose and take screenshot of the running containers and the browser output attach in PDF and submit.

1. In the Node app, create a user with your name and email and take screenshot, take screenshot from the Database(mongo-express) after this update the user from UI and changes should be reflected in Database.
2. In the Python app, refresh 15 times and take a screenshot.

**Solution:**

**1:**Extract all files in one folder and first open Python app folder and in terminal run this commands:

```
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/PythonApp(Task-2)/PythonApp
--progress string      Set type of progress output (auto, plain, tty).
--pull                Always attempt to pull a newer version of the image.
-q, --quiet           Don't print anything to STDOUT
ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$ sudo docker-compose build
redis uses an image, skipping
Building web
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  5.632kB
Step 1/9 : FROM python:3.7-alpine
--> 1bac8ae77e4a
Step 2/9 : WORKDIR /code
--> Running in 7b6dac8ac43c
Removing intermediate container 7b6dac8ac43c
--> d86bd0993b53
Step 3/9 : ENV FLASK_APP app.py
--> Running in 4752f2b55593
Removing intermediate container 4752f2b55593
--> 744ff7c218ee
Step 4/9 : ENV FLASK_RUN_HOST 0.0.0.0
--> Running in ea00acba5f68
Removing intermediate container ea00acba5f68
--> e592beadaaed
Step 5/9 : RUN apk add --no-cache gcc musl-dev linux-headers
--> Running in c190cb360378
fetch https://dl-cdn.alpinelinux.org/alpine/v3.18/main/x86_64/APKINDEX.tar.gz
fetch https://dl-cdn.alpinelinux.org/alpine/v3.18/community/x86_64/APKINDEX.tar.gz
(1/14) Upgrading musl (1.2.4-r1 -> 1.2.4-r2)
(2/14) Installing libgcc (12.2.1_git20220924-r10)
(3/14) Installing libstdc++ (12.2.1_git20220924-r10)
(4/14) Installing zstd-libs (1.5.5-r4)
(5/14) Installing binutils (2.40-r7)
(6/14) Installing libgomp (12.2.1_git20220924-r10)
(7/14) Installing libatomic (12.2.1_git20220924-r10)
(8/14) Installing gmp (6.2.1-r3)
(9/14) Installing isl26 (0.26-r1)
(10/14) Installing mpfr4 (4.2.0_p12-r0)
```

```
Activities Terminal 19:13 18 أكتوبر
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/PythonApp(Task-2)/PythonApp
Downloading Werkzeug-2.2.3-py3-none-any.whl (233 kB)
233.6/233.6 kB 2.6 MB/s eta 0:00:00
Collecting click>=8.0
97.9/97.9 kB 3.2 MB/s eta 0:00:00
Collecting Jinja2>=3.0
Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
133.1/133.1 kB 4.9 MB/s eta 0:00:00
Collecting importlib-metadata>=3.6.0
Downloading importlib_metadata-6.7.0-py3-none-any.whl (22 kB)
Collecting typing-extensions
Downloading typing_extensions-4.7.1-py3-none-any.whl (33 kB)
Collecting async-timeout>=4.0.2
Downloading async_timeout-4.0.3-py3-none-any.whl (5.7 kB)
Collecting zipp>=0.5
Downloading zipp-3.15.0-py3-none-any.whl (6.8 kB)
Collecting MarkupSafe>=2.0
Downloading MarkupSafe-2.1.3-cp37-cp37m-musllinux_1_1_x86_64.whl (30 kB)
Installing collected packages: zipp, typing-extensions, MarkupSafe, itsdangerous, Werkzeug, Jinja2, importlib
click, flask
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.3 Werkzeug-2.2.3 async-timeout-4.0.3 click-8.1.7 flask-2.2
ngerous-2.1.2 redis-5.0.1 typing-extensions-4.7.1 zipp-3.15.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the s
recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv

[notice] A new release of pip is available: 23.0.1 -> 23.3
[notice] To update, run: pip install --upgrade pip
Removing intermediate container 4660d88da7e
---> 03fdaab613f8
Step 8/9 : COPY . .
---> a086d6e5956e
Step 9/9 : CMD ["flask", "run"]
---> Running in 614626bdd867
Removing intermediate container 614626bdd867
---> 15fc1c54ddb9
Successfully built 15fc1c54ddb9
Successfully tagged pythonapp_web:latest
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/PythonApp(Task-2)/PythonApp$
```

2:Now open node app and run this commands:

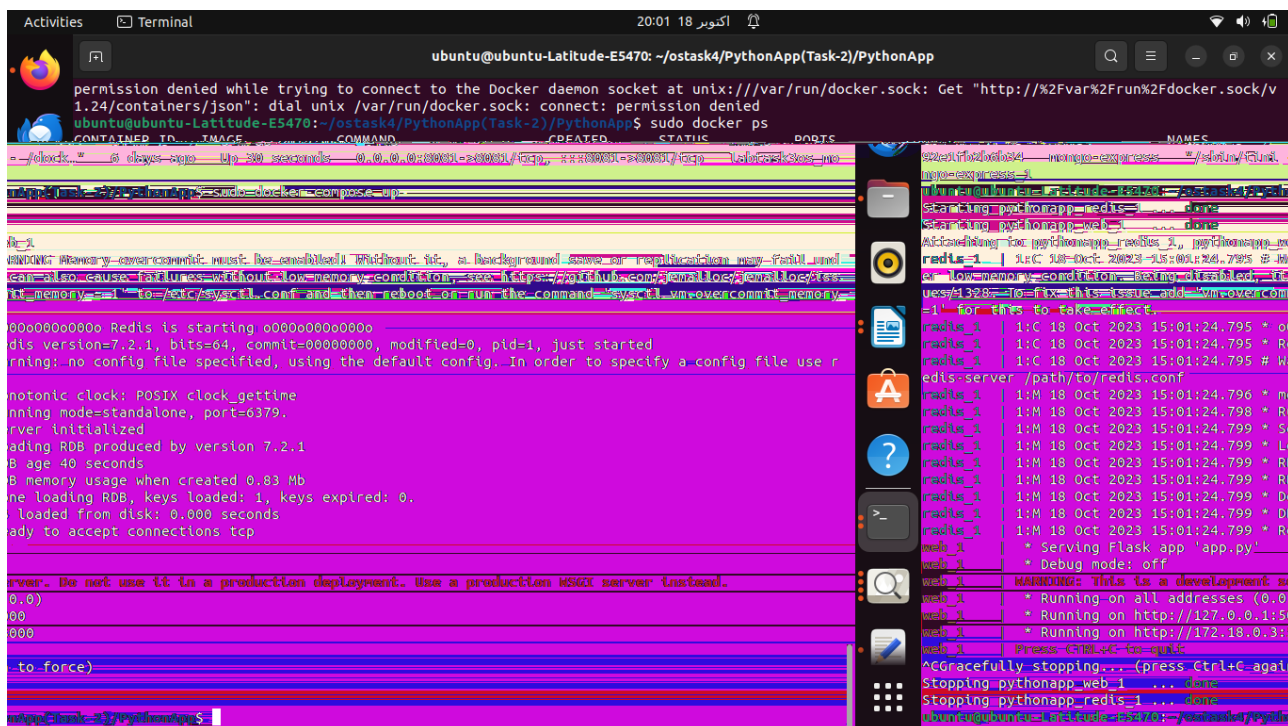
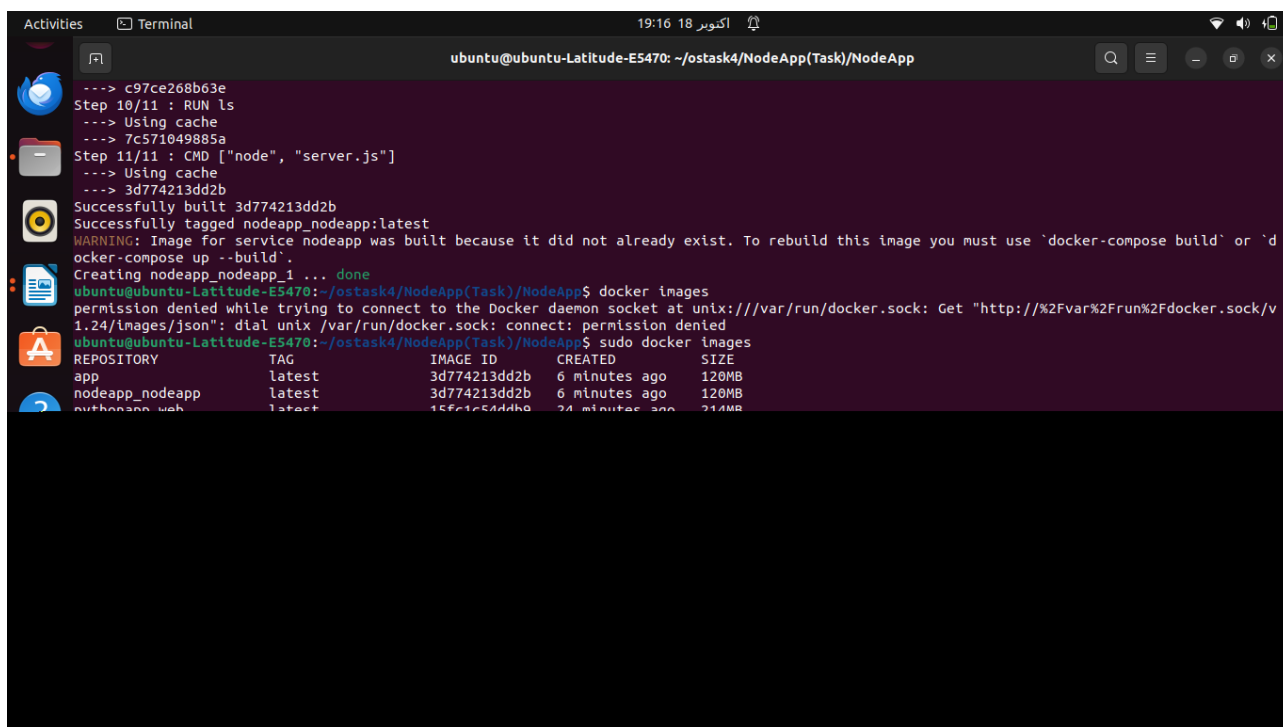
```
Activities Terminal 19:15 18 أكتوبر
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/NodeApp(Task)/NodeApp
Build an image from a Dockerfile
ubuntu@ubuntu-Latitude-E5470:~/ostask4/NodeApp(Task)/NodeApp$ sudo docker build -t app .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon 6.524MB
Step 1/11 : FROM node:13-alpine
13-alpine: Pulling from library/node
c8dbe7a5bc2a: Pull complete
780514bed1ad: Pull complete
5d74fb112a7d: Pull complete
4b9536424fa1: Pull complete
Digest: sha256:527c70f74817f6f6b5853588c28de33459178ab72421f1fb7b63a281ab670258
Status: Downloaded newer image for node:13-alpine
---> 8216bf4583a5
Step 2/11 : ENV MONGO_DB_USERNAME=admin MONGO_DB_PWD=password
---> Running in a0508d36e7c3
Removing intermediate container a0508d36e7c3
---> ff9e685b991c
Step 3/11 : RUN mkdir -p /home/app
---> Running in b53807cd43a1
Removing intermediate container b53807cd43a1
---> 125495641eb6
Step 4/11 : RUN echo "Running my custom command"
---> Running in d71edd4536e2
Running my custom command
Removing intermediate container d71edd4536e2
---> 6b0204163d31
Step 5/11 : RUN ls
---> Running in 0a6794c6a310
bin
dev
etc
home
lib
media
mnt
```

[REDACTED]

[REDACTED]

## Now check for containers execution:



## Encountered Errors:

```
Activities Terminal 20:18 18 أكتوبر
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/PythonApp(Task-2)/PythonApp

36a741ddad03 competent_swirls      "./helloscript.sh"      2 weeks ago      Created
e7e1103df1f1 ostask2                  "./helloscript.sh"      2 weeks ago      Created
276321c60864 xenodochial_jang        "/bin/sh -c 'apt-get..." 2 weeks ago      Exited (100) 2 weeks ago
a75224b03696 task2                    "./helloscript.sh"      2 weeks ago      Exited (1) 2 weeks ago
f87302d067b7 goofy_banach            task2                    2 weeks ago      Exited (1) 2 weeks ago
93a16287ef60 hopeful_noether          afbc11383365            2 weeks ago      Exited (1) 2 weeks ago
70802f0e44c5 quizzical_torvalds      afbc11383365            2 weeks ago      Exited (1) 2 weeks ago
1830f0d07f78 upbeat_satoshi          oslab                    2 weeks ago      Exited (0) 2 weeks ago
af838de81b6f trusting_carver         "docker-entrypoint.s..." 2 weeks ago      Exited (0) 2 weeks ago

ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$ docker logs 83b2e8f9753f
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/83b2e8f9753f/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$ sudo docker logs 83b2e8f9753f
* Serving Flask app 'app.py'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.18.0.3:5000
Press CTRL+C to quit
* Serving Flask app 'app.py'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.18.0.3:5000
Press CTRL+C to quit
ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$
```

## After building container again its run

```
Activities Terminal 20:29 18 أكتوبر
ubuntu@ubuntu-Latitude-E5470: ~/ostask4/PythonApp(Task-2)/PythonApp

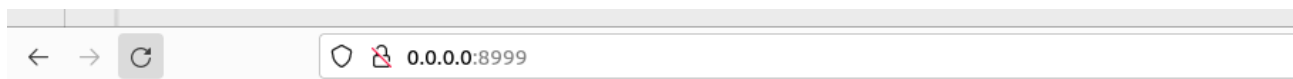
Step 8/9 : COPY . .
---> Using cache
---> a086d6e5956e
Step 9/9 : CMD ["flask", "run"]
---> Using cache
---> 15fc1c54ddb9
Successfully built 15fc1c54ddb9
Successfully tagged pythonapp_web:latest
ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$ sudo docker-compose up -d
Starting pythonapp_web_1 ... done
Starting pythonapp_redis_1 ... done
ubuntu@ubuntu-Latitude-E5470:~/ostask4/PythonApp(Task-2)/PythonApp$ sudo docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS
83b2e8f9753f   pythonapp_web  "flask run"              35 minutes ago Up 22 seconds  0.0.0.0:8999->5000/tcp, :::8
999->5000/tcp
14ba2fee659f   nodeapp_nodea  "docker-entrypoint.s..." About an hour ago Exited (1) About an hour ago

ago
93e582480de4   kanbanapp_kan  "java -jar app.jar"      2 days ago     Exited (143) 46 hours
80f30e93ab2d   postgres:9.6-  "docker-entrypoint.s..." 2 days ago     Exited (0) 46 hours a
54394e5ae15f   mongo          "docker-entrypoint.s..." 6 days ago     Exited (0) 5 days ago
92e1fb2b6b34   labtask3os_m  "/sbin/tini -- /dock..." 6 days ago     Up 7 seconds
081->8081/tcp   labtask3os_mongo-express_1
b9393a211608   redis:alpine   "docker-entrypoint.s..." 9 days ago     Up 22 seconds
bdc232023afa   pythonapp_red  "./helloscript.sh"       13 days ago    Exited (0) 13 days ag
goofy_chebyshev
f696409709e2   ostask2        "./helloscript.sh"       13 days ago    Created
a3d206e437be   ostask2        "./helloscript.sh"       13 days ago    Created
elegant_zhukovsky
f9bd38635e99   ostask2        "./helloscript.sh"       13 days ago    Created
serene_spence
005c750b1ed   ostask2        "./helloscript.sh"       13 days ago    Created
```

**Output:**



**Hello OS-Lab Again! I have been seen 3 times.**



**Hello OS-Lab Again! I have been seen 15 times.**

**Task 2 done .**

**After building nodeapp container using build and up commands**



```
Activities Terminal 20:36 18 أكتوبر ubuntu@ubuntu-Latitude-E5470: ~/ostask4/NodeApp(Task)/NodeApp

---> 7c571049885a
Step 11/11 : CMD ["node", "server.js"]
---> Using cache
---> 3d774213dd2b
Successfully built 3d774213dd2b
Successfully tagged app:latest
ubuntu@ubuntu-Latitude-E5470:~/ostask4/NodeApp(Task)/NodeApp$ sudo docker-compose -f app-compose.yaml up -d
Starting nodeapp_nodeapp_1 ... done
ubuntu@ubuntu-Latitude-E5470:~/ostask4/NodeApp(Task)/NodeApp$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS
83b2e8f9753f        pythonapp_web       "flask run"         42 minutes ago      Up 7 minutes        0.0.0.0:8999->5000/tcp, :::8999
->5000/tcp
14ba2fee659f        nodeapp_nodeapp     "docker-entrypoint.s..." About an hour ago    Up 9 seconds        0.0.0.0:3000->3000/tcp, :::3000
->3000/tcp
3518636bbd70        kanbanapp_kanban-ui "nginx -g 'daemon of..." 2 days ago          Exited (0) 46 hours ago
kanban-ui
93e582480de4        kanbanapp_kanban-app "java -jar app.jar"    2 days ago          Exited (143) 46 hours ago
kanban-app
80f30e93ab2d        postgres:9.6-alpine "docker-entrypoint.s..." 2 days ago          Exited (0) 46 hours ago
kanban-postgres
54394e5ae15f        mongo               "docker-entrypoint.s..." 6 days ago          Exited (0) 5 days ago
labtask3os_mongodb_1
92e1fb2b6b34        mongo-express        "/sbin/tini -- /dock..." 6 days ago          Up 25 seconds        0.0.0.0:8081->8081/tcp, :::8081
->8081/tcp
b9393a211608        redis:alpine         "docker-entrypoint.s..." 9 days ago          Up 7 minutes        6379/tcp
pythonapp_redis_1
bdc232023afa        helloscript          "./helloscript.sh"    13 days ago         Exited (0) 13 days ago
goofy_chebyshev
f696409709e2        ostask2              "./helloscript.sh"    13 days ago         Created
suspicious_feistel
a3d206e437be        ostask2              "./helloscript.sh"    13 days ago         Created
elegant_zhukovsky
f9hd38635e99        ostask2              "./helloscript.sh"    13 days ago         Created
serene_spence
c9a5c7f0b1ed        ostask2              "./helloscript.sh"    13 days ago         Created
suspicious_hermann
3c1a8821f66d        ostask2              "./helloscript.sh"    13 days ago         Created
```

## When open link:

