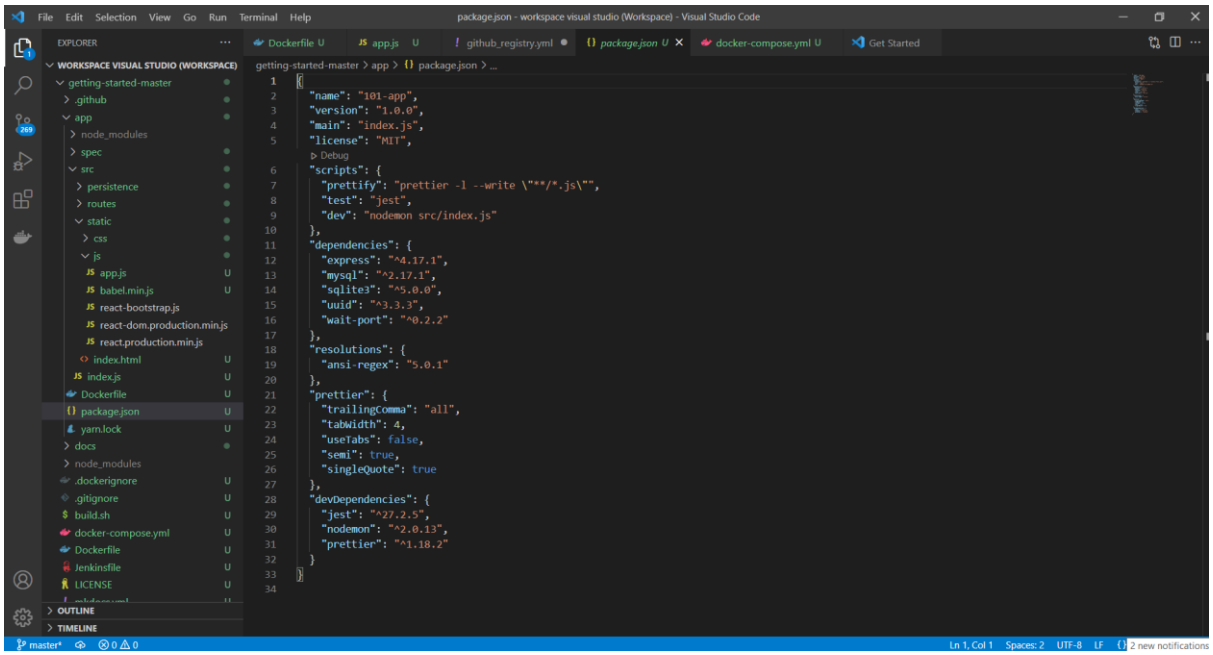
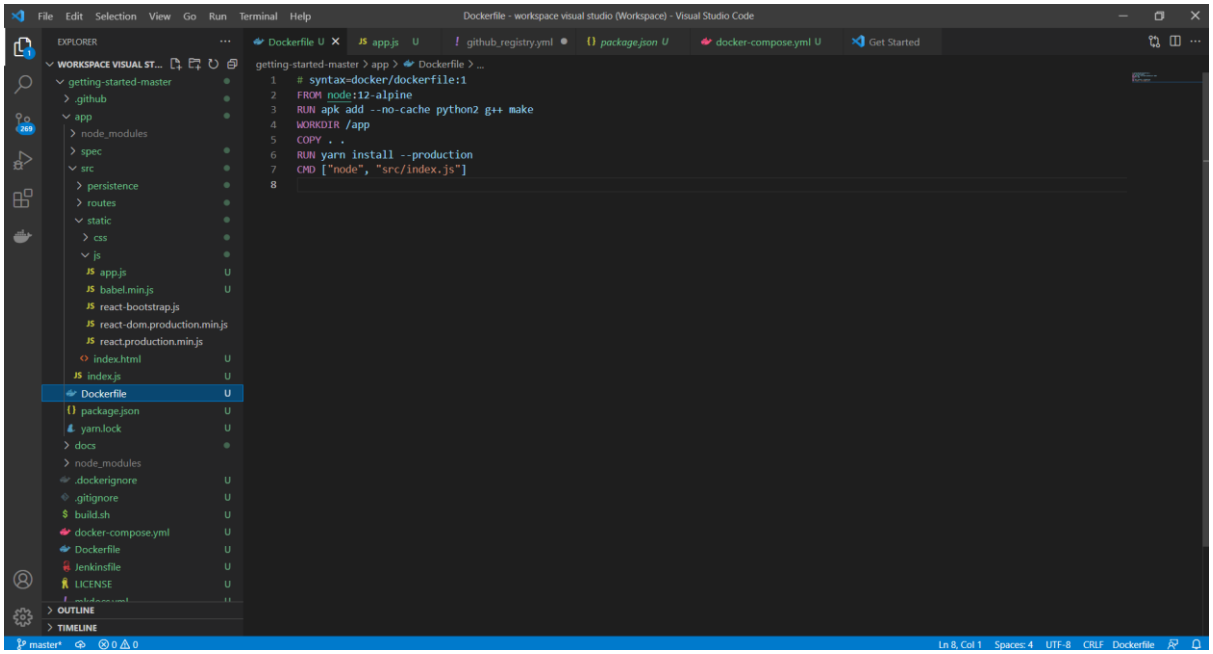
Downloaded a sample docker application from git and working with it in Visual studio code.

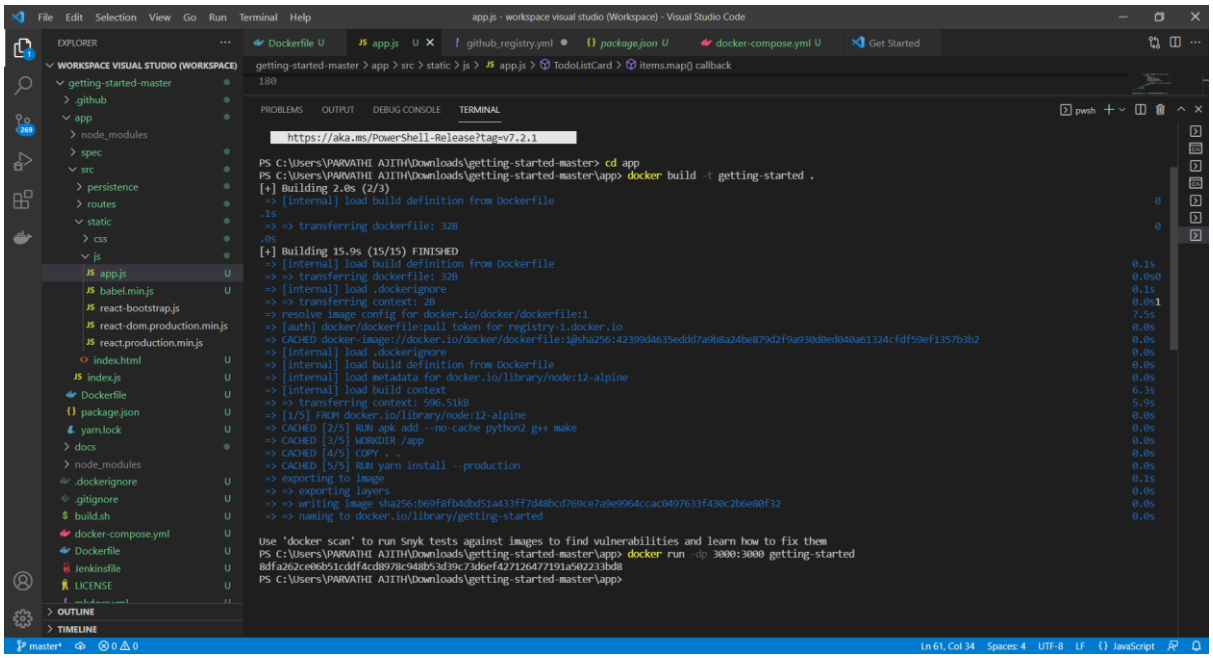
Pckage.json file



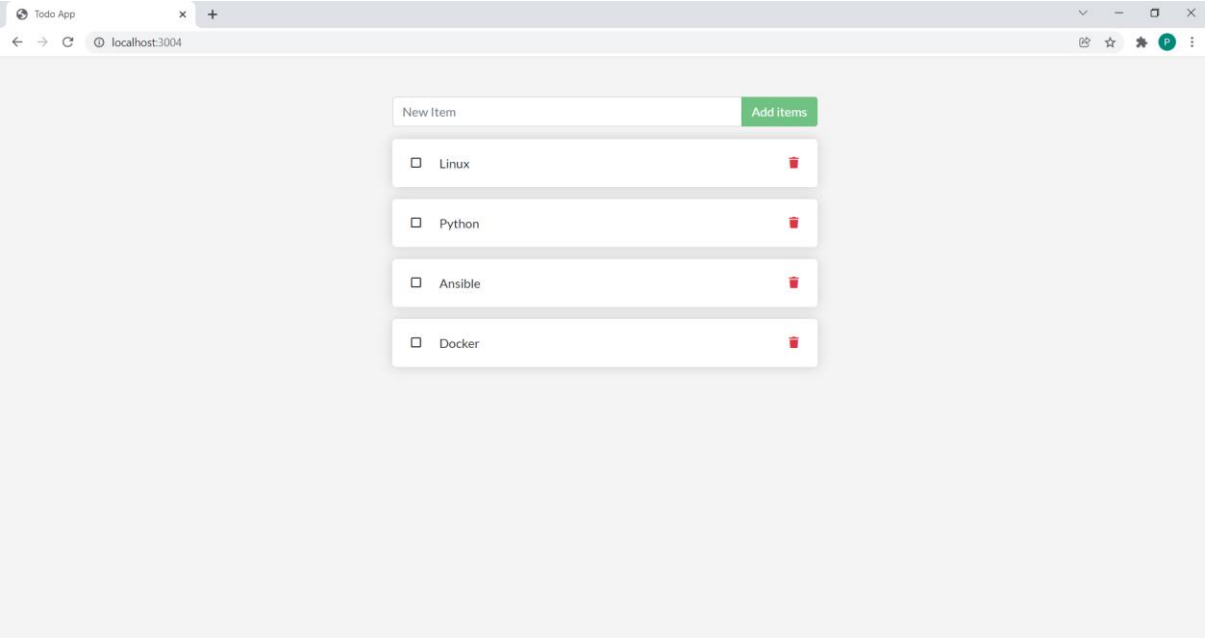
Dockerfile



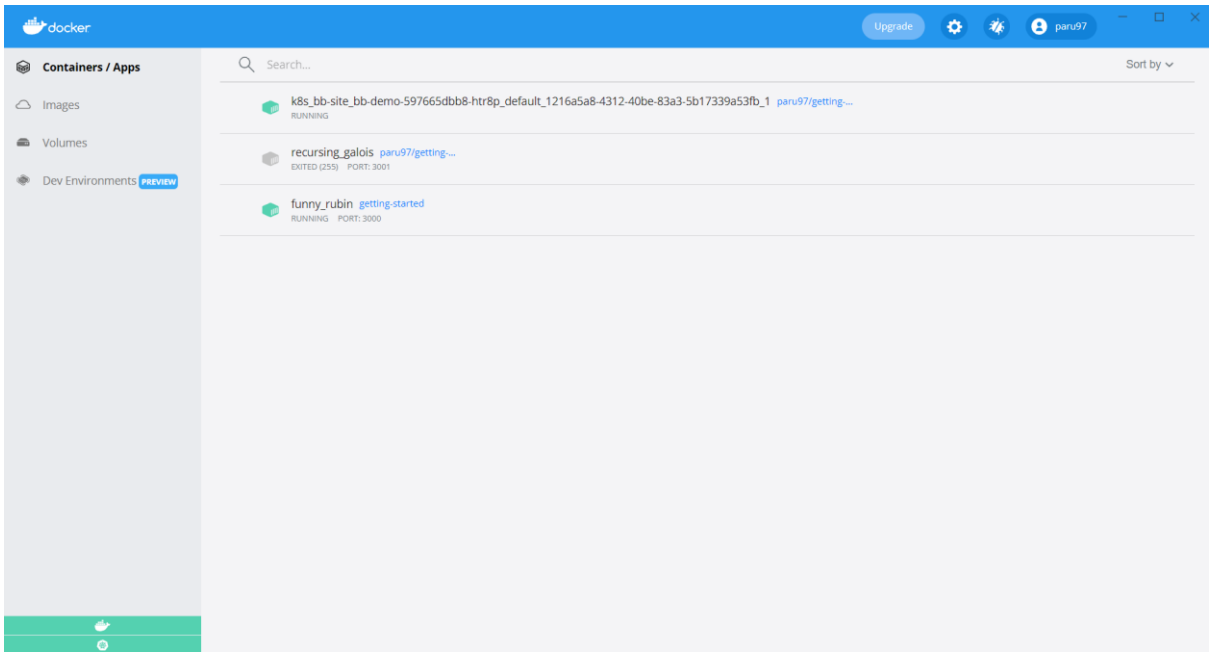
Building and running the app's container image



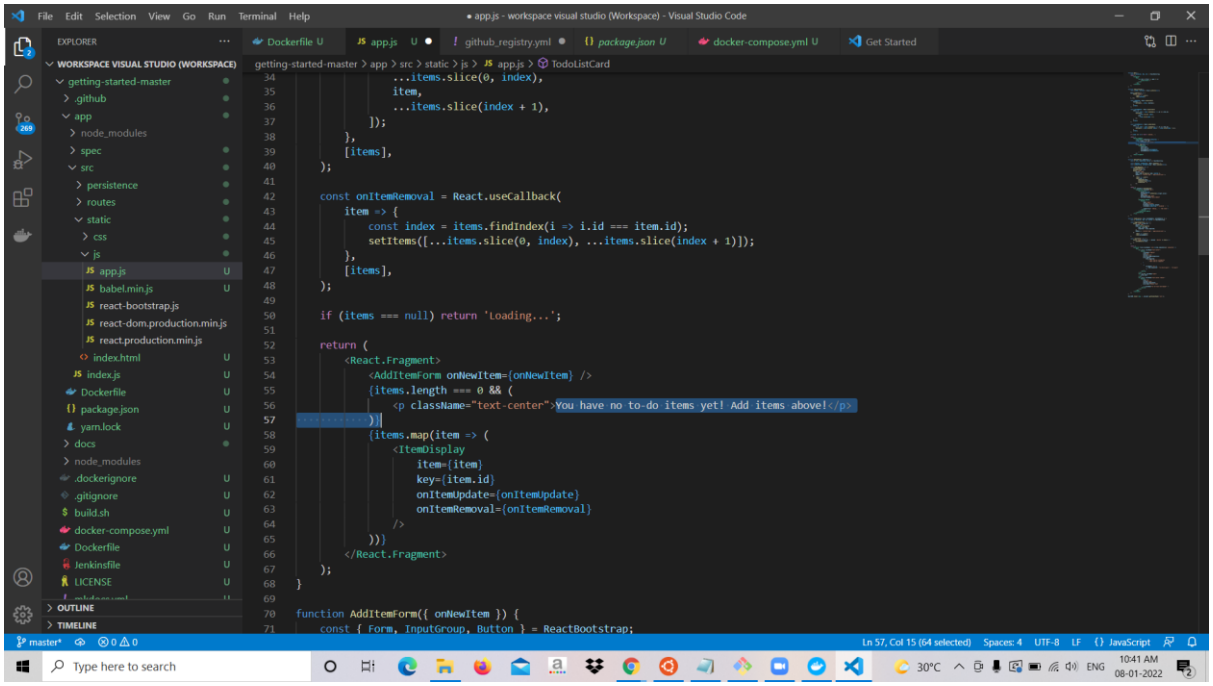
Opening the To-do app in the browser and adding items to it.



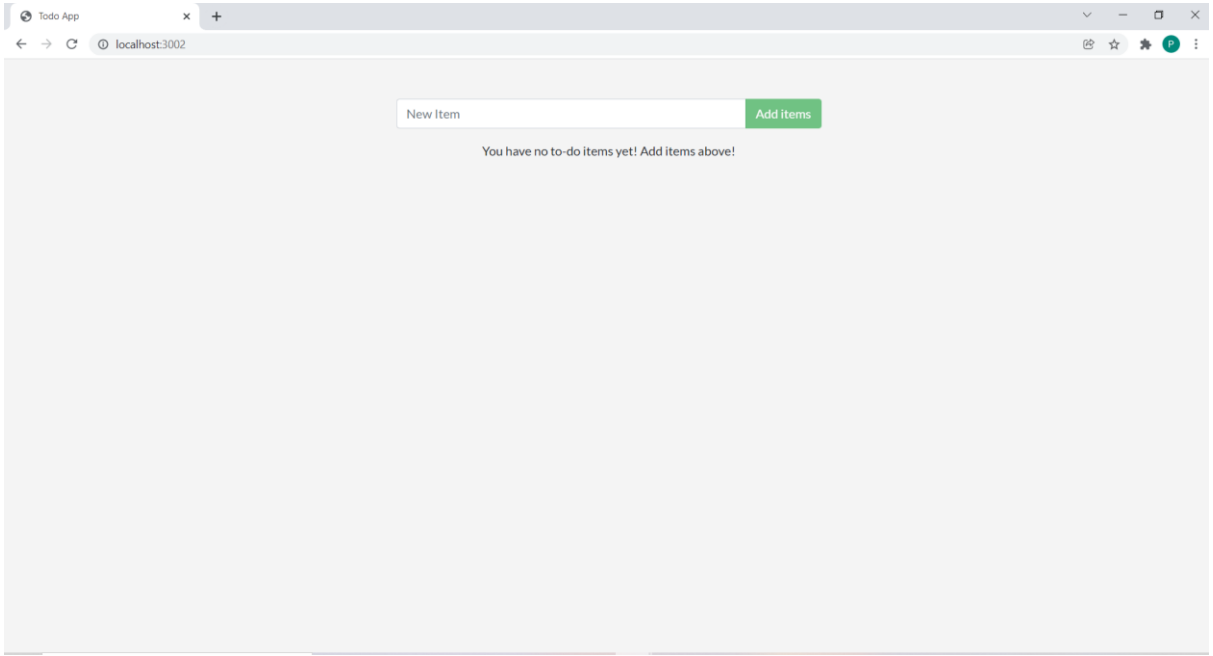
The container running in the docker desktop



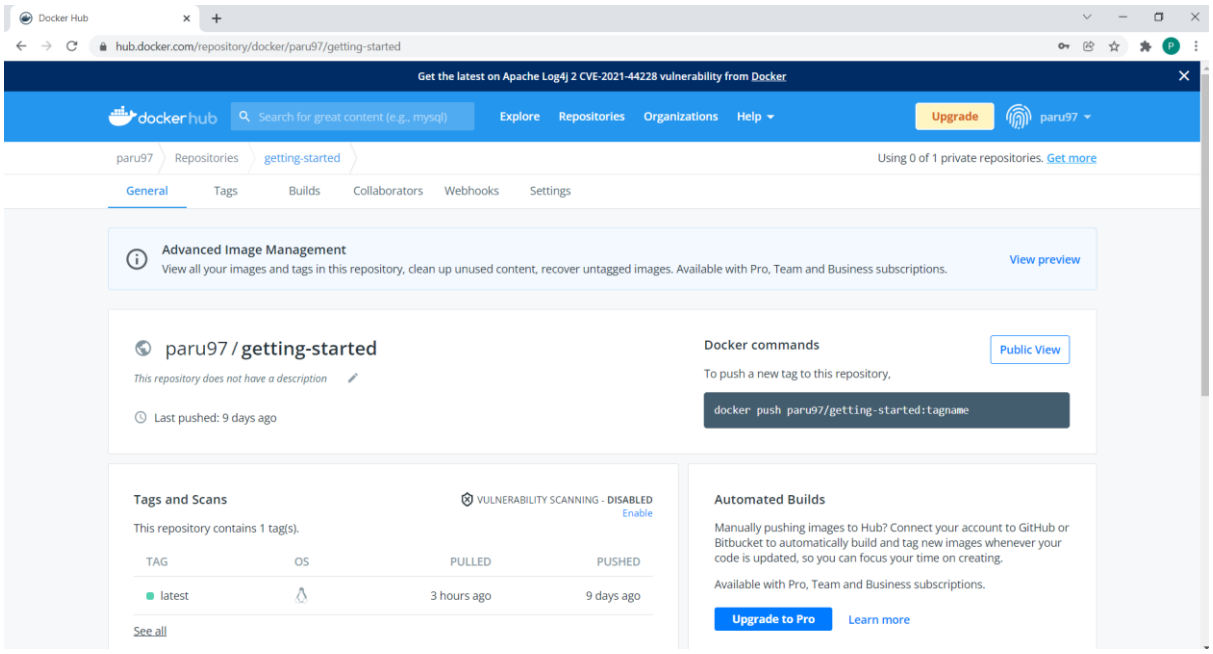
Making changes to the app



Viewing those changes after running it again



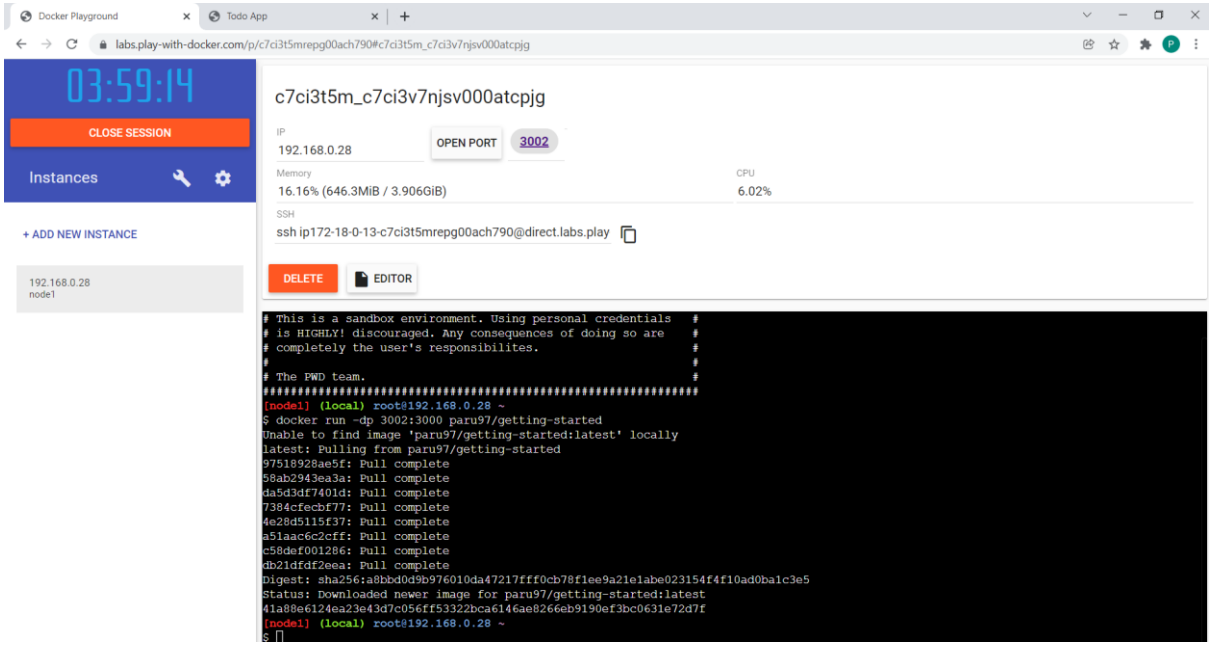
Sharing the app by creating a repo in dockerhub



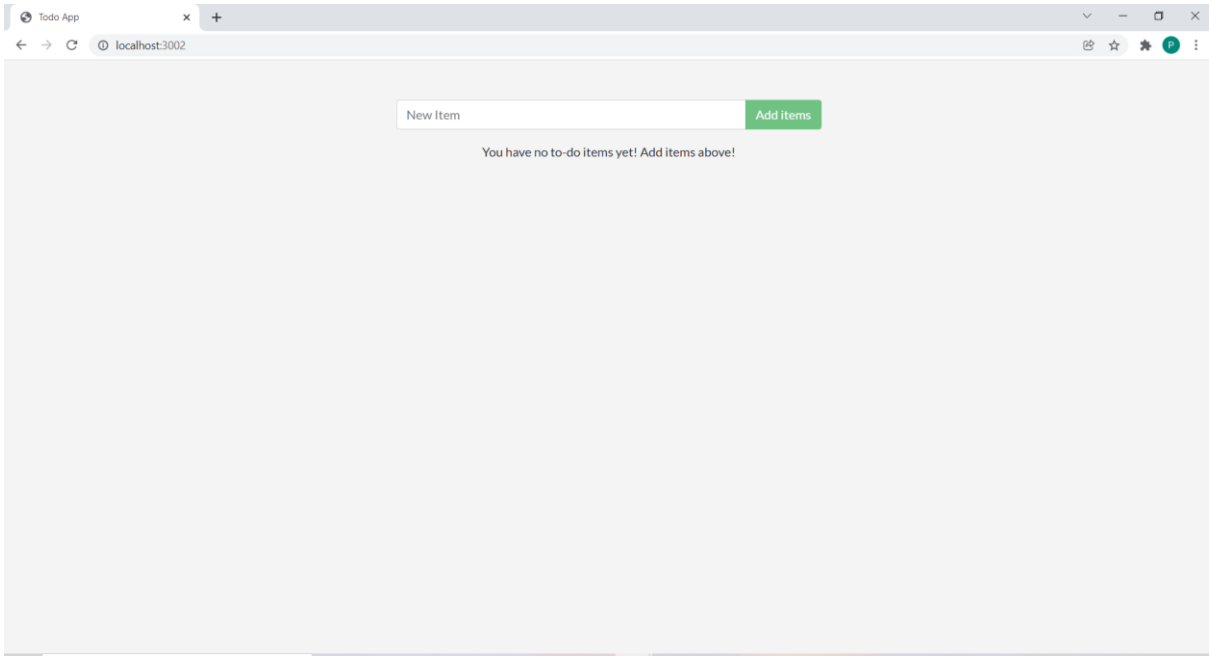
Pushing the app to the hub

docker push paru97/getting-started

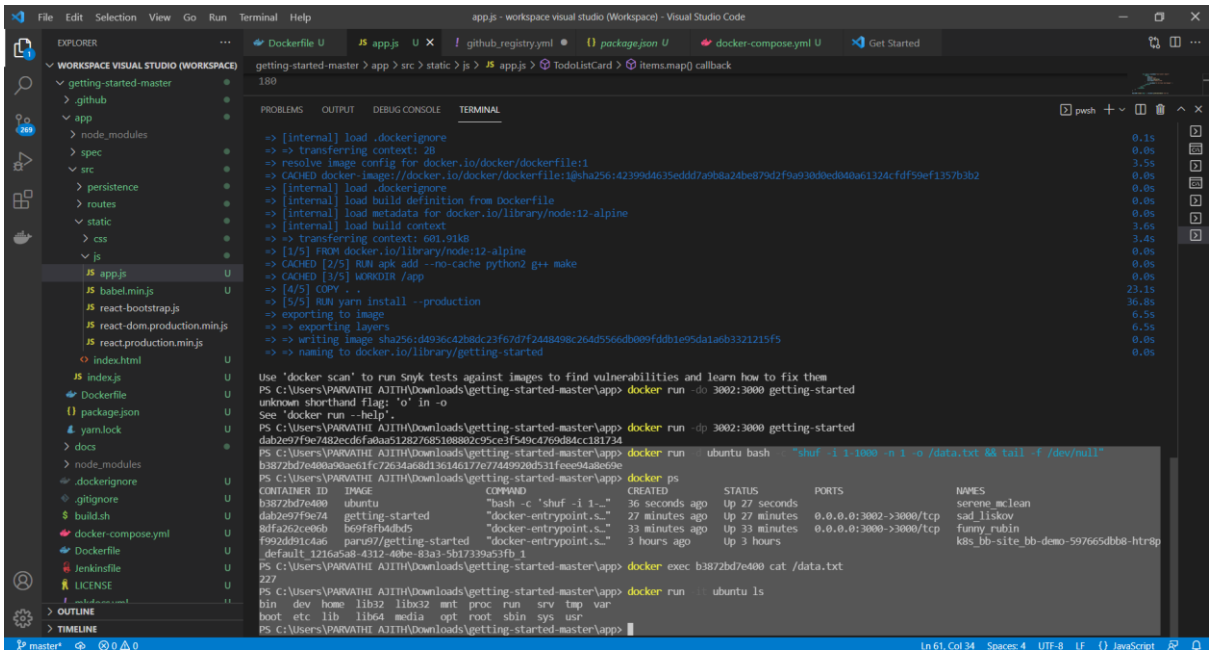
Running the image in labs.play-with-docker



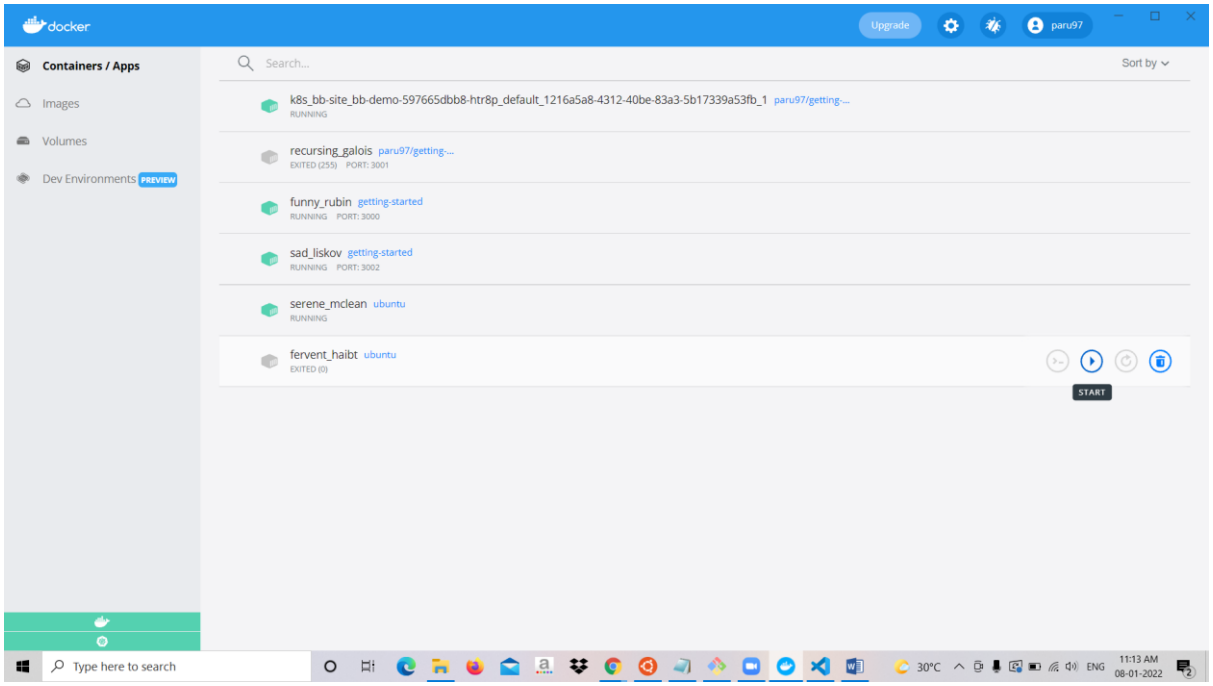
Opening it in browser again through the port in this lab



Running same images on two containers to show each container is independent.



When the new container is listed out the old image is not present, which shows containers are independent.



For persisting the database we can use named volumes.

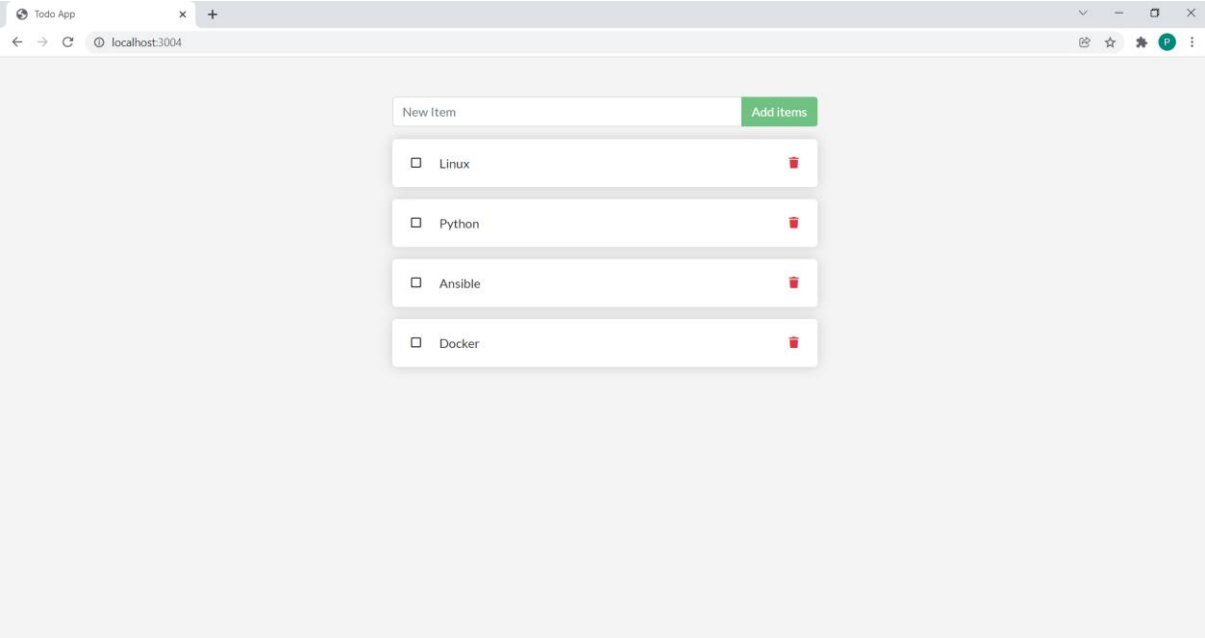
```
=> [internal] load build definition from Dockerfile                                    0.0s
=> [internal] load metadata for docker.io/library/node:12-alpine                       0.0s
=> [internal] load build context                                                       3.6s
=> => transferring context: 601.91kB                                                   3.4s
=> [1/5] FROM docker.io/library/node:12-alpine                                         0.0s
=> CACHED [2/5] RUN apk add --no-cache python2 g++ make                                0.0s
=> CACHED [3/5] WORKDIR /app                                                           0.0s
=> [4/5] COPY . .                                                                     23.1s
=> [5/5] RUN yarn install --production                                                36.8s
=> exporting to image                                                                  6.5s
=> => exporting layers                                                                 6.5s
=> => writing image sha256:d4936c42b0dc23f67d7f2448498c264d5566db009fddb1e95da1a6b3321215f5  0.0s
=> => naming to docker.io/library/getting-started                                      0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -do 3002:3000 getting-started
unknown shorthand flag: 'o' in -o
See 'docker run --help'.
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -dp 3002:3000 getting-started
dab2e97f9e7482ecd6fa0aa5128276851088802c95ce3f549c4769d84cc181734
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -d ubuntu bash -c "shuf -i 1-1000 -n 1 -o /data.txt && tail -f /dev/null"
b3872bd7e400a90ae61fc72634a68d136146177e77449920d531feee94a8e69e
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED          STATUS          PORTS                    NAMES
b3872bd7e400   ubuntu                 "bash -c 'shuf -i 1-…"   36 seconds ago   Up 27 seconds                            serene_mclean
dab2e97f9e74   getting-started        "docker-entrypoint.s…"   27 minutes ago   Up 27 minutes   0.0.0.0:3002->3000/tcp   sad_liskov
8dfa262ce06b   b69f8fb4dbd5           "docker-entrypoint.s…"   33 minutes ago   Up 33 minutes   0.0.0.0:3000->3000/tcp   funny_rubin
f992dd91c4a6   paru97/getting-started "docker-entrypoint.s…"   3 hours ago      Up 3 hours                               k8s_bb-site_bb-demo-597665dbb8-htr8p
_default_1216a5a8-4312-40be-83a3-5b17339a53fb_1
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker exec b3872bd7e400 cat /data.txt
227
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -it ubuntu ls
bin  dev  home  lib32  libx32  mnt  proc  run  srv  tmp  var
boot  etc  lib  lib64  media  opt  root  sbin  sys  usr
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app>
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker volume create todo-db
todo-db
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -dp 3004:3000 -v todo-db:/etc/todos getting-started
a8dc986911b69d5deb448b3e127c165acbe64d3bab5d77446deb51891d4c452b
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app>
```

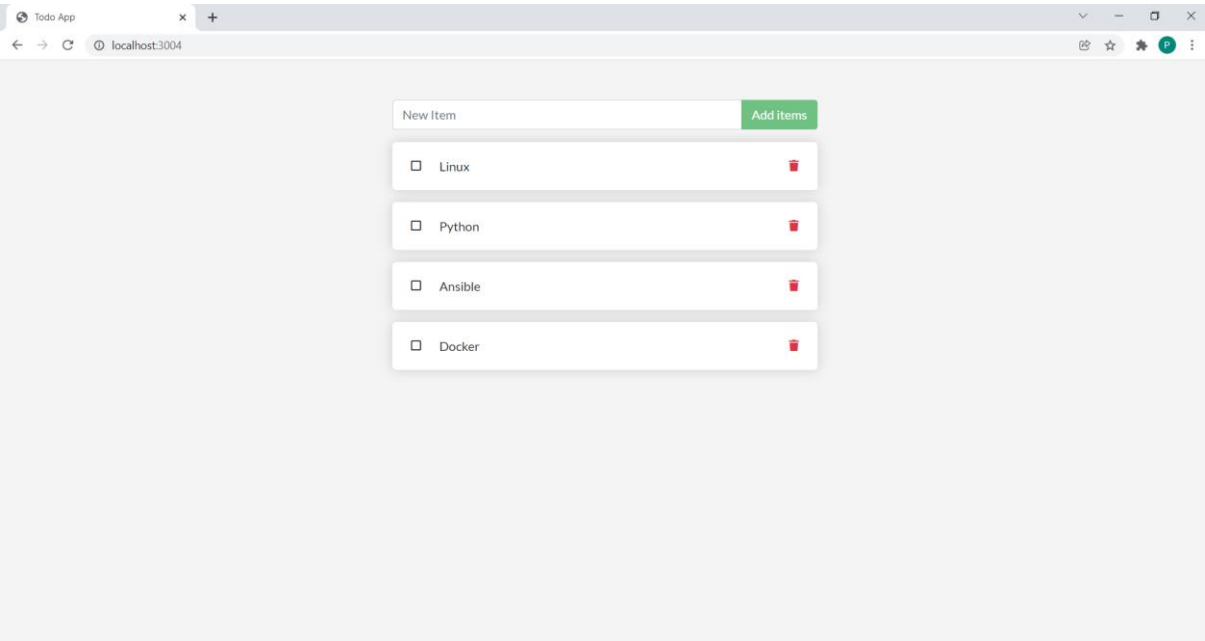
```
=> => naming to docker.io/library/getting-started                                      0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -do 3002:3000 getting-started
unknown shorthand flag: 'o' in -o
See 'docker run --help'.
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -dp 3002:3000 getting-started
dab2e97f9e7482ecd6fa0aa5128276851088802c95ce3f549c4769d84cc181734
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -d ubuntu bash -c "shuf -i 1-1000 -n 1 -o /data.txt && tail -f /dev/null"
b3872bd7e400a90ae61fc72634a68d136146177e77449920d531feee94a8e69e
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED          STATUS          PORTS                    NAMES
b3872bd7e400   ubuntu                 "bash -c 'shuf -i 1-…"   36 seconds ago   Up 27 seconds                            serene_mclean
dab2e97f9e74   getting-started        "docker-entrypoint.s…"   27 minutes ago   Up 27 minutes   0.0.0.0:3002->3000/tcp   sad_liskov
8dfa262ce06b   b69f8fb4dbd5           "docker-entrypoint.s…"   33 minutes ago   Up 33 minutes   0.0.0.0:3000->3000/tcp   funny_rubin
f992dd91c4a6   paru97/getting-started "docker-entrypoint.s…"   3 hours ago      Up 3 hours                               k8s_bb-site_bb-demo-597665dbb8-htr8p
_default_1216a5a8-4312-40be-83a3-5b17339a53fb_1
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker exec b3872bd7e400 cat /data.txt
227
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -it ubuntu ls
bin  dev  home  lib32  libx32  mnt  proc  run  srv  tmp  var
boot  etc  lib  lib64  media  opt  root  sbin  sys  usr
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app>
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker volume create todo-db
todo-db
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -dp 3004:3000 -v todo-db:/etc/todos getting-started
a8dc986911b69d5deb448b3e127c165acbe64d3bab5d77446deb51891d4c452b
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker volume inspect todo-db
[
    {
        "CreatedAt": "2021-12-30T07:38:18Z",
        "Driver": "local",
        "Labels": {},
        "Mountpoint": "/var/lib/docker/volumes/todo-db/_data",
        "Name": "todo-db",
        "Options": {},
        "Scope": "local"
    }
]
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app>
```

Opening it in browser

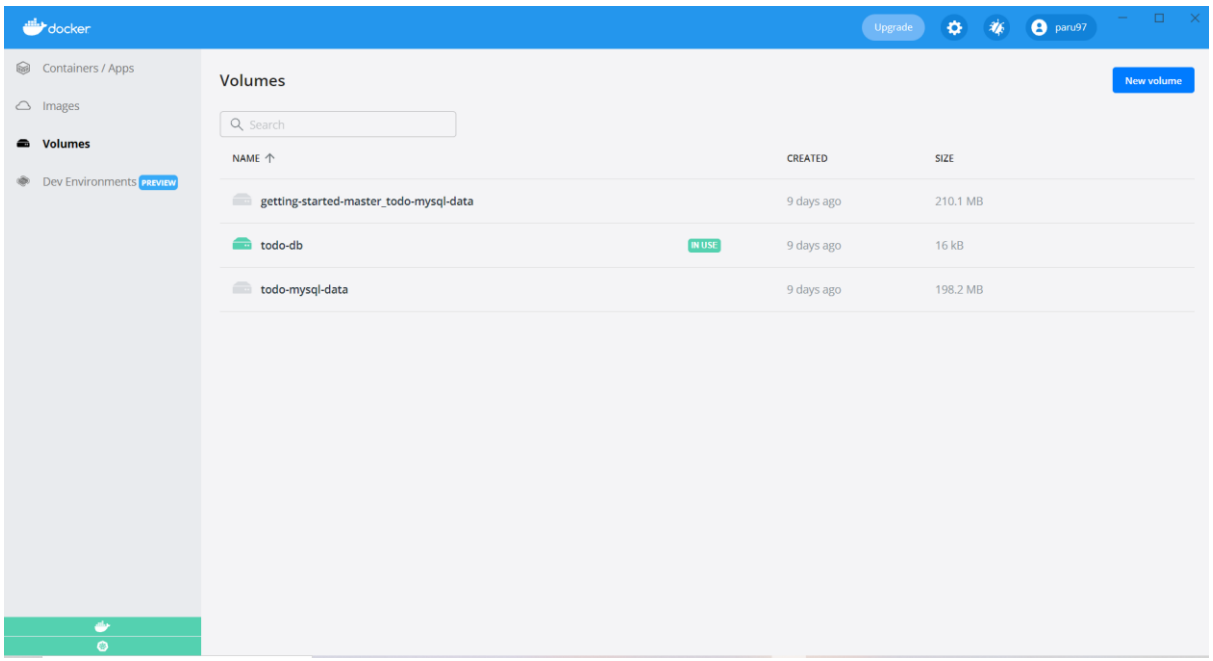


Cross checking to see whether the data is persisting

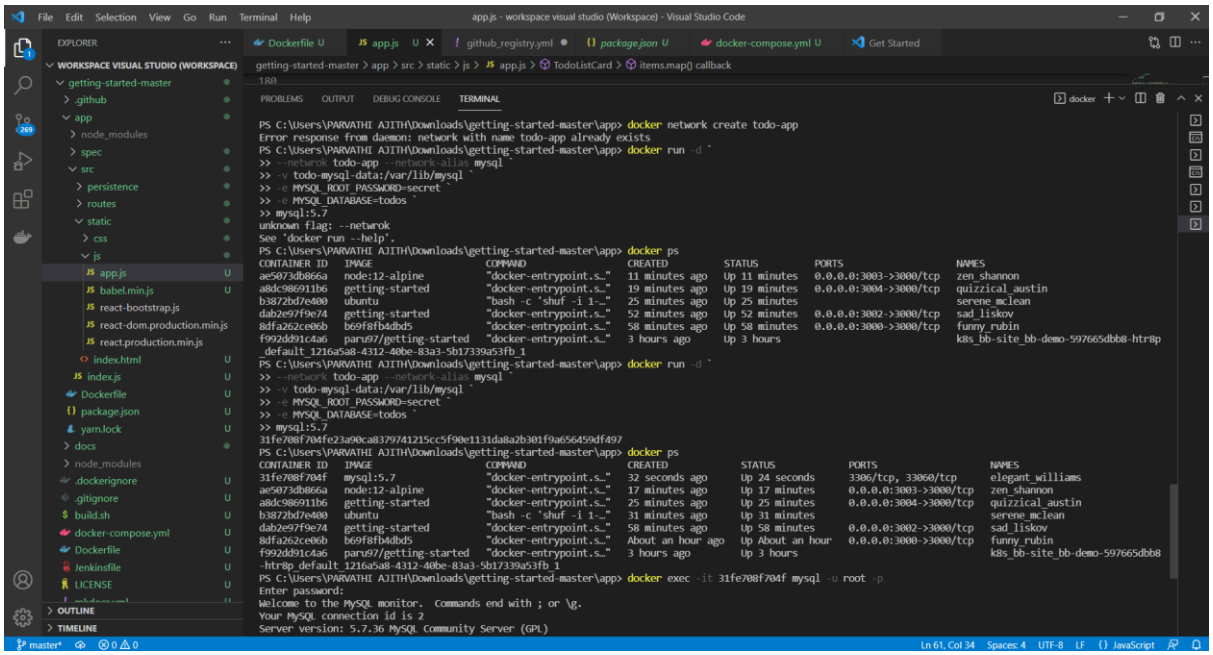


Data persists

Volumes in docker desktop



Starting a multi-container app using container networking.



```
31fe708f704fe23a90ca8379741215cc5f90e1131da8a2b301f9a656459df497
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED          STATUS          PORTS                    NAMES
31fe708f704f   mysql:5.7              "docker-entrypoint.s…"   32 seconds ago   Up 24 seconds   3306/tcp, 33060/tcp      elegant_williams
ae5073db866a   node:12-alpine         "docker-entrypoint.s…"   17 minutes ago   Up 17 minutes   0.0.0.0:3003->3000/tcp   zen_shannon
a8dc986911b6   getting-started        "docker-entrypoint.s…"   25 minutes ago   Up 25 minutes   0.0.0.0:3004->3000/tcp   quizzical_austin
b3872bd7e400   ubuntu                 "bash -c 'shuf -i 1-…"   31 minutes ago   Up 31 minutes                            serene_mclean
dab2e97f9e74   getting-started        "docker-entrypoint.s…"   58 minutes ago   Up 58 minutes   0.0.0.0:3002->3000/tcp   sad_liskov
8dfa262ce06b   b69f8fb4dbd5           "docker-entrypoint.s…"   About an hour ago Up About an hour 0.0.0.0:3000->3000/tcp   funny_rubin
f992dd91c4a6   paru97/getting-started "docker-entrypoint.s…"   3 hours ago      Up 3 hours                               k8s_bb-site_bb-demo-597665dbb8
-htr8p_default_1216a5a8-4312-40be-83a3-5b17339a53fb_1
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker exec -it 31fe708f704f mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.36 MySQL Community Server (GPL)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' clear the current input statement.

mysql> SHOWDATABASES;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'SHOW
DATABASES' at line 1
mysql> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
| todos              |
+--------------------+
5 rows in set (0.09 sec)

mysql>
```
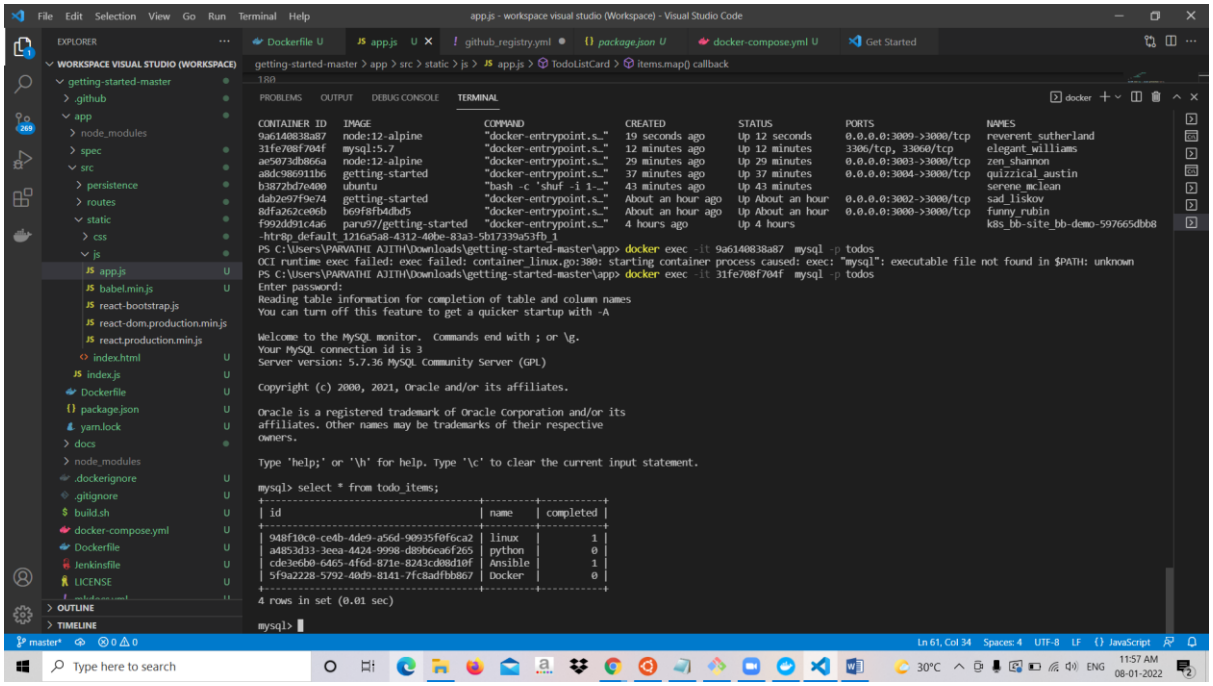
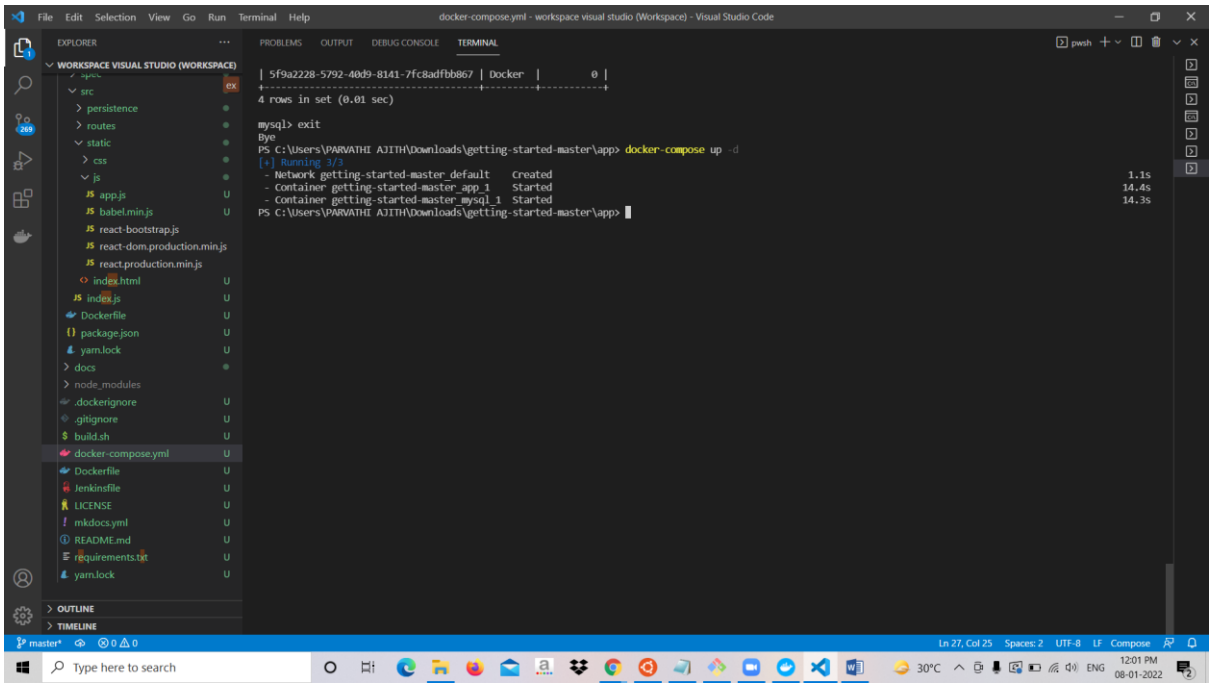
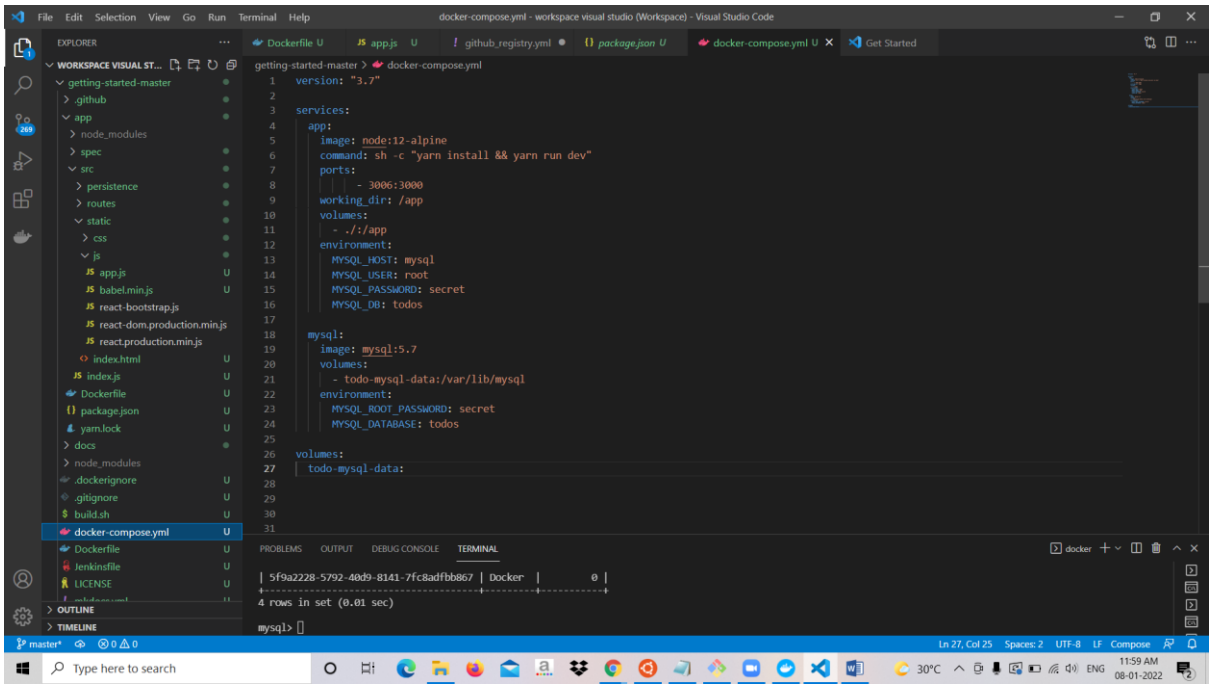

```
mysql> ^C
mysql>
mysql> q
    -> exit
    -> ^C
mysql> exit
Bye
PS C:\Users\PARVATHI AJITH\Downloads\getting-started-master\app> docker run -it --network todo-app nicolaka/netshoot
                    dP              dP                                dP
                    88              88                                88
88d888b. .d8888b. d8888P .d8888b. 88d888b. .d8888b. .d8888b. d8888P
88'  `88 88ooood8   88   Y8ooooo. 88'  `88 88'  `88 88'  `88   88
88    88 88.  ...   88         88 88    88 88.  .88 88.  .88   88
dP    dP `88888P'   dP   `88888P' dP    dP `88888P' `88888P'   dP

Welcome to Netshoot! (github.com/nicolaka/netshoot)


 1c4a4762a77f  ~  dig mysql

; <<>> DiG 9.16.22 <<>> mysql
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 45134
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;mysql.                         IN      A

;; ANSWER SECTION:
mysql.                  600     IN      A       172.18.0.2

;; Query time: 10 msec
;; SERVER: 127.0.0.11#53(127.0.0.11)
;; WHEN: Sat Jan 08 06:19:38 UTC 2022
;; MSG SIZE  rcvd: 44

 1c4a4762a77f  ~
```



Running multi container apps using docker compose



Docker compose.yml



Running the app as a stack more efficiently