Assignment 1

Setup

```
● ● ●              📁 akshatsrivastava — -zsh — 80×24

[akshatsrivastava@Akshats-Air ~ % 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.
    (arm64v8)
 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/

akshatsrivastava@Akshats-Air ~ % ▮
```

1.0 Running your first container

```
● ● ●              📁 akshatsrivastava — -zsh — 80×24

[akshatsrivastava@Akshats-Air ~ % docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
Digest: sha256:c5b1261d6d3e43071626931fc004f70149baeba2c8ec672bd4f27761f8e1ad6b
Status: Image is up to date for alpine:latest
docker.io/library/alpine:latest

What's Next?
   View a summary of image vulnerabilities and recommendations → docker scout qui
ckview alpine
akshatsrivastava@Akshats-Air ~ % ▮
```

```
[akshatsrivastava@Akshats-Air ~ % docker images
REPOSITORY              TAG       IMAGE ID       CREATED         SIZE
akshatsri1905/myfirstapp  latest    b4ad98e25427   2 days ago      87.4MB
hello-world             latest    ee301c921b8a   12 months ago   9.14kB
schadokar/eth-server    1.0.0     a0dacc6a4fe6   2 years ago     391MB
schadokar/eth-ganache   1.0.0     2421f3fd8aae   2 years ago     148MB
schadokar/eth-react     1.0.0     607dd4c15f02   2 years ago     24.2MB
akshatsrivastava@Akshats-Air ~ % ▮
```

```
[akshatsrivastava@Akshats-Air ~ % docker run alpine ls -l
Unable to find image 'alpine:latest' locally
latest: Pulling from library/alpine
bca4290a9639: Pull complete
Digest: sha256:c5b1261d6d3e43071626931fc004f70149baeba2c8ec672bd4f27761f8e1ad6b
Status: Downloaded newer image for alpine:latest
total 56
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 bin
drwxr-xr-x    5 root     root           340 May 19 23:12 dev
drwxr-xr-x    1 root     root          4096 May 19 23:12 etc
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 home
drwxr-xr-x    7 root     root          4096 Jan 26 17:55 lib
drwxr-xr-x    5 root     root          4096 Jan 26 17:55 media
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 mnt
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 opt
dr-xr-xr-x  218 root     root             0 May 19 23:12 proc
drwx------    2 root     root          4096 Jan 26 17:55 root
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 run
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 sbin
drwxr-xr-x    2 root     root          4096 Jan 26 17:55 srv
dr-xr-xr-x   11 root     root             0 May 19 23:12 sys
drwxrwxrwt    2 root     root          4096 Jan 26 17:55 tmp
drwxr-xr-x    7 root     root          4096 Jan 26 17:55 usr

[akshatsrivastava@Akshats-Air ~ % docker run alpine echo "hello from alpine"
 hello from alpine
 akshatsrivastava@Akshats-Air ~ %

akshatsrivastava@Akshats-Air ~ % docker run alpine /bin/sh
akshatsrivastava@Akshats-Air ~ % docker ps
CONTAINER ID    IMAGE                        COMMAND                   CREATED
      STATUS          PORTS                  NAMES
0e01d3e553ac    schadokar/eth-react:1.0.0    "/docker-entrypoint.…"   24 hours a
go   Up 24 hours   0.0.0.0:3000->80/tcp     docker-ethereum-master-react-1
18edc1fb5256    schadokar/eth-server:1.0.0   "npm start"               24 hours a
go   Up 24 hours   0.0.0.0:4000->4000/tcp   docker-ethereum-master-dapp-1
3041f2928753    schadokar/eth-ganache:1.0.0  "docker-entrypoint.s…"   24 hours a
go   Up 24 hours   0.0.0.0:8545->8545/tcp   docker-ethereum-master-ganache-1
akshatsrivastava@Akshats-Air ~ %

akshatsrivastava@Akshats-Air ~ % docker ps -a
CONTAINER ID    IMAGE      COMMAND     CREATED          STATUS
RTS       NAMES
3c86c310e691    alpine     "ls -l"     9 seconds ago    Exited (0) 8 seconds ago
         crazy_lovelace
akshatsrivastava@Akshats-Air ~ %
```
```
[akshatsrivastava@Akshats-Air ~ % docker run -it alpine /bin/sh
[/ # ls
bin     etc     lib     mnt     proc    run     srv     tmp     var
dev     home    media   opt     root    sbin    sys     usr
[/ # uname -a
Linux 29d1c9632e52 6.6.22-linuxkit #1 SMP Fri Mar 29 12:21:27 UTC 2024 aarch64 L
inux
/ #
```

2.0 Webapps with Docker

```
akshatsrivastava@Akshats-Air Lab1 % docker run -d dockersamples/static-site

WARNING: The requested image's platform (linux/amd64) does not match the detected host platform (linux/arm64/v8) and no specific platform was requested
eb3d4d6da7da3294c4572d5be6147db4e43630d8047d1f56721fe7cfb5f097c9
akshatsrivastava@Akshats-Air Lab1 % docker ps
CONTAINER ID   IMAGE                                        COMMAND                CREATED         STATUS          PORTS             NAMES
eb3d4d6da7da   dockersamples/static-site                    "/bin/sh -c 'cd /usr…" 32 seconds ago  Up 32 seconds   80/tcp, 443/tcp   silly_greider
94bf08aa81f2   dockersamples/examplevotingapp_vote:after    "gunicorn app:app -b…" 12 hours ago    Up 12 hours     80/tcp            vote_vote.2.0wb1jz
q9r7ymeu3rzi8p4dyvt
79d7f5213465   dockersamples/examplevotingapp_vote:after    "gunicorn app:app -b…" 12 hours ago    Up 12 hours     80/tcp            vote_vote.1.pztxsg
e0tfkcj6togdd39l06i
06f59697bc33   dockersamples/examplevotingapp_result:before "/usr/bin/tini -- no…" 12 hours ago    Up 12 hours     80/tcp            vote_result.1.mweo
dodrltb4d8zfsue8b6pv6
29b33cf4f42c   redis:alpine                                 "docker-entrypoint.s…" 13 hours ago    Up 13 hours     6379/tcp          vote_redis.2.szaf6
67hq0kxajhpf8kv3gq3o
22d65ea5b602   redis:alpine                                 "docker-entrypoint.s…" 13 hours ago    Up 13 hours     6379/tcp          vote_redis.1.2i1li
kch8dpmzgm38ysqww9fv
dd09820d2cad   dockersamples/examplevotingapp_worker:latest "dotnet Worker.dll"    13 hours ago    Up 13 hours                       vote_worker.1.ynxb
8zhhepu1hkb934evcbnd7
akshatsrivastava@Akshats-Air Lab1 % docker stack rm vote
Removing service vote_db
Removing service vote_redis
Removing service vote_result
Removing service vote_visualizer
Removing service vote_vote
Removing service vote_worker
Removing network vote_backend
Removing network vote_default
Removing network vote_frontend
akshatsrivastava@Akshats-Air Lab1 % docker ps
CONTAINER ID   IMAGE                                        COMMAND                CREATED         STATUS          PORTS             NAMES
eb3d4d6da7da   dockersamples/static-site                    "/bin/sh -c 'cd /usr…" 56 seconds ago  Up 56 seconds   80/tcp, 443/tcp   silly_greider
94bf08aa81f2   dockersamples/examplevotingapp_vote:after    "gunicorn app:app -b…" 12 hours ago    Up 12 hours     80/tcp            vote_vote.2.0wb1jz
q9r7ymeu3rzi8p4dyvt
79d7f5213465   dockersamples/examplevotingapp_vote:after    "gunicorn app:app -b…" 12 hours ago    Up 12 hours     80/tcp            vote_vote.1.pztxsg
e0tfkcj6togdd39l06i
06f59697bc33   dockersamples/examplevotingapp_result:before "/usr/bin/tini -- no…" 12 hours ago    Up 12 hours     80/tcp            vote_result.1.mweo
dodrltb4d8zfsue8b6pv6
29b33cf4f42c   redis:alpine                                 "docker-entrypoint.s…" 13 hours ago    Up 13 hours     6379/tcp          vote_redis.2.szaf6
67hq0kxajhpf8kv3gq3o
22d65ea5b602   redis:alpine                                 "docker-entrypoint.s…" 13 hours ago    Up 13 hours     6379/tcp          vote_redis.1.2i1li
kch8dpmzgm38ysqww9fv
dd09820d2cad   dockersamples/examplevotingapp_worker:latest "dotnet Worker.dll"    13 hours ago    Up 13 hours                       vote_worker.1.ynxb
8zhhepu1hkb934evcbnd7
```

```
akshatsrivastava@Akshats-Air Lab1 % docker stop $(docker ps -q)

eb3d4d6da7da
akshatsrivastava@Akshats-Air Lab1 % docker run -d dockersamples/static-site

WARNING: The requested image's platform (linux/amd64) does not match the detected host platform (linux/arm64/v8) and no specific platform was requested
9876b51835e16feec138c8e8043a76341da7830f26bc0d2335e2dd2b246442b8
akshatsrivastava@Akshats-Air Lab1 % docker ps
CONTAINER ID   IMAGE                       COMMAND                CREATED        STATUS        PORTS             NAMES
9876b51835e1   dockersamples/static-site   "/bin/sh -c 'cd /usr…" 3 seconds ago  Up 3 seconds  80/tcp, 443/tcp   epic_rhodes
akshatsrivastava@Akshats-Air Lab1 % docker stop 9876b51835e1
9876b51835e1
akshatsrivastava@Akshats-Air Lab1 % docker rm 9876b51835e1
9876b51835e1
akshatsrivastava@Akshats-Air Lab1 % docker run --name static-site -e AUTHOR="Akshat Srivata" -d -P dockersamples/static-site
WARNING: The requested image's platform (linux/amd64) does not match the detected host platform (linux/arm64/v8) and no specific platform was requested
9b3aa607a52a1e5f1024c4aaf53bd419811669dfa98ab8b20b2229fa3e48e98f
akshatsrivastava@Akshats-Air Lab1 % docker port static-site
80/tcp -> 0.0.0.0:55001
443/tcp -> 0.0.0.0:55000
akshatsrivastava@Akshats-Air Lab1 % docker-machine ip default
zsh: command not found: docker-machine
akshatsrivastava@Akshats-Air Lab1 % docker stop static-site
static-site
akshatsrivastava@Akshats-Air Lab1 % docker rm static-site
static-site
akshatsrivastava@Akshats-Air Lab1 % docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
akshatsrivastava@Akshats-Air Lab1 % docker images
REPOSITORY                              TAG        IMAGE ID       CREATED         SIZE
postgres                                <none>     43577b2f2c6d   7 days ago      252MB
alpine                                  latest     ace17d5d883e   3 months ago    7.73MB
redis                                   <none>     0bdbdda94acb   4 months ago    41.6MB
docker/welcome-to-docker                latest     648f93a1ba7d   6 months ago    19MB
dockersamples/examplevotingapp_vote     <none>     855124cd10ab   6 months ago    179MB
dockersamples/examplevotingapp_result   <none>     470e250f51b8   6 months ago    291MB
dockersamples/examplevotingapp_worker   <none>     c6b89c469067   7 months ago    195MB
hello-world                             latest     ee301c921b8a   12 months ago   9.14kB
postgres                                <none>     897a27671908   4 years ago     241MB
dockersamples/static-site               latest     f589ccde7957   8 years ago     191MB
akshatsrivastava@Akshats-Air Lab1 %
* History restored
```

```
akshatsrivastava@Akshats-Air Lab1 % /usr/bin/python3 /Users/akshatsrivastava/.vscode/extensions/ms-python.python-2024.6.0/python_files/printEnvVariablesToFi
le.py /Users/akshatsrivastava/.vscode/extensions/ms-python.python-2024.6.0/python_files/deactivate/zsh/envVars.txt
```

Hello Akshat!

This is being served from a **docker** container running Nginx.

```
akshatsrivastava@Akshats-Air Assignment3 % docker build -t akshatsri1905/dockerlibrary .

[+] Building 2.5s (19/19) FINISHED                                                docker:desktop-linux
 => [internal] load build definition from Dockerfile                                            0.0s
 => => transferring dockerfile: 1.30kB                                                          0.0s
 => [internal] load metadata for docker.io/library/node:18                                      0.3s
 => [internal] load .dockerignore                                                               0.0s
 => => transferring context: 2B                                                                 0.0s
 => [internal] load build context                                                               1.9s
 => => transferring context: 6.49MB                                                             1.8s
 => [build-backend 1/5] FROM docker.io/library/node:18@sha256:5bac3a1edff13e76586b8eaef1d411fcd80e4f18cce5bc40ea6993245e0721e  0.0s
 => CACHED [final 2/5] WORKDIR /app                                                             0.0s
 => CACHED [build-frontend 2/6] WORKDIR /app/frontend                                           0.0s
 => CACHED [build-frontend 3/6] COPY frontend/package*.json ./                                  0.0s
 => CACHED [build-frontend 4/6] RUN npm install                                                 0.0s
 => CACHED [build-frontend 5/6] COPY frontend/ .                                                0.0s
 => CACHED [build-frontend 6/6] RUN npm run build                                               0.0s
 => CACHED [final 3/5] COPY --from=build-frontend /app/frontend/build ./frontend/build          0.0s
 => CACHED [build-backend 2/5] WORKDIR /app/backend                                             0.0s
 => CACHED [build-backend 3/5] COPY backend/package*.json ./                                    0.0s
 => CACHED [build-backend 4/5] RUN npm install                                                  0.0s
 => CACHED [build-backend 5/5] COPY backend/ .                                                  0.0s
 => CACHED [final 4/5] COPY --from=build-backend /app/backend ./backend                         0.0s
 => CACHED [final 5/5] RUN npm install -g serve                                                 0.0s
 => exporting to image                                                                          0.0s
 => => exporting layers                                                                         0.0s
 => => writing image sha256:ad5db35cfe899fd17630146da5a71727d74d36674a9fba0f01139ca22f06e609    0.0s
 => => naming to docker.io/akshatsri1905/dockerlibrary                                          0.0s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/x8vnovg9efb1i7oiv9ls4lv68

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview
akshatsrivastava@Akshats-Air Assignment3 % docker run -p 8888:5001 --name dockerlibrary akshatsri1905/dockerlibrary

 INFO  Accepting connections at http://localhost:5001
Started HTTP and WebSocket JSON-RPC server at http://0.0.0.0:8545/

Accounts
```

WARNING: These accounts, and their private keys, are publicly known.
Any funds sent to them on Mainnet or any other live network WILL BE LOST.

Account #0: 0xf39Fd6e51aad88F6F4ce6aB8827279cffFb92266 (10000 ETH)
Private Key: 0xac0974bec39a17e36ba4a6b4d238ff944bacb478cbed5efcae784d7bf4f2ff80

Account #1: 0x70997970C51812dc3A010C7d01b50e0d17dc79C8 (10000 ETH)
Private Key: 0x59c6995e998f97a5a0044966f0945389dc9e86dae88c7a8412f4603b6b78690d

Account #2: 0x3C44CdDdB6a900fa2b585dd299e03d12FA4293BC (10000 ETH)
Private Key: 0x5de4111afa1a4b94908f83103eb1f1706367c2e68ca870fc3fb9a804cdab365a

Account #3: 0x90F79bf6EB2c4f870365E785982E1f101E93b906 (10000 ETH)
Private Key: 0x7c852118294e51e653712a81e05800f419141751be58f605c371e15141b007a6

Account #4: 0x15d34AAf54267DB7D7c367839AAf71A00a2C6A65 (10000 ETH)
Private Key: 0x47e179ec197488593b187f80a00eb0da91f1b9d0b13f8733639f19c30a34926a

Account #5: 0x9965507D1a55bcC2695C58ba16FB37d819B0A4dc (10000 ETH)
Private Key: 0x8b3a350cf5c34c9194ca85829a2df0ec3153be0318b5e2d3348e872092edffba

Account #6: 0x976EA74026E726554dB657fA54763abd0C3a0aa9 (10000 ETH)
Private Key: 0x92db14e403b83dfe3df233f83dfa3a0d7096f21ca9b0d6d6b8d88b2b4ec1564e

Library dApp

Enter book title

Enter number of copies

ADD BOOK

Available Books:

Borrowed Books:
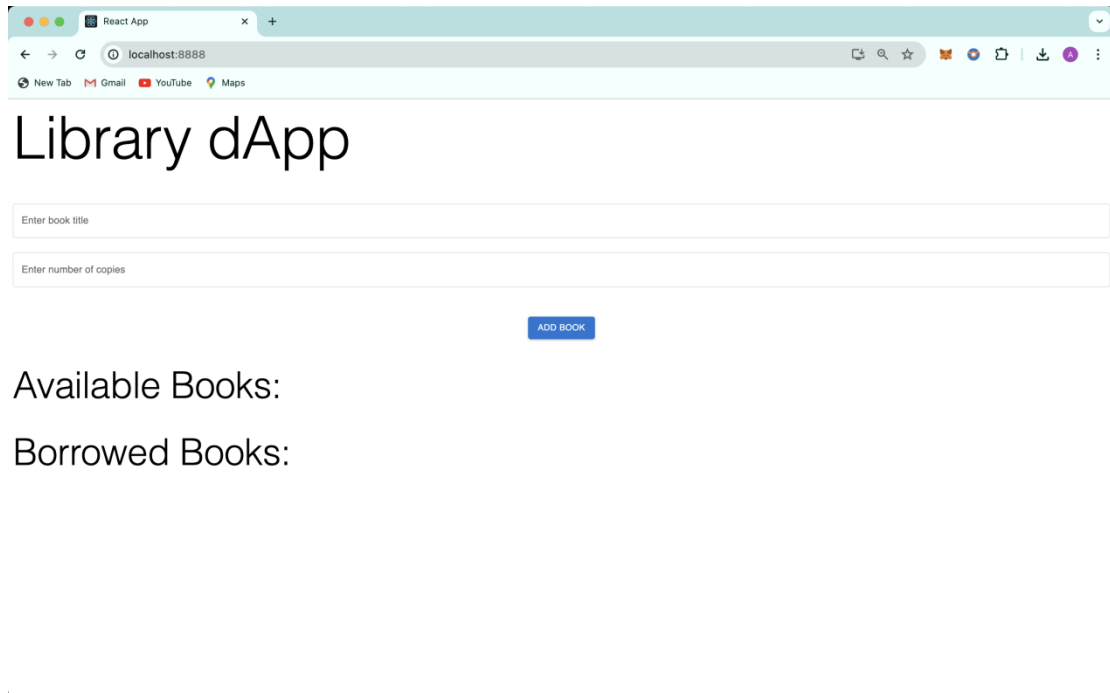
3.0 Deploying an app to a Swarm

```
akshatsrivastava@Akshats-Air Voting-app % git clone https://github.com/docker/example-voting-app.git
Cloning into 'example-voting-app'...
remote: Enumerating objects: 1140, done.
remote: Counting objects: 100% (8/8), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 1140 (delta 1), reused 3 (delta 0), pack-reused 1132
Receiving objects: 100% (1140/1140), 1.21 MiB | 5.23 MiB/s, done.
Resolving deltas: 100% (435/435), done.
akshatsrivastava@Akshats-Air Voting-app % cd example-voting-app
```

```
akshatsrivastava@Akshats-Air example-voting-app % docker swarm init

Swarm initialized: current node (t1uyey385o1vkwkyqyplcf5h9) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-0imxxa597rtxuuhqofrri8o0t7fqkxuvutbxcmv4rofqnoih93-2p856xwubkoltxbo1qxujr6nj 192.168.
65.3:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
```

```
akshatsrivastava@Akshats-Air example-voting-app % docker stack deploy --compose-file docker-stack.yml vote
Since --detach=false was not specified, tasks will be created in the background.
In a future release, --detach=false will become the default.
Creating network vote_frontend
Creating network vote_backend
Creating service vote_worker
Creating service vote_redis
Creating service vote_db
Creating service vote_vote
Creating service vote_result
```

```
akshatsrivastava@Akshats-Air example-voting-app % docker stack services vote
ID             NAME          MODE         REPLICAS   IMAGE                                             PORTS
oiq7wo08pixs   vote_db       replicated   1/1        postgres:15-alpine
ogg0vyhki97m   vote_redis    replicated   1/1        redis:alpine
06bif4dvkex7   vote_result   replicated   1/1        dockersamples/examplevotingapp_result:latest     *:5001->80/tcp
zqxct76ixww9   vote_vote     replicated   2/2        dockersamples/examplevotingapp_vote:latest       *:5000->80/tcp
lqua8i59fafe   vote_worker   replicated   2/2        dockersamples/examplevotingapp_worker:latest
```