

Sana Khan  
IST 769  
Due April 17<sup>th</sup>, 2023

## Homework 1

```
Administrator: Windows Powe x + v
Windows PowerShell
Copyright (c) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\localadmin\Documents> cd .\advanced-databases\
PS C:\Users\localadmin\Documents\advanced-databases> -m 'Sana Khan'
```

1.

2. An image is an application and all its dependencies. It contains all the software necessary to run an application. A container is the running instance of the image, and its isolated from your host computer.

3. A volume is a way to store persisted data of containers.

```
4.
PS C:\Users\localadmin\Documents\advanced-databases> docker-compose start redis retwis
Starting redis ... done
Starting retwis ... done
PS C:\Users\localadmin\Documents\advanced-databases> -m 'sana khan'
```

```

Starting Redis ... done
PS C:\Users\localadmin\Documents\advanced-databases> docker-compose ps
-----
Name                                Command                                State      Ports
-----
advanced-databases_broker_1         /etc/confluent/docker/run            Exit 0
advanced-databases_cassandra_1     docker-entrypoint.sh cassa ...       Exit 0
advanced-databases_connect_1       /etc/confluent/docker/run            Exit 0
advanced-databases_control-center_1 /etc/confluent/docker/run            Exit 0
advanced-databases_datanode_1      /entrypoint.sh /run.sh               Exit 0
advanced-databases_drill_1         /bin/sh -c /opt/drill/bin/ ...       Exit 0
advanced-databases_elasticsearch_1 /bin/tini -- /usr/local/bi ...       Exit 0
advanced-databases_hive-metastore-postgresql_1 /docker-entrypoint.sh postgres Exit 0
advanced-databases_hive-metastore_1 entrypoint.sh /opt/hive/bi ...       Exit 0
advanced-databases_hive-server_1   entrypoint.sh /bin/sh -c s ...       Exit 0
advanced-databases_jupyter_1       tini -g -- start-notebook.sh        Exit 0
advanced-databases_kibana_1        /bin/tini -- /usr/local/bi ...       Exit 0
advanced-databases_ksql-datagen_1   bash -c echo Waiting for K ...       Exit 0
advanced-databases_ksql-cli_1      /bin/sh                               Exit 0
advanced-databases_ksql-server_1   /etc/confluent/docker/run            Exit 0
advanced-databases_minio_1         /usr/bin/docker-entrypoint ...       Exit 1
advanced-databases_mongo_1         docker-entrypoint.sh mongod          Exit 0
advanced-databases_mongoapp_1      python -m flask run --host ...       Exit 0
advanced-databases_mongoexpress_1  tini -- /docker-entrypoint ...       Exit 0
advanced-databases_mssql_1         /opt/mssql/bin/permissions ...       Exit 0
advanced-databases_namenode_1      /entrypoint.sh /run.sh               Exit 0
advanced-databases_neo4j_1         tini -g -- /startup/docker ...       Exit 0
advanced-databases_redis_1         docker-entrypoint.sh redis ...       Up        0.0.0.0:6379->6379/tcp
advanced-databases_rediscommander_1 /usr/bin/dumb-init -- /red ...       Exit 0
advanced-databases_rest-proxy_1     /etc/confluent/docker/run            Exit 0
advanced-databases_retwis_1        docker-php-entrypoint apac ...       Up        0.0.0.0:5082->80/tcp
advanced-databases_schema-registry_1 /etc/confluent/docker/run            Exit 0
advanced-databases_zookeeper_1     /etc/confluent/docker/run            Exit 0
PS C:\Users\localadmin\Documents\advanced-databases> -m 'sana khan'

```

5. The last line says “ 1:M 16 Apr 2023 01:39:47.299 \* Ready to accept connections” to get this command I typed **docker-compose logs redis**

```

PS C:\Users\localadmin\Documents\advanced-databases> docker-compose logs redis
Attaching to advanced-databases_redis_1
redis_1      | 1:C 16 Apr 2023 01:39:47.274 # o090o080o080o Redis is starting o080o090o080o
redis_1      | 1:C 16 Apr 2023 01:39:47.274 # Redis version=7.0.7, bits=64, commit=00000000, modified=0,
redis_1      | pid=1, just started
redis_1      | 1:C 16 Apr 2023 01:39:47.274 # Warning: no config file specified, using the default confi
redis_1      | g. In order to specify a config file use redis-server /path/to/redis.conf
redis_1      | 1:M 16 Apr 2023 01:39:47.274 * monotonic clock: POSIX clock_gettime
redis_1      | 1:M 16 Apr 2023 01:39:47.290 * Running mode=standalone, port=6379.
redis_1      | 1:M 16 Apr 2023 01:39:47.290 # Server initialized
redis_1      | 1:M 16 Apr 2023 01:39:47.290 # WARNING Memory overcommit must be enabled! Without it, a b
redis_1      | ackground save or replication may fail under low memory condition. Being disabled, it can can also cause failures withou
redis_1      | t low memory condition, see https://github.com/jemalloc/jemalloc/issues/1328. To fix this issue add 'vm.overcommit_memor
redis_1      | y = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to take effect.
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * Loading RDB produced by version 6.2.6
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * RDB age 38901732 seconds
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * RDB memory usage when created 0.77 Mb
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * Done loading RDB, keys loaded: 0, keys expired: 0.
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * DB loaded from disk: 0.004 seconds
redis_1      | 1:M 16 Apr 2023 01:39:47.299 * Ready to accept connections
PS C:\Users\localadmin\Documents\advanced-databases> ^C
PS C:\Users\localadmin\Documents\advanced-databases> -m 'Sana Khan'

```

6. Redis is using **0.0.0.0:6379->6379/tcp** and retwis is using **0.0.0.0:5082->80/tcp**. To find which services and ports are being used you can type **docker-compose ps**. If the service says up it means its running and the port column will be populated.

```

PS C:\Users\localadmin\Documents\advanced-databases> ^C
PS C:\Users\localadmin\Documents\advanced-databases> docker-compose ps

```

| Name   | Command                        | State  | Ports                  |
|--|--------------------------------|--------|------------------------|
| advanced-databases_broker_1                    | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_cassandra_1                 | docker-entrypoint.sh cassa ... | Exit 0 |                        |
| advanced-databases_connect_1                   | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_control-center_1            | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_datanode_1                  | /entrypoint.sh /run.sh         | Exit 0 |                        |
| advanced-databases_drill_1                     | /bin/sh -c /opt/drill/bin/ ... | Exit 0 |                        |
| advanced-databases_elasticsearch_1             | /bin/tini -- /usr/local/bi ... | Exit 0 |                        |
| advanced-databases_hive-metastore-postgresql_1 | /docker-entrypoint.sh postgres | Exit 0 |                        |
| advanced-databases_hive-metastore_1            | entrypoint.sh /opt/hive/bi ... | Exit 0 |                        |
| advanced-databases_hive-server_1               | entrypoint.sh /bin/sh -c s ... | Exit 0 |                        |
| advanced-databases_jupyter_1                   | tini -g -- start-notebook.sh   | Exit 0 |                        |
| advanced-databases_kibana_1                    | /bin/tini -- /usr/local/bi ... | Exit 0 |                        |
| advanced-databases_ksql-datagen_1              | bash -c echo Waiting for K ... | Exit 0 |                        |
| advanced-databases_ksql-cli_1                  | /bin/sh                        | Exit 0 |                        |
| advanced-databases_ksql-server_1               | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_minio_1                     | /usr/bin/docker-entrypoint ... | Exit 1 |                        |
| advanced-databases_mongo_1                     | docker-entrypoint.sh mongod    | Exit 0 |                        |
| advanced-databases_mongoapp_1                  | python -m flask run --host ... | Exit 0 |                        |
| advanced-databases_mongoexpress_1              | tini -- /docker-entrypoint ... | Exit 0 |                        |
| advanced-databases_mssql_1                     | /opt/mssql/bin/permissions ... | Exit 0 |                        |
| advanced-databases_namenode_1                  | /entrypoint.sh /run.sh         | Exit 0 |                        |
| advanced-databases_neo4j_1                     | tini -g -- /startup/docker ... | Exit 0 |                        |
| advanced-databases_redis_1                     | docker-entrypoint.sh redis ... | Up     | 0.0.0.0:6379->6379/tcp |
| advanced-databases_rediscommander_1            | /usr/bin/dumb-init -- /red ... | Exit 0 |                        |
| advanced-databases_rest-proxy_1                | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_retwis_1                    | docker-php-entrypoint apac ... | Up     | 0.0.0.0:5082->80/tcp   |
| advanced-databases_schema-registry_1           | /etc/confluent/docker/run      | Exit 0 |                        |
| advanced-databases_zookeeper_1                 | /etc/confluent/docker/run      | Exit 0 |                        |

```

PS C:\Users\localadmin\Documents\advanced-databases> -m 'Sana Khan'

```

## 7. To see what volumes are created by the services I used **docker volume ls**

```
PS C:\Users\localadmin\Documents\advanced-databases> docker volume ls
DRIVER      VOLUME NAME
local       03f062036d05f0a356d17f1a7eb3dbbaf29825f2430d91e73fdc88f46b0cd282
local       4d2d4e1d81c4fd5b90fad7caf8489e4a5e16a82908d3154d828e6c6ac87b0766
local       5c3711af874869d1c0f9ff6b6b6ffd856c78e11335d6d3a72067e6818a405d03
local       6cd59b6b323034794153c9731d12a53f638487b6e0591b1da08354ac1df5eae
local       7c03c03fb63ce6f48699d2ee49d739aa886c7449f1da980f97480c169cba9db0
local       8d734ad1dfed645ec2c9d5f817cf03eb185f5809eedbcca92f9f62fa36ed9f9e
local       8e0997426e3f32dcb74ed38c4b050afb862beb44482ff1b93061aa86c659c538
local       21c7423616f74cbac2dbe49022d01cda6c3fa0480ab2abe4f3bbb58a3671bb63
local       31b826094687796efaff14610c5f17bf2f30b83a27fd52770446f444ba8a75d1
local       39f45963e98b7c7743e7c0b5d01176688c13cde66d7ee6477ea492cfca7fa400
local       44ebc118e4b24eb3b5423d1d09196f6c9a2dc04d148d8d6cdf107b82fe4b1b11
local       481c64fb4086f0e98d759236a00aab10738d688c6a9f2cade2cad291fc948a39
local       2824ad5713dbabe1ecfdd5887820a3ec268214143276453e370d8a6ac882de3d
local       199829e6d986f60632bbc4e0df9fbbb6fd51a8ce9fc86fb6b7c58e15ba812a5f
local       a9a63da9b7a81bd630638cc4a053252681df11695ac5a5e014640493a086edf8
local       advanced-databases_cassandra-data
local       advanced-databases_elasticsearch-data
local       advanced-databases_hdfs-datanode
local       advanced-databases_hdfs-namenode
local       advanced-databases_metastore-postgresql
local       advanced-databases_minio-data
local       advanced-databases_mongo-data
local       advanced-databases_mssql-data
local       advanced-databases_neo4j-data
local       advanced-databases_redis-data
local       aea751eedc5b136c523c0b019898df6c88b7018fefcd221434c56e0a94283c38
local       aeea72d855db7f5278d270e1228c990baa23794ab6e86e8d3046a00aa237312a
local       b9af39f7b07c0ed1e6f01641926e4834be0fcae52fd29cbf61bbcb3b4b4fcd92
local       b46d43e0180499f6d392c3a728d1200890e253d6ca92f5164b33352b42365417
local       b2763dd859e644910bbda0a24f1531c2538b35d490f7a94d78dff901865de2e4
local       c3f99c726803ae75d32a5d5ba3ed16c7556755e82e3d618cb8e905ea8cea6d52
local       cbc46eaca2aa86f759695027bcdd6f7fdc95cddeb432e74067fbc7a2d730c0d
local       cdf9789e4c7a5cce4c30a7428fc2708a90d18dd41d80f71275d6b36fbf693738
local       d5f6a894acae7c19210d56cf8e6ca6a3ab296fc342710e1d148977e9c81150f2
local       d26333fb52b0991b15b2a24c98e1fde40c7421be9dc645c504812cf9a5ee7db8
local       ee498f71ad28fc20a39266566498b8f9ebc5e3277a4dc7194fe4274f28d3526c
local       f1b60d3b7dcbab2b0f88417da29b0f76e0f0da3cabea0492bfaeb3f59b8cfc24
local       f280a5d4978744cc1fc288c7ca4a7f07b8fb1fa882eddf40dbdea41a58ec0563
local       f2852e9d78742909c83447c1282802ec6d790428a5e1266340fca941983dec07
local       ff5d2a5606ea7c02cb6c285c1ddcfbd498a45f22cfff9dc98ac8743d68b5c181c
local       learn-databases_mssql-azuresql-edge-data
local       learn-databases_sqlpad-volume
PS C:\Users\localadmin\Documents\advanced-databases> -m 'Sana Khan'
```