1- Instalar Docker Community Edition

```
manuel@manuel-Aspire-A315-54K:~$ docker version
Client: Docker Engine - Community
 Version:           20.10.17
 API version:       1.41
 Go version:        go1.17.11
 Git commit:        100c701
 Built:             Mon Jun  6 23:02:57 2022
 OS/Arch:           linux/amd64
 Context:           default
 Experimental:      true

Server: Docker Engine - Community
 Engine:
  Version:          20.10.17
  API version:      1.41 (minimum version 1.12)
  Go version:       go1.17.11
  Git commit:       a89b842
  Built:            Mon Jun  6 23:01:03 2022
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.6.7
  GitCommit:        0197261a30bf81f1ee8e6a4dd2dea0ef95d67ccb
 runc:
  Version:          1.1.3
  GitCommit:        v1.1.3-0-g6724737
 docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0
```

3- Obtener la imagen BusyBox

```
manuel@manuel-Aspire-A315-54K:~$ docker pull busybox
Using default tag: latest
latest: Pulling from library/busybox
50783e0dfb64: Pull complete
Digest: sha256:ef320ff10026a50cf5f0213d35537ce0041ac1d96e9b7800bafd8bc9eff6c693
Status: Downloaded newer image for busybox:latest
docker.io/library/busybox:latest
manuel@manuel-Aspire-A315-54K:~$ docker images
REPOSITORY               TAG       IMAGE ID       CREATED          SIZE
busybox                  latest    7a80323521cc   2 weeks ago      1.24MB
magm3333/pentahoserver   9.1ce     ad031295d7c2   10 months ago    5.1GB
zookeeper                3.5       5419c7247ec3   11 months ago    270MB
postgres                 latest    346c7820a8fb   11 months ago    315MB
eclipse-mosquitto        latest    a45972533f35   11 months ago    11.8MB
nodered/node-red         latest    350c45df7623   11 months ago    511MB
phpmyadmin               latest    a3fe1d56a101   12 months ago    528MB
adminer                  latest    4727f36d62d9   12 months ago    90MB
ubuntu                   latest    1318b700e415   12 months ago    72.8MB
mysql                    5.7.35    8cf625070931   13 months ago    448MB
mysql                    latest    c60d96bd2b77   13 months ago    514MB
apache/druid             0.21.1    28a43c30757d   14 months ago    684MB
mysql                    5.7.32    cc8775c0fe94   19 months ago    449MB
mysql                    8.0.22    d4c3cafb11d5   19 months ago    545MB
vulnerables/web-dvwa     latest    ab0d83586b6e   3 years ago      712MB
```

4- Ejecutando contenedores

no se obtiene ninguna respuesta cuando se ejecuta el contenedor debido a que no recibe ningún comando para ejecutar, por lo que retorna automáticamente

```
manuel@manuel-Aspire-A315-54K:~$ docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
manuel@manuel-Aspire-A315-54K:~$ docker ps -a
CONTAINER ID   IMAGE                         COMMAND                  CREATED         STATUS                     PORTS     NAMES
17771bf111b7   busybox                       "ls"                     2 minutes ago   Exited (0) 2 minutes ago             crazy_bhaskara
beb7360a3663   busybox                       "echo hola"              2 minutes ago   Exited (0) 2 minutes ago             dazzling_wescoff
902f5663a14e   busybox                       "sh"                     6 minutes ago   Exited (0) 6 minutes ago             vigilant_bose
5a928f2fb2f2   busybox                       "-h"                     6 minutes ago   Created                              fervent_brattain
a6e99ed41e7e   busybox                       "sh"                     7 minutes ago   Exited (0) 7 minutes ago             exciting_dubinsky
ceccf7eb46d5   magm3333/pentahoserver:9.1ce  "/opt/pentaho-server…"   10 months ago   Exited (137) 8 months ago            mipentahoserver
9ae1535670a3   apache/druid:0.21.1           "/druid.sh historical"   10 months ago   Exited (143) 10 months ago           historical
3a3baff27425   apache/druid:0.21.1           "/druid.sh broker"       10 months ago   Exited (143) 10 months ago           broker
1a1557dcf81e   apache/druid:0.21.1           "/druid.sh router"       10 months ago   Exited (143) 10 months ago           router
823bde61c7b0   apache/druid:0.21.1           "/druid.sh middleMan…"   10 months ago   Exited (143) 10 months ago           middlemanager
7d31bb371930   apache/druid:0.21.1           "/druid.sh coordinat…"   10 months ago   Exited (143) 10 months ago           coordinator
410fce4c272a   zookeeper:3.5                 "/docker-entrypoint.…"   10 months ago   Exited (143) 10 months ago           zookeeper
43a814cae582   postgres:latest               "docker-entrypoint.s…"   10 months ago   Exited (0) 10 months ago             postgres
013a2bad8f7f   phpmyadmin                    "/docker-entrypoint.…"   12 months ago   Exited (0) 10 months ago             myadmin
b87aee7037f4   adminer                       "entrypoint.sh docke…"   12 months ago   Exited (0) 11 months ago             adminer
1cdbc4df907c   mysql:latest                  "docker-entrypoint.s…"   12 months ago   Exited (0) 8 months ago              mysql8
e48b5e8267db   mysql:5.7.35                  "docker-entrypoint.s…"   12 months ago   Exited (0) 8 months ago              mysql57
18869717b508   ubuntu                        "bash"                   12 months ago   Exited (0) 12 months ago             blissful_chaplygin
```

docker ps no muestra nada debido a que presenta los contenedores que se están ejecutando, docker ps -a muestra los contenedores existentes, estén corriendo o no

5- Ejecutando en modo interactivo

```
manuel@manuel-Aspire-A315-54K:~$ docker run -it busybox sh
/ # ps
PID   USER     TIME  COMMAND
    1 root      0:00 sh
    7 root      0:00 ps
/ # uptime
 17:37:55 up 22:03,  0 users,  load average: 0.96, 1.21, 1.02
/ # free
              total        used        free      shared  buff/cache   available
Mem:       12129212     2752548      764100      420544     8612564     8660076
Swap:       2097148         616     2096532
/ # ls -l /
total 36
drwxr-xr-x    2 root     root         12288 Jul 29 01:32 bin
drwxr-xr-x    5 root     root           360 Aug 18 17:37 dev
drwxr-xr-x    1 root     root          4096 Aug 18 17:37 etc
drwxr-xr-x    2 nobody   nobody        4096 Jul 29 01:32 home
dr-xr-xr-x  342 root     root             0 Aug 18 17:37 proc
drwx------    1 root     root          4096 Aug 18 17:37 root
dr-xr-xr-x   13 root     root             0 Aug 18 17:37 sys
drwxrwxrwt    2 root     root          4096 Jul 29 01:32 tmp
drwxr-xr-x    3 root     root          4096 Jul 29 01:32 usr
drwxr-xr-x    4 root     root          4096 Jul 29 01:32 var
/ # exit
```

6- Borrando contendores terminados

```
manuel@manuel-Aspire-A315-54K:~$ docker ps -a
CONTAINER ID   IMAGE                          COMMAND                  CREATED         STATUS                     PORTS     NAMES
18415f1089ee   busybox                        "sh"                     3 minutes ago   Exited (0) 2 minutes ago             musing_mayer
231cfc311c23   busybox                        "sh"                     3 minutes ago   Exited (0) 3 minutes ago             loving_galois
381d76bc4b0e   busybox                        "sh"                     5 minutes ago   Exited (0) 5 minutes ago             elegant_wiles
f79bd078e121   busybox                        "sh"                     7 minutes ago   Exited (130) 7 minutes ago           admiring_hertz
17771bf111b7   busybox                        "ls"                     13 minutes ago  Exited (0) 13 minutes ago            crazy_bhaskara
beb7360a3663   busybox                        "echo hola"              13 minutes ago  Exited (0) 13 minutes ago            dazzling_wescoff
902f5663a14e   busybox                        "sh"                     17 minutes ago  Exited (0) 17 minutes ago            vigilant_bose
5a928f2fb2f2   busybox                        "-h"                     17 minutes ago  Created                              fervent_brattain
a6e99ed41e7e   busybox                        "sh"                     18 minutes ago  Exited (0) 18 minutes ago            exciting_dubinsky
ceccf7eb46d5   magm3333/pentahoserver:9.1ce   "/opt/pentaho-server…"   10 months ago   Exited (137) 8 months ago            mipentahoserver
9ae1535670a3   apache/druid:0.21.1            "/druid.sh historical"   10 months ago   Exited (143) 10 months ago           historical
3a3baff27425   apache/druid:0.21.1            "/druid.sh broker"       10 months ago   Exited (143) 10 months ago           broker
1a1557dcf81e   apache/druid:0.21.1            "/druid.sh router"       10 months ago   Exited (143) 10 months ago           router
823bde61c7b0   apache/druid:0.21.1            "/druid.sh middleMan…"   10 months ago   Exited (143) 10 months ago           middlemanager
7d31bb371930   apache/druid:0.21.1            "/druid.sh coordinat…"   10 months ago   Exited (143) 10 months ago           coordinator
410fce4c272a   zookeeper:3.5                  "/docker-entrypoint.…"   10 months ago   Exited (143) 10 months ago           zookeeper
43a814cae582   postgres:latest                "docker-entrypoint.s…"   10 months ago   Exited (0) 10 months ago             postgres
013a2bad8f7f   phpmyadmin                     "/docker-entrypoint.…"   12 months ago   Exited (0) 10 months ago             myadmin
b87aee7037f4   adminer                        "entrypoint.sh docke…"   12 months ago   Exited (0) 11 months ago             adminer
1cdbc4df907c   mysql:latest                   "docker-entrypoint.s…"   12 months ago   Exited (0) 8 months ago              mysql8
e48b5e8267db   mysql:5.7.35                   "docker-entrypoint.s…"   12 months ago   Exited (0) 8 months ago              mysql57
18869717b508   ubuntu                         "bash"                   12 months ago   Exited (0) 12 months ago             blissful_chaplygin
manuel@manuel-Aspire-A315-54K:~$ docker rm musing_mayer
musing_mayer
```

```
manuel@manuel-Aspire-A315-54K:~$ docker rm $(docker ps -a -q -f status=exited)
231cfc311c23
381d76bc4b0e
f79bd078e121
17771bf111b7
beb7360a3663
902f5663a14e
a6e99ed41e7e
ceccf7eb46d5
9ae1535670a3
3a3baff27425
1a1557dcf81e
823bde61c7b0
7d31bb371930
410fce4c272a
43a814cae582
013a2bad8f7f
b87aee7037f4
1cdbc4df907c
e48b5e8267db
18869717b508
```

```
manuel@manuel-Aspire-A315-54K:~$ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [y/N] y
Deleted Containers:
5a928f2fb2f2f291eb039b83b13d77372b6d3c07423d2e9d04e05e69a1ff782e

Total reclaimed space: 0B
manuel@manuel-Aspire-A315-54K:~$ docker ps -a
CONTAINER ID   IMAGE      COMMAND      CREATED     STATUS      PORTS       NAMES
```

7- Montando volúmenes

```
manuel@manuel-Aspire-A315-54K:~$ docker run -it -v ~/Desktop/docker:/var/escritorio busybox /bin/sh
/ # ls -l /var/escritorio
total 0
/ # touch /var/escritorio/hola.txt
```

Home   Desktop   docker ▾

hola.txt
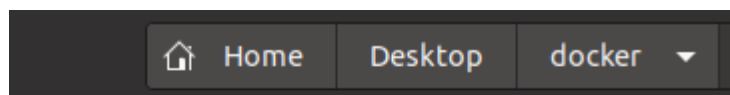
8- Publicando puertos

```
manuel@manuel-Aspire-A315-54K:~$ docker run -d daviey/nyan-cat-web
Unable to find image 'daviey/nyan-cat-web:latest' locally
latest: Pulling from daviey/nyan-cat-web
b7f33cc0b48e: Pull complete
5f9b58fd6dd4: Pull complete
1adeef8edfca: Pull complete
cc8a2986b124: Pull complete
7220539c61d6: Pull complete
Digest: sha256:57ac8fd383ada137e22a2894e92f74287f4566be0ae21ca97828b34a93a646c6
Status: Downloaded newer image for daviey/nyan-cat-web:latest
fce7e52114c15d900954b83a88bd54841e4c80f8fbe7bb831049ba07e697abc4
manuel@manuel-Aspire-A315-54K:~$ docker ps
CONTAINER ID   IMAGE                 COMMAND               CREATED          STATUS           PORTS             NAMES
fce7e52114c1   daviey/nyan-cat-web   "nginx -g 'daemon of…"   About a minute ago   Up About a minute   80/tcp, 443/tcp   boring_mcnulty
manuel@manuel-Aspire-A315-54K:~$ docker kill boring_mcnulty
boring_mcnulty
manuel@manuel-Aspire-A315-54K:~$ docker run -d -p 80:80 daviey/nyan-cat-web
ca01fb5e5d126f326f78d29c9b2beb23db0442f21588c718ffb56a745664c7b1
```

9- Utilizando una base de datos

```
manuel@manuel-Aspire-A315-54K:~$ docker exec -it my-postgres /bin/bash
root@d01f525b6b11:/# psql -h localhost -U postgres
psql (9.4.26)
Type "help" for help.

postgres=# root
postgres-# \l
                                List of databases
   Name    |  Owner   | Encoding |  Collate   |   Ctype    |   Access privileges
-----------+----------+----------+------------+------------+-----------------------
 postgres  | postgres | UTF8     | en_US.utf8 | en_US.utf8 |
 template0 | postgres | UTF8     | en_US.utf8 | en_US.utf8 | =c/postgres          +
           |          |          |            |            | postgres=CTc/postgres
 template1 | postgres | UTF8     | en_US.utf8 | en_US.utf8 | =c/postgres          +
           |          |          |            |            | postgres=CTc/postgres
(3 rows)

postgres-# create database test;
ERROR:  syntax error at or near "root"
LINE 1: root
        ^
postgres=# create database test;
CREATE DATABASE
postgres=# \connect test
You are now connected to database "test" as user "postgres".
test=# create table tabla_a (mensaje varchar(50));
CREATE TABLE
test=# insert into tabla_a (mensaje) values('Hola mundo!');
INSERT 0 1
test=# select * from tabla_a;
   mensaje
-------------
 Hola mundo!
(1 row)

test=# \q
root@d01f525b6b11:/# exit
```
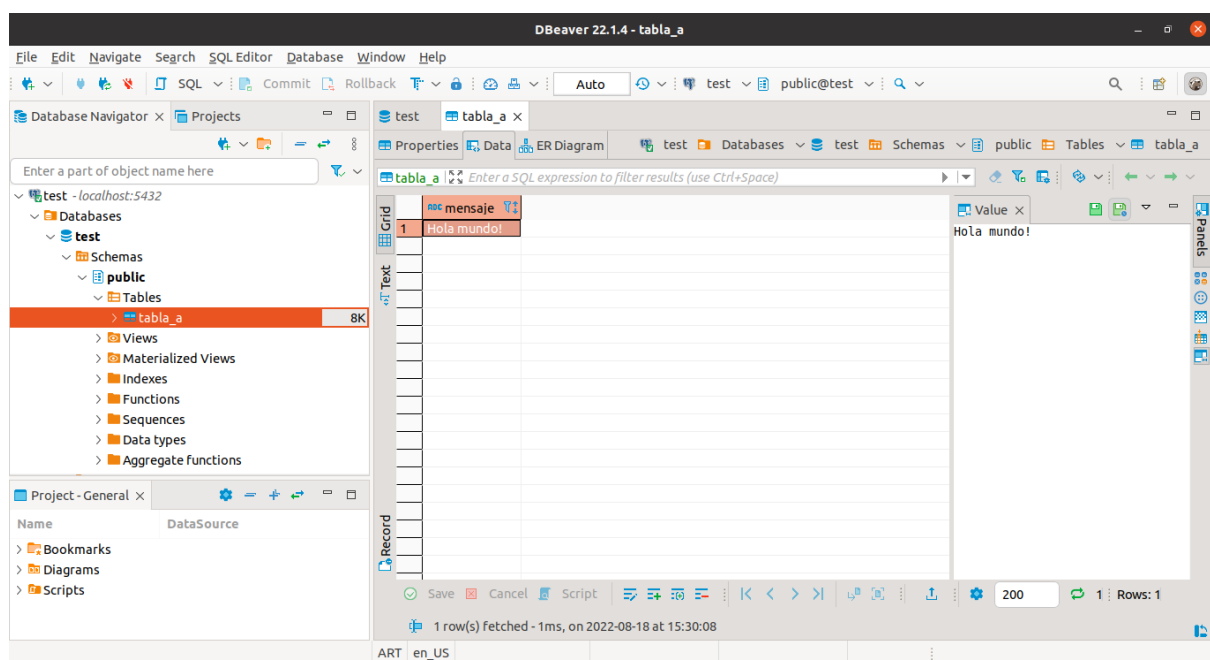
con docker run inicia un contenedor a partir de una imagen, docker exec le pasa un comando a un contenedor que se encuentra corriendo