

Creado por:

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Dockers: creando nuestra propia imagen

Creamos una carpeta llamamos **app**, donde pasaremos todos los scripts de nuestra web de FastAPI:

In []:

```
DM_Center
| app
|   |main.py
|   |models.py
```

Creamos a la altura de app un archivo llamado Dockerfile:

In []:

```
DM_Center
| app
|   |main.py
|   |models.py
| Dockerfile
```

Dockerfile contiene:

In []:

```
# Instalación de python
FROM python:3.8

# instalación de las librerías necesarias
RUN pip install fastapi uvicorn[standard]

# ejecutamos el puerto donde corre la aplicación
EXPOSE 80

# añado las dependencias de la app en una carpeta app de docker
COPY ./app /app

# comando de ejecución
CMD ["uvicorn", "app.main:app", "--host", "0.0.0.0", "--port", "80"]
```

Una creado el archivo nos vamos a la **cmd** que se encuentra en la carpeta DM_Center, crearemos la imagen de Docker con todos los programas, librerías necesarios:

- `docker build -t < nombre imagen > ./`

```

isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker build -t fei/fastapi ./
Sending build context to Docker daemon 15.87kB
Step 1/5 : FROM python:3.8
3.8: Pulling from library/python
606d8928ed3: Downloading [=====>] 34.54MB/55.05MB
47db815c6a45: Download complete
bf4849400000: Verifying Checksum
a572f7a256d3: Downloading [=====>] 26.96MB/54.58MB
606d8928ed3: Extracting [=====>] 25.07MB/55.05MB
7110f04115ae: Waiting
a572f7a256d3: Downloading 42.06MB/54.58MB
a572f7a256d3: Downloading [=====>] 45.3MB/54.58MB
8f7d05258955: Downloading [=====>] 41.46MB/196.8MB
606d8928ed3: Pull complete
47db815c6a45: Pull complete
bf4849400000: Pull complete
a572f7a256d3: Pull complete
8f7d05258955: Pull complete
7110f04115ae: Pull complete
e06ef06dbaac: Pull complete
da646a36a161: Pull complete
845557d01003: Pull complete
Digest: sha256:041a09359fda61a2b58cec5201560646b66e05137ce2af1cab9ceec920279b53
Status: Downloaded newer image for python:3.8
--> 34fed916a9ea
Step 2/5 : RUN pip install fastapi uvicorn[standard]
--> Running in 40725e0491dc
Collecting fastapi
  Downloading fastapi-0.85.0-py3-none-any.whl (55 kB)
    _____ 55.3/55.3 KB 484.6 kB/s eta 0:00:00
Collecting uvicorn[standard]
  Downloading uvicorn-0.18.3-py3-none-any.whl (57 kB)
    _____ 57.4/57.4 KB 632.8 kB/s eta 0:00:00
Collecting starlette==0.20.4
  Downloading starlette-0.20.4-py3-none-any.whl (63 kB)
    _____ 63.6/63.6 KB 669.0 kB/s eta 0:00:00
Collecting pydantic!=1.7,!1.7.1,!1.7.2,!1.7.3,!1.8,!1.8.1,<2.0.0,>=1.6.2
  Downloading pydantic-1.10.2-cp38-cp38-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (13.6 MB)
    _____ 13.6/13.6 MB 3.1 MB/s eta 0:00:00
Collecting anyio<5,>=3.4.0
  Downloading anyio-3.6.1-py3-none-any.whl (80 kB)
    _____ 80.6/80.6 KB 5.1 MB/s eta 0:00:00
Collecting typing-extensions>=3.10.0

```

Comprobamos que la imagen ha sido creada:

- docker images

```

isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
fei/fastapi         latest         689605caf86e   25 seconds ago 1.03GB
python             3.8           34fed916a9ea   4 days ago    913MB
jupyter/pyspark-notebook latest        9ae26b715efa   14 months ago 3.17GB
postgres           latest        eeb5ef226f19   15 months ago 315MB
adminer            latest        203328a6b506   15 months ago 90MB
mongo              latest        0e120e3fce9a   15 months ago 449MB

```

Ejecutamos la imagen para ver que funciona perfectamente:

- docker run --name < nombre del proceso > -p < puertos activos externo:interno > < nombre de la imagen >
- docker run --name fastapi -p 80:80 fei/fastapi

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker run --name fastapi -p 80:80 fei/fastapi
INFO:      Started server process [1]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
INFO:      Uvicorn running on http://0.0.0.0:80 (Press CTRL+C to quit)
INFO:      172.17.0.1:33268 - "GET /docs HTTP/1.1" 200 OK
email-validator not installed, email fields will be treated as str.
To install, run: pip install email-validator
INFO:      172.17.0.1:33268 - "GET /api/v0.1/openapi.json HTTP/1.1" 200 OK
INFO:      Shutting down
INFO:      Waiting for application shutdown.
INFO:      Application shutdown complete.
INFO:      Finished server process [1]
```

Comprobamos en el navegador que funciona: <http://0.0.0.0:80/docs> (<http://0.0.0.0:80/docs>).

Podemos parar la aplicación (ctrl + c) y ejecutamos en segundo plano (-d):

- `docker run -d --name fastapi -p 80:80 fei/fastapi`

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker run -d --name fastapi -p 80:80 fei/fastapi
83b069ac437f029b9c12bb6b821a593f128991bad1622b83f56386f3218804d7
```

Nos muestra el id del contenedor que ha sido lanzado

Comprobamos que el proceso está activo:

- `docker ps`

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
83b069ac437f   fei/fastapi "uvicorn app.main:ap..." 5 seconds ago Up 4 seconds  0.0.0.0:80->80/tcp, :::80->80/tcp   fastapi
837759d4fea0   mongo     "docker-entrypoint.s..." 3 months ago  Up About an hour  0.0.0.0:27017->27017/tcp, :::27017->27017/tcp  mongodb_mongodb_1
473837faeb01   adminer   "entrypoint.sh docke..." 15 months ago Up About an hour  0.0.0.0:8080->8080/tcp, :::8080->8080/tcp  atom_adminer_1
0ce68f58dbe4   postgres  "docker-entrypoint.s..." 15 months ago Up About an hour  0.0.0.0:5432->5432/tcp, :::5432->5432/tcp  atom_db_1
```

En segundo plano para parar el proceso podemos usar dos instrucciones:

- `docker stop < nombre del proceso >`
- `docker kill < nombre del proceso >`

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker kill fastapi
Fastapi
```

Información relativa a los contenedores:

- `docker system df`

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker system df
TYPE                TOTAL        ACTIVE        SIZE          RECLAIMABLE
Images              6            3            5.045GB       4.192GB (83%)
Containers          3            3            52.65kB       0B (0%)
Local Volumes       3            3            508.9MB       0B (0%)
Build Cache         0            0            0B            0B
```

Eliminar información:

- docker system prune
- docker volume prune
- docker rm < nombre de la imagen >

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker system prune
WARNING! This will remove:
 - all stopped containers
 - all networks not used by at least one container
 - all dangling images
 - all dangling build cache

Are you sure you want to continue? [y/N] y
Deleted Containers:
33b069ac437f029b9c12bb6b821a593f128991bad1622b83f56386f3218804d7
0958aeac8c3da9a5b4aff01c48196b2b9a7dd0d9158453292f30d9e7904e972a

Total reclaimed space: 956.5kB
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker volume prune
WARNING! This will remove all local volumes not used by at least one container.
Are you sure you want to continue? [y/N] y
Total reclaimed space: 0B
```

```
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker run -d --name fastapi -p 80:80 fel/fastapi
docker: Error response from daemon: Conflict. The container name "/fastapi" is already in use by container "c19d205b0291138c87fda89dfb0727a64c66e38320ea283dd31a67a03f950f3a". You have to remove (or rename) that container to be able to reuse that name.
isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker rm /fastapi
/fastapi
```

Para eliminar una imagen:

- docker image rm < nombre imagen > /< id contendor >

```

Isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker images
REPOSITORY          TAG          IMAGE ID          CREATED           SIZE
fei/fastapi          latest       689605caf86e     11 minutes ago   1.03GB
python               3.8         34fed916a9ea     4 days ago       913MB
jupyter/pyspark-notebook latest       9ae26b715efa     14 months ago    3.17GB
postgres             latest       eeb5ef226f19     15 months ago    315MB
adminer              latest       203328a6b506     15 months ago    90MB
mongo                latest       0e120e3fce9a     15 months ago    449MB
Isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker image rm fei/fastapi
Untagged: fei/fastapi:latest
Deleted: sha256:689605caf86e9dff8e3a6f15aae1542c856d5d9ef1bb9d3cd114e3dcfaf3235a
Deleted: sha256:fd060b487aca08b31c23b9ec54567b56e372c34c96f5cd4fb08b9314bcc7f2d4
Deleted: sha256:802a3e5fcfdb88a9fd303b378653a5417a8bebbfe2263665702c7d7653885f8b
Deleted: sha256:5f9c88db5b687bf6186ab993f5fbd9e1a0102fc380a947ea90e90b7f68b722
Deleted: sha256:3dfe01f510022e08b6549c4d206d9c74635b3f53b36e1119f2a79eefeeb72cbe
Deleted: sha256:cb761c7cc5f0209293450625e21e1f399f25db23f4df033e59f1fd8c29f0a5bf
Isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker image rm python
Error: No such image: python
Isabel@isabel-SVE1512E1EW:~/FEI_projects/DM_Center_2$ docker image rm 34fed916a9ea
Untagged: python:3.8
Untagged: python@sha256:041a09359fda61a2b58cec5201560646b66e05137ce2af1cab9ceec920279b53
Deleted: sha256:34fed916a9ead405f0537e654d7619456029c64185c4f0fdbfe7594395c34ab5
Deleted: sha256:8ef3cb166c8c8a38a650ad1aa899db0b802d823642d817180473befe93385704
Deleted: sha256:7c7d9bce466ef059f24aeb099462bb0fae1e796f199eb5109deec30297b88214
Deleted: sha256:efe727f09d8e49c9ba4cc9bf3ab96781292cbe369f113d26e40d6aa156a865db
Deleted: sha256:58b3b4d4d999c8fa97559c5252d0b904613d166fea2b9bcd318c6cba12bc3342
Deleted: sha256:a2765eeb674c78da94152fdd59d691503ed4c4121ab83129a89cf63255b1659d
Deleted: sha256:03821bf9263f670d9a4e2658d201ee5d108759403da38272b28127eea46a2134
Deleted: sha256:db24101d3507d0f5370834318c76e7c62c18fba110a844e1796691488c2067ce
Deleted: sha256:b00657a91aea31613d9a8764759a8784f35a4c7ab55299bc4a9fa88d989d5c15
Deleted: sha256:8e079fee21864e07daa88efcf74f23ad5ade697c06417d0c04a45dfe580ab7f3

```

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