

Parcial 2: Implantación de Sistemas

Estudiante: Estefany Michelle Peñate Solis

Expediente: 25871

Código Estudiantil: PS22-I04-001

Repositorio: https://github.com/estefSolis/Parcial_2_IS

Ejercicio 1 — Servicio Base con Dockerfile

Archivos creados:

- server.js
- package.json
- .dockerignore
- Dockerfile

Comandos ejecutados:

git init

git add

git commit -m

git push -u origin main

```
estef@Michelle:~$ cd parcial-docker-integrado
estef@Michelle:~/parcial-docker-integrado$ git init
Initialized empty Git repository in /home/estef/parcial-docker-integrado/.git/
estef@Michelle:~/parcial-docker-integrado$ git remote add origin https://github.com/estefSolis/Parcial_2_IS.git
estef@Michelle:~/parcial-docker-integrado$ nano server.js
estef@Michelle:~/parcial-docker-integrado$ git add server.js
estef@Michelle:~/parcial-docker-integrado$ git commit -m "Creando server.js"
[main (root-commit) 794aald] Creando server.js
 1 file changed, 19 insertions(+)
 create mode 100644 server.js
estef@Michelle:~/parcial-docker-integrado$ git branch
* main
estef@Michelle:~/parcial-docker-integrado$ git push -u origin main
Username for 'https://github.com': estefSolis
Password for 'https://estefSolis@github.com':
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 485 bytes | 485.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/estefSolis/Parcial_2_IS.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
estef@Michelle:~/parcial-docker-integrado$ nano package.json
estef@Michelle:~/parcial-docker-integrado$ git add package.json
estef@Michelle:~/parcial-docker-integrado$ git commit -m "Creando package.json"
[main 301ef5d] Creando package.json
 1 file changed, 11 insertions(+)
 create mode 100644 package.json
```

docker build -t parcial-api

```

estef@Michelle:~/parcial-docker-integrado$ docker build -t parcial-api .
[+] Building 13.8s (13/13) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.1s
=> => transferring dockerfile: 389B                                0.0s
=> [internal] load metadata for docker.io/library/node:18-alpine  3.1s
=> [auth] library/node:pull token for registry-1.docker.io        0.0s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 68B                                     0.0s
=> CACHED [1/7] FROM docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca09d9e 0.0s
=> => resolve docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca09d9e 0.0s
=> [internal] load build context                                  0.1s
=> => transferring context: 1.84kB                                  0.0s
=> [2/7] RUN addgroup -S nodegroup && adduser -S nodeuser -G nodegroup 0.8s
=> [3/7] WORKDIR /app                                           0.0s
=> [4/7] COPY package.json ./                                  0.0s
=> [5/7] RUN npm install --production                          5.4s
=> [6/7] COPY . .                                              0.1s
=> [7/7] RUN chown -R nodeuser:nodegroup /app                  2.7s
=> exporting to image                                           1.1s
=> => exporting layers                                           0.5s
=> => exporting manifest sha256:fa8d2597cc81875dac069bf52a382c84c48bc73b2400e2de632c5e3ed95b522a 0.0s
=> => exporting config sha256:cfea31e582037a84152a6606ba4281a478358e3bb0b8d4d861b2526b66b75297 0.0s
=> => exporting attestation manifest sha256:c372a0c2c50344c9bebb0318c51a9817480902b353b088dac3d41ff55bd43d59 0.0s
=> => exporting manifest list sha256:bc67948d84b7e212b5db91b24e206c2591e9a23289af6ac3f62ffc0e3a867d3 0.0s
=> => naming to docker.io/library/parcial-api:latest            0.0s
=> => unpacking to docker.io/library/parcial-api:latest         0.5s
estef@Michelle:~/parcial-docker-integrado$

```

docker run -d -p 3000:3000 parcial-api

curl <http://localhost:3000/>

```

estef@Michelle:~/parcial-docker-integrado$ docker start parcial-api
parcial-api
estef@Michelle:~/parcial-docker-integrado$ curl http://localhost:3000/
curl http://localhost:3000/health
{"nombre":"Estefany Michelle Peñate Solis","expediente":"25871","codigo_estudiantil":"PS22-I04-001"}{"status":"OK"}estef@Michelle:~/parcial-dockeste

```

curl http://localhost:3000/health

Ejercicio 2 — Persistencia con PostgreSQL y Volumen

Comandos ejecutados:

docker volume create db_data

docker run -d \

--name parcial-db \

-e POSTGRES_USER=admin \

-e POSTGRES_PASSWORD=12345 \

-e POSTGRES_DB=parcial_db \

-v db_data:/var/lib/postgresql/data \

-p 5432:5432 \ postgres:15

```

f@Michelle:~/parcial-docker-integrado$ docker volume create db_data
db_data
estef@Michelle:~/parcial-docker-integrado$ docker run -d \
  --name parcial-db \
  -e POSTGRES_USER=admin \
  -e POSTGRES_PASSWORD=12345 \
  -e POSTGRES_DB=parcial_db \
  -v db_data:/var/lib/postgresql/data \
  -p 5432:5432 \
  postgres:15
Unable to find image 'postgres:15' locally
15: Pulling from library/postgres
0cdc9eb2a585: Pull complete
f0e812253d9a: Pull complete
b12e04c2e850: Pull complete
1c3c3432cfaa: Pull complete
8bbe1487ab04: Pull complete
bb86ed266eaf: Pull complete
7cf8703a60ae: Pull complete
70a82bc39e86: Pull complete
d5997a3d3e9c: Pull complete
4b34d7a7ab2a: Pull complete
5a1b3bfd0b0b: Pull complete
9be150812fa2: Pull complete
9d368c9c6ba6: Pull complete
Digest: sha256:424e79b81868f5fc5cf515eaeac69d288692ebcca7db86d98f91b50d4bce64bb
Status: Downloaded newer image for postgres:15
72e2d128fea27ee87d1cf481b99ac4ab041f90cbbb93d1e83550f3fb824ba734

```

docker exec -it parcial-db psql -U admin -d parcial_db

SQL ejecutado:

parcial_db=# CREATE TABLE estudiantes (

id SERIAL PRIMARY KEY,

nombre TEXT,

expediente TEXT,

codigo TEXT

);

INSERT INTO estudiantes (nombre, expediente, codigo) VALUES

('Estefany Michelle Peñate Solis', '25871', 'PS22-I04-001'),

('Alumno de Prueba', '25881', 'AP23-I04-003');

```

SELECT: command not found
estef@Michelle:~/parcial-docker-integrado$ docker exec -it parcial-db psql -U admin -d parcial_db
psql (15.14 (Debian 15.14-1.pgdg13+1))
Type "help" for help.

parcial_db=# SELECT * FROM estudiantes;
ERROR:  relation "estudiantes" does not exist
LINE 1: SELECT * FROM estudiantes;
                  ^
parcial_db=# CREATE TABLE estudiantes (
              id SERIAL PRIMARY KEY,
              nombre TEXT,
              expediente TEXT,
              codigo TEXT
            );

INSERT INTO estudiantes (nombre, expediente, codigo) VALUES
('Estefany Michelle Peñate Solis', '25871', 'PS22-I04-001'),
('Alumno de Prueba', '25881', 'AP23-I04-003');
CREATE TABLE
INSERT 0 2
parcial_db=#

```

docker restart parcial-db docker exec -it parcial-db psql -U admin -d parcial_db

```

estef@Michelle:~/parcial-docker-integrado$ docker restart parcial-db
parcial_db
estef@Michelle:~/parcial-docker-integrado$ docker exec -it parcial-db psql -U admin -d parcial_db
psql (15.14 (Debian 15.14-1.pgdg13+1))
Type "help" for help.

parcial_db=# SELECT * FROM estudiantes;
 id | nombre | expediente | codigo
-----+-----+-----+-----
  1 | Estefany Michelle Peñate Solis | 25871 | PS22-I04-001
  2 | Alumno de Prueba | 25881 | AP23-I04-003
(2 rows)

parcial_db=#

```

Ejercicio 3 — Integración con Docker Compose

Archivos creados:

- docker-compose.yml
- .env
- Carpeta docs/evidencias/

Comando ejecutado:

docker compose down -v

docker rm -f parcial-db parcial-api

```

estef@Michelle:~/parcial-docker-integrado$ docker compose down -v
docker rm -f parcial-db parcial-api
docker volume rm parcial-docker-integrado_db_data
WARN[0000] /home/estef/parcial-docker-integrado/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Running 2/2
 ✓ Volume parcial-docker-integrado_db_data  Removed      0.0s
 ✓ Network parcial-docker-integrado_app_net  Removed      0.5s
parcial_db
parcial-api

```

docker compose --env-file .env up -d --build

```

estef@Michelle:~/parcial-docker-integrado$ docker compose up -d --build
WARN[0000] /home/estef/parcial-docker-integrado/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
[+] Building 1.3s (14/14) FINISHED
=> [internal] load local bake definitions                                0.0s
=> => reading from stdin 547B                                           0.0s
=> [internal] load build definition from Dockerfile                     0.0s
=> => transferring dockerfile: 399B                                      0.0s
=> [internal] load metadata for docker.io/library/node:18-alpine        0.7s
=> [internal] load .dockerignore                                         0.0s
=> => transferring context: 68B                                          0.0s
=> [1/7] FROM docker.io/library/node:18-alpine@sha256:8d6421d663        0.0s
=> => resolve docker.io/library/node:18-alpine@sha256:8d6421d663        0.0s
=> [internal] load build context                                         0.0s
=> => transferring context: 163B                                          0.0s
=> CACHED [2/7] RUN addgroup -S nodegroup && adduser -S nodeuser        0.0s
=> CACHED [3/7] WORKDIR /app                                             0.0s
=> CACHED [4/7] COPY package.json ./                                    0.0s
=> CACHED [5/7] RUN npm install --production                            0.0s
=> CACHED [6/7] COPY . .                                                0.0s
=> CACHED [7/7] RUN chown -R nodeuser:nodegroup /app                    0.0s
=> exporting to image                                                    0.1s
=> => exporting layers                                                    0.0s
=> => exporting manifest sha256:3ffcd2911fabf496344017b0c058ff4f        0.0s
=> => exporting config sha256:6d86b634c8d3436072f188a3d45f657832        0.0s
=> => exporting attestation manifest sha256:91146339d09fda4d4301        0.0s
=> => exporting manifest list sha256:6b4dff110dff8adeedf8441871        0.0s
=> => naming to docker.io/library/parcial-docker-integrado-api:l        0.0s
=> => unpacking to docker.io/library/parcial-docker-integrado-ap        0.0s
=> resolving provenance for metadata file                                0.0s
[+] Running 5/5
✔parcial-docker-integrado-api      Built           0.0s
✔Network parcial-docker-integrado_app_net Created        0.1s
✔Volume parcial-docker-integrado_db_data Created          0.0s

```

```

[+] Running 5/5
✔parcial-docker-integrado-api      Built           0.0s
✔Network parcial-docker-integrado_app_net Created        0.1s
✔Volume parcial-docker-integrado_db_data Created          0.0s
✔Container parcial-db              Healthy          11.4s
✔Container parcial-api             Started          11.6s

```

Validaciones:

- Red app_net creada automáticamente.
- Servicios api y db comunican correctamente.
- Healthcheck de DB marca healthy.
- API devuelve conexión exitosa con DB (/db-check).

```

estef@Michelle:~/parcial-docker-integrado$ docker compose ps
WARN[0000] /home/estef/parcial-docker-integrado/docker-compose.yml: the attribute 'version' is obsolete, it will be ignored, please remove it to avoid potential confusion
NAME                IMAGE                COMMAND                SERVICE    CREATED        STATUS               PORTS
parcial-api         parcial-docker-integrado-api    "docker-entrypoint.s..."    api        4 minutes ago    Up 3 minutes        0.0.0.0:3000->3000/tcp, [:::3000->3000/tcp]
parcial-db          postgres:15          "docker-entrypoint.s..."    db         4 minutes ago    Up 4 minutes (healthy)  5432/tcp

estef@Michelle:~/parcial-docker-integrado$ docker network ls
NETWORK ID          NAME                DRIVER    SCOPE
513d1e062da1        app-network         bridge    local
7259a334a6a9        bridge             bridge    local
733f65479516        host               host      local
b7349281a176        none               null      local
3c3a5b52acf9        parcial-docker-integrado_app_net bridge    local
estef@Michelle:~/parcial-docker-integrado$ curl http://localhost:3000/
{"nombre":"Estefany Michelle Peñate Solis","expediente":"25871","codigo_estudiantil":"PS22-I04-001"}estef@Michelle:~/parcial-docker-integrado$ |

```

Estructura del Proyecto

parcial-docker-integrado/

 .dockerignore

 .env

Dockerfile

README.md

docker-compose.yml

package.json

server.js

docs/

 evidencias/