

**UNIVERSIDAD DE SONSONATE FACULTAD DE
INGENIERÍA Y CIENCIAS NATURALES**



TEMA: PARCIAL 2

TRABAJO REALIZADO POR:

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ESPECIALIDAD:

INGENIERIA EN SISTEMAS COMPUTACIONALES.

MATERIA:

IMPLANTACION DE SISTEMAS.

CATEDRATICO/A:

ING. MARLIN YAJAIRA MOZ MARÍN.

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SONSONATE, EL SALVADOR, CENTRO AMERICA.

Repositorio: <https://github.com/DANIEL-MANCIA/Parcial2-ImplantacionDeSistemas>

Ejercicio 1:

- docker build -t parcial-api .
- docker run -d -p 3000:3000 --name parcial-container parcial-api

```
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker build -t parcial-api .
[+] Building 6.0s (12/12) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 457B
=> [internal] load metadata for docker.io/library/node:18-alpine
=> [auth] library/node:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 111B
=> [1/6] FROM docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca
=> => resolve docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca
=> [internal] load build context
=> => transferring context: 101B
=> CACHED [2/6] WORKDIR /app
=> CACHED [3/6] COPY package*.json ./
=> CACHED [4/6] RUN npm install --omit=dev
=> CACHED [5/6] COPY server.js ./
=> CACHED [6/6] RUN addgroup -g 1001 -S nodejs && adduser -S nextjs -u 1001 && chown -R nextjs:nodejs /ap
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:2212fb0a066e5504f5124c333e8e68f137f4297e22a2677ce62e6264851ca321
=> => exporting config sha256:0fda8e46660b786123911940360c18209c675dfd1343ea1a7aeba23f604298e7
=> => exporting attestation manifest sha256:3c5415063adc84b4f5196ce042e6ab36466a14ece6bd01be4e97365d4c830c87
=> => exporting manifest list sha256:da3d97c66beb969db56abc9c6f277032100019dea0c43f1a7e5756b550f17350
=> => naming to docker.io/library/parcial-api:latest
=> => unpacking to docker.io/library/parcial-api:latest
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker run -d -p 3000:3000 --name parcial-container parcial-api
9eefc374f160928a0d0697b8e02c4326995373f15e6d0700097e4c239b999a6e
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker ps
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS |
|--------------|-------------|--------------------------|--------------------|-------------------|----------------------------|
| 9eefc374f160 | parcial-api | "docker-entrypoint.s..." | About a minute ago | Up About a minute | 0.0.0.0:3000->3000/tcp, [: |

Verificar que el contenedor se levanta sin errores

- docker ps

```
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker run -d -p 3000:3000 --name parcial-container parcial-api
9eefc374f160928a0d0697b8e02c4326995373f15e6d0700097e4c239b999a6e
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker ps
```

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS | PORTS |
|--------------|-------------|--------------------------|--------------------|-------------------|----------------------------|
| 9eefc374f160 | parcial-api | "docker-entrypoint.s..." | About a minute ago | Up About a minute | 0.0.0.0:3000->3000/tcp, [: |

```
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker logs parcial-container
```

- docker logs parcial-container

```
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ docker logs parcial-container
> parcial-docker-integrado@1.0.0 start
> node server.js

Servidor corriendo en http://localhost:3000
daniel-mancia@PC-MANCIA: ~/parcial-docker-integrado$ curl http://localhost:3000/
```

Verificar endpoint / responde datos personales

- curl <http://localhost:3000/>
- curl <http://localhost:3000/health>

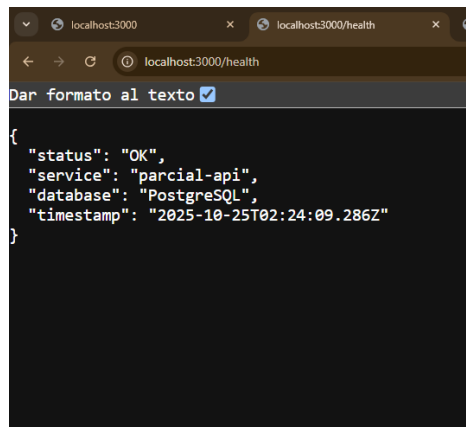
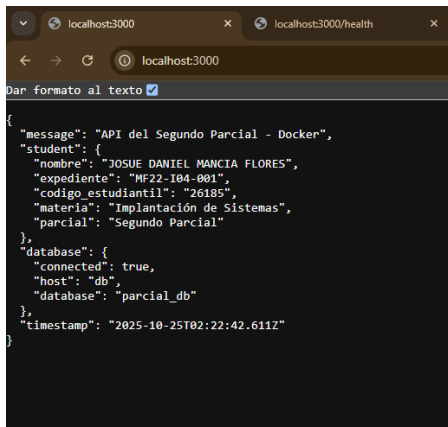
```

Servidor corriendo en http://localhost:3000
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ curl http://localhost:3000/
{"message": "API del Segundo Parcial - Docker", "student": {"nombre": "JOSUE DANIEL MANCIA FLORES", "expediente": "MF22-I04-001", "codigo_estudiantil": "26185", "materia": "Implantaci\u00f3n de Sistemas", "parcial": "Segundo Parcial"}, "database": {"connected": true, "host": "localhost", "database": "parcial_db"}, "timestamp": "2025-10-25T04:52:42.764Z"}
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ curl http://localhost:3000/health
{"status": "OK", "service": "parcial-api", "database": "PostgreSQL", "timestamp": "2025-10-25T04:52:55.975Z"}
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker exec parcial-container whoami

```

O usar el navegador y visitar:

- <http://localhost:3000/>
- <http://localhost:3000/health>



Verificar que Dockerfile no usa usuario root

- docker exec parcial-container whoami
- docker exec parcial-container id

```

{"status": "OK", "service": "parcial-api", "database": "PostgreSQL", "timestamp": "2025-10-25T04:52:55.975Z"}
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker exec parcial-container whoami
nextjs
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker exec parcial-container id
uid=1001(nextjs) gid=65533(nogroup) groups=65533(nogroup)
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker images parcial-api

```

Verificar que la imagen tiene tama\u00f1o razonable (<200MB)

- docker images parcial-api

```

daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker images parcial-api
REPOSITORY TAG IMAGE ID CREATED SIZE
parcial-api latest da3d97c66beb 3 hours ago 197MB
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$

```

Ejercicio 2:

- **Crear volumen para persistencia:**

```
docker volume create db_data
```

- **Ejecutar contenedor PostgreSQL:**

```
docker run -d --name postgres-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-alpine
```

- **Conectar a PostgreSQL y crear tabla:**

```
docker exec -it postgres-db psql -U admin -d parcial_db
```

```
daniel-mancia@PC-MANCIA: x + v
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker volume create db_data
db_data
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker run -d \
--name postgres-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-alpine
Unable to find image 'postgres:15-alpine' locally
15-alpine: Pulling from library/postgres
665050181beb: Pull complete
8e7af31e0abd: Pull complete
9229d0c336e2: Pull complete
0a297d5cb757: Pull complete
78753f2bcd40: Pull complete
e7d8b5a29e19: Pull complete
d7cf304fb91a: Pull complete
c8d6a201b2ea: Pull complete
01a8e1e8a6d3: Pull complete
b7a5b6d84454: Pull complete
Digest: sha256:64583b3cb4f2010277bdd9749456de78e5c36f8956466ba14b0b96922e510950
Status: Downloaded newer image for postgres:15-alpine
880d3af6865496c333ec42aa3607aee9b41d7ec912f52b0f9cbe9c515352bf3c
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker exec -it postgres-db psql -U admin -d parcial_db
psql (15.14)
Type "help" for help.

parcial_db=# CREATE TABLE estudiantes (
```

```
parcial_db=# CREATE TABLE estudiantes (
parcial_db=#     id SERIAL PRIMARY KEY,
parcial_db=#     nombre VARCHAR(100) NOT NULL,
parcial_db=#     expediente VARCHAR(50) UNIQUE NOT NULL,
parcial_db=#     codigo_estudiantil VARCHAR(50) UNIQUE NOT NULL,
parcial_db=#     carrera VARCHAR(100),
parcial_db=#     created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
parcial_db=# );
CREATE TABLE
parcial_db=# INSERT INTO estudiantes (nombre, expediente, codigo_estudiantil, carrera)
parcial_db=# VALUES
parcial_db=# ('JOSUE DANIEL MANCIA FLORES', 'MF22-I04-001', '26185', 'Ingeniería en Sistemas'),
parcial_db=# ('Estudiante Prueba 1', 'EXP001', 'COD001', 'Ingeniería'),
parcial_db=# ('Estudiante Prueba 2', 'EXP002', 'COD002', 'Sistemas'),
parcial_db=# ('MARIA GABRIELA LOPEZ RAMIREZ', 'MF22-I04-002', '26186', 'Ingeniería en Sistemas'),
parcial_db=# ('CARLOS ALBERTO MARTINEZ SUAREZ', 'MF22-I04-003', '26187', 'Ingeniería Industrial'),
parcial_db=# ('SOFIA ELENA HERNANDEZ GOMEZ', 'MF22-I04-004', '26188', 'Ingeniería Civil'),
parcial_db=# ('LUIS FERNANDO RODRIGUEZ DIAZ', 'MF22-I04-005', '26189', 'Ingeniería Mecánica');
INSERT 0 7
parcial_db=# \q
```

- **Verificar persistencia después de reinicio:**

docker stop postgres-db

docker start postgres-db

docker exec -it postgres-db psql -U admin -d parcial_db -c "SELECT * FROM estudiantes;"

```
parcial_db=# \q
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker stop postgres-db
postgres-db
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker start postgres-db
postgres-db
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker exec -it postgres-db psql -U admin -d parcial_db -c "SELECT * FROM estudiantes;"
 id |          nombre          | expediente | codigo_estudiantil |   carrera   |      created_at      |
----+-----+-----+-----+-----+-----+-----
  1 | JOSUE DANIEL MANCIA FLORES | MF22-I04-001 | 26185              | Ingeniería en Sistemas | 2025-10-25 05:15:04.562512 |
  2 | Estudiante Prueba 1      | EXP001      | COD001            | Ingeniería          | 2025-10-25 05:15:04.562512 |
  3 | Estudiante Prueba 2      | EXP002      | COD002            | Sistemas           | 2025-10-25 05:15:04.562512 |
  4 | MARIA GABRIELA LOPEZ RAMIREZ | MF22-I04-002 | 26186              | Ingeniería en Sistemas | 2025-10-25 05:15:04.562512 |
  5 | CARLOS ALBERTO MARTINEZ SUAREZ | MF22-I04-003 | 26187              | Ingeniería Industrial | 2025-10-25 05:15:04.562512 |
  6 | SOFIA ELENA HERNANDEZ GOMEZ | MF22-I04-004 | 26188              | Ingeniería Civil     | 2025-10-25 05:15:04.562512 |
  7 | LUIS FERNANDO RODRIGUEZ DIAZ | MF22-I04-005 | 26189              | Ingeniería Mecánica  | 2025-10-25 05:15:04.562512 |
(7 rows)
```

- **Listar volúmenes:**

docker volume ls

```
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker volume ls
DRIVER    VOLUME NAME
local     db_data
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$
```

Ejercicio 3:

- **Levantar servicios con Docker Compose:**

docker compose up -d --build

```
daniel-mancia@PC-MANCIA: x + v
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose up -d --build
[+] Building 5.3s (14/14) FINISHED
=> [internal] load local bake definitions                                0.0s
=> => reading from stdin 563B                                           0.0s
=> [internal] load build definition from Dockerfile                     0.1s
=> => transferring dockerfile: 457B                                     0.1s
=> [internal] load metadata for docker.io/library/node:18-alpine       2.2s
=> [auth] library/node:pull token for registry-1.docker.io             0.0s
=> [internal] load .dockerignore                                         0.1s
=> => transferring context: 111B                                         0.0s
=> [1/6] FROM docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca89d9e 0.2s
=> => resolve docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca89d9e 0.2s
=> [internal] load build context                                         0.1s
=> => transferring context: 101B                                         0.0s
=> CACHED [2/6] WORKDIR /app                                             0.0s
=> CACHED [3/6] COPY package*.json ./                                    0.0s
=> CACHED [4/6] RUN npm install --omit=dev                               0.0s
=> CACHED [5/6] COPY server.js ./                                        0.0s
=> CACHED [6/6] RUN addgroup -g 1001 -S nodejs && adduser -S nextjs -u 1001 && chown -R nextjs:nodejs /app 0.0s
=> exporting to image                                                    0.7s
=> exporting layers                                                      0.0s
=> => exporting manifest sha256:5f7d97f7ade7a896ef1185dbe6f2b955d13488b6a424dae9d90a7b14d59a72ed9 0.0s
=> => exporting config sha256:59237e1826132b8dc6852ecfe995964243da34e6efa06f15c0a77747995f5ec8f 0.0s
=> => exporting attestation manifest sha256:e45692f5204d675f537d9d756d7ec087b719365c8065281949e98d48cfc1c707 0.1s
=> => exporting manifest list sha256:f2a40d58a736c6b0e6fe2a25e220bc862e1c3a6535889a8f063d1eb6897e2cd1 0.1s
=> => naming to docker.io/library/parcial-docker-integrado-api:latest 0.0s
=> => unpacking to docker.io/library/parcial-docker-integrado-api:latest 0.1s
=> resolving provenance for metadata file                                0.1s
[+] Running 3/3
✔parcial-docker-integrado-api Built 0.0s
✔Container parcial_db Healthy 10.0s
✔Container parcial_api Started 10.2s
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose ps
```

- **Verificar estado de servicios:**

docker compose ps

- **Ver logs de los servicios:**

docker compose logs api

- **docker compose logs db:**

```
daniel-mancia@PC-MANCIA: x + v
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose ps
NAME                IMAGE                COMMAND                SERVICE    CREATED          STATUS              PORTS
parcial_api          parcial-docker-integrado-api  "docker-entrypoint.s..." api        About a minute ago  Up About a minute  0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp
parcial_db           postgres:15-alpine  "docker-entrypoint.s..." db        About a minute ago  Up About a minute  0.0.0.0:5432->5432/tcp, [::]:5432->5432/tcp
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose logs api
parcial_api
parcial_api         > parcial-docker-integrado@1.0.0 start
parcial_api         > node server.js
parcial_api         / Servidor corriendo en http://localhost:3000
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose logs db
parcial_db
parcial_db          PostgreSQL Database directory appears to contain a database; Skipping initialization
parcial_db
parcial_db          2025-10-25 05:44:58.118 UTC [1] LOG:  starting PostgreSQL 15.14 on x86_64-pc-linux-musl, compiled by gcc (Alpine 14.2.0) 14.2.0, 64-bit
parcial_db          2025-10-25 05:44:58.122 UTC [1] LOG:  listening on IPv4 address "0.0.0.0", port 5432
parcial_db          2025-10-25 05:44:58.123 UTC [1] LOG:  listening on IPv6 address "::", port 5432
parcial_db          2025-10-25 05:44:58.144 UTC [1] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
parcial_db          2025-10-25 05:44:58.179 UTC [29] LOG:  database system was shut down at 2025-10-25 05:44:19 UTC
parcial_db          2025-10-25 05:44:58.218 UTC [1] LOG:  database system is ready to accept connections
```

- **Crear tabla y datos desde Docker Compose:**

```
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose exec db psql -U admin -d parcial_db -c "
CREATE TABLE IF NOT EXISTS estudiantes (
  id SERIAL PRIMARY KEY,
  nombre VARCHAR(100) NOT NULL,
  expediente VARCHAR(50) UNIQUE NOT NULL,
  codigo_estudiantil VARCHAR(50) UNIQUE NOT NULL,
  carrera VARCHAR(100),
  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);"
NOTICE: relation "estudiantes" already exists, skipping
CREATE TABLE
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose exec db psql -U admin -d parcial_db -c "INSERT INTO estudiantes (nombre, expediente, codigo_estudiantil, carrera)
VALUES
('JOSUE DANIEL MANCIA FLORES', 'MF22-104-010', '26200', 'Ingeniería en Sistemas'),
('Estudiante Prueba 3', 'EXP003', 'COD003', 'Ingeniería'),
('Estudiante Prueba 4', 'EXP004', 'COD004', 'Sistemas'),
('MARIA GABRIELA LOPEZ RAMIREZ', 'MF22-104-011', '26201', 'Ingeniería en Sistemas'),
('CARLOS ALBERTO MARTINEZ SUAREZ', 'MF22-104-012', '26202', 'Ingeniería Industrial'),
('SOFIA ELENA HERNANDEZ GOMEZ', 'MF22-104-013', '26203', 'Ingeniería Civil'),
('LUIS FERNANDO RODRIGUEZ DIAZ', 'MF22-104-014', '26204', 'Ingeniería Mecánica');"
INSERT 0 7
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose exec db psql -U admin -d parcial_db -c "SELECT * FROM estudiantes;"
 id | nombre | expediente | codigo_estudiantil | carrera | created_at
-----+-----+-----+-----+-----+-----
  2 | Estudiante Prueba 1 | EXP001 | COD001 | Ingeniería | 2025-10-25 05:15:04.562512
  3 | Estudiante Prueba 2 | EXP002 | COD002 | Sistemas | 2025-10-25 05:15:04.562512
  4 | MARIA GABRIELA LOPEZ RAMIREZ | MF22-104-002 | 26186 | Ingeniería en Sistemas | 2025-10-25 05:15:04.562512
  5 | CARLOS ALBERTO MARTINEZ SUAREZ | MF22-104-003 | 26187 | Ingeniería Industrial | 2025-10-25 05:15:04.562512
  6 | SOFIA ELENA HERNANDEZ GOMEZ | MF22-104-004 | 26188 | Ingeniería Civil | 2025-10-25 05:15:04.562512
  7 | LUIS FERNANDO RODRIGUEZ DIAZ | MF22-104-005 | 26189 | Ingeniería Mecánica | 2025-10-25 05:15:04.562512
 11 | JOSUE DANIEL MANCIA FLORES | MF22-104-010 | 26200 | Ingeniería en Sistemas | 2025-10-25 05:54:41.119236
 12 | Estudiante Prueba 3 | EXP003 | COD003 | Ingeniería | 2025-10-25 05:54:41.119236
 13 | Estudiante Prueba 4 | EXP004 | COD004 | Sistemas | 2025-10-25 05:54:41.119236
 14 | MARIA GABRIELA LOPEZ RAMIREZ | MF22-104-011 | 26201 | Ingeniería en Sistemas | 2025-10-25 05:54:41.119236
 15 | CARLOS ALBERTO MARTINEZ SUAREZ | MF22-104-012 | 26202 | Ingeniería Industrial | 2025-10-25 05:54:41.119236
 16 | SOFIA ELENA HERNANDEZ GOMEZ | MF22-104-013 | 26203 | Ingeniería Civil | 2025-10-25 05:54:41.119236
 17 | LUIS FERNANDO RODRIGUEZ DIAZ | MF22-104-014 | 26204 | Ingeniería Mecánica | 2025-10-25 05:54:41.119236
(13 rows)
```

- **Insertar y verificar datos:**

```
daniel-mancia@PC-MANCIA: x + v
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose exec db psql -U admin -d parcial_db -c "INSERT INTO estudiantes (nombre, expediente, codigo_estudiantil, carrera)
VALUES
('JOSUE DANIEL MANCIA FLORES', 'MF22-104-010', '26200', 'Ingeniería en Sistemas'),
('Estudiante Prueba 3', 'EXP003', 'COD003', 'Ingeniería'),
('Estudiante Prueba 4', 'EXP004', 'COD004', 'Sistemas'),
('MARIA GABRIELA LOPEZ RAMIREZ', 'MF22-104-011', '26201', 'Ingeniería en Sistemas'),
('CARLOS ALBERTO MARTINEZ SUAREZ', 'MF22-104-012', '26202', 'Ingeniería Industrial'),
('SOFIA ELENA HERNANDEZ GOMEZ', 'MF22-104-013', '26203', 'Ingeniería Civil'),
('LUIS FERNANDO RODRIGUEZ DIAZ', 'MF22-104-014', '26204', 'Ingeniería Mecánica');"
INSERT 0 7
daniel-mancia@PC-MANCIA:~/parcial-docker-integrado$ docker compose exec db psql -U admin -d parcial_db -c "SELECT * FROM estudiantes;"
 id | nombre | expediente | codigo_estudiantil | carrera | created_at
-----+-----+-----+-----+-----+-----
  2 | Estudiante Prueba 1 | EXP001 | COD001 | Ingeniería | 2025-10-25 05:15:04.562512
  3 | Estudiante Prueba 2 | EXP002 | COD002 | Sistemas | 2025-10-25 05:15:04.562512
  4 | MARIA GABRIELA LOPEZ RAMIREZ | MF22-104-002 | 26186 | Ingeniería en Sistemas | 2025-10-25 05:15:04.562512
  5 | CARLOS ALBERTO MARTINEZ SUAREZ | MF22-104-003 | 26187 | Ingeniería Industrial | 2025-10-25 05:15:04.562512
  6 | SOFIA ELENA HERNANDEZ GOMEZ | MF22-104-004 | 26188 | Ingeniería Civil | 2025-10-25 05:15:04.562512
  7 | LUIS FERNANDO RODRIGUEZ DIAZ | MF22-104-005 | 26189 | Ingeniería Mecánica | 2025-10-25 05:15:04.562512
 11 | JOSUE DANIEL MANCIA FLORES | MF22-104-010 | 26200 | Ingeniería en Sistemas | 2025-10-25 05:54:41.119236
 12 | Estudiante Prueba 3 | EXP003 | COD003 | Ingeniería | 2025-10-25 05:54:41.119236
 13 | Estudiante Prueba 4 | EXP004 | COD004 | Sistemas | 2025-10-25 05:54:41.119236
 14 | MARIA GABRIELA LOPEZ RAMIREZ | MF22-104-011 | 26201 | Ingeniería en Sistemas | 2025-10-25 05:54:41.119236
 15 | CARLOS ALBERTO MARTINEZ SUAREZ | MF22-104-012 | 26202 | Ingeniería Industrial | 2025-10-25 05:54:41.119236
 16 | SOFIA ELENA HERNANDEZ GOMEZ | MF22-104-013 | 26203 | Ingeniería Civil | 2025-10-25 05:54:41.119236
 17 | LUIS FERNANDO RODRIGUEZ DIAZ | MF22-104-014 | 26204 | Ingeniería Mecánica | 2025-10-25 05:54:41.119236
(13 rows)
```

- **Verificar healthcheck:**

docker compose exec db pg_isready -U admin -d parcial_db

- **Probar endpoint de la API:**

```
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose exec db pg_isready -U admin -d partial_db
/var/run/postgresql:5432 - accepting connections
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ curl http://localhost:3000/estudiantes
{"count":13,"estudiantes":[{"id":2,"nombre":"Estudiante Prueba 1","expediente":"EXP001","codigo_estudiantil":"COD001","carrera":"Ingeniería","created_at":"2025-10-25T05:15:04.562Z"},{"id":3,"nombre":"Estudiante Prueba 2","expediente":"EXP002","codigo_estudiantil":"COD002","carrera":"Sistemas","created_at":"2025-10-25T05:15:04.562Z"},{"id":4,"nombre":"MARIA GABRIELA LOPEZ RAMIREZ","expediente":"MF22-104-002","codigo_estudiantil":"26186","carrera":"Ingeniería en Sistemas","created_at":"2025-10-25T05:15:04.562Z"},{"id":5,"nombre":"CARLOS ALBERTO MARTINEZ SUAREZ","expediente":"MF22-104-003","codigo_estudiantil":"26187","carrera":"Ingeniería Industrial","created_at":"2025-10-25T05:15:04.562Z"},{"id":6,"nombre":"SOFIA ELENA HERNANDEZ GOMEZ","expediente":"MF22-104-004","codigo_estudiantil":"26188","carrera":"Ingeniería Civil","created_at":"2025-10-25T05:15:04.562Z"},{"id":7,"nombre":"LUIS FERNANDO RODRIGUEZ DIAZ","expediente":"MF22-104-008","codigo_estudiantil":"26189","carrera":"Ingeniería Mecánica","created_at":"2025-10-25T05:15:04.562Z"},{"id":11,"nombre":"JOSUE DANIEL MANCIA FLORES","expediente":"MF22-104-010","codigo_estudiantil":"26200","carrera":"Ingeniería en Sistemas","created_at":"2025-10-25T05:54:41.119Z"},{"id":12,"nombre":"Estudiante Prueba 3","expediente":"EXP003","codigo_estudiantil":"COD003","carrera":"Ingeniería","created_at":"2025-10-25T05:54:41.119Z"},{"id":13,"nombre":"Estudiante Prueba 4","expediente":"EXP004","codigo_estudiantil":"COD004","carrera":"Sistemas","created_at":"2025-10-25T05:54:41.119Z"},{"id":14,"nombre":"MARIA GABRIELA LOPEZ RAMIREZ","expediente":"MF22-104-011","codigo_estudiantil":"26201","carrera":"Ingeniería en Sistemas","created_at":"2025-10-25T05:54:41.119Z"},{"id":15,"nombre":"CARLOS ALBERTO MARTINEZ SUAREZ","expediente":"MF22-104-012","codigo_estudiantil":"26202","carrera":"Ingeniería Industrial","created_at":"2025-10-25T05:54:41.119Z"},{"id":16,"nombre":"SOFIA ELENA HERNANDEZ GOMEZ","expediente":"MF22-104-013","codigo_estudiantil":"26203","carrera":"Ingeniería Civil","created_at":"2025-10-25T05:54:41.119Z"},{"id":17,"nombre":"LUIS FERNANDO RODRIGUEZ DIAZ","expediente":"MF22-104-014","codigo_estudiantil":"26204","carrera":"Ingeniería Mecánica","created_at":"2025-10-25T05:54:41.119Z"}]}daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose exec api whoami
nextjs
```

- **Verificar usuario no-root:**
docker compose exec api whoami
docker compose exec api id
- **Gestión de servicios:**
docker compose restart
docker compose down

```
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose exec api whoami
nextjs
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose exec api id
uid=1001(nextjs) gid=65533(nogroup) groups=65533(nogroup)
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose restart
[*] Restarting 2/2
✓ Container partial_db Started 5.8s
✓ Container partial_api Started 6.2s
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$ docker compose ps
NAME IMAGE COMMAND SERVICE CREATED STATUS PORTS
partial_api partial-docker-integrado-api "docker-entrypoint.s..." api 16 minutes ago Up 5 minutes 0.0.0.0:3000->3000/tcp, [::]:3000->3000/tcp
partial_db postgres:15-alpine "docker-entrypoint.s..." db 16 minutes ago Up 5 minutes (healthy) 0.0.0.0:5432->5432/tcp, [::]:5432->5432/tcp
daniel-mancia@PC-MANCIA:~/partial-docker-integrado$
```

localhost:3000/estudiantes

```
{
  "count": 13,
  "estudiantes": [
    {
      "id": 2,
      "nombre": "Estudiante Prueba 1",
      "expediente": "EXP001",
      "codigo_estudiantil": "COD001",
      "carrera": "Ingeniería",
      "created_at": "2025-10-25T05:15:04.562Z"
    },
    {
      "id": 3,
      "nombre": "Estudiante Prueba 2",
      "expediente": "EXP002",
      "codigo_estudiantil": "COD002",
      "carrera": "Sistemas",
      "created_at": "2025-10-25T05:15:04.562Z"
    },
    {
      "id": 4,
      "nombre": "MARIA GABRIELA LOPEZ RAMIREZ",
      "expediente": "MF22-104-002",
      "codigo_estudiantil": "26186",
      "carrera": "Ingeniería en Sistemas",
      "created_at": "2025-10-25T05:15:04.562Z"
    },
    {
      "id": 5,
      "nombre": "CARLOS ALBERTO MARTINEZ SUAREZ",
      "expediente": "MF22-104-003",
      "codigo_estudiantil": "26187",
      "carrera": "Ingeniería Industrial",
      "created_at": "2025-10-25T05:15:04.562Z"
    },
    {
      "id": 6,
      "nombre": "SOFIA ELENA HERNANDEZ GOMEZ",
      "expediente": "MF22-104-004",
      "codigo_estudiantil": "26188",
      "carrera": "Ingeniería Civil",
      "created_at": "2025-10-25T05:15:04.562Z"
    }
  ]
}
```

localhost:3000

```
{
  "message": "API del Segundo Parcial - Docker",
  "student": {
    "nombre": "JOSUE DANIEL MANCIA FLORES",
    "expediente": "MF22-104-001",
    "codigo_estudiantil": "26185",
    "materia": "Implantación de Sistemas",
    "parcial": "Segundo Parcial"
  },
  "database": {
    "connected": true,
    "host": "localhost",
    "database": "partial_db"
  },
  "timestamp": "2025-10-25T04:54:03.528Z"
}
```

localhost:3000/health

```
{
  "status": "OK",
  "service": "partial-api",
  "database": "PostgreSQL",
  "timestamp": "2025-10-25T05:57:50.329Z"
}
```

Interfaz docker:

docker.desktop PERSONAL

Search

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Volumes

db_data

Created 12 minutes ago

Size 45.4 MB

Actions

