

Memoria Práctica 8

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INTEGRACIÓN DE TECNOLOGÍAS Y SERVICIOS INFORMÁTICOS

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1 de diciembre de 2025

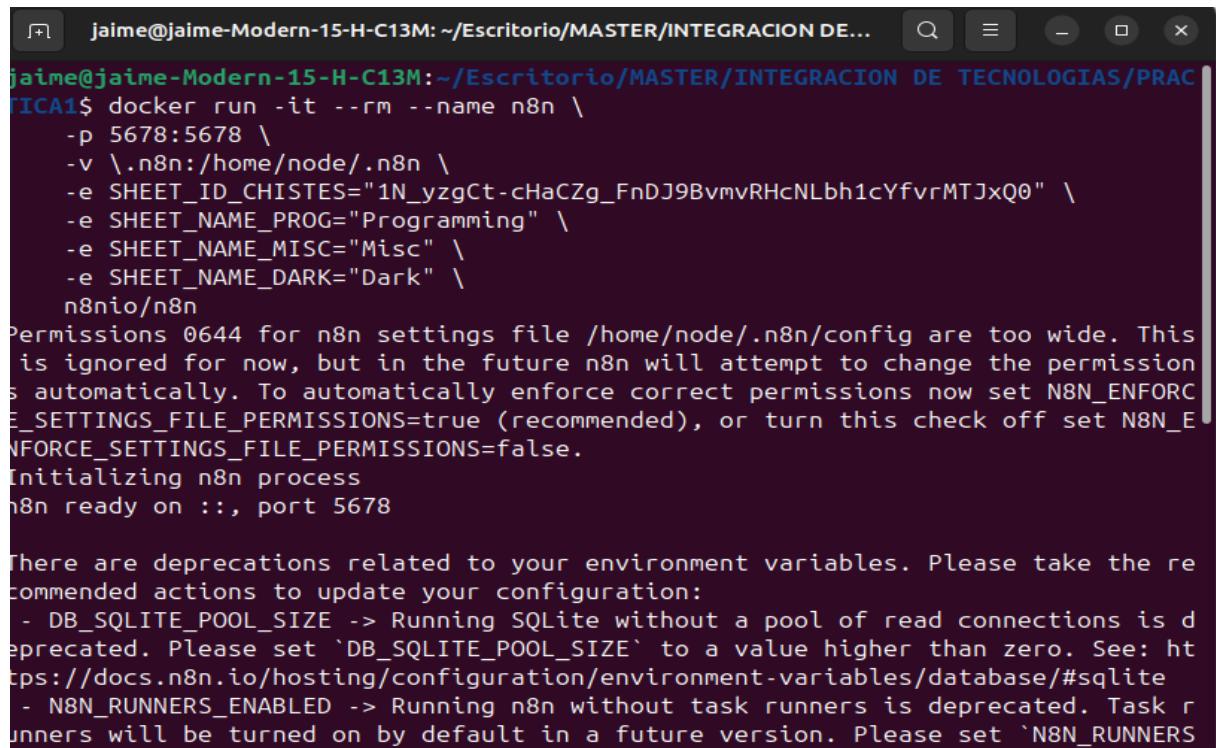
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Capítulo 1

Ejercicio Guiado 1

El objetivo del ejercicio guaido es refactorizare el flujo de la Práctica 3 (Google Sheets) para que esté "listo para producción", visionarlo en Git y simular un despliegue con n8ncli. El primer paso es inyectar las variables de entorno en n8n.



```
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE... jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRAC
TICA1$ docker run -it --rm --name n8n \
-p 5678:5678 \
-v \.n8n:/home/node/.n8n \
-e SHEET_ID_CHISTES="1N_yzgCt-cHaCZg_FnDJ9BvmvRHcNLbh1cYfvrMTJxQ0" \
-e SHEET_NAME_PROG="Programming" \
-e SHEET_NAME_MISC="Misc" \
-e SHEET_NAME_DARK="Dark" \
n8nio/n8n
Permissions 0644 for n8n settings file /home/node/.n8n/config are too wide. This
is ignored for now, but in the future n8n will attempt to change the permission
automatically. To automatically enforce correct permissions now set N8N_ENFORC
E_SETTINGS_FILE_PERMISSIONS=true (recommended), or turn this check off set N8N_E
NFORCE_SETTINGS_FILE_PERMISSIONS=false.
Initializing n8n process
n8n ready on ::, port 5678

There are deprecations related to your environment variables. Please take the re
commended actions to update your configuration:
- DB_SQLITE_POOL_SIZE -> Running SQLite without a pool of read connections is d
eprecated. Please set `DB_SQLITE_POOL_SIZE` to a value higher than zero. See: ht
tps://docs.n8n.io/hosting/configuration/environment-variables/database/#sqlite
- N8N_RUNNERS_ENABLED -> Running n8n without task runners is deprecated. Task r
unners will be turned on by default in a future version. Please set `N8N_RUNNERS
```

A continuación, se refactoriza el flujo de trabajo de la Práctica 3 con las variables de entorno.

The screenshot shows a 'Switch' node in a workflow. The input is a JSON array of 10 items. The output is split into three items based on the 'category' field:

- Output 0 (7 items): Category 'Programming' (single joke)
- Output 1 (3 items): Category 'MISC' (single joke)
- Output 2: Category 'DARK' (single joke)

The 'Switch' node has three routing rules:

- Rule 1: Category is equal to \$env.SHEET_NAME_PROG (7 items)
- Rule 2: Category is equal to \$env.SHEET_NAME_MISC (3 items)
- Rule 3: Category is equal to \$env.SHEET_NAME_DARK (1 item)

The screenshot shows an 'Edit Fields' node. The mode is set to 'Manual Mapping'. The input is a JSON object with an 'ID' field. The output is a JSON object with a single 'ID' field containing the value '\$env.SHEET_ID_CHISTES'.

The 'Edit Fields' node has the following configuration:

- Mode: Manual Mapping
- Fields to Set:

ID	Type: String	Value: \$env.SHEET_ID_CHISTES
----	--------------	-------------------------------
- Options: No properties

The output is a JSON object with one item:

```
[{"ID": "1N_yzgCt-chEcZg_FnD9BvmvRhcNLbh1cYfrMTJxQ8"}]
```

El siguiente paso es versionar el flujo de trabajo en git. Para ello debemos descargarlo y crear un nuevo repositorio Git en ese directorio.

```
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ git init
yuda: Usando 'master' como el nombre de la rama inicial. Este nombre de rama predeterminado
yuda: está sujeto a cambios. Para configurar el nombre de la rama inicial para usar en todos
yuda: de sus nuevos repositorios, reprimiendo esta advertencia, llama a:
yuda:
yuda: git config --global init.defaultBranch <nombre>
yuda:
yuda: Los nombres comúnmente elegidos en lugar de 'master' son 'main', 'trunk' y
yuda: 'development'. Se puede cambiar el nombre de la rama recién creada mediante este comando:
yuda:
yuda: git branch -m <nombre>
Inicializado repositorio Git vacío en /home/jaime/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/.git/
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ git dd EJERC\ 8.1.json
Orden «dit» no encontrada, pero hay 22 similares.
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ git add EJERC\ 8.1.json
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ git commit -m "Refactor: Desacoplada configuración de Google Sheets"
[master (commit-rafat) f492ebd] Refactor: Desacoplada configuración de Google Sheets
1 file changed, 486 insertions(+)
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ ]
```

Por último, es necesario instalar n8n-cli, generar la clave de API en n8n y configurar la variable de entorno en la terminal. De esta forma se podrá desplegar desde la CLI el workflow.

```
[master (commit-rafat) f492ebd] Refactor: Desacoplada configuración de Google Sheets
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ npm install n8n-cli -g
npm error code E404
npm error 404 Not Found - GET https://registry.npmjs.org/n8n-cli - Not found
npm error 404
npm error 404 'n8n-cli@*' is not in this registry.
npm error 404
npm error 404 Note that you can also install from a
npm error 404 tarball, folder, http url, or git url.
npm notice
npm notice New major version of npm available! 10.8.2 => 11.6.4
npm notice Changelog: https://github.com/npm/cli/releases/tag/v11.6.4
npm notice To update run: npm install -g npm@11.6.4
npm notice
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ export N8N_HOST="http://localhost:5678" export N8N_API_KEY="eyJhbGciOiJIUzI1NiIsInR5cCI6IkpVCl9JZdWIiOjKmNT0dLOS01M2E3LTQzMi0DjINS0yNmT3NTFkZjEzNwUiLCJpc3MiOiJuOG4iLCJhdWQiOiJwdWJsaWMtYXBpIiwiaWF0IjoxNzY0NDI5NTQ4LCJleHAiOjE3NjY5ODQ0MDB9,yD9CQ66fxuIXDlfl6rrujRuCL7b_izQxgaDNMSEzJs"
[jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA 8/n8n$ ]
```

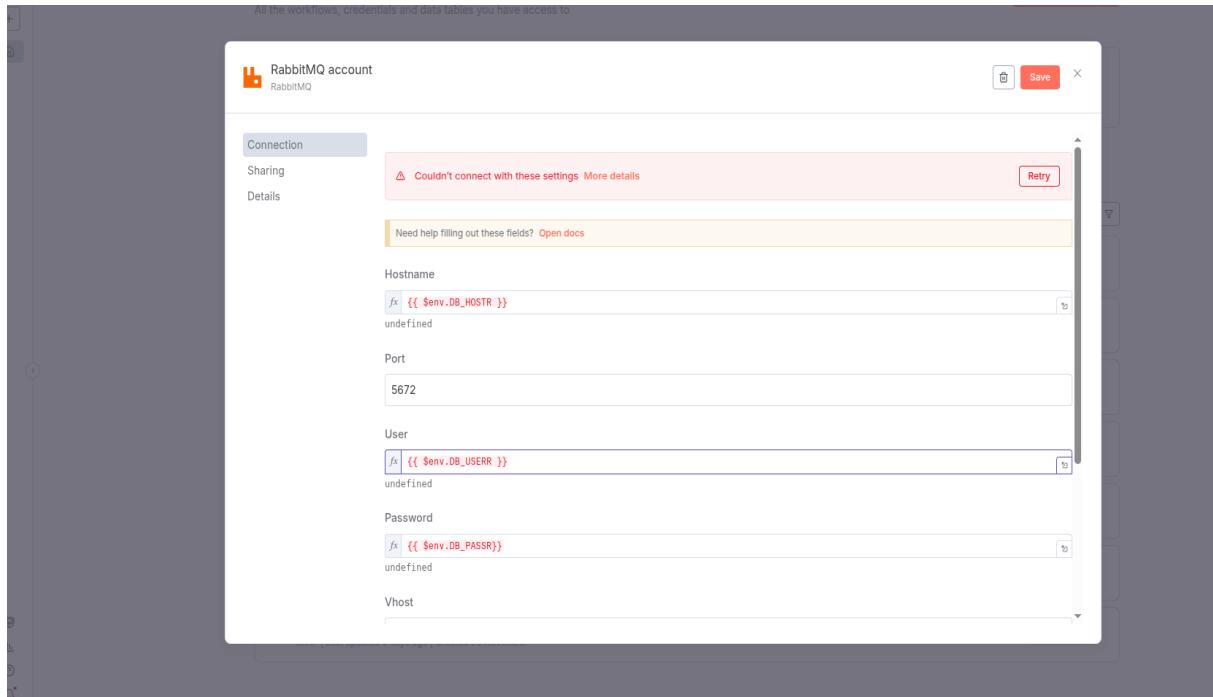
Capítulo 2

Ejercicio 1

El objetivo del ejercicio 1 es aplicar el desacoplamiento de configuración al sistema de microservicios de la Práctica 6. Para ello es necesario refactorizar las credenciales de PostgreSQL por las variables de entorno.

The screenshot shows a configuration interface for a PostgreSQL account. The 'Connection' tab is selected. The 'Host' field contains the placeholder `{{ $env.DB_HOST }}`. The 'Database' field contains `{{ $env.DB_NAME }}`. The 'User' field contains `{{ $env.DB_USER }}`. The 'Password' field contains `{{ $env.DB_PASS }}`. The 'Maximum Number of Connections' field is set to 100. A note at the top right says 'Need help filling out these fields? [Open docs](#)'.

En la credencial de Rabbit debemos hacer lo mismo.



Por último se detiene el contenedor de n8n y se reinicia con los nuevos flags.

```
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA1$ docker run -it --rm \
--name n8n \
-p 5678:5678 \
-v .n8n:/home/node/.n8n \
-e DB_HOST=db \
-e DB_DATABASE=taskdb \
-e DB_USER=user \
-e DB_PASSWORD=password \
-e DB_HOSTR=rabbitmq \
-e DB_USERR=guest \
-e DB_PASSR=guest \
-n8nio/n8n
Permissions 0644 for n8n settings file /home/node/.n8n/config are too wide. This is ignored for now, but in the future n8n will attempt to change the permissions automatically enforce correct permissions now set N8N_ENFORCE_SETTINGS_FILE_PERMISSIONS=true (recommended), or turn this check off set NBN_ENFORCE_SETTINGS_FILE_PERMISSIONS=false
Initializing n8n process
n8n ready on ::, port 5678

There are deprecations related to your environment variables. Please take the recommended actions to update your configuration:
- DB_SQLITE_POOL_SIZE -> Running SQLite without a pool of read connections is deprecated. Please set 'DB_SQLITE_POOL_SIZE' to a value higher than zero. See: https://n8n.io/docs/upgrade-guide/configuration/environment-variables/database/#sqlite
- NBN_RUNNERS_ENABLED -> Running n8n without task runners is deprecated. Task runners will be turned on by default in a future version. Please set 'N8N_RUNNERS_ENABLED' to true. See: https://n8n.io/docs/upgrade-guide/configuration/environment-variables/task-runners/
- NBN_BLOCK_ENV_ACCESS_IN_NODE -> The default value of NBN_BLOCK_ENV_ACCESS_IN_NODE will be changed from false to true in a future version. If you need to access environment variables from the Code Node or from expressions, please set NBN_BLOCK_ENV_ACCESS_IN_NODE=false. Learn more: https://n8n.io/docs/upgrade-guide/configuration/environment-variables/security/#nbn-block-env-access-in-node
- NBN_GIT_NODE_DISABLE_BARE_REPOS -> Support for bare repositories in the Git Node will be removed in a future version due to security concerns. If you are not using the Git Node, please set NBN_GIT_NODE_DISABLE_BARE_REPOS=true. Learn more: https://n8n.io/docs/upgrade-guide/configuration/environment-variables/security/#nbn-git-node-disable-bare-repos

[license SDK] Skipping renewal on init: license cert is not initialized
Version: 1.120.4

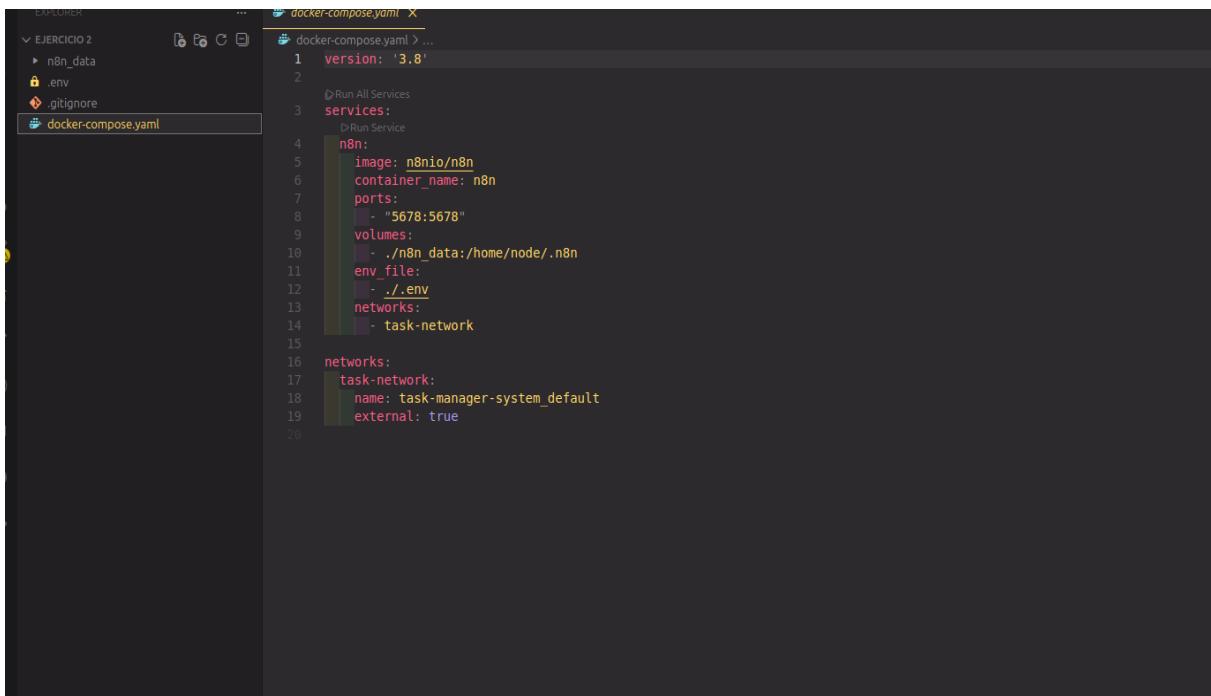
Editor is now accessible via:
http://localhost:5678

Press "o" to open in Browser.
```

Capítulo 3

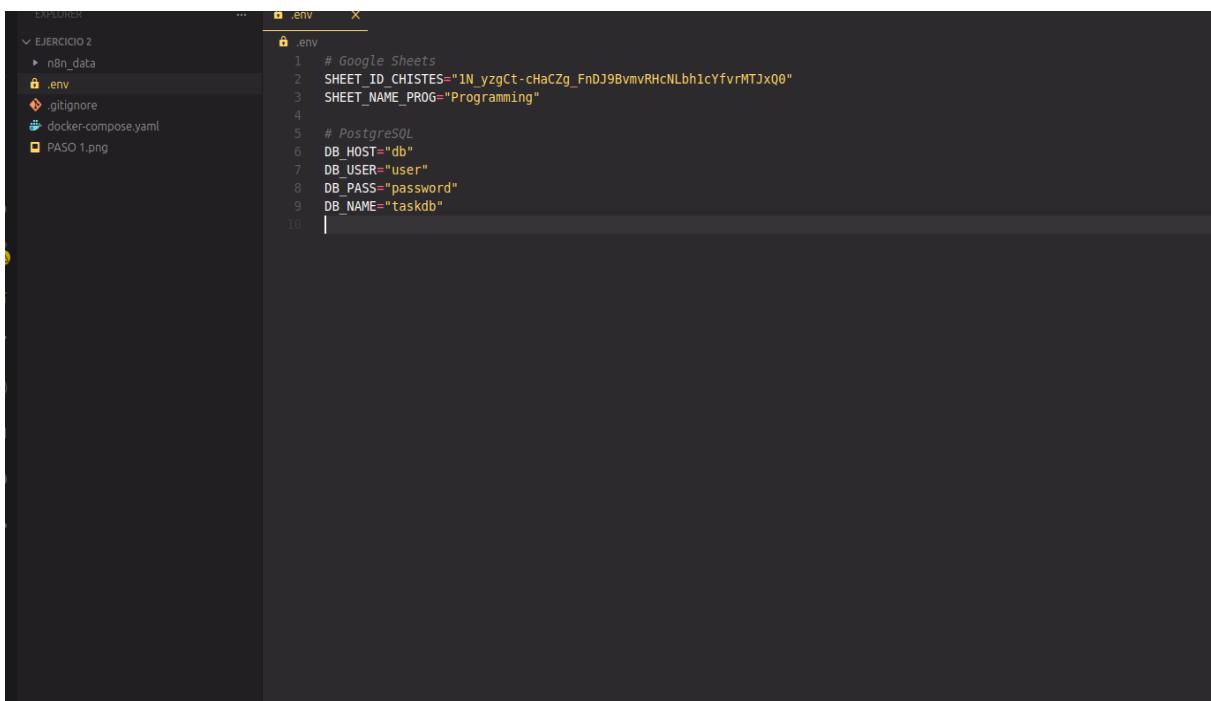
Ejercicio 2

El objetivo del ejercicio 2 es dejar de usar docker run y gestionar la configuración de n8n con docker-compose y un fichero .env, que es la mejor práctica. El primer paso es crear un fichero docker-compose.yml para la instancia de n8n.



```
version: '3.8'
services:
  n8n:
    image: n8nio/n8n
    container_name: n8n
    ports:
      - "5678:5678"
    volumes:
      - ./n8n_data:/home/node/.n8n
    env_file:
      - ./.env
    networks:
      - task-network
networks:
  task-network:
    name: task-manager-system_default
    external: true
```

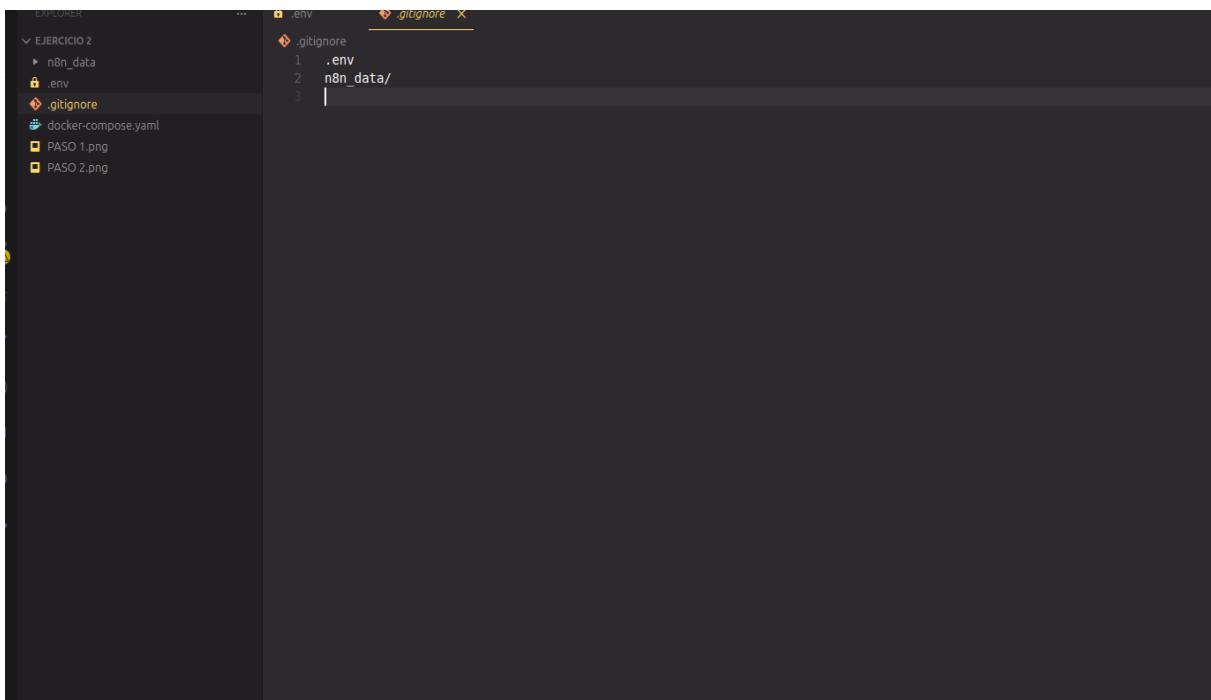
Después, se crea un fichero .env para poner las variables de entorno.



The screenshot shows the VS Code interface with the Explorer sidebar on the left and the Editor pane on the right. The Explorer sidebar shows a folder named 'EJERCICIO 2' containing files: 'n8n_data', '.env', '.gitignore', 'docker-compose.yaml', and 'PASO 1.png'. The Editor pane displays the contents of the '.env' file:

```
1 # Google Sheets
2 SHEET_ID_CHISTES="1N_yzgCt-cHaCZg_FnDj9BvmvRHcNLbh1cYfvrMTJxQ0"
3 SHEET_NAME_PROG="Programming"
4
5 # PostgreSQL
6 DB_HOST=db
7 DB_USER=user
8 DB_PASS=password
9 DB_NAME=taskdb
```

A continuación en un fichero .gitignore se añade el fichero .env.



The screenshot shows the VS Code interface with the Explorer sidebar on the left and the Editor pane on the right. The Explorer sidebar shows a folder named 'EJERCICIO 2' containing files: 'n8n_data', '.env', '.gitignore', 'docker-compose.yaml', and 'PASO 1.png'. The Editor pane displays the contents of the '.gitignore' file:

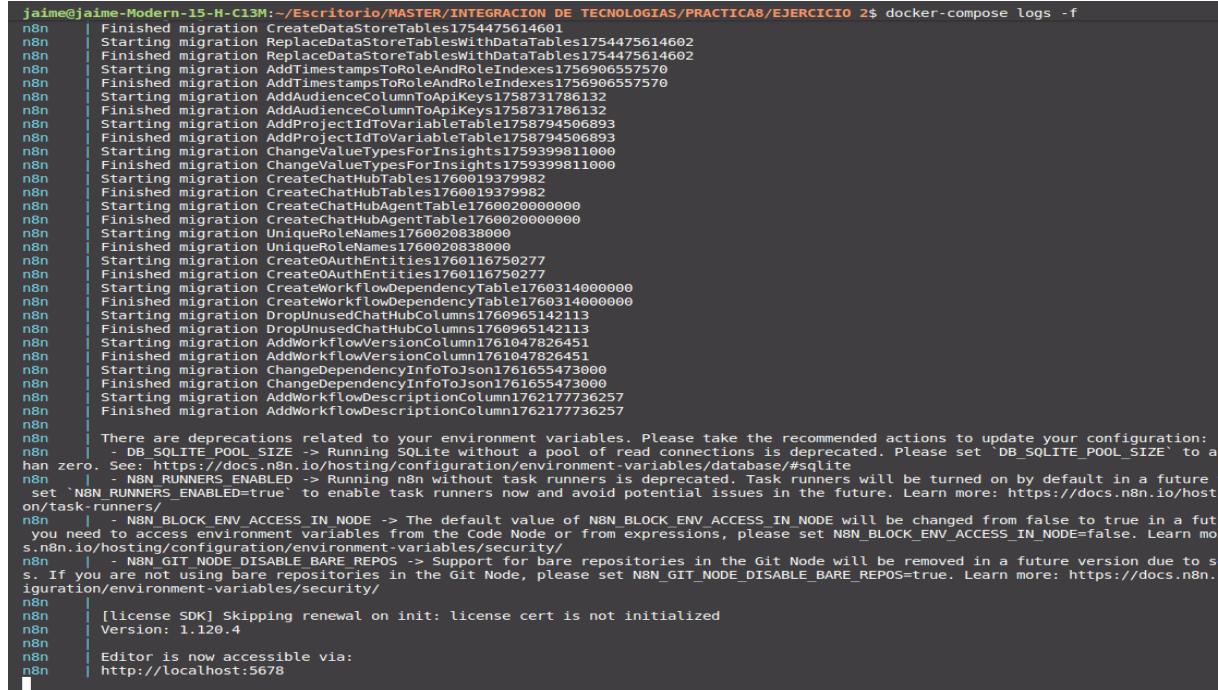
```
1 .env
2 n8n_data/
3 |
```

Por último, se detiene el contenedor docker run y se inicia docker-compose up -d.



```
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/EJERCICIO 2$ docker-compose up -d
Creating n8n ... done
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/EJERCICIO 2$ docker-compose logs -f
```

De esta forma, n8n se iniciará con todas las variables de entorno cargadas.



```
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/EJERCICIO 2$ docker-compose logs -f
n8n | Finished migration CreateDataStoreTables1754475614601
n8n | Starting migration ReplaceDataStoreTablesWithOldDataTables1754475614602
n8n | Finished migration ReplaceDataStoreTablesWithOldDataTables1754475614602
n8n | Starting migration AddTimestampsToRoleAndRoleIndexes1756906557570
n8n | Finished migration AddTimestampsToRoleAndRoleIndexes1756906557570
n8n | Starting migration AddAudienceColumnToApiKeys1758731786132
n8n | Finished migration AddAudienceColumnToApiKeys1758731786132
n8n | Starting migration AddProjectIdToVariableTable1758794506893
n8n | Finished migration AddProjectIdToVariableTable1758794506893
n8n | Starting migration ChangeValueTypeForInsights1759399811000
n8n | Finished migration ChangeValueTypeForInsights1759399811000
n8n | Starting migration CreateChatHubTables1760019379982
n8n | Finished migration CreateChatHubTables1760019379982
n8n | Starting migration CreateChatHubAgentTable1760020000000
n8n | Finished migration CreateChatHubAgentTable1760020000000
n8n | Starting migration UniqueRoleName1760020838000
n8n | Finished migration UniqueRoleName1760020838000
n8n | Starting migration CreateOAuthEntities1760116750277
n8n | Finished migration CreateOAuthEntities1760116750277
n8n | Starting migration CreateWorkflowDependencyTable1760314000000
n8n | Finished migration CreateWorkflowDependencyTable1760314000000
n8n | Starting migration DropUnusedchatHubColumns1760965142113
n8n | Finished migration DropUnusedchatHubColumns1760965142113
n8n | Starting migration AddWorkflowVersionColumn1761047826451
n8n | Finished migration AddWorkflowVersionColumn1761047826451
n8n | Starting migration ChangedependencyInfoToJson1761655473000
n8n | Finished migration ChangedependencyInfoToJson1761655473000
n8n | Starting migration AddWorkflowDescriptionColumn1762177736257
n8n | Finished migration AddWorkflowDescriptionColumn1762177736257
n8n |
n8n | There are deprecations related to your environment variables. Please take the recommended actions to update your configuration:
n8n |   - DB_SQLITE_POOL_SIZE -> Running SQLite without a pool of read connections is deprecated. Please set 'DB_SQLITE_POOL_SIZE' to a
n8n |     zero. See: https://docs.n8n.io/hosting/configuration/environment-variables/database/#sqlite
n8n |   - N8N_RUNNERS_ENABLED -> Running n8n without task runners is deprecated. Task runners will be turned on by default in a future
n8n |     set 'N8N_RUNNERS_ENABLED=true' to enable task runners now and avoid potential issues in the future. Learn more: https://docs.n8n.io/hosting/task-runners/
n8n |   - N8N_BLOCK_ENV_ACCESS_IN_NODE -> The default value of N8N_BLOCK_ENV_ACCESS_IN_NODE will be changed from false to true in a fut
n8n |     you need to access environment variables from the Code Node or from expressions, please set N8N_BLOCK_ENV_ACCESS_IN_NODE=false. Learn mo
n8n |   - N8N_GIT_NODE_DISABLE_BARE_REPOS -> Support for bare repositories in the Git Node will be removed in a future version due to s
n8n |     If you are not using bare repositories in the Git Node, please set N8N_GIT_NODE_DISABLE_BARE_REPOS=true. Learn more: https://docs.n8n.
n8n | \[license SDK\] Skipping renewal on init: license cert is not initialized
n8n | Version: 1.120.4
n8n | Editor is now accessible via:
n8n | http://localhost:5678
```

Capítulo 4

Ejercicio 3

El objetivo del ejercicio 3 es escribir el script de un pipeline de GitHub Actions que despliega automáticamente su flujo de trabajo. El primer paso es crear un fichero deploy.yml para configurar node.js, instalar n8n-cli y ejecutar el comando n8n import:workflow.

```
GNU nano 7.2                                     .github/workflows/deploy.yml *
name: Deploy n8n Workflow

on:
  push:
    branches:
      - main
    paths:
      - 'workflow.json'  # Solo ejecuta el pipeline si cambia el workflow

jobs:
  deploy:
    runs-on: ubuntu-latest

    steps:
      - name: Checkout repository
        uses: actions/checkout@v3

      - name: Setup Node.js
        uses: actions/setup-node@v3
        with:
          node-version: '18'

      - name: Install n8n-cli
        run: npm install -g n8n-cli

      - name: Deploy workflow to n8n
        env:
          N8N_HOST: ${{ secrets.N8N_PROD_HOST }}
          N8N_API_KEY: ${{ secrets.N8N_PROD_API_KEY }}
        run:
          echo "Desplegando workflow a n8n..."
          n8n import:workflow --file=workflow.json --id=1
          echo "Deploy completado"

Guardar el búfer modificado?
Sí   C Cancelar
```

El siguiente paso es crear las variables secrets de GitHub.

The screenshot shows the GitHub Actions secrets and variables page. The left sidebar has a tree view with 'General' expanded, showing 'Access', 'Collaborators', 'Code and automation' (with 'Branches', 'Tags', 'Rules', 'Actions', 'Models', 'Webhooks', 'Copilot', 'Environments', 'Codespaces', 'Pages'), 'Security' (with 'Advanced Security', 'Deploy keys', 'Secrets and variables' selected), 'Actions', 'Codespaces', 'Dependabot', 'Integrations' (with 'GitHub Apps', 'Email notifications'), and 'Preview'. The main area is titled 'Actions secrets and variables'. It contains sections for 'Environment secrets' (which says 'This environment has no secrets.' and has a 'Manage environment secrets' button) and 'Repository secrets'. Under 'Repository secrets', there are two entries: 'N8N_PROD_API_KEY' and 'N8N_PROD_HOST', both created and last updated at 'now'. A green 'New repository secret' button is located in the top right of this section.

Por último, se añade el fichero deploy.yml a Github y se modifica el workflow.json para que se use Pipeline.

```
PROBLEMS OUTPUT DEBUG CONSOLE PORTS TERMINAL TASK/ACTION OUTPUT bash -n8n-deploy ▾ + 
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ git add .github/workflows/deploy.yml
git: committing to 'deploy.yml' failed: No such file or directory
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ git commit -m "Agrego pipeline de deploy CI/CD"
[master 78fcfb4] Agrego pipeline de deploy CI/CD
 1 file changed, 33 insertions(+)
 create mode 100644 .github/workflows/deploy.yml
Enumerando objetos: 100% (6/6), listo.
Contando objetos: 100% (6/6), listo.
Comprimiendo delta usando hasta 16 hilos.
Comprimiendo objetos: 100% (3/3), listo.
Escribiendo objetos: 100% (5/5), 811 bytes | 405.00 KiB/s, listo.
Total 5 (delta 0), reusados 0 (delta 0), pack-reusados 0
To https://github.com/jaimeparra2402/n8n-deploy.git
 7efd8bc..78fcfb4 main -> main
jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ ls
docker-compose.yml  EJERG 8.1.json
● jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ nano EJERG\ 8.1.json
● jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ git add EJERG\ 8.1.json
● jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ git commit -m "Pruebo CI/CD"
[master 4d2cbf9] Pruebo CI/CD
 1 file changed, 1 insertion(+), 1 deletion(-)
● jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$ git push origin main
Enumerando objetos: 5, listo.
Contando objetos: 100% (5/5), listo.
Comprimiendo delta usando hasta 16 hilos.
Comprimiendo objetos: 100% (3/3), listo.
Escribiendo objetos: 100% (3/3), 354 bytes | 354.00 KiB/s, listo.
Total 3 (delta 1), reusados 0 (delta 0), pack-reusados 0
remote: Resolving deltas: 100% (1/1) completed with 1 local object.
To https://github.com/jaimeparra2402/n8n-deploy.git
 78fcfb4..4d2cbf9 main -> main
○ jaime@jaime-Modern-15-H-C13M:~/Escritorio/MASTER/INTEGRACION DE TECNOLOGIAS/PRACTICA8/n8n-deploy$
```