ANNEX A · IMAGES, VOLUMES AND PORTS

Name: _____ **Date:** _____

Work on `ubu-srv` (`ssh srv`) as your normal user, without `sudo`. Start clean: `podman rm -f web web2`. The server's address is `192.168.122.10`.

LAB A · THE INTRANET PAGE

1 · Write the page. `mkdir -p ~/intranet/site`, `cd ~/intranet`, `nano site/index.html`:

```
<!doctype html>
<html lang="en">
<head><meta charset="utf-8"><title>Tramuntana Apps intranet</title></head>
<body>
<h1>Tramuntana Apps</h1>
<p>Intranet, version 1. Served from a container.</p>
</body>
</html>
```

☐ **Done when:** `cat site/index.html` shows the page and `pwd` says `/home/<you>/intranet`.

2 · Serve your folder (bind mount).

```
podman run -d --name web -p 8080:80 -v ./site:/usr/share/nginx/html:ro docker.io/library/
nginx:1.30
curl -s http://localhost:8080 | grep "<p>"
```

☐ **Done when:** `curl` prints your "version 1" line, and `http://192.168.122.10:8080` in the host's browser shows the page.

3 · Edit outside, try to edit inside. Change "version 1" to "version 2" with `nano` and reload the browser. Then:

```
podman exec web touch /usr/share/nginx/html/x
```

☐ **Done when:** the page says version 2 without any restart. The `touch` error says:

_____

4 · A port only for the server. `podman rm -f web`, then the command of task 2 with `-p 127.0.0.1:8080:80`.

```
podman port web
```

☐ **Done when:** `curl` on `ubu-srv` works and the host's browser does **not**. `podman port` prints:

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LAB B · A DATABASE THAT SURVIVES

5 · Volume + password + database.

```
podman volume create dbdata
podman run -d --name db -e POSTGRES_PASSWORD=Tramuntana-2027 -v dbdata:/var/lib/postgresql
docker.io/library/postgres:18
podman logs db
```

☐ **Done when:** the last log line is `database system is ready to accept connections`.

6 · Put data in. `podman exec -it db psql -U postgres`, then type each line (they end in `;`):

```
CREATE TABLE staff (name text, dept text);
INSERT INTO staff VALUES ('marta','dev'), ('joan','design'), ('aina','admin');
SELECT * FROM staff;
\q
```

☐ **Done when:** `SELECT` shows three rows.

7 · Destroy the box. `podman rm -f db`, then `podman volume ls`. Run the long `podman run` of task 5 again, wait five seconds, then:

```
podman exec db psql -U postgres -c "SELECT * FROM staff;"
```

☐ **Done when:** the three rows are still there. Where were they while there was no container?

_____

8 · Who can read the password?

```
podman exec db env | grep POSTGRES
```

☐ **Done when:** you can say who is able to read this password:

_____

LAB C · YOUR OWN IMAGE

9 · The recipe. In `~/intranet`, create a file called `Containerfile`:

```
# Tramuntana Apps intranet: nginx plus our page
FROM docker.io/library/nginx:1.30
COPY site/ /usr/share/nginx/html/
EXPOSE 80
```

```
podman build -t tramuntana-intranet:1.0 .
podman images
```

☐ **Done when:** the build ends with `Successfully tagged localhost/tramuntana-intranet:1.0`. Its size: _____

10 · Run it without any volume.

```
podman run -d --name intranet -p 8081:80 localhost/tramuntana-intranet:1.0
curl -s http://localhost:8081 | grep "<p>"
```

☐ **Done when:** the page comes from inside the image.

11 · Version 2.0. Change the page to “version 3”. Check port 8081: what does it still say, and why?

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Build `tramuntana-intranet:2.0`, remove `intranet`, start it again from the new tag.

☐ **Done when:** `curl` on 8081 says version 3 and `podman images` lists tags `1.0` and `2.0`.

Fast finishers. New folder `~/moo`, a `Containerfile` with the three lines below, `podman build -t moo:1.0 .`, `podman run --rm moo:1.0`.

```
FROM docker.io/library/debian:13
RUN apt-get update && apt-get install -y --no-install-recommends cowsay && rm -rf /var/lib/apt/
lists/*
CMD ["/usr/games/cowsay", "Tramuntana Apps"]
```

EXIT TICKET

Write the letter in the box.

☐ **1.** You edit a file inside a container that has no volume, then run `podman rm`. The edit is…
A) kept in the image B) kept in a hidden volume C) deleted with the container D) copied to your home folder

☐ **2.** Where should the files of a database live?
A) In a named volume B) In the image C) In the container’s own layer D) In `/tmp` of the container

☐ **3.** What does `-e POSTGRES_PASSWORD=...` do?
A) Encrypts the database B) Publishes a port C) Creates a volume D) Sets an environment variable the image reads

☐ **4.** Who can connect to a container published with `-p 127.0.0.1:8080:80`?
A) Any PC on the network B) Only programs on the server itself C) Only other containers D) Nobody

☐ **5.** Which Containerfile instruction names the image you build on?
A) `FROM` B) `COPY` C) `EXPOSE` D) `CMD`