ANNEX A · DEPENDENCIES AND ISOLATED ENVIRONMENTS

Name: _____ **Date:** _____

Work in `deb-lab`. Marta is writing a small greeter program for Tramuntana Apps. You are Marta first, then Pau.

Part A — One project, one environment

1 **Tools.** `sudo apt install python3-venv python3-pip`, then `python3 --version` → _____

2 **The refusal.** `pip install cowsay`. First line of the answer: _____
Read the whole message. What does Debian tell you to create instead? _____
`DONE WHEN` You found the cure inside the error message.

3 **The environment.** `mkdir ~/greeter`, `cd ~/greeter`, `python3 -m venv .venv`, `source .venv/bin/activate`
What changed in the prompt? _____ `which python` → _____
`echo $PATH | tr ':' '\n' | head -1` → _____
`DONE WHEN` The first directory of PATH is inside your project.

4 **Install and run.** `pip install cowsay`, then `pip list` → packages and versions: _____
`nano app.py`, two lines:

```
import cowsay
cowsay.cow("Tramuntana Apps")
```

`python app.py`
`DONE WHEN` A cow says Tramuntana Apps.

Part B — "It works on my machine"

5 **Outside.** `deactivate`, then `python3 app.py`. Last line of the error: _____
The file did not change. What did? _____

6 **The list.** `source .venv/bin/activate`, `pip freeze > requirements.txt`, `cat requirements.txt` → _____
`DONE WHEN` The file has the name of the package and its exact version.

7 **Pau's laptop.** A new folder plays the second machine.
`deactivate`, `mkdir ~/pau-laptop`, `cd ~/pau-laptop`, `cp ~/greeter/app.py ~/greeter/requirements.txt .`
`python3 -m venv .venv`, `source .venv/bin/activate`, `python app.py` → works? _____
`pip install -r requirements.txt`, `python app.py` → works? _____
`DONE WHEN` The cow appears on "Pau's laptop", and you copied only two files.

8 **A conflict.** Still as Pau: `pip install "requests==2.25.0" "urllib3==2.2.0"`
Which package demands which version of the other? _____

_____

Was anything installed? _____

9 **Disposable.** `deactivate`, `du -sh ~/greeter/.venv` → _____ `rm -rf ~/pau-laptop`
Which files do you need to build the environment again? _____

Part C — Three people, three laptops (in pairs)

Each laptop goes to exactly one person. Add up what each person runs at the same time, then decide.

Laptop	RAM	CPU	SSD
A	8 GB	4 cores	256 GB
B	16 GB	8 cores	512 GB
C	32 GB	12 cores	1 TB

Official minimum RAM: VS Code 1 GB · IntelliJ IDEA 8 GB · Android Studio 8 GB · Android Studio + emulator 16 GB (recommended 32 GB) · a VM like `deb-lab` takes the 4 GB you give it · a Python virtual environment: a few MB of disk.

Person	Runs at the same time	RAM needed	Laptop
Marta, Android developer	Android Studio + one virtual device		
Biel, back-end developer	IntelliJ IDEA + a test VM like `deb-lab`		
Pau, intern	VS Code + Python virtual environments		

Why is there only one assignment that works for all three?

DONE WHEN Three different letters, and each one is justified with a number.

Exit ticket. Circle one answer.

1. A dependency is…
   a) a bug in your program b) code by others that your program needs c) a kind of virus d) a Linux user
2. What does `source .venv/bin/activate` change?
   a) It puts the environment's directory first in PATH b) It starts a VM c) It installs Python d) It logs you in as root
3. Why does Debian refuse a system-wide `pip install`?
   a) pip is not installed b) There is no network c) Python is forbidden d) It could break system tools written in Python
4. What do you send a colleague so the project runs on her machine?
   a) The `.venv` folder b) A screenshot c) The code and `requirements.txt` d) Your password
5. Which one runs its own kernel?
   a) A virtual machine b) A container c) A virtual environment d) None of them