Hands-On Activity #7:

Exploring Dependency Tropism

Objective:
To explore and reflect on the dependencies that shape your projects, and to connect the Software Gardening metaphors (planter, pruner, pollinator, and garden) to real experiences with code, collaboration, and sustainability.

This activity helps you recognize how dependency ecosystems affect growth, fragility, and long-term reproducibility in your work.

Instructions:

1. 👀 Observe (Individual Work - 10 minutes)

- **Choose one project** you rely on or maintain - this could be your lab's analysis pipeline, a published tool, or your own research.
- **Draw or outline** a *dependency map* showing what the project relies on (packages, data, frameworks, people, etc.).
- **Reflect on the ecosystem**:
    - Which dependencies are well-maintained and thriving?
    - Which seem stagnant or fragile?
    - Where might the project be "overgrown" with unnecessary layers?
    - What role do you play? Planter, pruner, pollinator, or caretaker, etc?

You can sketch this on paper or digitally - any format is fine.

2. 🗣️ Discuss (Small Groups - 15 minutes)

- Form small groups (2-3 classmates).
- **Compare your dependency gardens** and look for patterns:
    - What makes some dependencies "healthy"?
    - Where do projects rely too heavily on a single maintainer or external tool?
    - What happens when a dependency "dies"?
- As a group, decide on **one key insight** about how dependency ecosystems succeed or fail.

3. 🧑‍🏫 Share (Whole Class - 15 minutes)

Each group will share their key insights (2-3 minutes).

We'll discuss:

- How these examples relate to the *gardening lattice* and *planter/pruner* ideas.

- What shared “nutrients” (documentation, community, testing, funding) sustain software ecosystems.
- Which lessons apply to your current or future research work.

Deliverables:

- Contribute to your group’s discussion and class reflection.
- (Optional) Write a short reflection (~250 words):
    - Choose one project you rely on.
    - How could you act as a “gardener” to improve its long-term health- technically, socially, or ethically?
    - What would you plant, prune, or compost?

Resources:

- GitHub Dependency Graph Documentation
- Understanding Software Maintenance and Sustainability

Tips:

- Think of software ecosystems as living systems; they require balance, diversity, and care.
- Be constructive in group discussions: focus on how projects *can grow* rather than what’s broken.
- Remember a planetary gardening principle:
    - “Do the most for, the minimum against.” - *Gilles Clément*