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Student Engagement & Mentoring in Technology

1. Interactive OS Task Manager Simulator

Objective: Help learners distinguish between applications, processes, and services by simulating a real-world system management tool.

How It Works:

- A simulated "Task Manager" interface shows a list of:
  - Running applications (with GUI)
  - Background processes (some tied to apps)
  - System services (e.g., Windows Update, Print Spooler)
- Learners complete **scenario-based challenges**, such as:
  - Identify which processes belong to which applications.
  - Stop a frozen application and observe the process termination.
  - Investigate which services auto-started with the OS.
- Clicking on entries reveals additional metadata like PID, memory usage, and whether it runs in the background.

Why It Works:
This simulation mirrors **real system management environments** and supports visual/spatial learners who benefit from interactive UIs.

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2. Sort & Match: Application vs. Process vs. Service

Objective: Reinforce understanding of definitions and differences using drag-and-drop and matching interactions.

How It Works:

- Learners are given a **deck of cards**, each with a behavior or example (e.g., "Print Spooler," "User launches Chrome," "Runs with no user input," "Has a GUI").
- They drag each card into one of three bins: **Application**, **Process**, or **Service**.
- Optional: Provide a "review mode" to display explanations for each card after submission.

Why It Works:
Great for **quick concept reinforcement** and helping learners internalize distinctions without having to memorize a table.

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3. Scenario-Based Troubleshooting: "What's Running?"

Objective: Encourage applied learning through IT troubleshooting scenarios.

How It Works:

- Students are given **realistic IT scenarios**. Example:
  - "A user reports their printer won't work. You check and find the Print Spooler is not running."
- The learner must identify:
  - What type of component is involved (application/process/service)?
  - What action they should take (start a service, kill a process, relaunch an app)?
- Multiple-choice or step-by-step interactive choices allow branching paths, with feedback provided at each decision point.

Why It Works:
This aligns with **performance-based objectives** in IT education and prepares learners for real-world tech support roles.

Summary Table

Activity	Learning Focus	Engagement Method
Task Manager Simulator	Identifying components, managing system operations	Simulation / Visual-based
Sort & Match Challenge	Reinforcing definitions and relationships	Drag-and-drop / Categorization
Troubleshooting Scenarios	Real-world application of concepts in decision-making	Scenario-based / Problem-solving