**Concept**

Instead of relying on a single LLM, **multi-agent debugging** mimics how human developers debug code using **collaborating AI agents**.

Each agent specializes in a task:

1. **Bug Detector Agent** – Identifies potential errors.
2. **Bug Explainer Agent** – Provides explanations and context for the detected error.
3. **Fix Generator Agent** – Suggests potential solutions.
4. **Validator Agent** – Checks if the fix is valid. (potential addition)
5. **Refinement Agent** – Refines the fix if necessary. (potential addition)

**Autogen (Microsoft's multi-agent framework)** to coordinate the agents.

Define **sequential or parallel communication**:

* Sequential: One agent works after another.
* Parallel: Agents process independently and compare results.

Potential Improvements, we can have a validation check for some tests, if it fails rhe tests it repeats the process with the partially corrected code again.