Recap of Planning Agentic AI Systems

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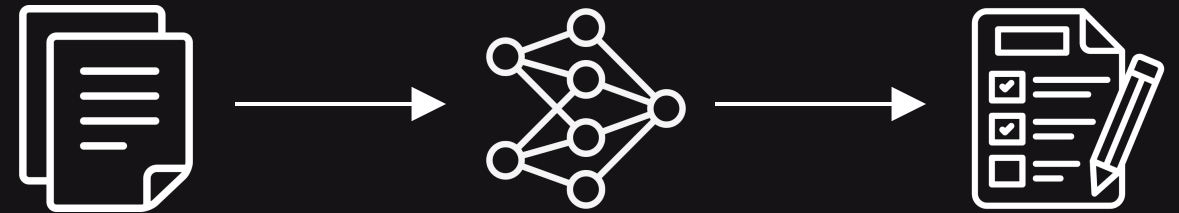
Google Developer Expert - ML & Cloud Champion Innovator
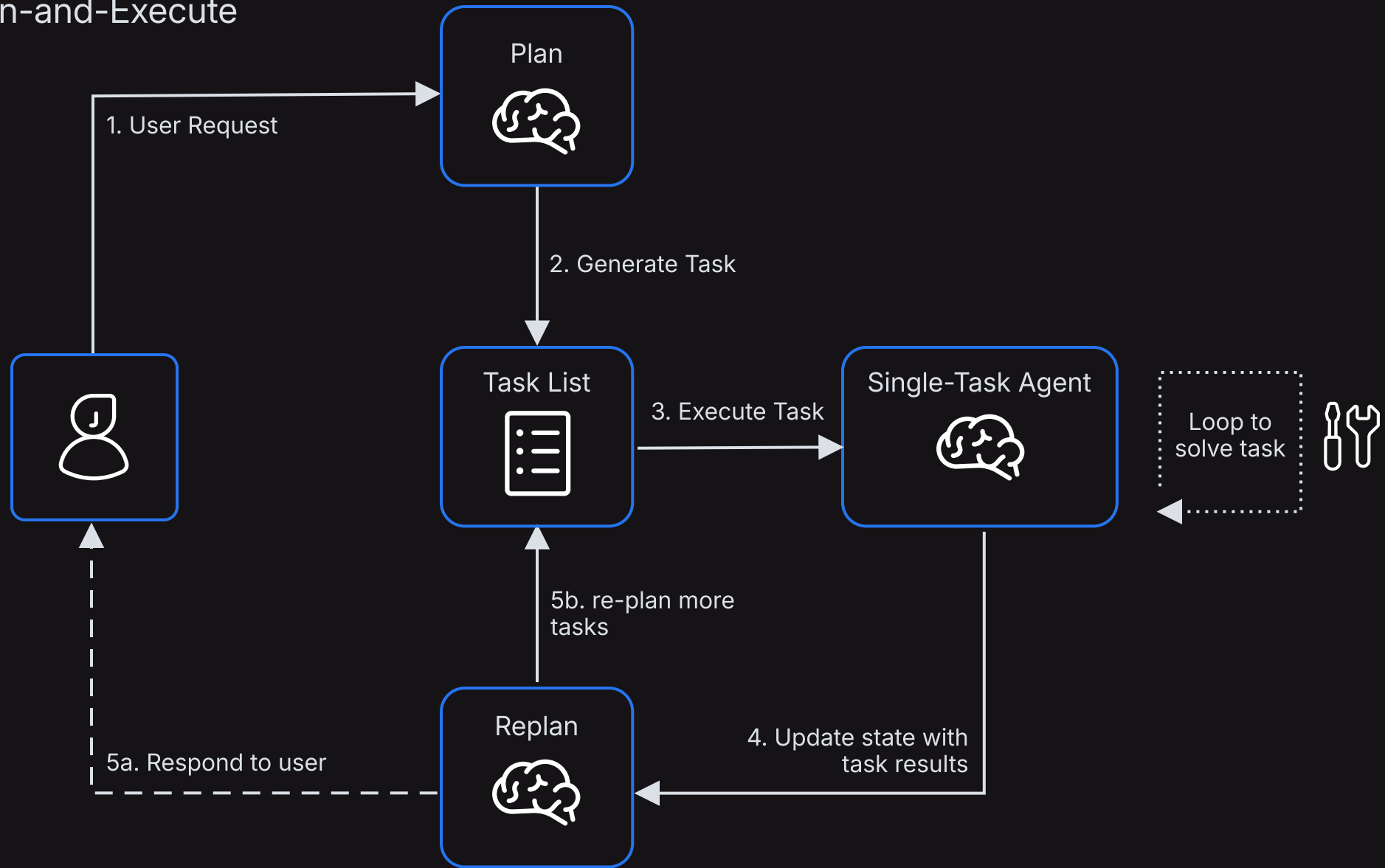
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Planning Agentic AI Systems

The Planning Pattern helps the LLM break down a task into smaller, achievable steps while focusing on the final goal.

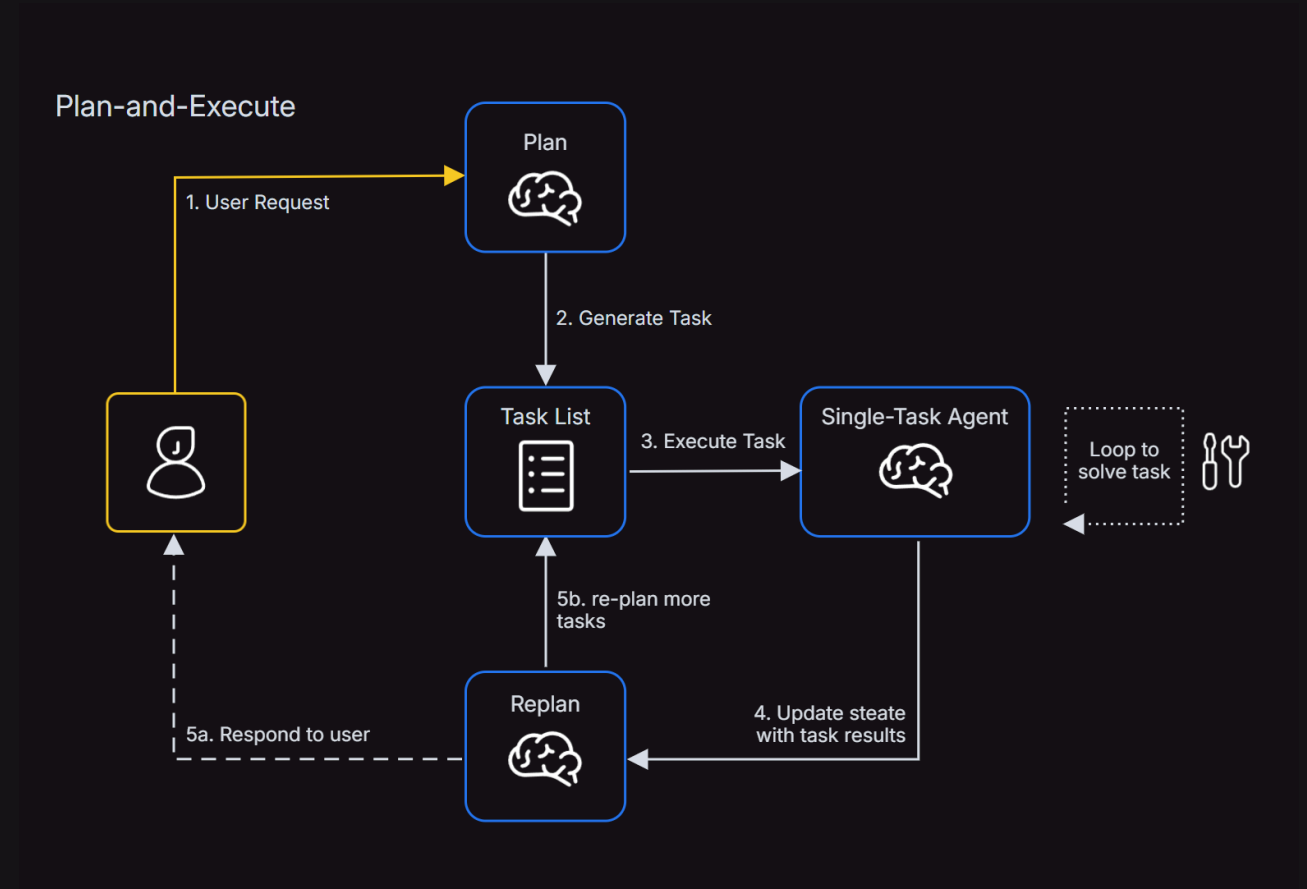Analytics Vidhya

Plan-and-Execute

Plan

1. User Request

2. Generate Task

Task List

3. Execute Task

Single-Task Agent

Loop to solve task

4. Update state with task results

5b. re-plan more tasks

Replan

5a. Respond to user

Planning Agentic AI Systems

Standard Planning Agent Workflow

- ## User Request
  - The workflow begins with a user input, defining the task or problem to solve.

Plan-and-Execute

Plan

1. User Request

2. Generate Task

Task List

3. Execute Task

Single-Task Agent

Loop to solve task

5b. re-plan more tasks

5a. Respond to user

Replan
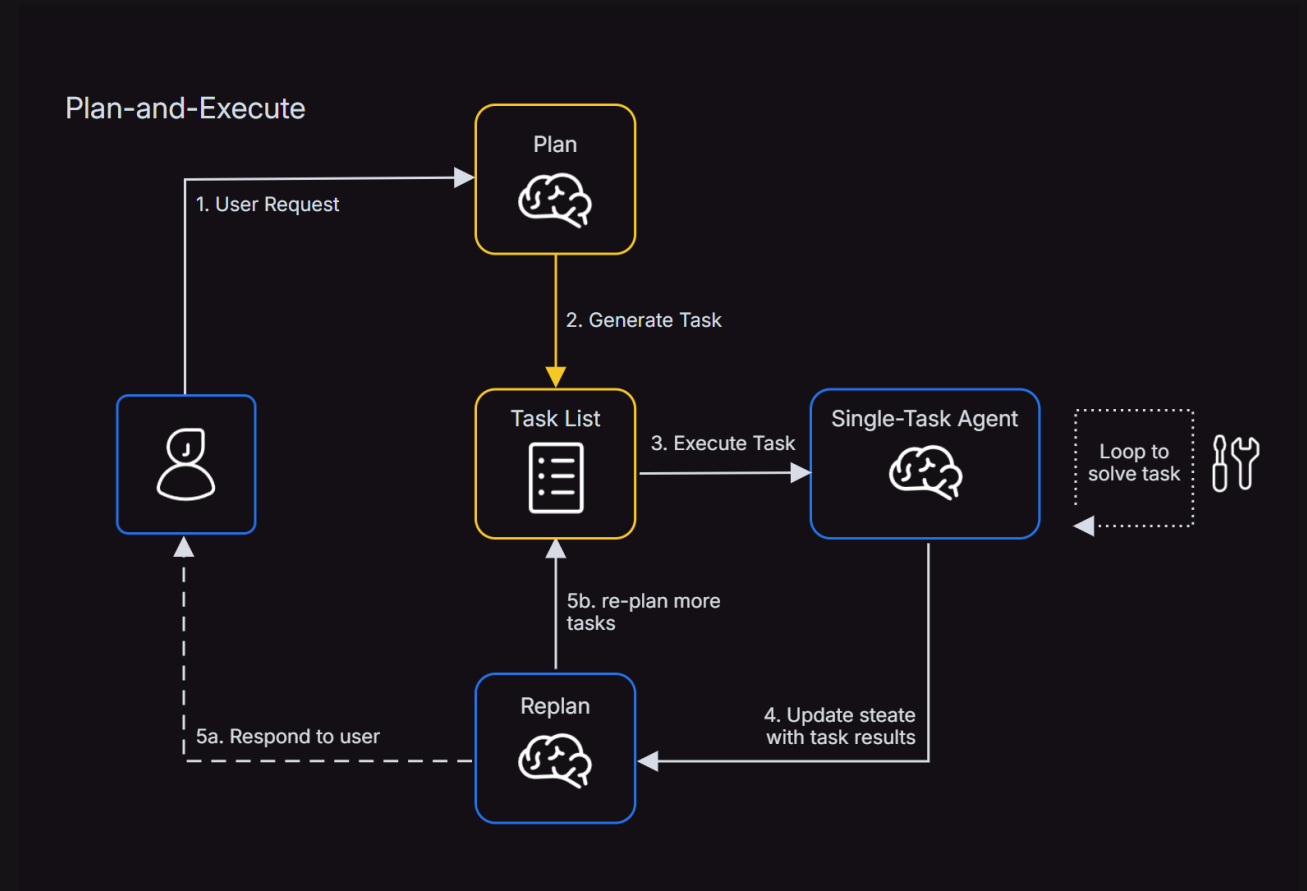
4. Update steate with task results

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Standard Planning Agent Workflow

- Planning Phase
  - The system generates a list of tasks required to complete the user's request.
  - Tasks are broken down into manageable, step-by-step actions.
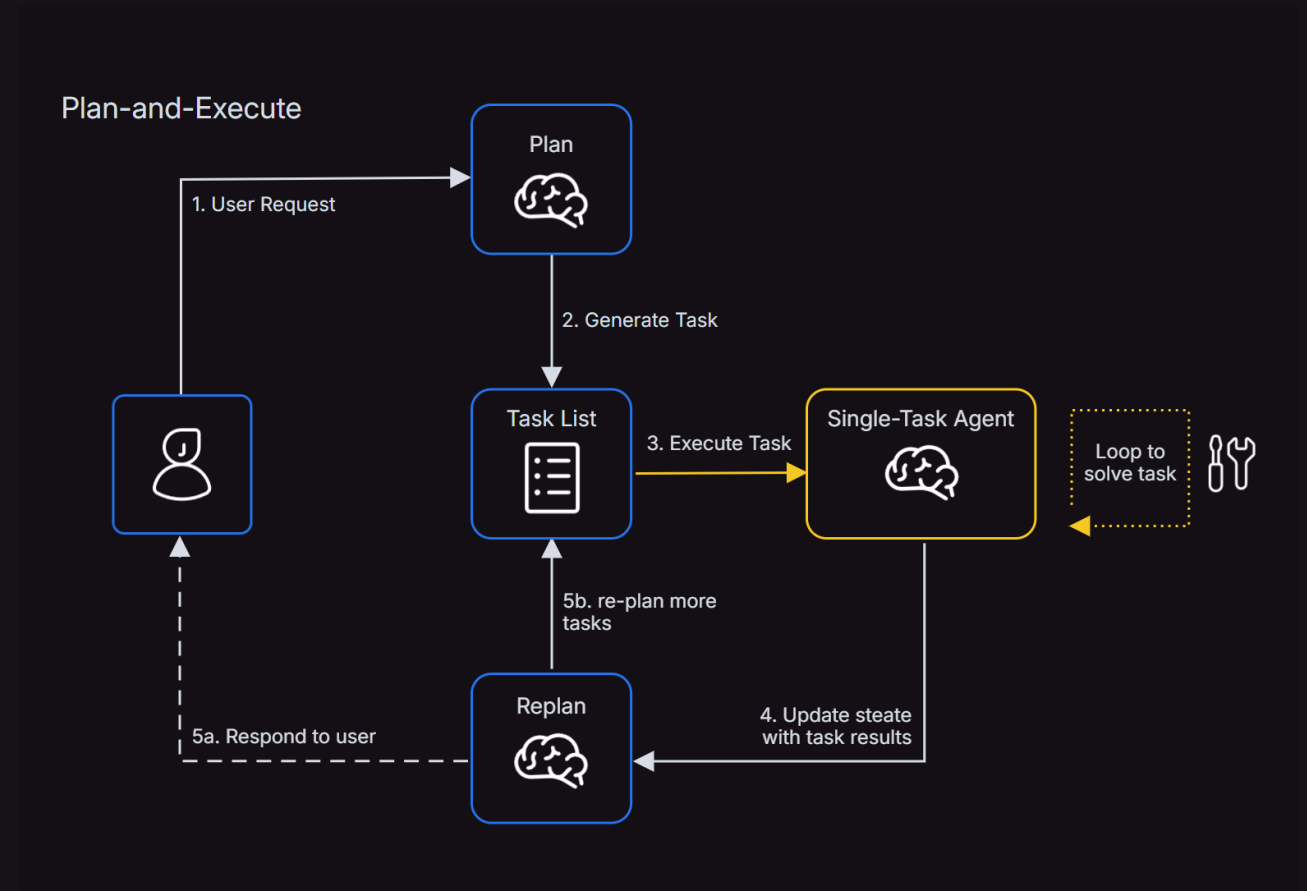

Plan-and-Execute

Plan

1. User Request

2. Generate Task

Task List

3. Execute Task

Single-Task Agent

Loop to solve task

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Replan

5b. re-plan more tasks

5a. Respond to user

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Standard Planning Agent Workflow

- Task Execution
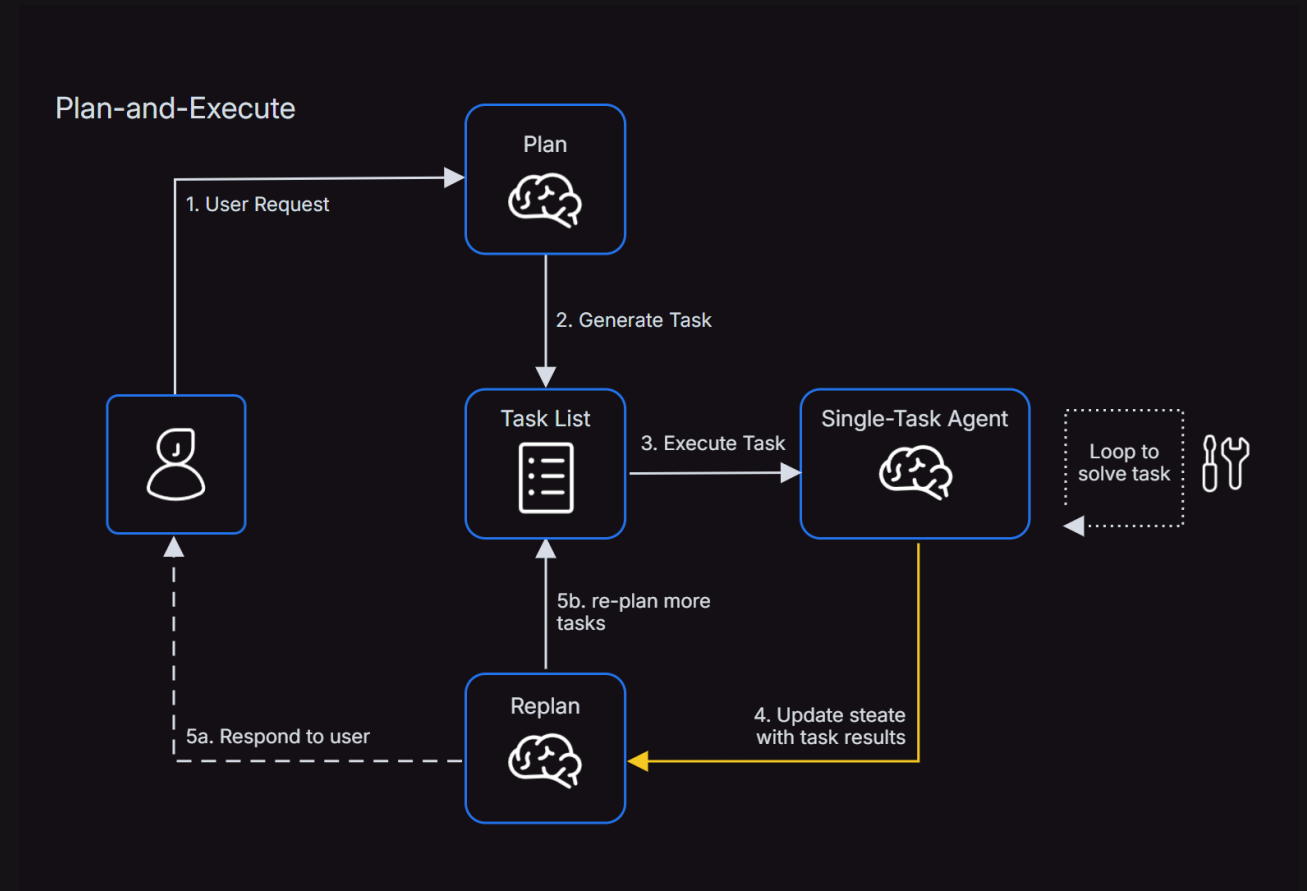 - A Single Agent handles each task individually.
  - Executes tasks in a loop, focusing on one task at a time.

Plan-and-Execute diagram:
- 1. User Request → Plan
- 2. Generate Task → Task List
- 3. Execute Task → Single-Task Agent (Loop to solve task)
- 4. Update steate with task results → Replan
- 5a. Respond to user
- 5b. re-plan more tasks → Task List

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Standard Planning Agent Workflow

- ## State Update
  - After each task execution, the system updates the state with task results.

Plan-and-Execute

- **Plan** — 1. User Request
- 2. Generate Task
- **Task List** — 3. Execute Task → **Single-Task Agent** — Loop to solve task
- 4. Update steate with task results
- **Replan** — 5b. re-plan more tasks
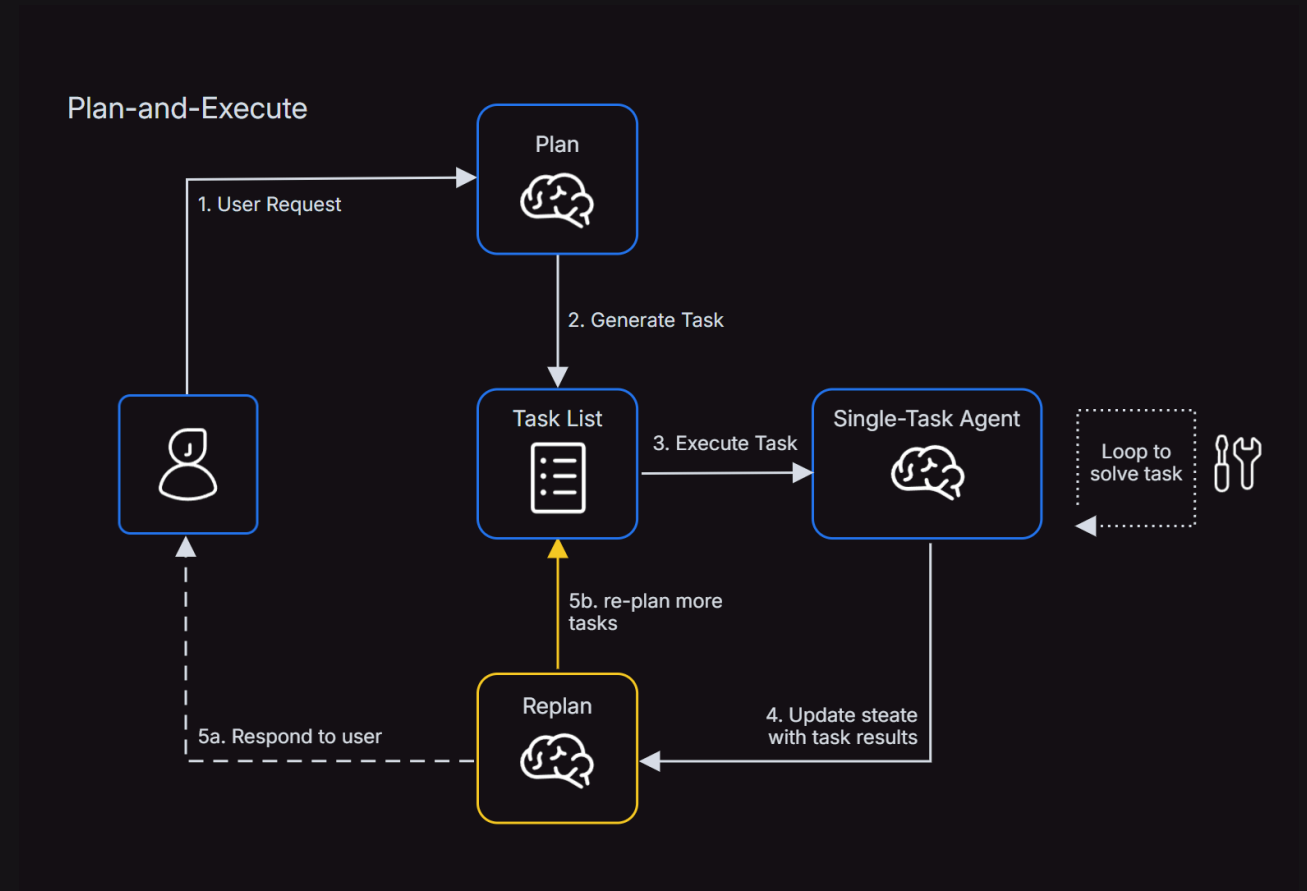- 5a. Respond to user

Planning Agentic AI Systems

Standard Planning Agent Workflow

- Replanning
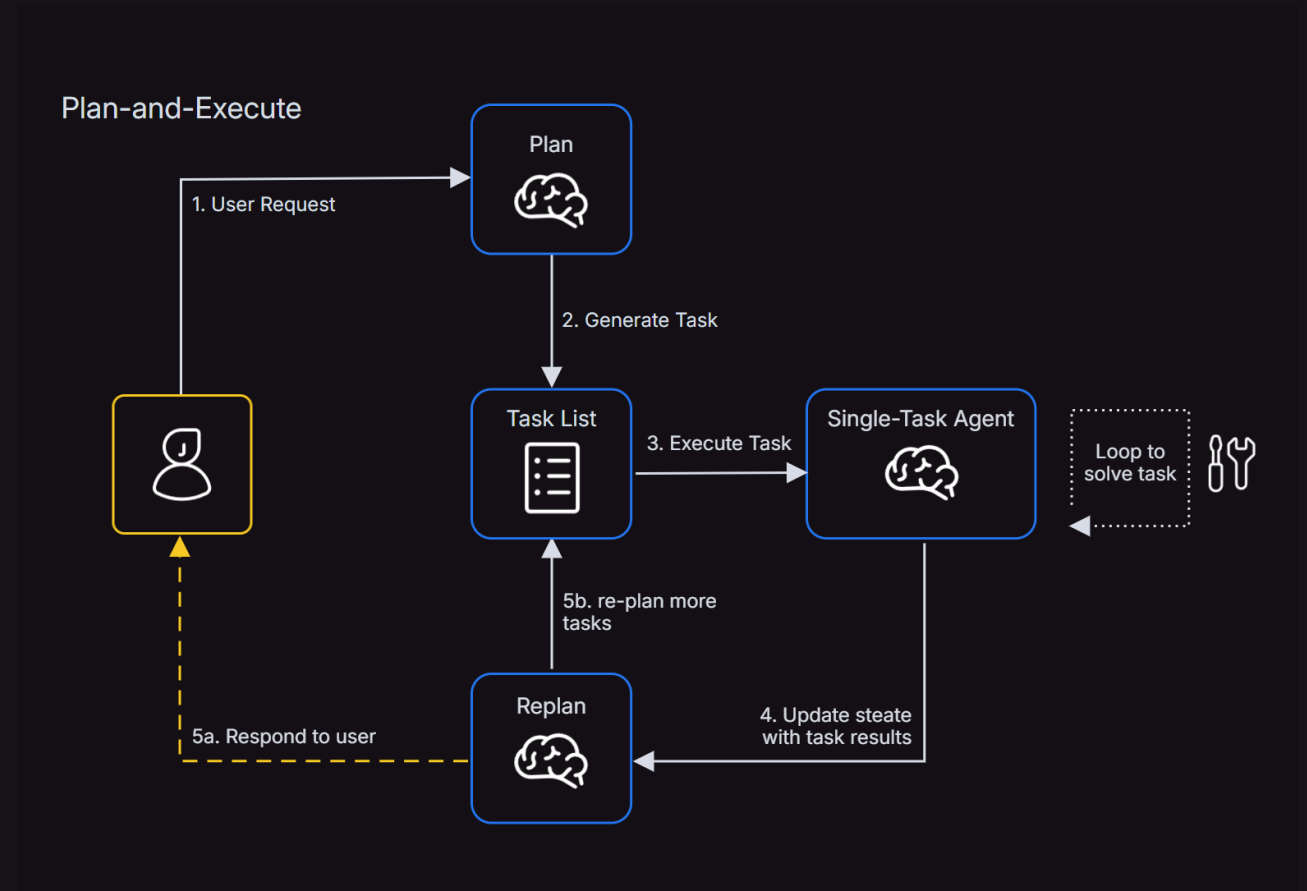 - If additional tasks are identified or existing tasks need updating, the system replans and updates the task list.

Planning Agentic AI Systems

Standard Planning Agent Workflow

- ## User Response
  - Once tasks are completed, the system responds to the user with the result.

Plan-and-Execute

- Plan
- 1. User Request
- 2. Generate Task
- Task List
- 3. Execute Task
- Single-Task Agent
- Loop to solve task
- 4. Update steate with task results
- 5b. re-plan more tasks
- Replan
- 5a. Respond to user

Thanks