In this week, titled **"Planning & Reasoning Mechanisms"**, you will explore how intelligent agents develo[p] the ability to think strategically, adapt dynamically, and act with purpose. This module focuses on the foundational ideas that enable agents to reason through complex problems, break them into manageab[le] steps, and plan effective courses of action. You will examine how structured reasoning processes and optimization strategies enhance agent performance, interpretability, and adaptability in real-world scenarios. Additionally, you will gain hands-on experience building and analyzing workflow-driven systems that operationalize these reasoning patterns, allowing you to compare flexible adaptive approaches with more rigid predefined execution pipelines, all essential to mastering the design of robust intelligent agentic systems.

This week also introduces you to **LangGraph**, an essential framework for building structured and controllable agent workflows, and the core building blocks that make those workflows possible.

Learning Objectives

After completing this week, you will be able to:

1. Understand how intelligent agents combine foundational principles, structured reasoning, and guided thought processes to perform complex tasks effectively.
2. Explain how reasoning frameworks enable agents to plan, adapt, and refine their actions through traceable decision-making and feedback loops.
3. Analyze the architectural and optimization techniques that support the creation of efficient, interpretable, and goal-driven agent systems.
4. Explore how adaptive reasoning strategies compare with rigid, predefined execution models in achieving balanced autonomy and control.
5. Apply workflow-oriented design methods to build and evaluate intelligent systems capable of dynamic reasoning and structured task orchestration.
6. Learn how LangGraph enables structured and controllable agent workflows and gain familiarity wi[th] its core building blocks.

Topics Covered

Week #	Week Name	Topics Covered
9	Planning & Reasoning Mechanisms	1. Foundations of intelligent and reasoning-driven agents. 2. Structured reasoning and decision-making frameworks 3. Architectures and optimization techniques for adaptive

← →

rigid execution approaches
6. Learn LangGraph for structured, controllable agent workflows.

Learning Material

Week#	Week Name	# Videos	Duration (in hrs)	# Test Your Understanding (TYU) Quizzes	Practice Quiz	Graded Quiz
9	Planning & Reasoning Mechanisms	9	~1.85	7	1	1

Happy Learning !!