2a. Why Is the System Prompt Contained in the Agent Class as Instructions, and Why Can It Be Set as Callable?

Introduction

In the OpenAI Agents SDK, the *system prompt*—referred to as `instructions` in the `Agent` class—is a critical component that defines how an AI agent should behave. This prompt acts like a rulebook, guiding the AI on how to respond in different situations. It can be written as a **static string** or defined as a **callable function** that returns a prompt dynamically based on the context.

This explanation breaks down the concept from basic to deep, includes real-world analogies, and concludes with a simple code example.

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1. Why Are Instructions Stored in the Agent Class?

✅ Basic Explanation:

Instructions are stored in the `Agent` class to ensure the AI has a clear, consistent understanding of its role. This central placement guarantees that:

- The agent behaves predictably across all interactions.
- Developers don't need to repeat the prompt with every API call.
- The agent remains reusable and self-contained.

🧠 Deeper Explanation:

The `Agent` class acts as a blueprint for how the AI behaves. Embedding the system prompt here ensures that this behavioral rule is permanent and centrally managed. For instance, if the agent's role is to be a *customer service bot*, the prompt might say:

> "Always respond in a polite and professional tone."

Having this stored within the class means the AI will always act according to this directive, maintaining consistency regardless of user input.

🗒️ Real-World Analogy:

Think of the system prompt like a restaurant manager telling waiters:

> “Greet every customer with a smile and hand them the menu.”
> This instruction is consistent and applies to every new customer—just like a system prompt applies to every user query.

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2. Why Can the Instructions Be Callable?

✅ **Basic Explanation:**

Making instructions *callable* allows the system prompt to adapt based on context. This means the agent’s behavior can change depending on the user, time, or input type.

🧠 **Deeper Explanation:**

A callable prompt is essentially a **function** that returns a different prompt based on input data. This allows for **personalization and dynamic behavior**, making the agent smarter and more flexible.

For example:

- Static Prompt:
  `"You are a travel planner."` (Same for every user.)

- Callable Prompt:
  A function returns: `"You are a travel planner for user Ali with a $500 budget."`

This is extremely helpful for customizing user experiences in real-time.

🧾 **Real-World Analogy:**

Imagine a digital welcome board at a hotel:

- Static version: `"Welcome, Guest!"`

- Dynamic version (callable): `"Welcome, Ali Khan! Your room is ready."`
  This feels more personal—just like a callable prompt helps the AI respond more intelligently based on the context.

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3. Code Example

✅ **Using Static Instructions**
from dataclasses import dataclass

```
from typing import List, Callable

@dataclass
class Agent:
    instructions: str
    tools: List[str]
    model: str = "gpt-4"

agent_static = Agent(
    instructions="You are a travel planner.",
    tools=["flight_api"]
)

print(agent_static.instructions)
```

✅ **Using Callable Instructions**

```
def dynamic_instructions(context: dict) -> str:
    user = context.get("user", "Guest")
    budget = context.get("budget", 1000)
    return f"You are a travel planner for {user} with a budget of ${budget}."

agent_dynamic = Agent(
    instructions=dynamic_instructions,
    tools=["flight_api"]
)

context = {"user": "Ali", "budget": 500}
print(agent_dynamic.instructions(context))
```

✅ **Output:**

```
You are a travel planner.
You are a travel planner for Ali with a budget of $500.
```

Summary (Roman Urdu Style):

- **System prompt Agent class mein is liye hota hai** taake AI ko bataya ja sake ke usne har situation mein kya karna hai. Yeh ek central rulebook ki tarah kaam karta hai.

- **Callable is liye hota hai** taake AI dynamically, har user ke context ke mutabiq, instructions generate kar sake. Isse AI zyada smart aur flexible ban jata hai.

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