Lecture 43: List Output Converter

Introduction:

- Normally, AI output is received as a **string**. But in many cases, applications expect structured data like a **list of values**.
- The **List Output Converter** in Spring AI allows us to transform raw text responses into a list format directly.
- This makes it easy to integrate AI results with applications that require structured data instead of plain strings.

Why Use List Output Converter?

- Without a converter, AI returns a plain string (a list formatted as text).
- With the converter, the AI output is directly transformed into a **List<String>**.
- Helps when an application expects a **collection of values**.
- Example: A Movie recommendation system returning a list of movie names.

Code Implementation:

```java
@RestController
public class MovieController {
    private ChatClient chatClient;

    public MovieController(OpenAiChatModel chatModel) {
        this.chatClient = ChatClient.create(chatModel);
    }

    @GetMapping("movies")
    public List<String> getMovies(@RequestParam String name) {
        List<String> movies = chatClient.prompt()
                .user(u -> u.text("List top 5 movies of {name}").param("name", name))
                .call()
                .entity(new ListOutputConverter(new DefaultConversionService()));

        return movies;
    }
}
```

Explanation:

- **ChatClient** → Sends a prompt with the actor name
- **Prompt** → List top 5 movies of {name}.
- **AI Response** → Raw string with movie names.
- **ListOutputConverter** → Converts raw string into a structured **List<String>**
- **Result → The** Application receives the list format directly, which is easy to use.

Key Points:

- **ListOutputConverter** is part of Structured Output Converters in Spring AI.
- Converts text into a **List<String>** using **DefaultConversionService**
- Makes AI results directly consumable by applications.
- Ideal for scenarios like **movie lists, product lists, and recommendations**.

Summary:

- AI responses are usually text, but applications may need structured formats
- **ListOutputConverter** converts AI output into **List<String>.**
- **Simple integration:** AI → String → Converter → Structured List.
- Useful for building real-world applications expecting list-based data.