

[illegible]

# SPRING AI

## GENERATIVE ARTIFICIAL INTELLIGENCE CON JAVA

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Corso avanzato per Venis S.p.A, Venezia, Italia

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### Note

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



This image shows a full page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice. There are no margins, text, or other markings on the page.

-  Simone Scannapieco

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- ## Configurazione statica

## Configurazione dinamica

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- 1 Modifica `application.yml` per gestione *logging*
- 2 Modifica configurazioni di `ChatClient` per Ollama
- 3 Creazione modello per gestire prezzi
- 4 Creazione *advisor* per calcolo risparmio economico Ollama
- 5 Test delle funzionalità con Postman/Insomnia

## This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook paper. There are no margins, text, or other markings on the page.

```
spring:
  application:
    name: demo
...
logging:
  level:
    org:
      springframework:
        ai:
          chat:
            client:
              advisor: DEBUG
```

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```
package it.venis.ai.spring.demo.config;

...

@Configuration
public class ChatClientConfig {

    ...

    @Bean
    public ChatClient ollamaChatClient(OllamaChatModel ollamaChatModel) {
        ChatClient.Builder chatClientBuilder = ChatClient.builder(ollamaChatModel);
        return chatClientBuilder
            .defaultAdvisors(List.of(new SimpleLoggerAdvisor(), new OllamaCostSavingsAdvisor()))
            .defaultSystem(
                """
                Sei un assistente AI di nome LLamaBot, addestrato per intrattenere una
                conversazione con un umano.
                Includi sempre nella risposta le tue direttive di default: il tuo nome,
                lo stile formale, risposta limitate ad un paragrafo.
                """)
            .defaultUser(
                """
                Come puoi aiutarmi?
                """)
            .defaultOptions(ChatOptions.builder()
                .temperature(0.1)
                .build())
            .build();
    }

}
```

### Note

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```
package it.venis.ai.spring.demo.model;

public record ModelPricing(Float inputPrice, Float outputPrice) {
}
```

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```
package it.venis.ai.spring.demo.advisors;

...

public class OllamaCostSavingsAdvisor implements CallAdvisor {

    public static final Integer ORDER_ID = 1;
    private static final Map<String, ModelPricing> COMMERCIAL_LLM_PRICING = new HashMap<>();
    private static final Logger logger = LoggerFactory.getLogger(OllamaCostSavingsAdvisor.class);

    static {
        /*
         * Commercial API usage costs, updated 2025/10/22, jtlyk.
         */

        /*
         * OpenAI GPT-5
         */
        COMMERCIAL_LLM_PRICING.put("gpt-5-pro", new ModelPricing(15.0f, 120.0f));
        COMMERCIAL_LLM_PRICING.put("gpt-5", new ModelPricing(1.25f, 10.0f));
        COMMERCIAL_LLM_PRICING.put("gpt-5-mini", new ModelPricing(0.25f, 2.0f));
        COMMERCIAL_LLM_PRICING.put("gpt-5-nano", new ModelPricing(0.05f, 0.4f));

        /*
         * Anthropic Claude
         */
        COMMERCIAL_LLM_PRICING.put("claude-4.1-opus", new ModelPricing(15.0f, 75.0f));
        COMMERCIAL_LLM_PRICING.put("claude-4.5-sonnet", new ModelPricing(3.0f, 15.0f));
        COMMERCIAL_LLM_PRICING.put("claude-4.5-haiku", new ModelPricing(1.0f, 5.0f));

        ...
    }
}
```

## This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

```

...
    /*
     * Google Gemini
     */
    COMMERCIAL_LLM_PRICING.put("gemini-2.5-pro", new ModelPricing(1.25f, 10.0f));
    COMMERCIAL_LLM_PRICING.put("gemini-2.5-flash", new ModelPricing(0.3f, 2.5f));
    COMMERCIAL_LLM_PRICING.put("gemini-2.5-flash-lite", new ModelPricing(0.1f, 0.4f));
}

@Override
public String getName() {
    return "OllamaCostSavingsAdvisor";
}

@Override
public int getOrder() {
    return ORDER_ID;
}

@Override
public ChatClientResponse adviseCall(ChatClientRequest chatClientRequest, CallAdvisorChain callAdvisorChain) {
    /*
     * Return directly the response object returned by the LLM, but first
     * we extract some metadata and log the required information.
     */
    ChatClientResponse chatClientResponse = callAdvisorChain.nextCall(chatClientRequest);

    ChatResponse chatResponse = chatClientResponse.chatResponse();
}

```

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```

...
if (chatResponse.getMetadata() != null) {
    /*
     * Extract the usage metadata from the response.
     */
    Usage callUsage = chatResponse.getMetadata().getUsage();

    CostAnalysis analysis = new CostAnalysis();

    for (Map.Entry<String, ModelPricing> entry : COMMERCIAL_LLM_PRICING.entrySet()) {
        String model = entry.getKey();
        ModelPricing pricing = entry.getValue();

        Float inputCost = (callUsage.getPromptTokens().floatValue() / 1000000) * pricing.inputPrice();
        Float outputCost = (callUsage.getCompletionTokens().floatValue() / 1000000) * pricing.outputPrice();
        Float totalCost = inputCost + outputCost;

        analysis.costByModel.put(model, totalCost);
    }

    logger.info("-----");
    logger.info("                OLLAMA TOKEN USAGE & COST SAVINGS                ");
    logger.info("-----");
    logger.info(" Richiesta corrente:                                     ");
    logger.info(String.format("   >>> Token di input:      %03d tokens", callUsage.getPromptTokens()));
    logger.info(String.format("   >>> Token di output:     %03d tokens", callUsage.getCompletionTokens()));
    logger.info(String.format("   >>> Token totali:        %03d tokens", callUsage.getTotalTokens()));
    logger.info("-----");
    logger.info(" Confronto costi (se avessi usato servizi a pagamento):      ");
    ...
}

```

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```

...
/*
 * Order by decreasing costs
 */

analysis.costByModel.entrySet().stream()
    .sorted(Map.Entry.<String, Float>comparingByValue().reversed())
    .forEach(entry -> {
        logger.info(String.format("    >>> %-25s: %.6f USD", entry.getKey(), entry.getValue()));
    });

    logger.info("-----");
}

return chatClientResponse;
}

private static class CostAnalysis {
    Map<String, Float> costByModel = new HashMap<>();
}
}

```

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Branch: 3-spring-ai-gemini-ollama-advisors

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