

[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 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, providing a template for handwriting practice. There are no margins, text, or other markings on the paper.



## METHOD AS TOOL

### Note

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

import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
...

import java.time.LocalDateTime;
import java.time.ZoneId;

@Component
public class TimeTools {

    private static final Logger LOGGER = LoggerFactory.getLogger(TimeTools.class);

    @Tool(name="getCurrentLocalTime", description = "Ottieni l'orario corrente nella timezone dell'utente.")
    String getCurrentLocalTime() {

        LOGGER.info("Ritorno dell'orario corrente nella timezone dell'utente");
        return LocalDateTime.now().toString();

    }

    @Tool(name = "getCurrentTime", description = "Ottieni l'orario corrente nella timezone specificata.")
    public String getCurrentTime(@ToolParam(description = "Valore che rappresenta la timezone.") String timeZone) {

        LOGGER.info("Ritorno dell'orario corrente nella timezone {}", timeZone);
        return LocalDateTime.now(ZoneId.of(timeZone)).toString();

    }

}
```

### Note

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

...

@Configuration
public class TimeToolsConfig {

    @Bean
    public ChatClient geminiToolChatClient(OpenAiChatModel geminiChatModel, TimeTools timeTools) {

        ChatClient.Builder chatClientBuilder = ChatClient.builder(geminiChatModel);

        return chatClientBuilder
            .defaultTools(timeTools)
            .defaultAdvisors(List.of(new SimpleLoggerAdvisor()))
            .defaultSystem(
                """
                Sei un assistente AI di nome ToolGeminiBot, addestrato per intrattenere una
                conversazione con un umano.
                Usa i tool forniti dall'utente per fornire la tua risposta.
                """)
            .defaultUser(
                """
                Come puoi aiutarmi?
                """)
            .build();

    }

    ...
}
```

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## Configurazione Ollama e Gemini per *tool calling* - II

```

...
@Bean
public ChatClient ollamaToolChatClient(OllamaChatModel ollamaChatModel, TimeTools timeTools) {

    ChatClient.Builder chatClientBuilder = ChatClient.builder(ollamaChatModel);

    return chatClientBuilder
        .defaultTools(timeTools)
        .defaultAdvisors(List.of(new SimpleLoggerAdvisor()))
        .defaultSystem(
            """
                Sei un assistente AI di nome ToolLlamaBot, addestrato per intrattenere una
                conversazione con un umano.
                Usa i tool forniti dall'utente per fornire la tua risposta.
            """)
        .defaultUser(
            """
                Come puoi aiutarmi?
            """)
        .build();
}
}

```

### Note

[illegible]

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

import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.QuestionRequest;

public interface TimeToolsService {

    public Answer getGeminiToolLocalTimeAnswer(QuestionRequest request);

    public Answer getOllamaToolLocalTimeAnswer(QuestionRequest request);

}
```

### Note

[illegible]



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

...

@Service
public class TimeToolsServiceImpl implements TimeToolsService {

    private final ChatClient geminiToolChatClient;
    private final ChatClient ollamaToolChatClient;

    public TimeToolsServiceImpl(
        @Qualifier("geminiTimeToolsChatClient") ChatClient geminiToolChatClient,
        @Qualifier("ollamaTimeToolsChatClient") ChatClient ollamaToolChatClient) {

        this.geminiToolChatClient = geminiToolChatClient;
        this.ollamaToolChatClient = ollamaToolChatClient;
    }

    @Override
    public Answer getGeminiToolLocalTimeAnswer(QuestionRequest request) {

        return new Answer(this.geminiToolChatClient
            .prompt()
            .user(request.body().question())
            .call()
            .content());
    }

    ...
}
```

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```
...
@Override
public Answer getOllamaToolLocalTimeAnswer(QuestionRequest request) {

    return new Answer(this.ollamaToolChatClient
        .prompt()
        .user(request.body().question())
        .call()
        .content());
}
}
```

### Note

[illegible]

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

...

@RestController
public class QuestionController {

    ...

    private final ToolService toolService;

    public QuestionController(QuestionService service, RAGService ragService, ToolService toolService) {
        this.service = service;
        this.ragService = ragService;
        this.toolService = toolService;
    }

    ...

    @PostMapping("/gemini/ask/time-tools/local-time")
    public Answer getGeminiToolLocalTimeAnswer(@RequestBody QuestionRequest request) {
        return this.toolService.getGeminiToolLocalTimeAnswer(request);
    }

    @PostMapping("/ollama/ask/time-tools/local-time")
    public Answer getOllamaToolLocalTimeAnswer(@RequestBody QuestionRequest request) {
        return this.toolService.getOllamaToolLocalTimeAnswer(request);
    }

}
```

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**Branch:** 12-spring-ai-gemini-ollama-time-tools

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