



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.

SPRING AI

GENERATIVE ARTIFICIAL INTELLIGENCE CON JAVA

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Corso base 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. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.



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-  Simone Scannapieco

Note

[illegible]

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

import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;

public interface GeminiFromModelService {

    String getAnswerFromModel(String question);

    Answer getAnswerFromModel(Question question);

    Answer getDefinitionFromModel(DefinitionRequest definitionRequest);

}
```

[illegible]

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

import java.util.Map;
import org.springframework.ai.chat.model.ChatModel;
import org.springframework.ai.chat.model.ChatResponse;
import org.springframework.ai.chat.prompt.Prompt;
import org.springframework.ai.chat.prompt.PromptTemplate;
import org.springframework.beans.factory.annotation.Value;
import org.springframework.core.io.Resource;
import org.springframework.stereotype.Service;
import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;

@Service
public class GeminiFromModelServiceImpl implements GeminiFromModelService {

    private final ChatModel chatModel;

    public GeminiFromModelServiceImpl(ChatModel chatModel) {
        this.chatModel = chatModel;
    }

    @Override
    public String getAnswerFromModel(String question) {
        PromptTemplate promptTemplate = new PromptTemplate(question);
        Prompt prompt = promptTemplate.create();
        ChatResponse response = this.chatModel.call(prompt);
        return response.getResult().getOutput().getText();
    }
}
```

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Implementazione servizio Gemini (da modello) - II

```

...
@Override
public Answer getAnswerFromModel(Question question) {
    return new Answer(getAnswerFromModel(question.question()));
}

@Value("classpath:templates/get-definition-prompt.st")
private Resource definitionPrompt;

@Override
public Answer getDefinitionFromModel(DefinitionRequest definitionRequest) {
    PromptTemplate promptTemplate = new PromptTemplate(this.definitionPrompt);
    Prompt prompt = promptTemplate.create(Map.of("lemma", definitionRequest.lemma()));
    ChatResponse response = this.chatModel.call(prompt);
    return new Answer(response.getResult().getOutput().getText());
}

```

Note

[illegible]

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

import org.springframework.web.bind.annotation.RestController;
import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;
import it.venis.ai.spring.demo.services.GeminiFromModelService;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestBody;

@RestController
public class QuestionFromModelController {

    private final GeminiFromModelService geminiService;

    public QuestionFromModelController(GeminiFromModelService geminiService) {
        this.geminiService = geminiService;
    }

    @PostMapping("/model/ask")
    public Answer askQuestion(@RequestBody Question question) {
        return this.geminiService.getAnswerFromModel(question);
    }

    @PostMapping("/model/definition")
    public Answer getDefinition(@RequestBody DefinitionRequest definitionRequest) {
        return this.geminiService.getDefinitionFromModel(definitionRequest);
    }
}
```

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

import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;

public interface GeminiFromClientService {

    String getAnswerFromClient(String question);

    Answer getAnswerFromClient(Question question);

    Answer getDefinitionFromClient(DefinitionRequest definitionRequest);

}
```

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

import java.util.Map;
import org.springframework.ai.chat.client.ChatClient;
import org.springframework.ai.template.st.StTemplateRenderer;
import org.springframework.beans.factory.annotation.Value;
import org.springframework.core.io.Resource;
import org.springframework.stereotype.Service;
import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;

@Service
public class GeminiFromClientServiceImpl implements GeminiFromClientService {

    private final ChatClient chatClient;

    public GeminiFromClientServiceImpl(ChatClient.Builder chatClientBuilder) {
        this.chatClient = chatClientBuilder.build();
    }

    @Override
    public String getAnswerFromClient(String question) {
        return this.chatClient.prompt()
            .user(question)
            .call()
            .content();
    }
}
```

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Implementazione servizio Gemini (da *client*) - II

```

...
@Override
public Answer getAnswerFromClient(Question question) {
    return new Answer(getAnswerFromClient(question.question()));
}

@Value("classpath:templates/get-definition-prompt.st")
private Resource definitionPrompt;

@Override
public Answer getDefinitionFromClient(DefinitionRequest definitionRequest) {
    return new Answer(this.chatClient.prompt()
        .user(u -> u.text(this.definitionPrompt)
            .params(Map.of("lemma", definitionRequest.lemma())))
        .templateRenderer(StTemplateRenderer.builder().startDelimiterToken('{')
            .endDelimiterToken('}')
            .build())
        .call()
        .content());
}
}

```

Note

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

import org.springframework.web.bind.annotation.RestController;
import it.venis.ai.spring.demo.model.Answer;
import it.venis.ai.spring.demo.model.DefinitionRequest;
import it.venis.ai.spring.demo.model.Question;
import it.venis.ai.spring.demo.services.GeminiFromClientService;
import org.springframework.web.bind.annotation.PostMapping;
import org.springframework.web.bind.annotation.RequestBody;

@RestController
public class QuestionFromClientController {

    private final GeminiFromClientService geminiService;

    public QuestionFromClientController(GeminiFromClientService geminiService) {
        this.geminiService = geminiService;
    }

    @PostMapping("/client/ask")
    public Answer askQuestionFromClient(@RequestBody Question question) {
        return this.geminiService.getAnswerFromClient(question);
    }

    @PostMapping("/client/definition")
    public Answer getDefinitionFromClient(@RequestBody DefinitionRequest definitionRequest) {
        return this.geminiService.getDefinitionFromClient(definitionRequest);
    }
}
```

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

import org.junit.jupiter.api.Test;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.boot.test.context.SpringBootTest;

@SpringBootTest
public class GeminiServiceImplTest {

    @Autowired
    GeminiFromModelServiceImpl geminiModelService;

    @Autowired
    GeminiFromClientServiceImpl geminiClientService;

    @Test
    void testGetAnswerFromModel() {
        String answer = geminiModelService.getAnswerFromModel("Raccontami una barzelletta");
        System.out.println(answer);
    }

    @Test
    void testGetAnswerFromClient() {
        String answer = geminiClientService.getAnswerFromClient("Spiegami cosa sei in una unica frase");
        System.out.println(answer);
    }
}
```

[illegible]

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