



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



STEP-BACK PROMPTING

Note

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-  Simone Scannapieco

[illegible]

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

import java.util.Objects;
import com.fasterxml.jackson.annotation.JsonPropertyDescription;
import it.venis.ai.spring.demo.data.ArtifactType;

public record Artifact(@JsonPropertyDescription("Il titolo dell'opera") String title,
    @JsonPropertyDescription("Il sottotitolo dell'opera") String subtitle,
    @JsonPropertyDescription("Il tipo dell'opera") ArtifactType type,
    @JsonPropertyDescription("Il genere dell'opera") String genre,
    @JsonPropertyDescription("La trama o la recensione dell'opera") String body) {

    @Override
    public String title() {
        return Objects.requireNonNullElse(this.title, "---");
    }

    @Override
    public String subtitle() {
        return Objects.requireNonNullElse(this.subtitle, "---");
    }

    @Override
    public String genre() {
        return Objects.requireNonNullElse(this.genre, "non specificato");
    }
}
```

Note

[illegible]

Sei un agente con accesso alla più grande base dati di opere di categoria {artefatto} e genere {genere}.

Rispondi in modo puntuale e senza formule di introduzione.

Crea un elenco puntato di {numero} ambientazioni chiave per scrivere una trama avvincente e di successo.

[illegible]

File get-generated-artifact-prompt.st

Contesto: {lista}

Scegli una delle ambientazioni e scrivi in {numero} paragrafo/i la trama di un nuovo {artefatto} in materia di {genere} con una trama avvincente.

```
{formato}
```

Traduci titolo, sottotitolo, genere e corpo della risposta in lingua italiana.

Note

[illegible]

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

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

public interface GeminiFromClientService {

    String getAnswerFromClient(String question);

    Answer getAnswerFromClient(Question question);

    Answer getDefinitionFromClient(DefinitionRequest definitionRequest);

    Answer getCustomFormatDefinitionFromClient(DefinitionRequest definitionRequest);

    Answer getJSONUserFormatDefinitionFromClient(DefinitionRequest definitionRequest);

    DefinitionResponse getJSONOutputConverterFormatDefinitionFromClient(DefinitionRequest definitionRequest);

    Answer getSentimentForArtifact(ArtifactRequest artifactRequest);

    Answer getNERinYAMLForArtifact(ArtifactRequest artifactRequest);

    Answer getSuggestionForArtifact(ArtifactRequest artifactRequest);

    Artifact getGeneratedArtifact(ArtifactRequest artifactRequest, Integer numChoices, Integer numParagraphs);

}
```

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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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```

...
@Value("classpath:templates/get-key-settings-for-artifact-system-prompt.st")
private Resource keySettingsForArtifactSystemPrompt;

@Value("classpath:templates/get-key-settings-for-artifact-user-prompt.st")
private Resource keySettingsForArtifactUserPrompt;

@Value("classpath:templates/get-generated-artifact-prompt.st")
private Resource generatedArtifactPrompt;

@Override
public Artifact getGeneratedArtifact(ArtifactRequest artifactRequest, Integer numChoices, Integer numParagraphs) {
    BeanOutputConverter<Artifact> converter = new BeanOutputConverter<>(Artifact.class);
    String listResponse = this.chatClient.prompt()
        .options(ChatOptions.builder()
            .model("gemini-2.0-flash")
            .temperature(1.0)
            //.topP(1.0)
            //.topK(30)
            .maxTokens(2000)
            //.frequencyPenalty(0.1)
            //.presencePenalty(0.1)
            .build())
        .system(s -> s.text(this.keySettingsForArtifactSystemPrompt)
            .params(Map.of("artefatto", artifactRequest.artifact().type().getArtifactType(),
                "genere", artifactRequest.artifact().genre())))
        .user(u -> u.text(this.keySettingsForArtifactUserPrompt)
            .params(Map.of("numero", numChoices)))
        .templateRenderer(StTemplateRenderer.builder().startDelimiterToken('{')
            .endDelimiterToken('}')
            .build())
        .call()
        .content();
}
...

```

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```
...
String generatedArtifact = this.chatClient.prompt()
    .options(ChatOptions.builder()
        .model("gemini-2.0-flash")
        .temperature(1.0)
        //.topP(1.0)
        //.topK(30)
        .maxTokens(1024)
        //.frequencyPenalty(0.1)
        //.presencePenalty(0.1)
        .build())
    .user(u -> u.text(this.generatedArtifactPrompt)
        .params(Map.of("lista", listResponse,
            "numero", numParagraphs,
            "artefatto", artifactRequest.artifact().type(),
            "genere", artifactRequest.artifact().genre(),
            "formato", converter.getFormat()))
    .templateRenderer(StTemplateRenderer.builder().startDelimiterToken('{')
        .endDelimiterToken('}')
        .build())
    .call()
    .content();

return converter.convert(generatedArtifact);
}
}
```

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

import org.springframework.web.bind.annotation.RestController;
...
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;

    ...

    @PostMapping("/client/advice")
    public Answer getSuggestionForArtifact(@RequestBody ArtifactRequest artifactRequest) {

        return this.geminiService.getSuggestionForArtifact(artifactRequest);

    }

    @PostMapping("/client/generate")
    public Artifact getGeneratedArtifact(@RequestBody ArtifactRequest artifactRequest,
        @RequestParam(required = true, defaultValue = "3") Integer numChoices,
        @RequestParam(required = true, defaultValue = "1") Integer numParagraphs) {

        return this.geminiService.getGeneratedArtifact(artifactRequest, numChoices, numParagraphs);

    }

}
```

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