



This image shows a single 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

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IMPLICIT E ZERO-SHOT PROMPTING

Note

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- 1 Creazione enumeratori `Artifact.java` e `Sentiment.java`
- 2 Creazione modello richiesta per artefatto `ArtifactRequest.java`
- 3 Creazione *prompt template* per *sentiment analysis* di tipo *0-shot* per artefatti
- 4 Modifiche ad interfaccia ed implementazione del servizio Gemini
- 5 Modifica del controllore MVC per servizio Gemini

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

public enum ArtifactType {

    LIBRO("Libro"),
    FILM("Film"),
    SPETTACOLO("Spettacolo"),
    ARTICOLO("Articolo");

    private String artifactType;

    ArtifactType(String artifactType) {
        this.artifactType = artifactType;
    }

    public String getArtifactType() {
        return artifactType;
    }

}
```

Note

[illegible]

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

public enum Sentiment {

    ESTREMAMENTE_POSITIVO("Estremamente positivo"),
    POSITIVO("Positivo"),
    NEUTRALE("Neutrale"),
    NEGATIVO("Negativo"),
    ESTREMAMENTE_NEGATIVO("Estremamente negativo");

    private String sentiment;

    Sentiment(String sentiment) {
        this.sentiment = sentiment;
    }

    public String getSentiment() {
        return sentiment;
    }
}
```

[illegible]

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

import java.util.Objects;

import it.venis.ai.spring.demo.data.ArtifactType;

public record Artifact(String title, String subtitle, ArtifactType type, String body) {

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

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

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

import java.util.UUID;

public record ArtifactRequest(UUID id, Artifact artifact) {

    public ArtifactRequest(String title, Artifact artifact) {
        this(UUID.randomUUID(), artifact);
    }

}
```

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File get-artifact-sentiment-prompt.st

```

Classifica recensioni di artefatti come ESTREMAMENTE POSITIVO, POSITIVO, NEUTRALE,
NEGATIVO, ESTREMAMENTE NEGATIVO.
Recensione {artefatto}: {recensione}
Sentimento:

```

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);

}
```

[illegible]

```
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-artifact-sentiment-prompt.st")
private Resource artifactSentimentPrompt;

@Override
public Answer getSentimentForArtifact(ArtifactRequest artifactRequest) {
    Sentiment chatResponse = this.chatClient.prompt()
        .options(ChatOptions.builder()
            //..model("gemini-2.0-flash")
            .temperature(0.1)
            .topP(1.0)
            //..topK(30)
            .maxTokens(10)
            //..frequencyPenalty(0.1)
            //..presencePenalty(0.1)
            .build())
        .user(u -> u.text(this.artifactSentimentPrompt)
            .params(Map.of("recensione", artifactRequest.artifact().body(),
                "artefatto", artifactRequest.artifact().type())))
        .templateRenderer(StTemplateRenderer.builder().startDelimiterToken('{')
            .endDelimiterToken('}')
            .build())
        .call()
        .entity(Sentiment.class);

    return new Answer(chatResponse.getSentiment());
}

```

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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/definition/json/user")
    public Answer getJSONUserFormatDefinition(@RequestBody DefinitionRequest definitionRequest) {

        return this.geminiService.getJSONUserFormatDefinitionFromClient(definitionRequest);

    }

    ...

    @PostMapping("/client/sentiment")
    public Answer getSentiment(@RequestBody ArtifactRequest artifactRequest) {

        return this.geminiService.getSentimentForArtifact(artifactRequest);

    }

}
```

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13 / 13

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