



ICT Training Center

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Note

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SPRING AI

GENERATIVE ARTIFICIAL INTELLIGENCE CON JAVA

Simone Scannapieco

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 `ArtifactType.java` e `Sentiment.java`
- 2 Creazione modello di artefatto `Artifact.java`
- 3 Creazione modello richiesta per artefatto `ArtifactRequest.java`
- 4 Creazione *prompt template* per *sentiment analysis* di tipo *0-shot* per artefatti
- 5 Modifiche ad interfaccia ed implementazione del servizio Gemini
- 6 Modifica del controllore MVC per servizio Gemini
- 7 Test delle funzionalità con Postman/Insomnia

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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;
    }

}
```

[illegible]

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

public enum Sentiment {

    MOLTO_POSITIVO("molto positivo"),
    POSITIVO("positivo"),
    NEUTRALE("neutrale"),
    NEGATIVO("negativo"),
    MOLTO_NEGATIVO("molto negativo");

    private String sentiment;

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

    public String getSentiment() {
        return sentiment;
    }

}
```

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```
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 |MOLTO_POSITIVO|POSITIVO|NEUTRALE|
NEGATIVO|MOLTO_NEGATIVO|.
Restituisci la risposta usando la minima formattazione possibile, senza markdown
e senza spazi finali.
Recensione {artefatto}: {recensione}
Sentimento:

```

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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.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);

}
```

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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();
    }

    ...
}
```

[illegible]

```
...
@Value("classpath:templates/get-artifact-sentiment-prompt.st")
private Resource artifactSentimentPrompt;

@Override
public Answer getSentimentForArtifact(ArtifactRequest artifactRequest) {
    List<String> stopSequences = Stream.of(" ", "\n").collect(Collectors.toList());
    Sentiment chatResponse = Sentiment.valueOf(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)
            .stopSequences(stopSequences)
            .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()
        .content()
        );
    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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