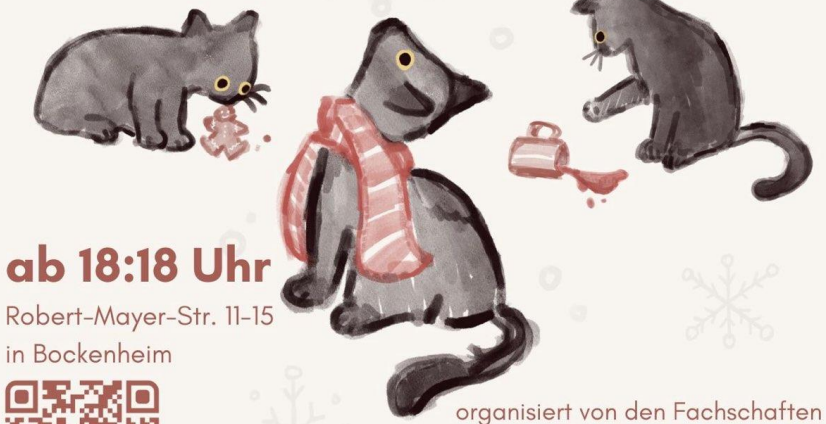
Exercise Sheet 4

Informatik Winterfest

12.12.2025



ab 18:18 Uhr

Robert-Mayer-Str. 11-15
in Bockenheim

fs.cs.uni-frankfurt.de/winterfest-25

organisiert von den Fachschaften
Informatik und **Bioinformatik**

Exercise 1

Exercise 1b)

Example Datastructure:

```
class Tasks(BaseModel):
    cities: List[str]
```

Exercise 1c)

```
output_validator = OutputValidator(pydantic_model=Tasks)
```

Exercise 1d) - Prompt

```
"""

Create a JSON object containing all BPMN "tasks" in this description of a process model: {{passage}}.

Only use information that is present in the passage. Follow this JSON schema, but only return the actual instances without any additional schema definition:

{{schema}}

Make sure your response is a dict and not a list.

{% if invalid_replies and error_message %}

  You already created the following output in a previous attempt: {{invalid_replies}}

  However, this doesn't comply with the format requirements from above and triggered this Python exception: {{error_message}}

  Correct the output and try again. Just return the corrected output without any extra explanations.

{% endif %}

"""
```

Exercise 1e) Generator

```
from haystack_integrations.components.generators.ollama import OllamaGenerator

generator = OllamaGenerator(model="llama3.2:3b",
                            url = "http://localhost:11434",
                            timeout = 30*60,
                            generation_kwargs={
                              "num_ctx": 4096,
                              "temperature": 0,
                              })
```

Exercise 2

2a-1. ChatPromptBuilder – Example Prompt

```
system_message = ChatMessage.from_system("You are an expert
Q&A system with expert knowledge on the business process
modeling language BPMN. Consider the standard BPMN
specification. Assume you have created a BPMN model with a
textual description. Now you want to annotate each BPMN
element of the BPMN model with XML tags like <bpmn:task>Task
Name</bpmn:task> without changing the rest of the descriptive
text.")


user_message = ChatMessage.from_user("""
Please annotate the textual process description for the given
BPMN model serialised in XML.
BPMN model "Explain" serialised in XML with its textual
process description: {{ query }}
 """)
```

2a-2. Generator

```
from haystack_integrations.components.generators.ollama import
OllamaGenerator

generator = OllamaGenerator(model="llama3.1:8b",
                            url = "http://localhost:11434",
                            timeout = 30*60,
                            generation_kwargs={
                              "num_ctx": 4096,
                              "temperature": 0,
                              })
```

Exercise 3

3a)

```
system_message = ChatMessage.from_system("You are an expert Q&A system with expert knowledge on the business process modeling language BPMN. Consider the standard BPMN specification. Assume you have created a BPMN model. Now you want to explain the complete control flow with all interactions between participants and lanes represented by the BPMN notations used in your created BPMN model to users without knowledge on BPMN notation. Additionally each BPMN element described should be annotated with tags like <bpmn:task>Task Name</bpmn:task>.")
```

3a)

```
user_message = ChatMessage.from_user(
"""
Please create a textual process description for the given BPMN
model serialised in XML.
Exemplary textual process description for BPMN model "Example": {{
documents[0].content }}
In your textual description annotate each BPMN element of the BPMN
model with short XML tags like <bpmn:task>"Task Name"</bpmn:task>.
BPMN model "Explain" serialised in XML: {{ query }}
 """
    )
```

New Content

Adaptation

- After the initial generation of the texts, we will first identify mistakes
  - Missing element: Element is in the BPMN model but not in the description
  - Hallucinated element: Element is in the description but not in the BPMN model
- Idea: Adapt the initial text by prompting a LLM to fix the mistake without changing the rest of the text