Praktikum Wirtschaftsinformatik

RAG-Systems

and Business Process Models

Organizational Matters

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Consultation Hours: By appointment

Address (Office):   Robert-Mayer-Str. 10, Room 207

Lecture in Room: Robert-Mayer.Str. 11-15, Room 026

Slides: OLAT

OLAT-Course

https://olat-ce.server.uni-frankfurt.de/olat/auth/RepositoryEntry/25735364622

OLAT-Notifications

OLAT-Groups

Key points

- Working in Groups of 2

- Independent work on the Assignment using your own laptop or a computer in the lab

- Presentation/Demonstration of the solution using your own laptop or a computer in the lab

- Assignments must be completed by the respective deadline and submitted via OLAT

Conditions for Passing the course

- Completion of all assignments (a minimum of 25% of the points from each assignment must be achieved)

- A minimum of 50% of the total achievable points from all assignments combined must be reached by the end

- Each person has to present at least once

- For people studying M.Sc. Wirtschaftsinformatik: For a graded course an Expert Discussion/Fachgespräch at the end is mandatory
  - Grading of the whole course not just the discussion
  - Inform us during the semester

Important Dates – (not final)

Date	Program	Deadline
13.10.2025	Orga/Topics/Finding Groups/Release Exercise 1	
20.10./22.10.2025	Q&A session Exercise 1	
27.10./29.10.2025	Presentation Exercise 1/Release Exercise 2	27.10.2025 10:00 Exercise 1
03.11./05.11.2025	Q&A session Exercise 2	
10.11./12.11.2025	Presentation Exercise 2/Release Exercise 3	10.11.2025 10:00 Exercise 2
17.11./19.11.2025	Q&A session Exercise 3	
24.11./26.11.2025	Presentation Exercise 3/Release Exercise 4	24.11.2025 10:00 Exercise 3
01.12./03.12.2025	Q&A session Exercise 4	
08.12./10.12.2025	Presentation Exercise 4/Release Exercise 5	08.12.2025 10:00 Exercise 4
15.12./17.12.2025	Q&A session Exercise 5	
12.01./14.01.2026	Presentation Exercise 5/Release Exercise 6	12.01.2025 10:00 Exercise 5
19.01./21.01.2026	Q&A session Exercise 6	
26.01./28.01.2026	Presentation Exercise 6	26.01.2025 10:00 Exercise 6
02.02./04.02.2026		
09.02./11.02.2026	Fachgespräche	

Weekly Schedule

- Exercise Release/Presentation Week
  - Monday: 10am Deadline on OLAT
  - Monday and Wednesday: Presentations with Feedback in room 026
  - Thursday: Release of new Exercise
- Q&A Week
  - Monday and Wednesday Q&A session in room 026

Content of the course

- Topic: „Using RAG-Systems to describe Business Process Models"

- Building your own RAG-System using the Python framework Haystack (https://haystack.deepset.ai/)

- Modelling Business Process Models using Camunda (https://camunda.com/en/bpmn/)

Retrieval Augmented Generation (RAG)

- LLMs often hallucinate

ChatGPT ∨

Anmelden   Kostenlos registrieren   ?

What is 9.9-9.11?

$9.9 - 9.11 = 0.79$

However, since 9.11 is greater than 9.9, the result is **negative**:

$$9.9 - 9.11 = -0.21$$

Abfrage am: 10.10.2025

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- Mostly because they do not have enough information

- **Idea**: Give them necessary information

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Embedding Model

- Maps data (e.g., a word, a sentence,...) to a multidimensional vector
- Semantically similar items are positioned closer in the vector space

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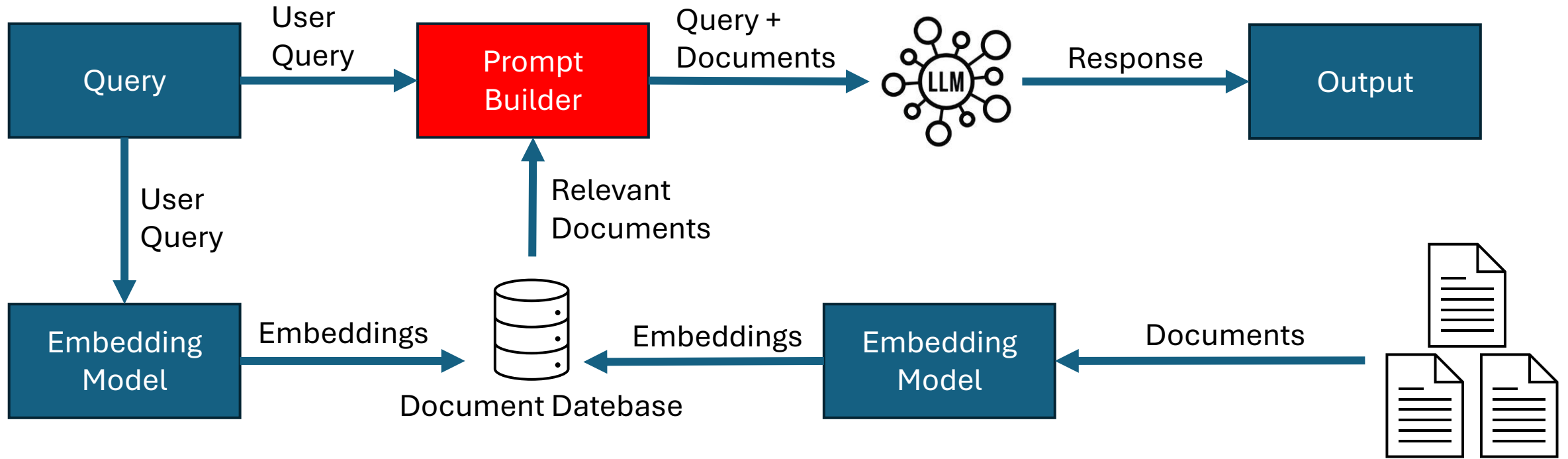
Prompt Builder

- Receives variables like the User Query or Documents and joins them together

- The documents are then part of a prompt template

- Simple prompt template:

```
Given these documents, answer the question.
Documents:
{% for doc in documents %}
    {{ doc.content }}
{% endfor %}
Question: {{query}}
Answer:
```
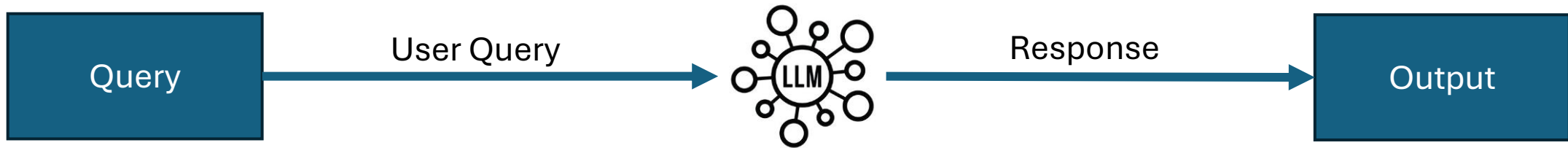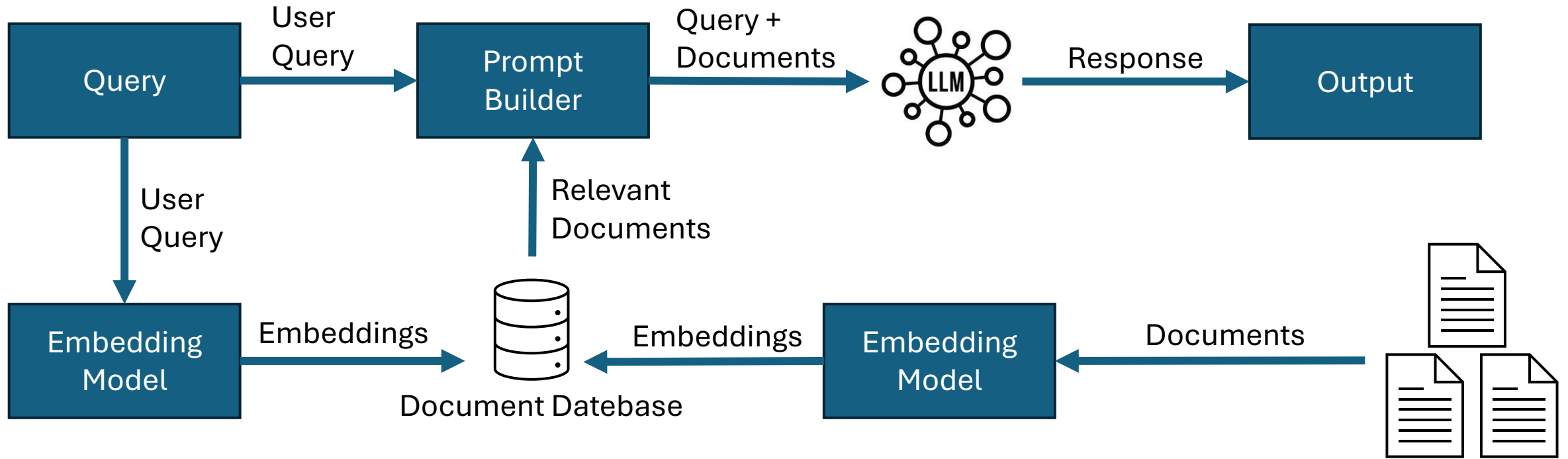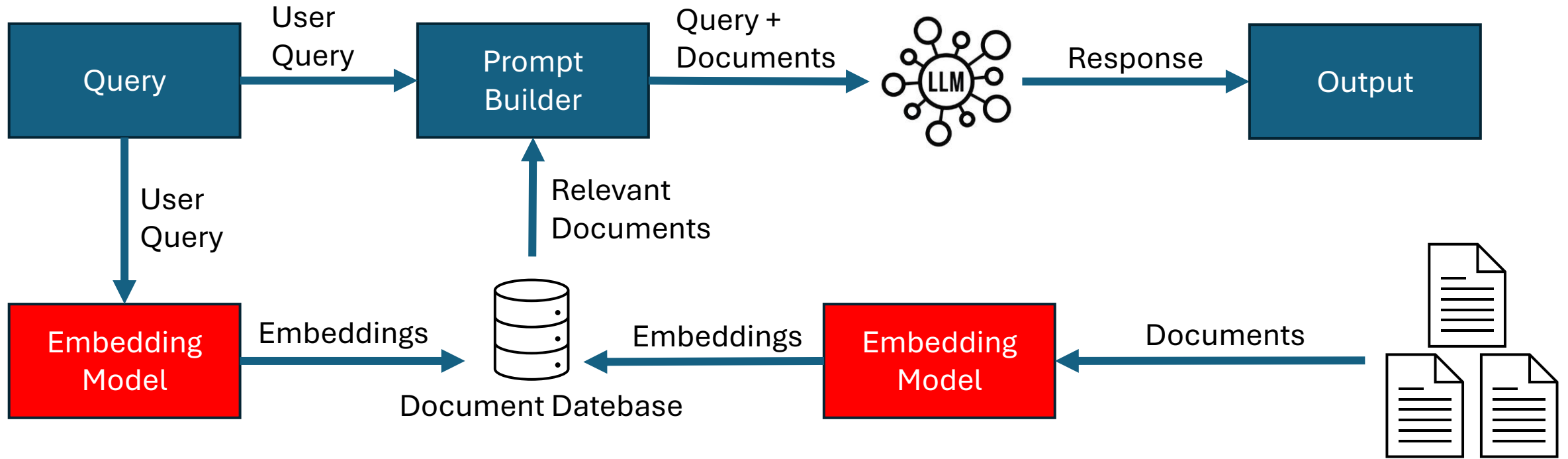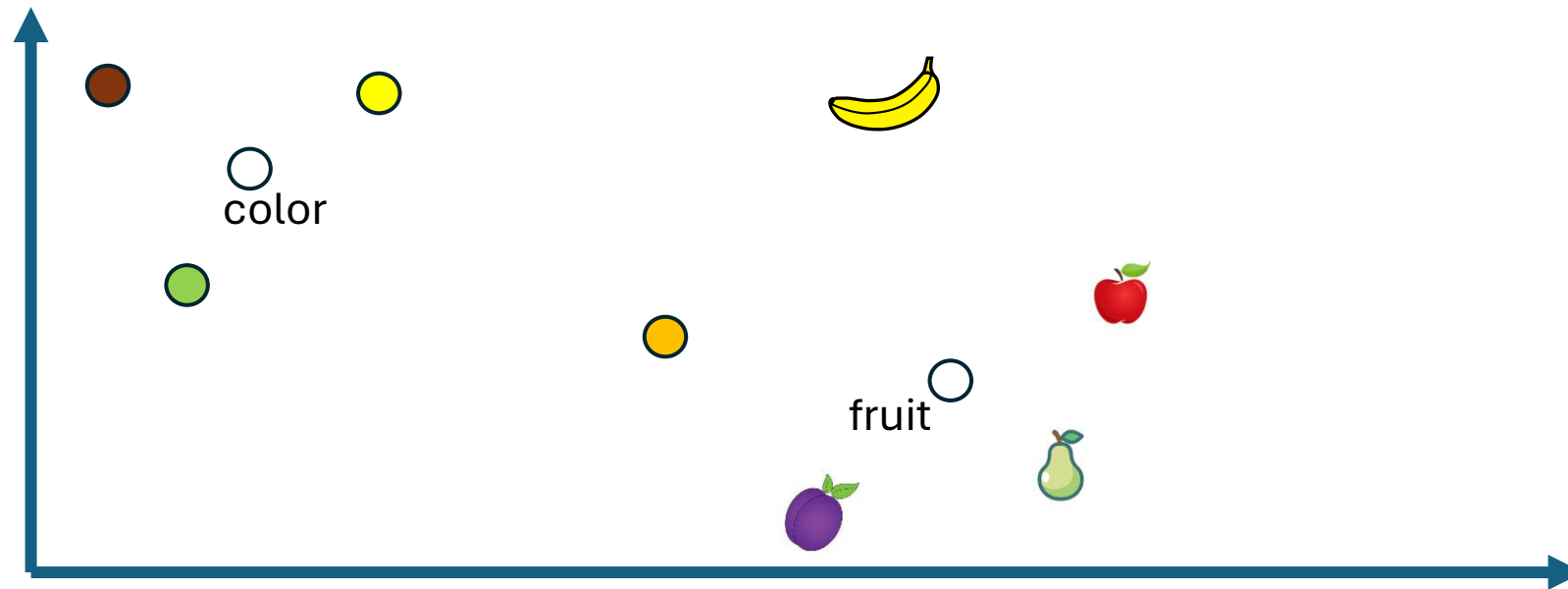
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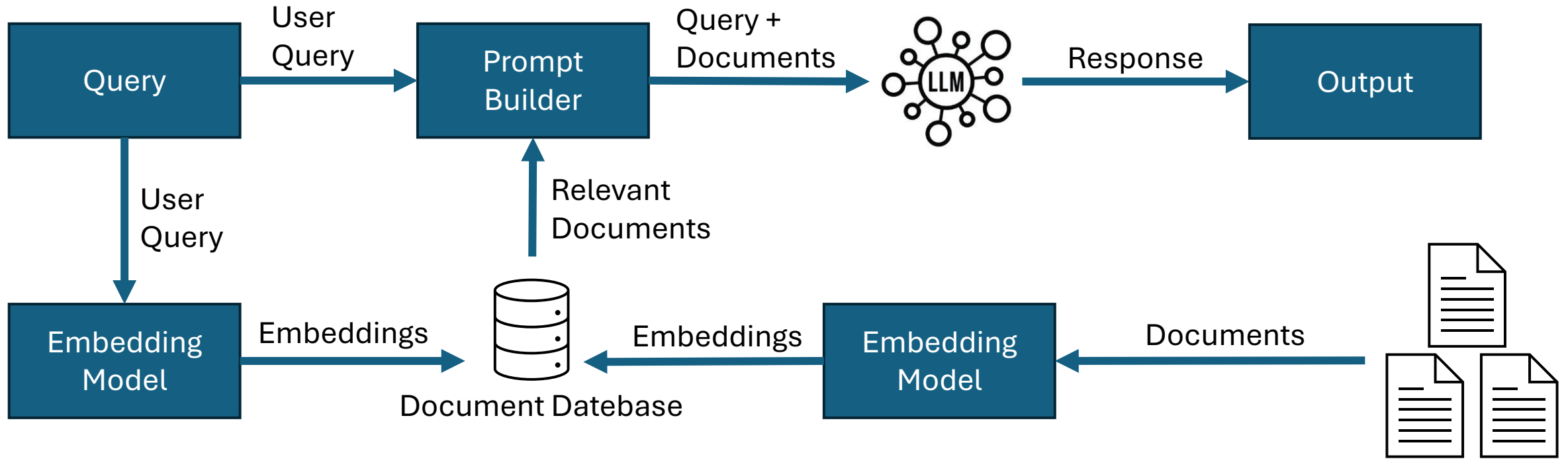
Business Process Models – Our Use-Case

What is a Business Process Model?

- A **visual representation** of a sequence of activities designed to achieve a specific organizational goal.

- It shows the **flow of work**—who does what, when, and based on which conditions.

- Translates **complex, real-world operations** into an understandable, standardized blueprint.

Common Modeling Notations

- **BPMN** (Business Process Model and Notation)

Main Elements of BPMN

- ***Flow Objects***: Nodes in a process model
- ***Connecting Objects****:* connecting edges between flow objects
- ***Swimlanes****:* areas that are assigned to a certain role
- ***Artifacts***: other elements like dataobjects, text-comments...

Flow Objects
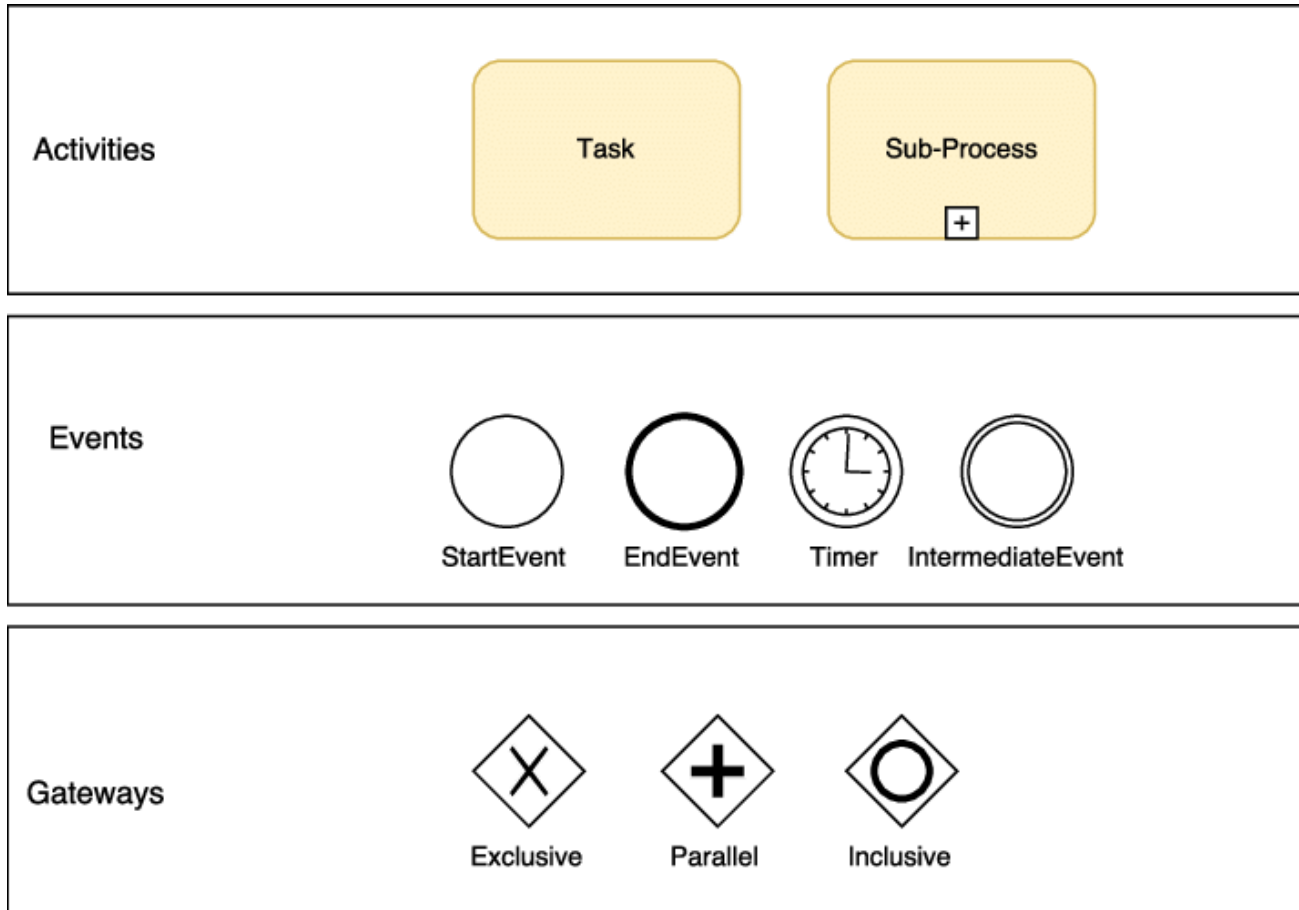
Connecting Objects and Swimlanes

Sequence Flow

Message Flow

Association

Pool

Lanes (within a Pool)

Example BPMN

Example

- Create a BPMN model for following text:

Insurance company X processes claims following **traffic accidents** involving insured customers' cars.

Every claim reported by a customer is **registered** by an employee in the **CA (Car Accidents) department.** After registration, the claim is **classified** by a Rank A employee in the CA department. There are two classes: **simple** and **complicated** claims.

Simple claims only require two tasks: **Check Insurance** and **Call Workshop (Garage/Repair Shop)**. These tasks are **independent** of each other.
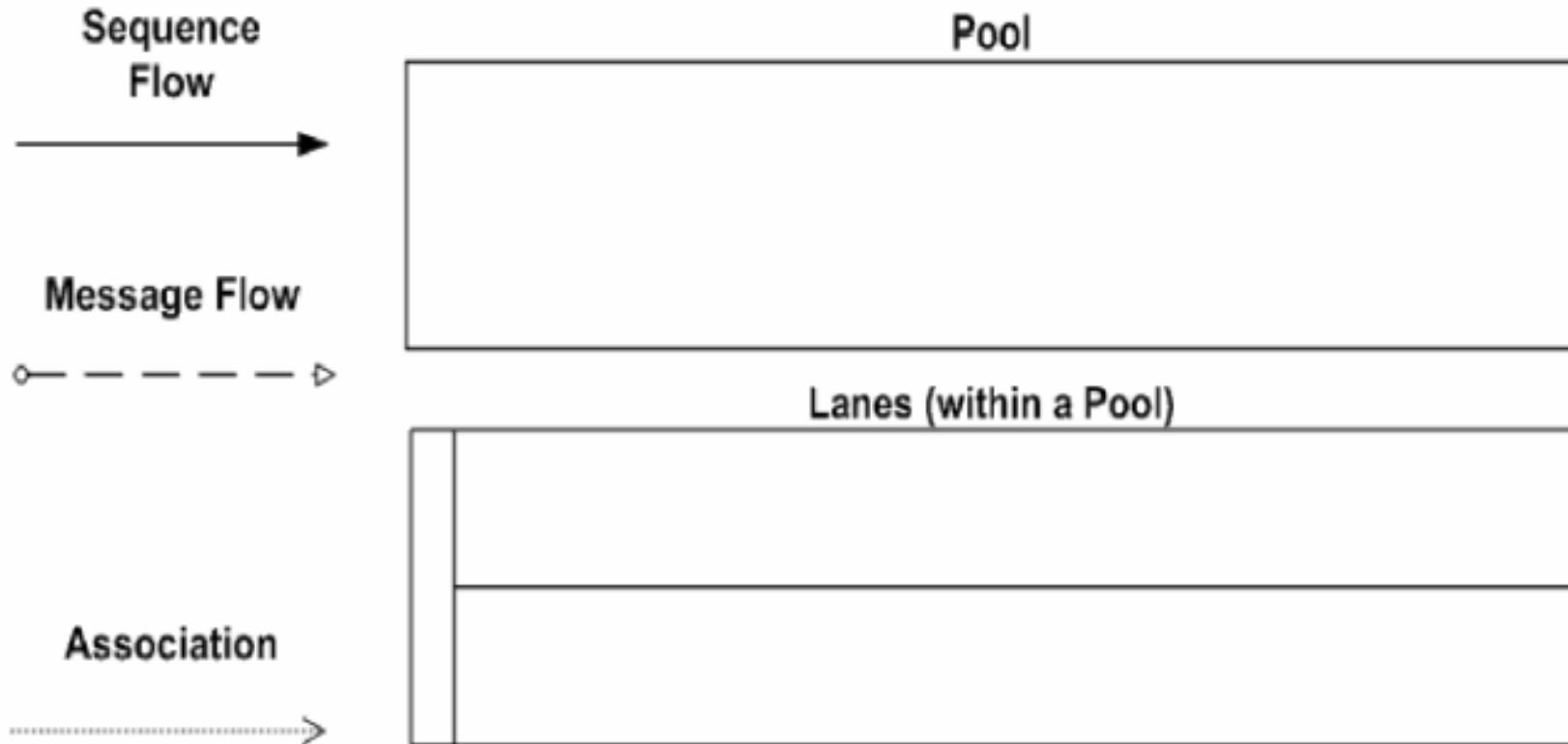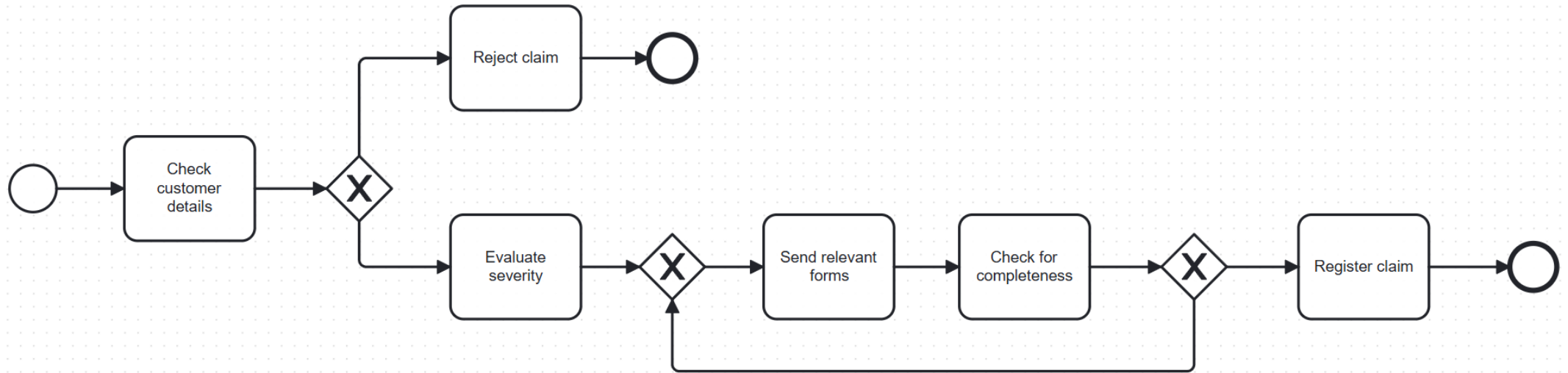
Complicated claims are processed through three tasks: **Check Insurance, Determine Accident History,** and **Call Workshop**. These tasks must be executed **sequentially** in the specified order.

The tasks listed above for both simple and complicated claims are carried out by employees of the CA department. Following the tasks, a decision is made by a Rank A employee. The decision has two possible outcomes: **OK (positive)** or **NOK (negative)**.

If the decision is positive (OK), the insurance company will pay. An employee from the **Finance department** handles the **payment**. In either case (OK or NOK), the insurance company sends a **letter** to the policyholder who reported the claim. The letter is written by an employee of the CA department.

Exercise 1

1. Install Camunda (The VisualStudio Code add-on is sufficient)

2. Create a BPMN model for the description (10 points):

If goods shall be shipped, the secretary clarifies who will do the shipping. If you have large amounts, special shipping will be necessary. In these cases, the secretary invites three logistic companies to make offers, and she selects one of them. In case of small amounts, normal post shipment is used. Therefore, a package label is written by the secretary and a parcel insurance taken by the logistics department head if necessary.

In the meantime, the goods can be already packaged by the warehousemen.

If everything is ready, the packaged goods are prepared for being picked up.

Exercise 1

3. Describe following process model (10 points):