# DMN - Advanced DRDs

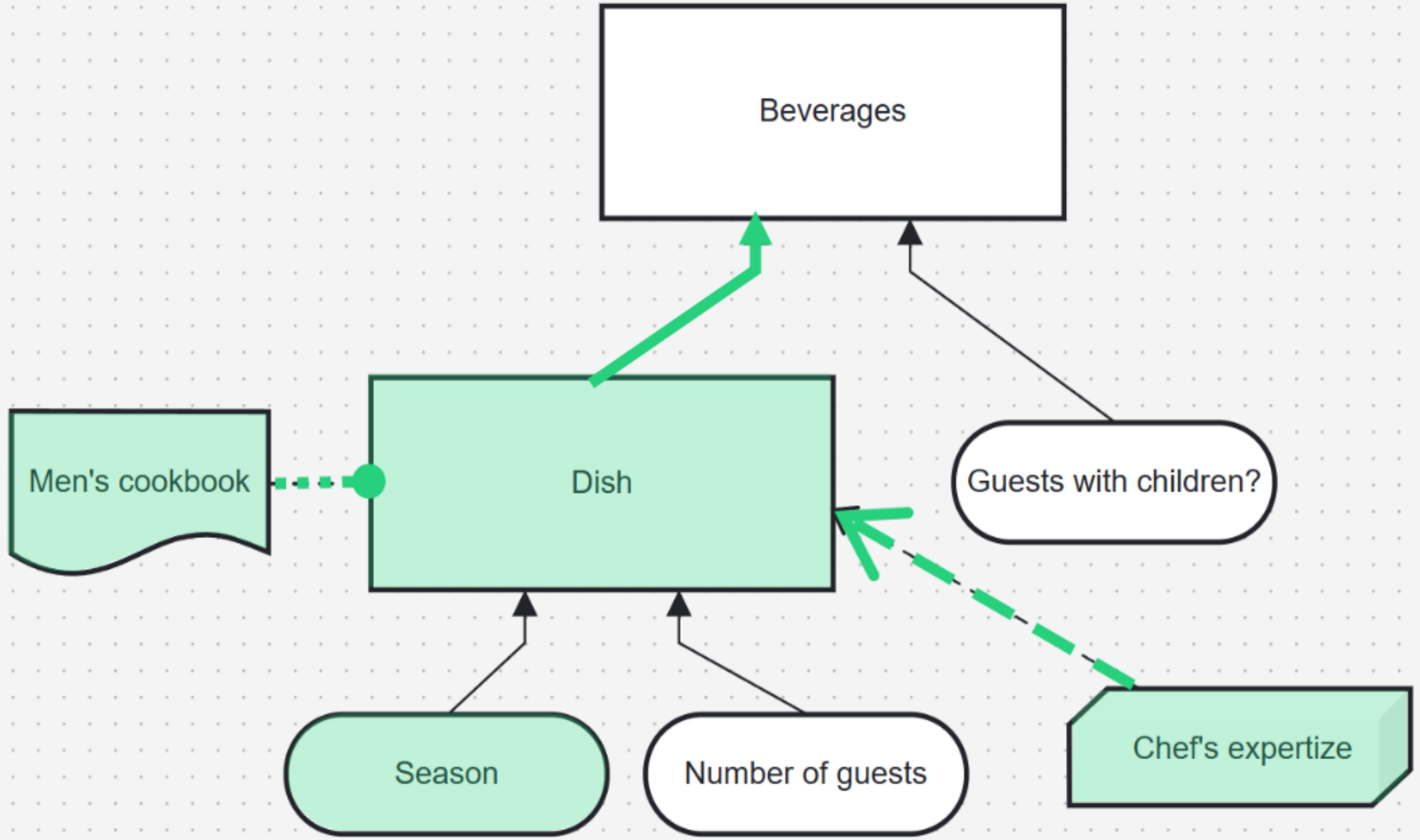
# What you will learn

After completing this course you will be able to:

1. Identify the elements of a Decision Requirements Diagram (DRD)
2. Model decisions using all elements of a DRD
3. Model complex DRD following a top-down approach

# DRD introduction

# Decision Requirements Diagram - introduction




Details

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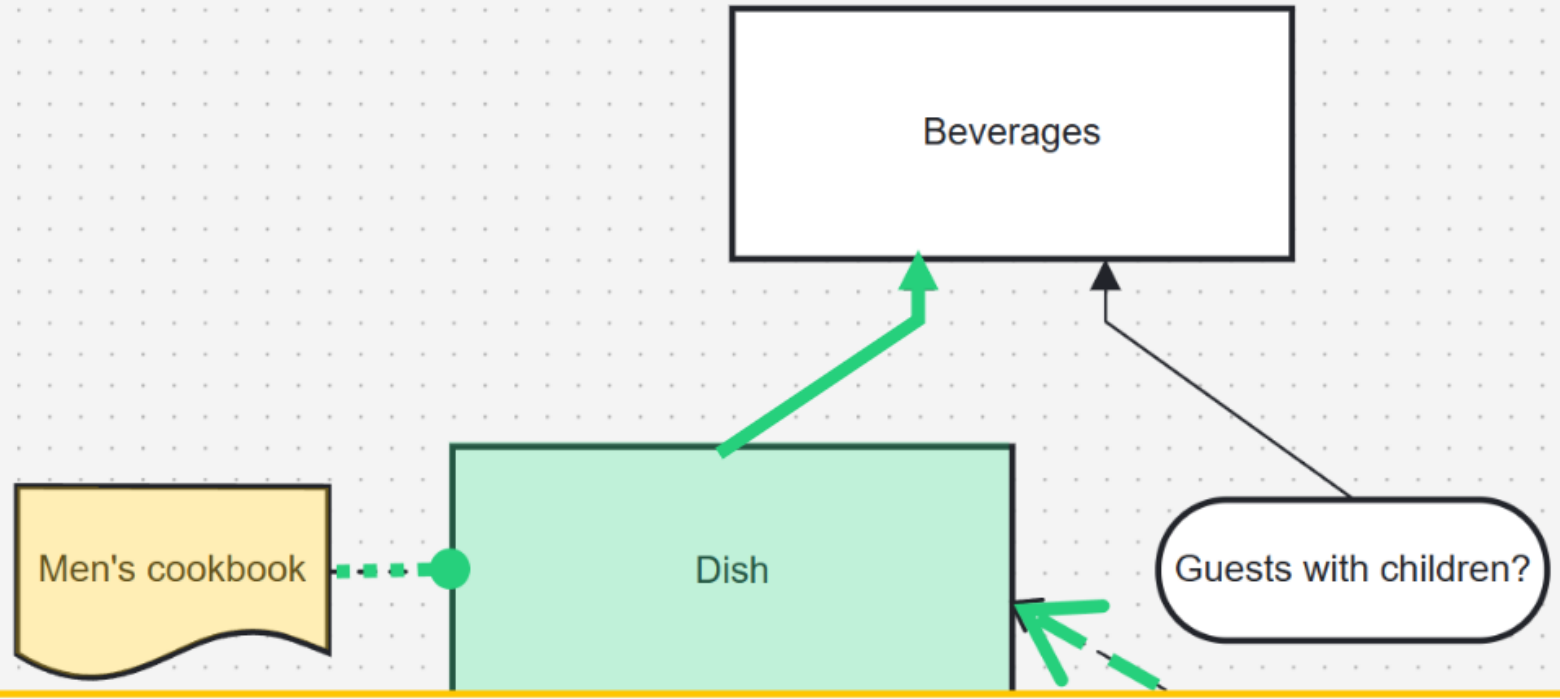
# Decision Requirements Diagram - introduction



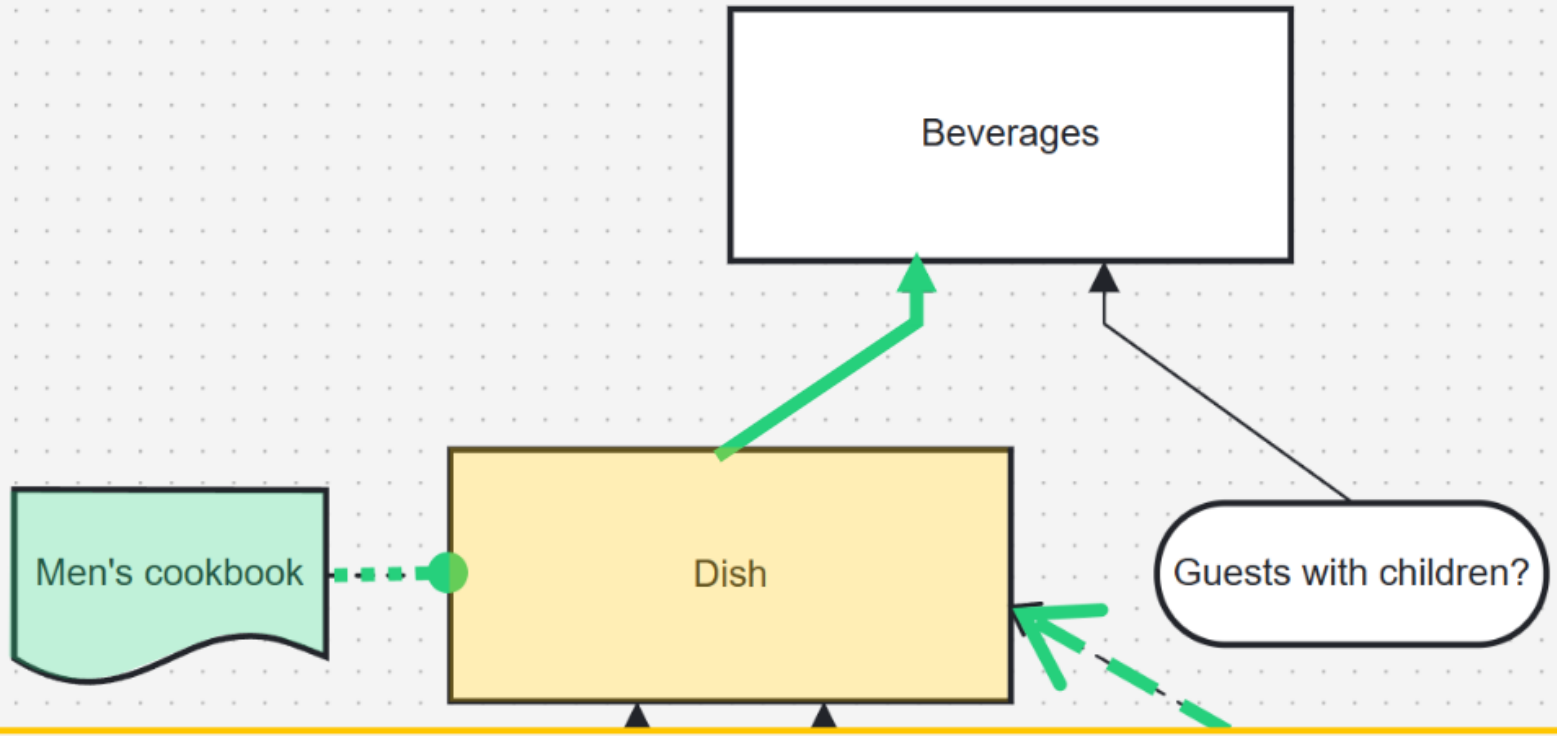

Close

## Knowledge source

This represents the authority or source of a decision. It can be a document, a person, or an organization. Knowledge sources can inform business knowledge models or decisions.

Just like input data, a knowledge source has no execution semantics and is ignored on the evaluation.

# Decision Requirements Diagram - introduction




## Box expression

Close

This is the core element of a DRD. It represents decisions and you can implement them as decision tables or literal expressions.

Decisions can depend on input data, other decisions, or business knowledge and they are responsible for the actual logic and rules in the DRD.

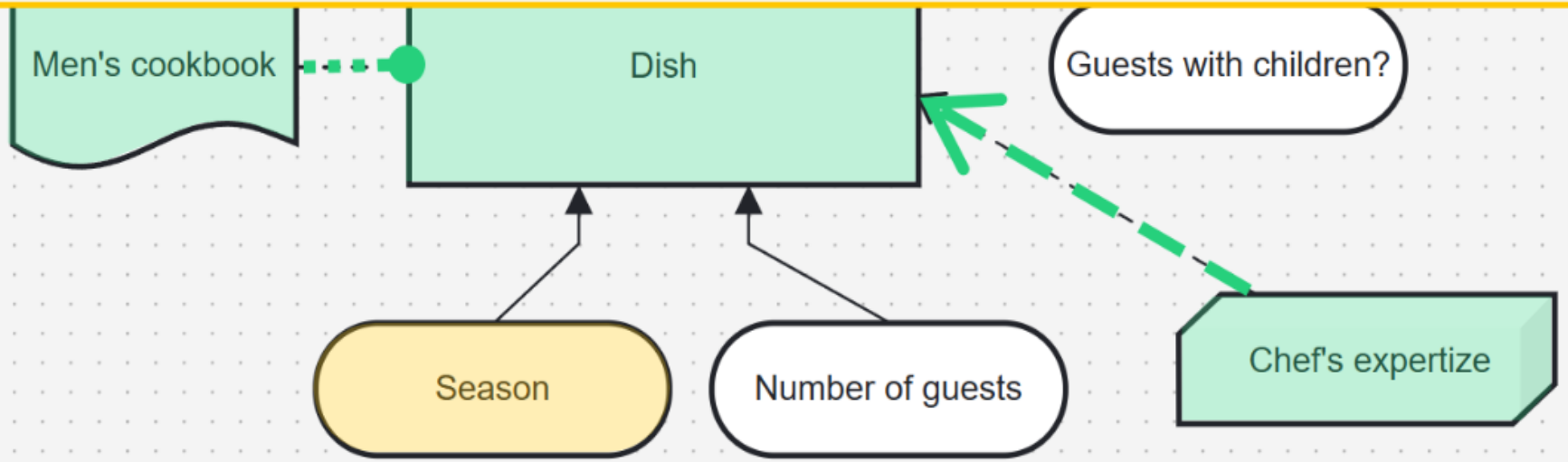
# Decision Requirements Diagram - introduction

Close

## Input Data

These are pieces of information required to make a decision. They feed into decisions but are not the result of other decisions within the diagram.

An input data has no execution semantics and is ignored on the evaluation.

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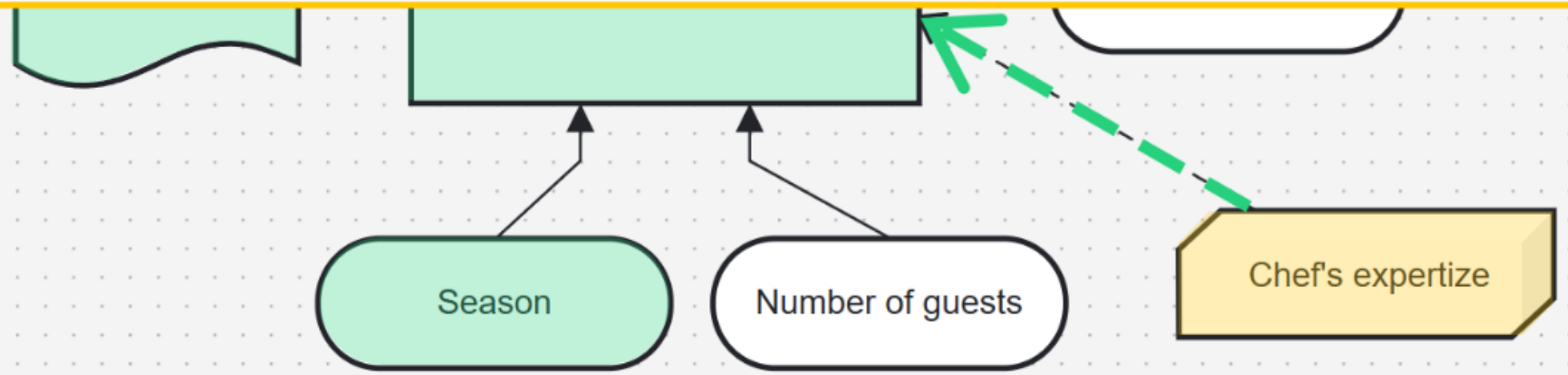
# Decision Requirements Diagram - introduction

Close

## Business Knowledge Model

This element encapsulates business knowledge or expertise that could be in the form of business rules, decision logic, or analytics models. It is a reference to another decision and provide the necessary know-how that informs decisions boxes.

BKMs can be compared to Subprocesses/Call Activities in BPMN. With them you can make sure that the DRDs don't grow too complex by encapsulating some logic.

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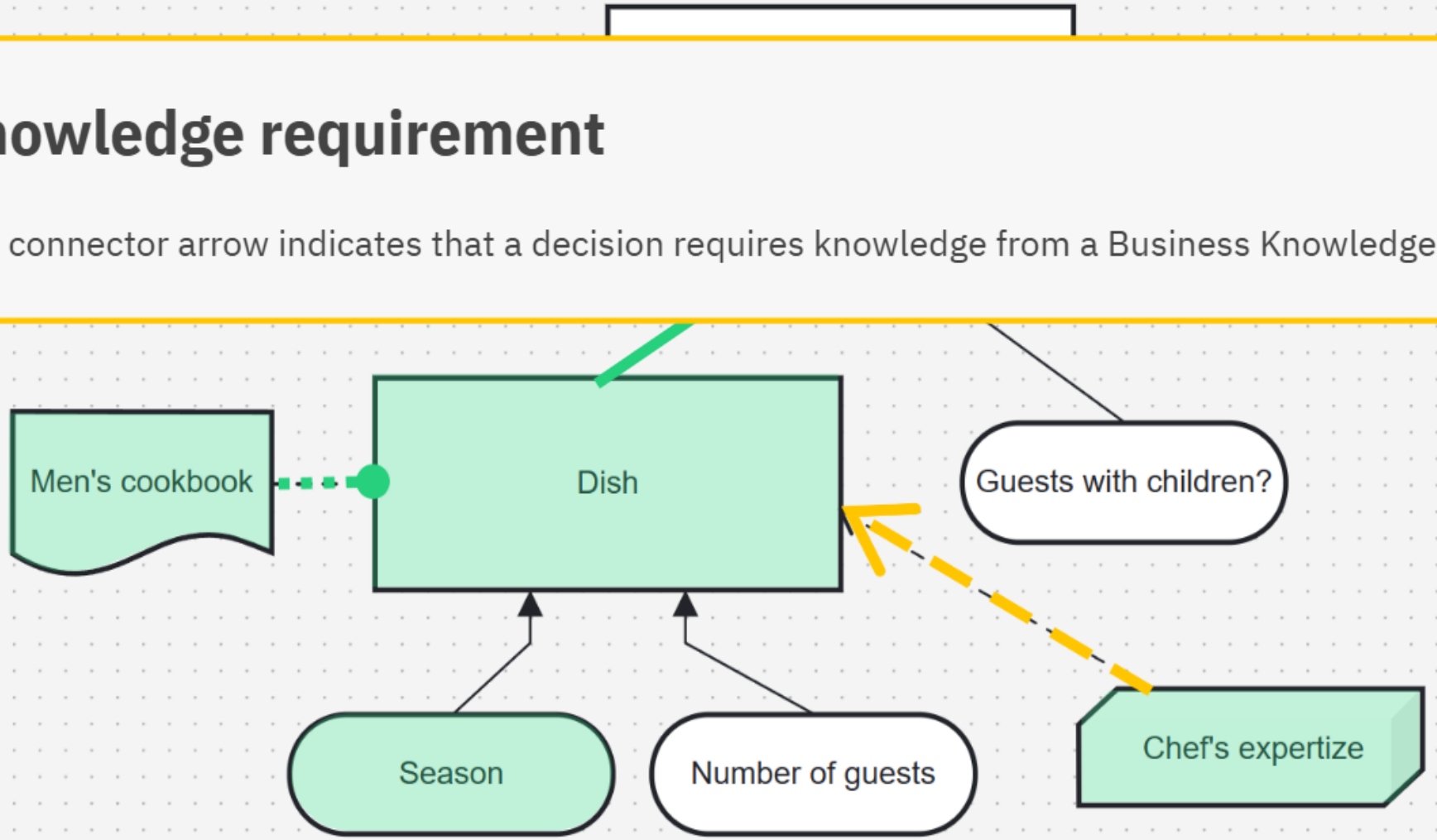
# Decision Requirements Diagram - introduction

## Knowledge requirement

Close

This connector arrow indicates that a decision requires knowledge from a Business Knowledge Model.

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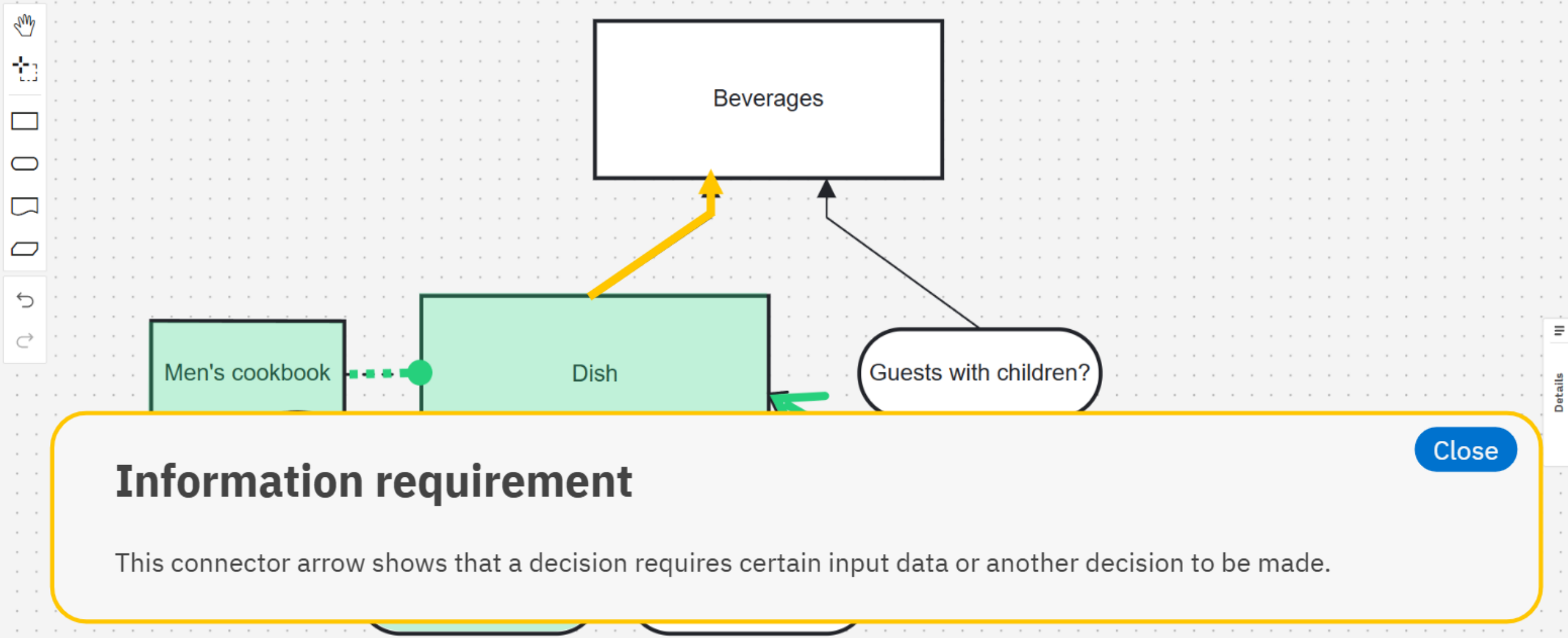
# Decision Requirements Diagram - introduction




## Information requirement

This connector arrow shows that a decision requires certain input data or another decision to be made.

Close

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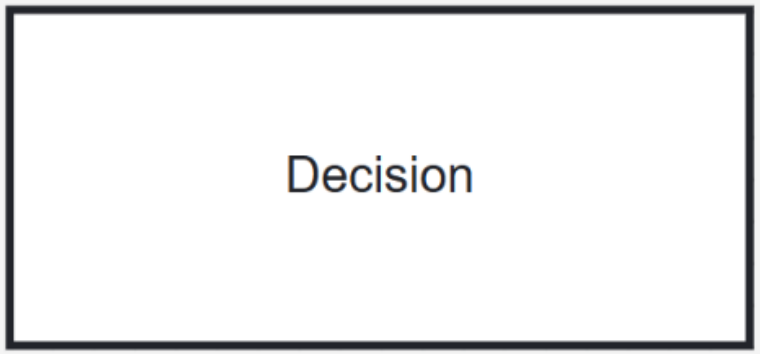
# DRD elements

# Decision boxes

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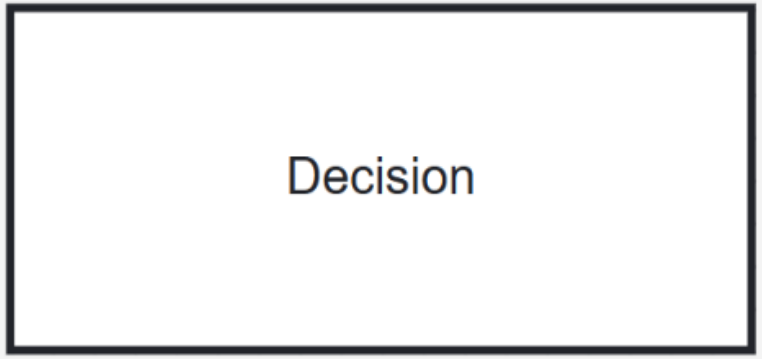
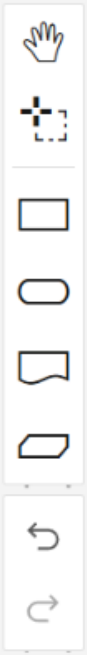
# Decision boxes




Determining an output value based on various input values using logic definition

# Decision boxes



Decision

Decision table

Literal expression

Details

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# Decision boxes

**Discount**

Decision table

Literal expression

Name your decisions after their output.

Details

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# Decision boxes

**Determine discount**

Decision table

Literal expression

Name your decisions after their output.

Details

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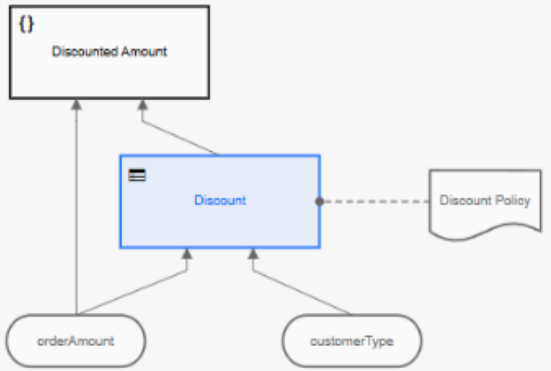
# Decision boxes

Close



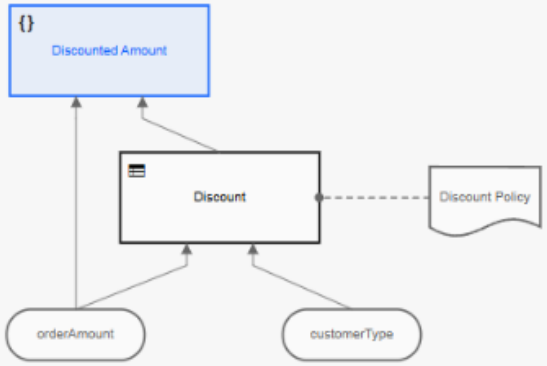

Edit DRD | Close Overview

**Discount** | **Hit policy:** First

| | When<br>Order Amount<br>number | And<br>Customer Type<br>string | Then<br>Discount<br>number | Annotations |
|---|---|---|---|---|
| 1 | >10000 | "Gold" | 17 | |
| 2 | - | "Gold" | 15 | |
| 3 | - | "Silver" | 10 | |
| 4 | >10000 | - | 10 | |
| 5 | >1000 | - | 5 | |
| + | - | - | | |

# Decision boxes

Close




Edit DRD | Close Overview

This decision is called by 1 process

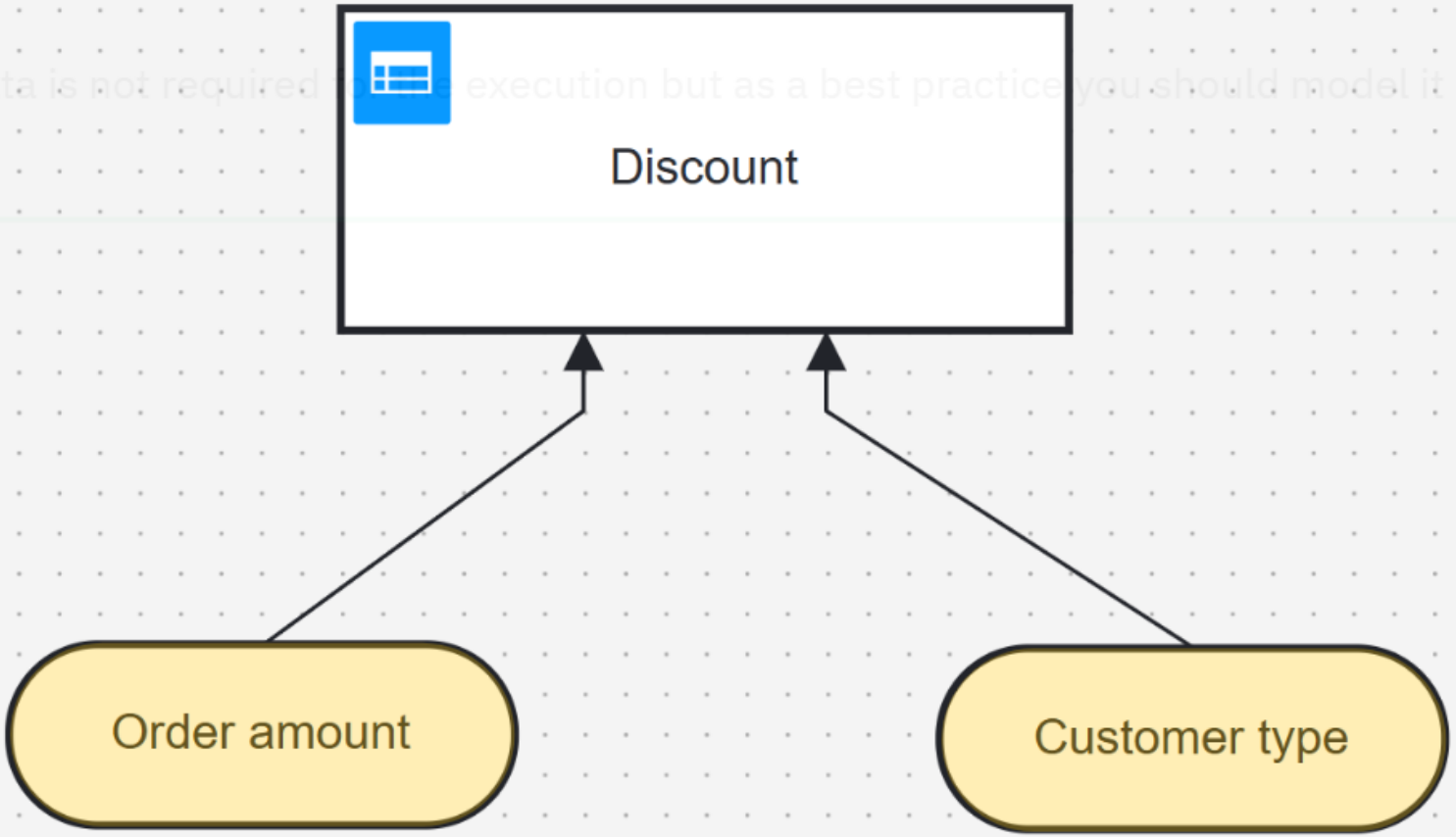
## Discounted Amount

```
orderAmount * (100-DiscountDecision)/100
```

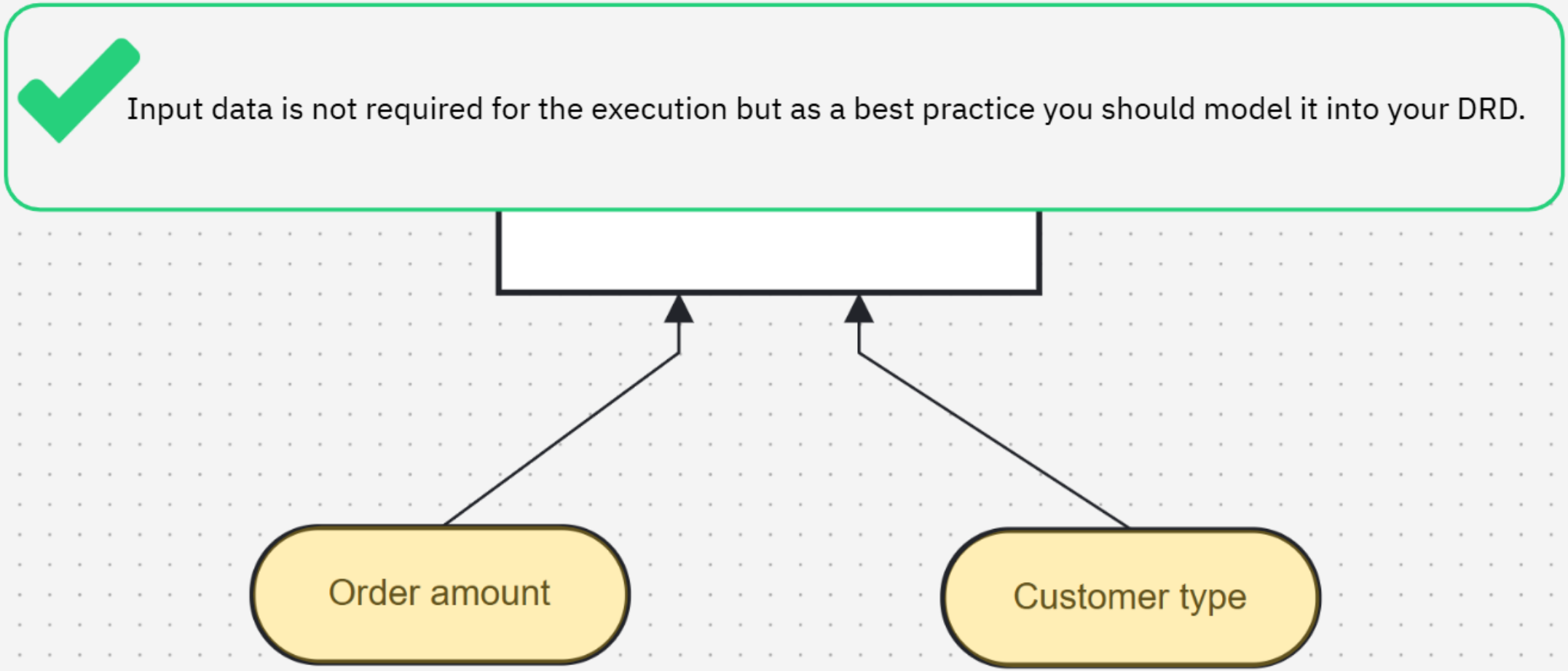
**Variable name:** discountedAmount

**Variable type:** number

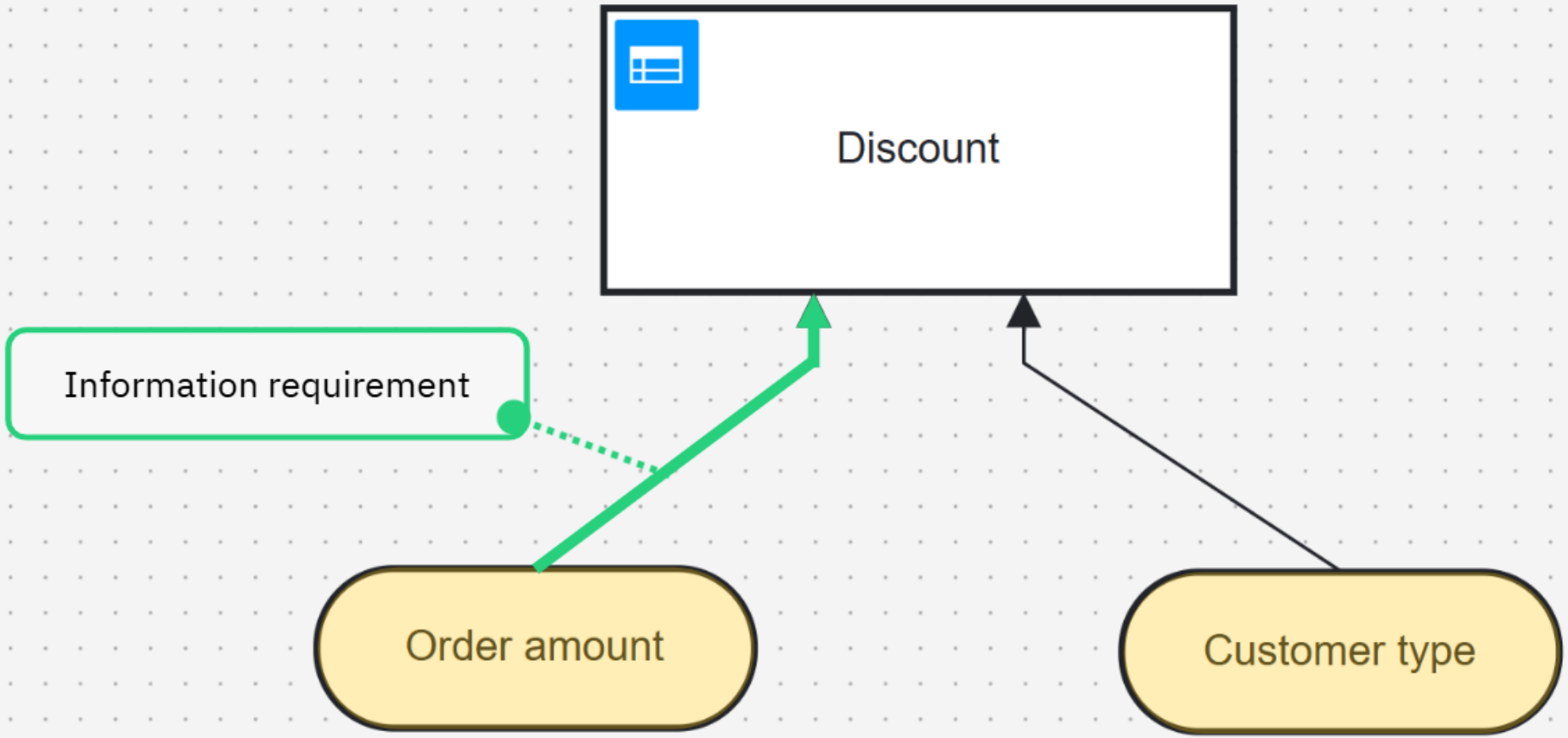
# Decisions based on input data



# Decisions based on input data



# Decisions based on input data

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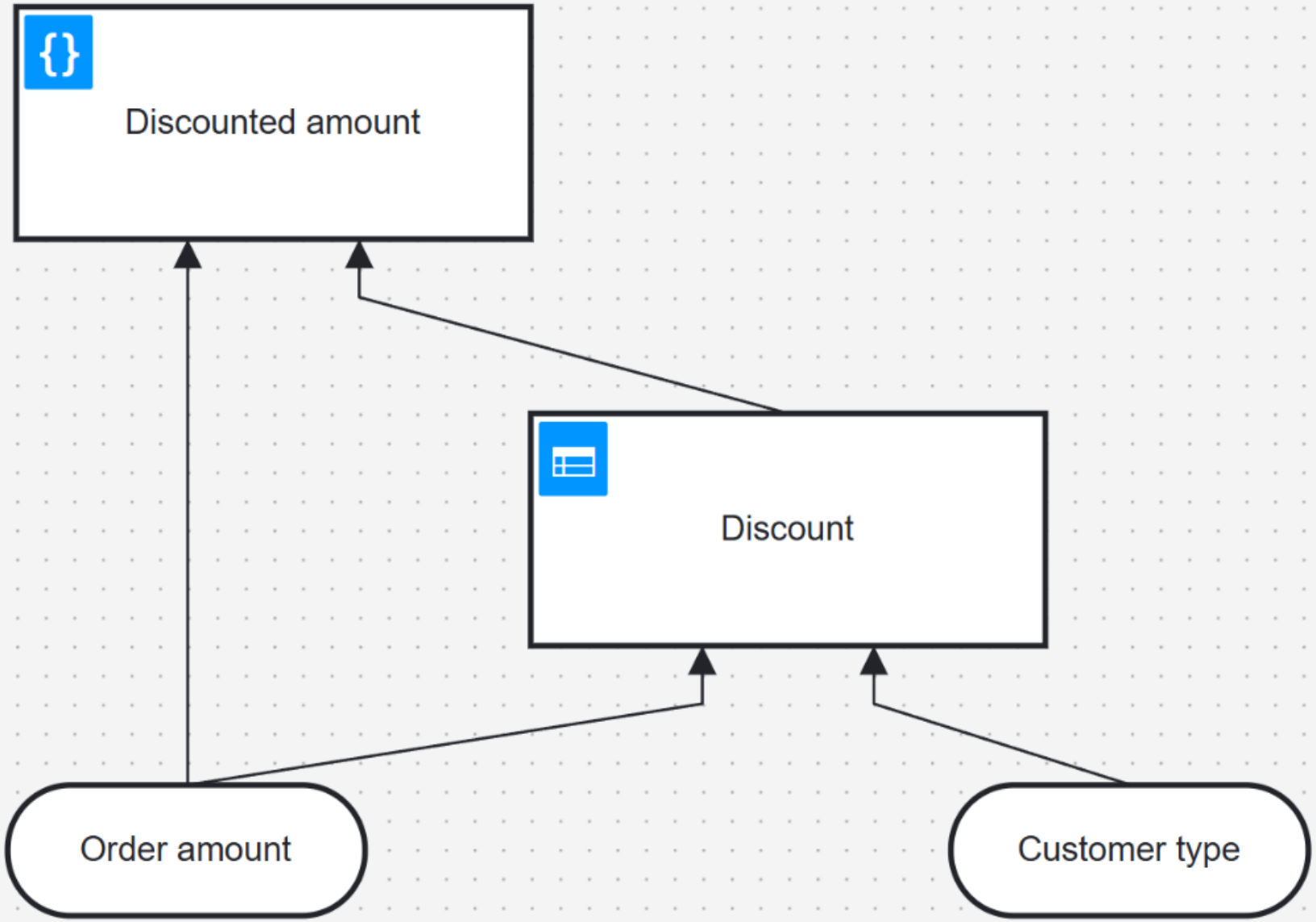
# Decisions based on other decisions

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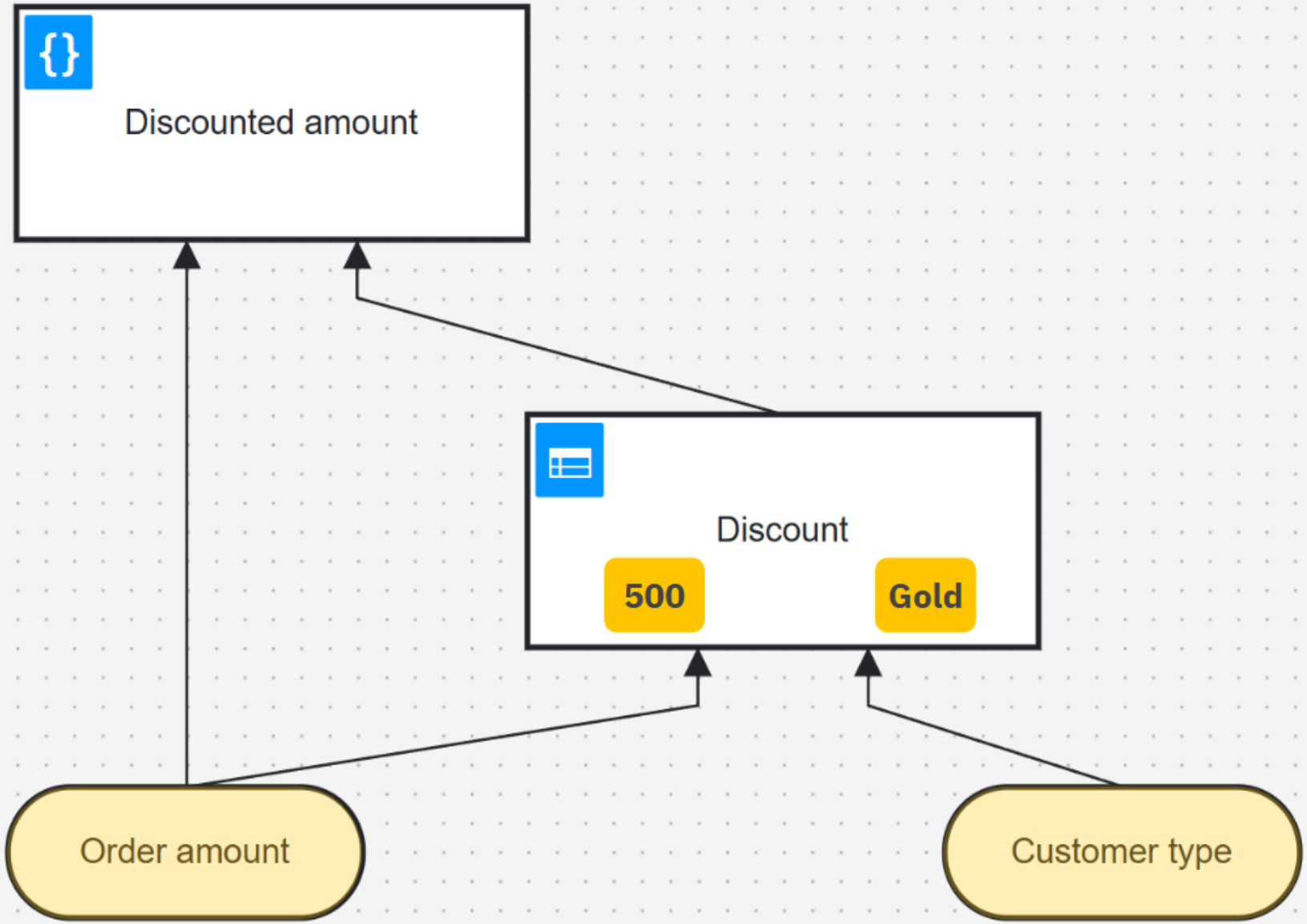


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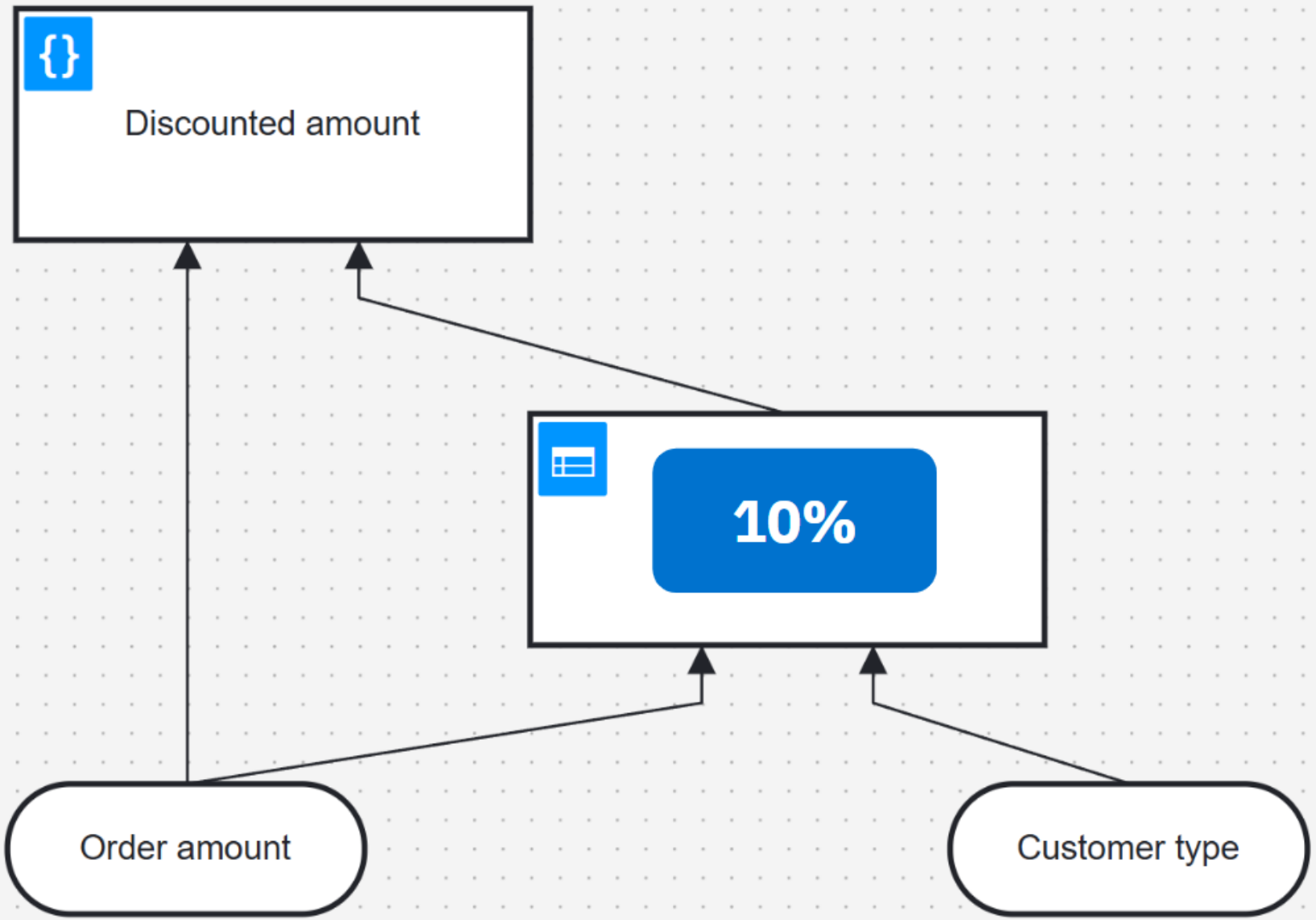
# Decisions based on other decisions



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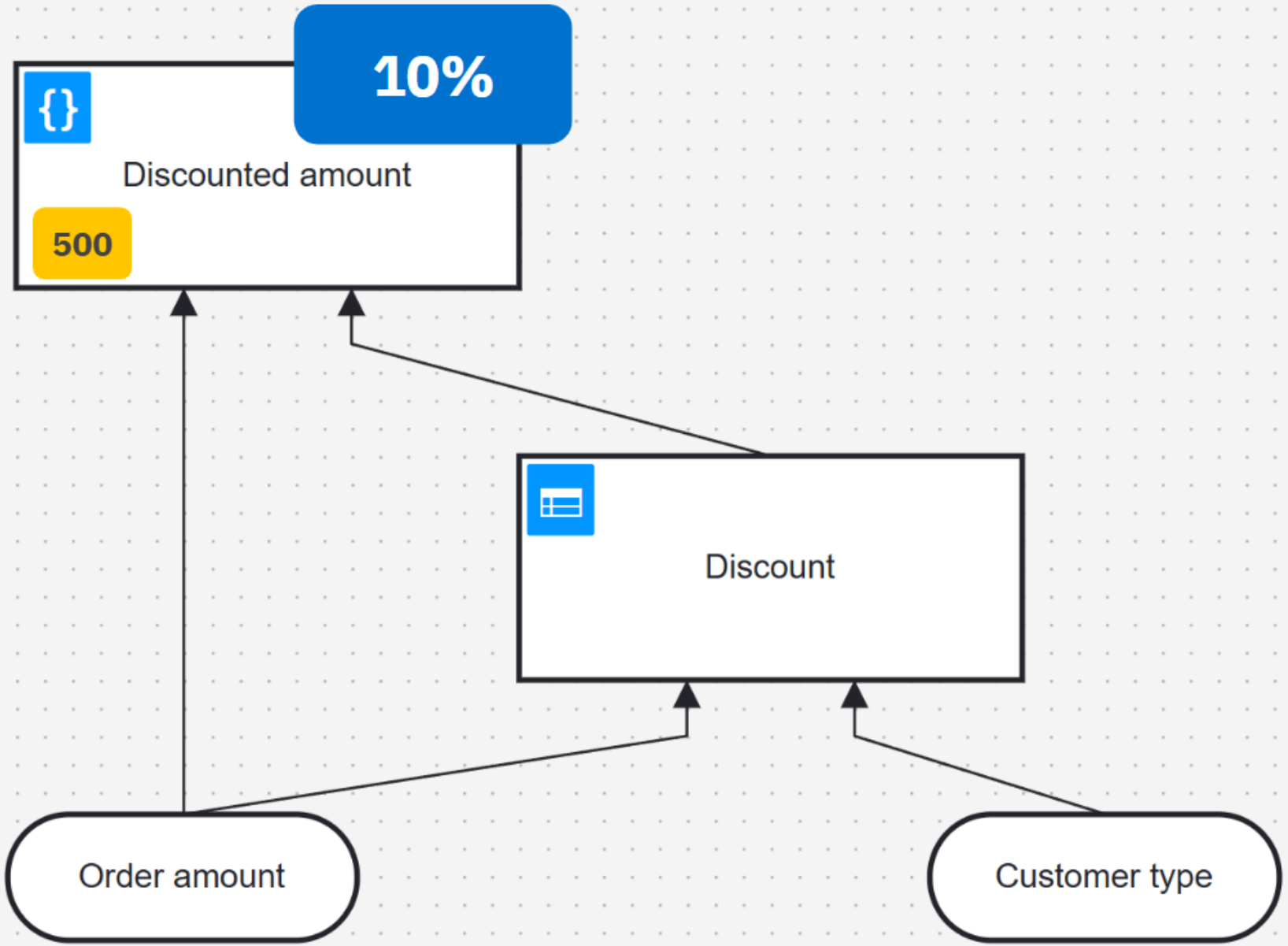


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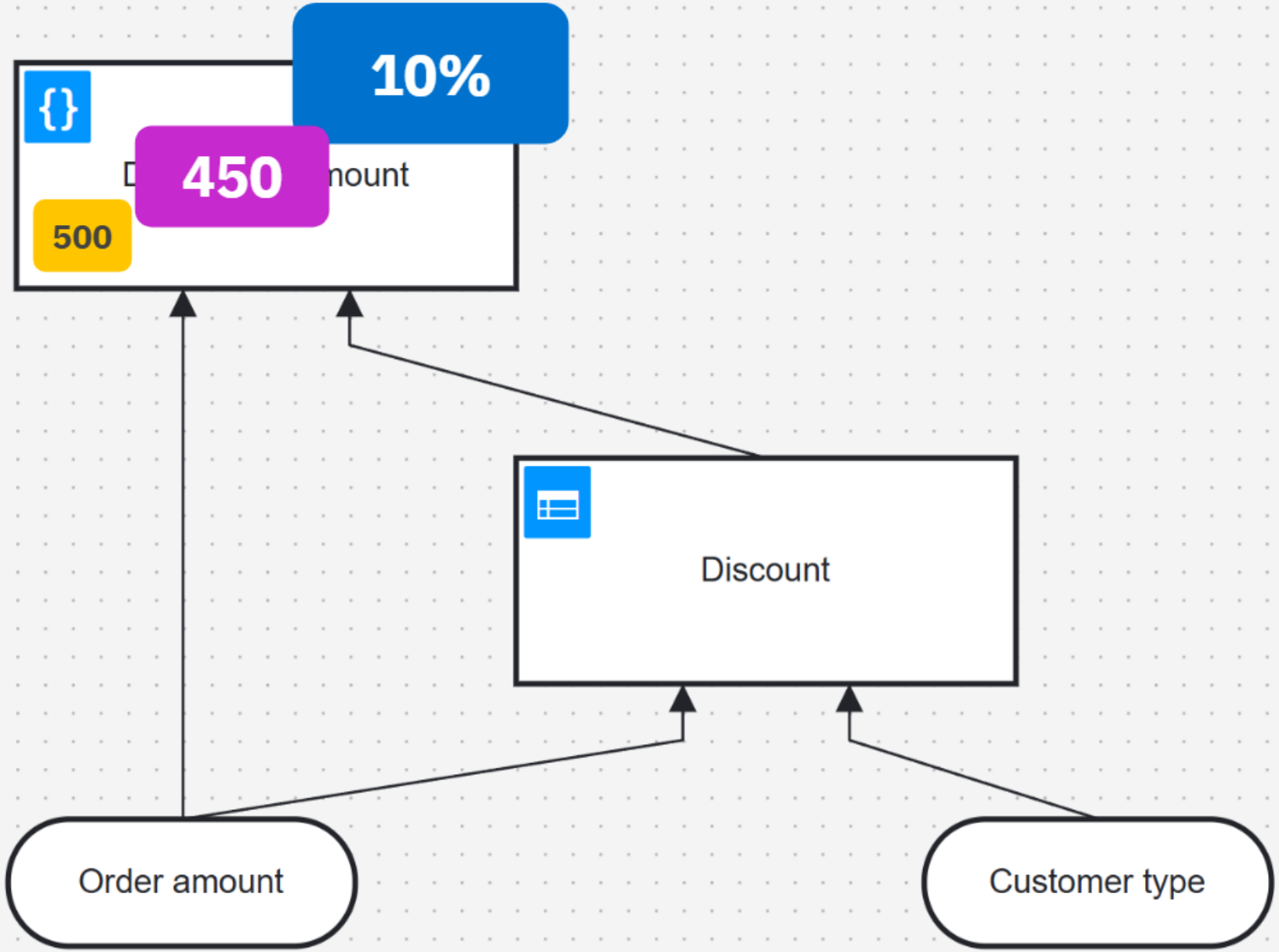
# Decisions based on other decisions




Details

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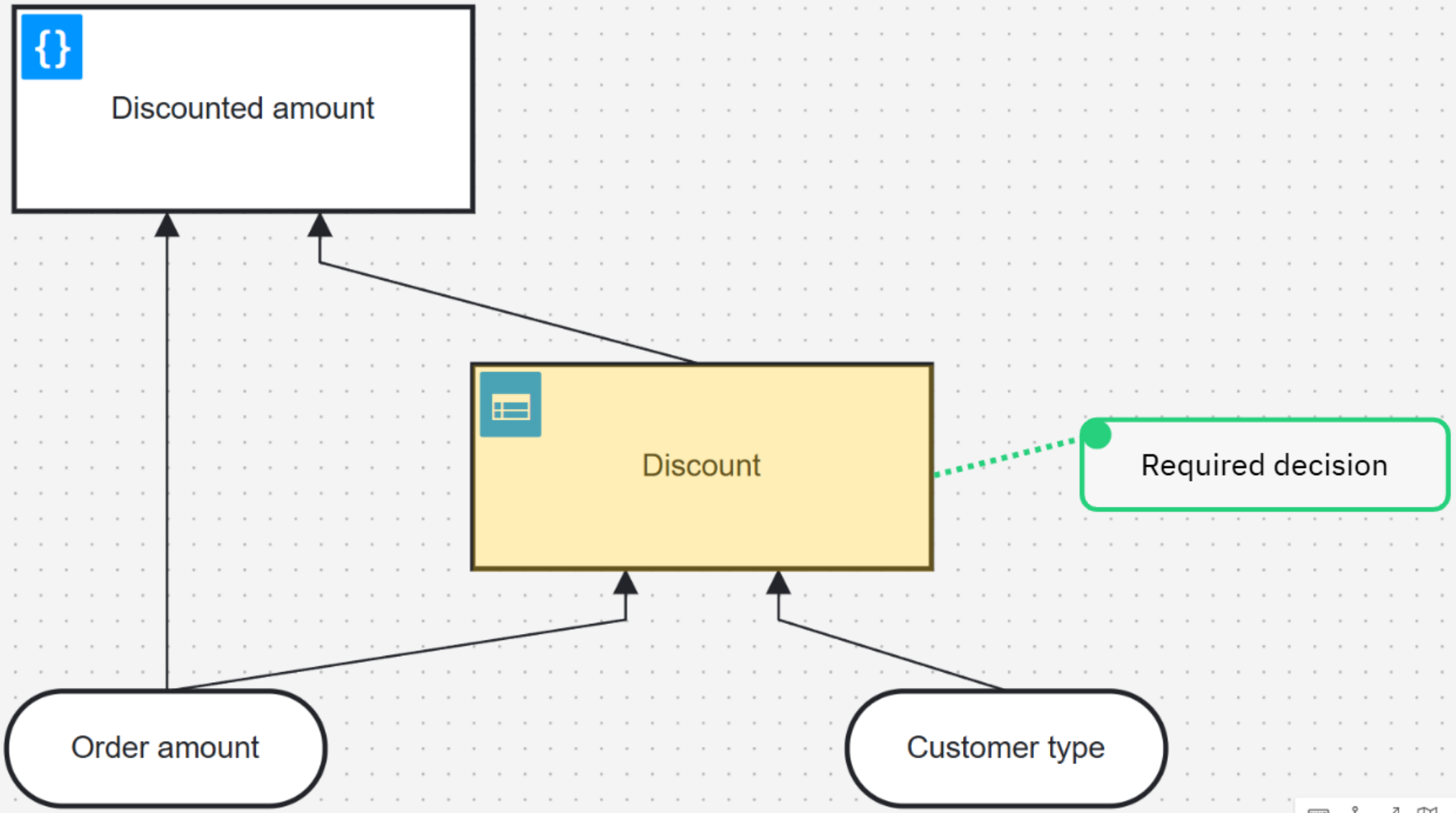

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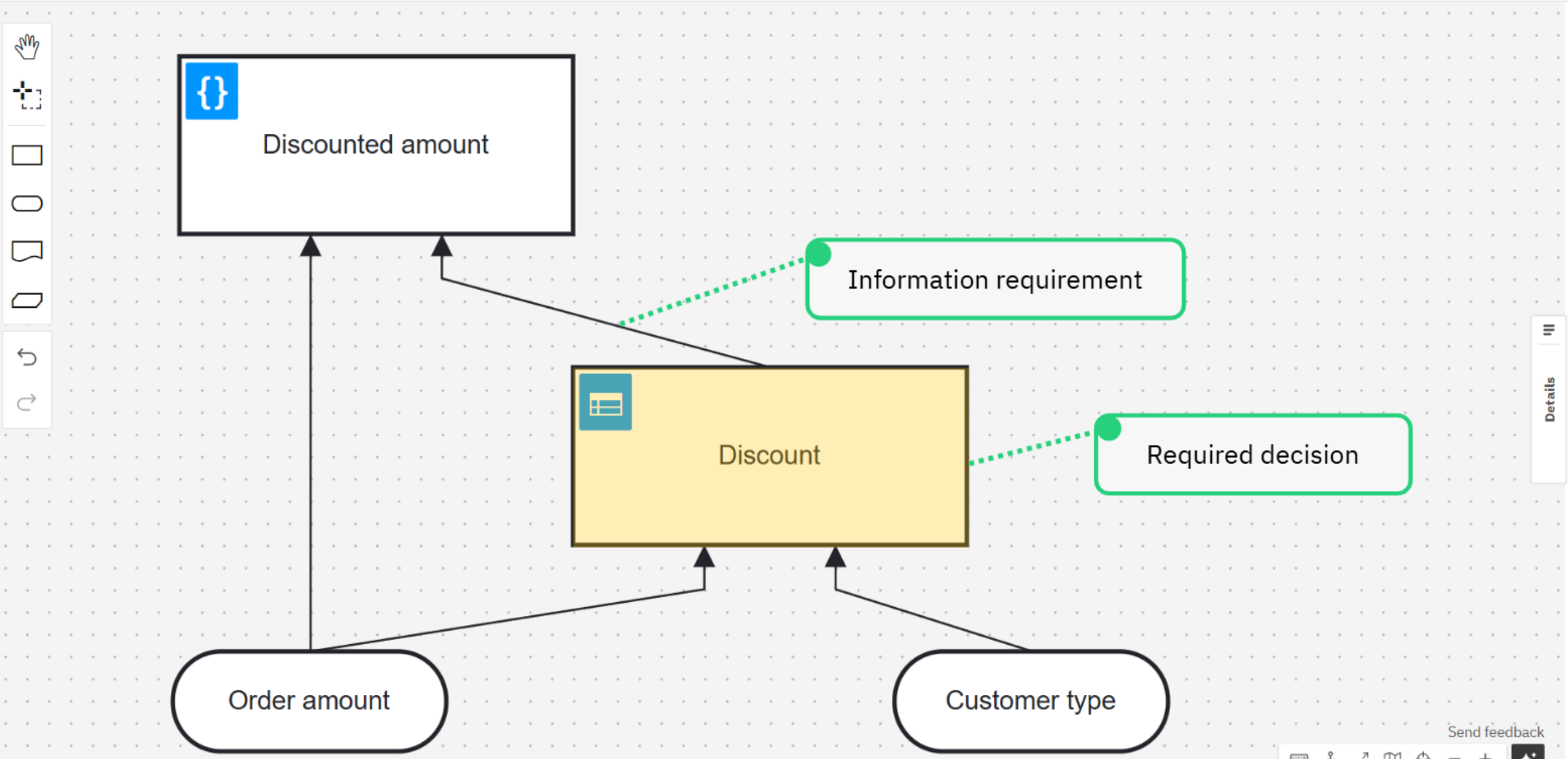

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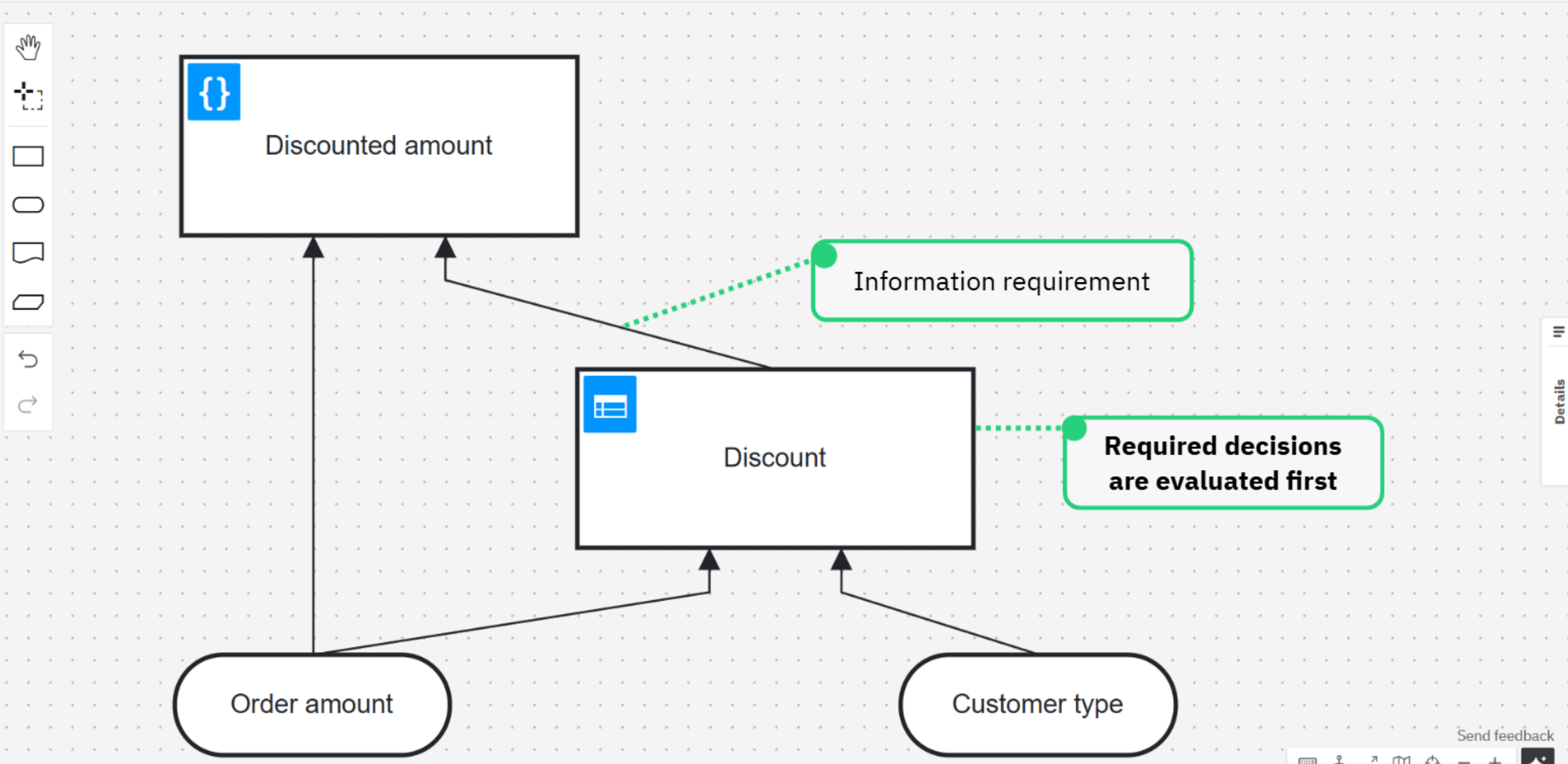
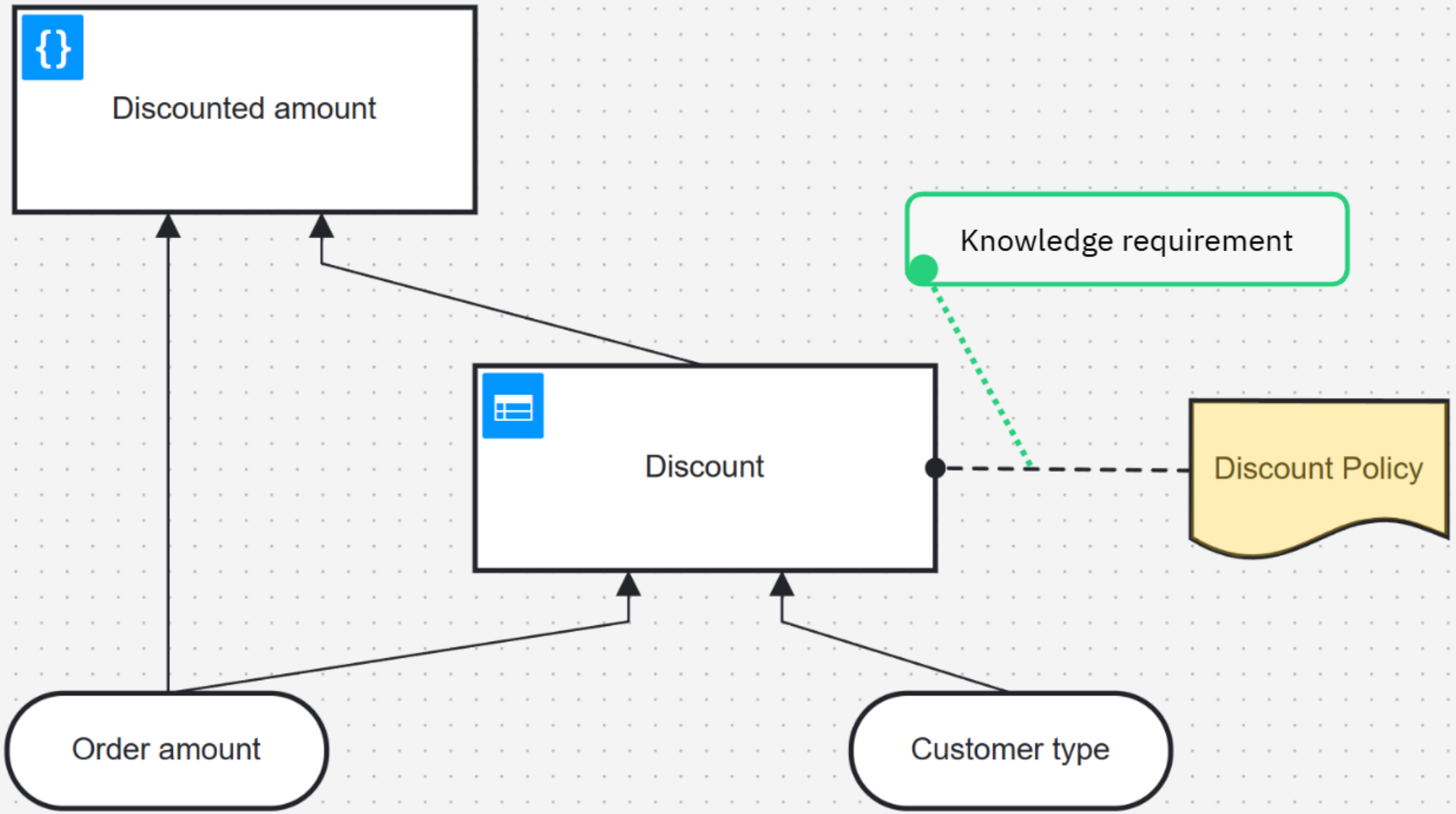


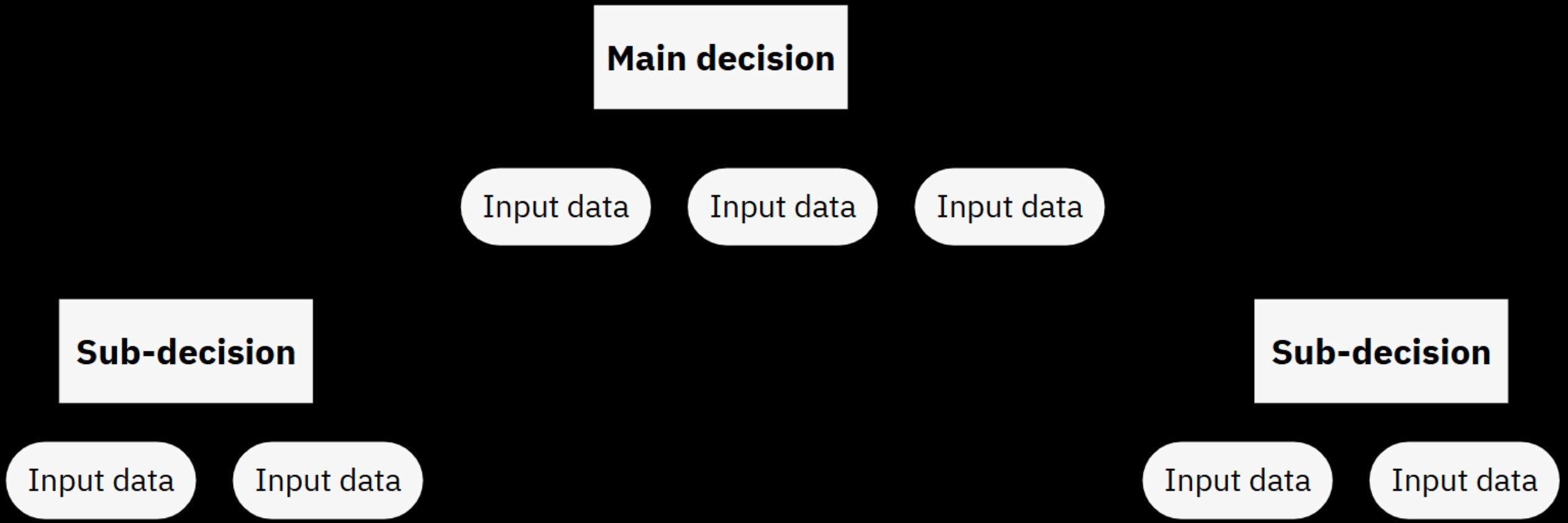
# Knowledge source and knowledge requirement



# Top down approach

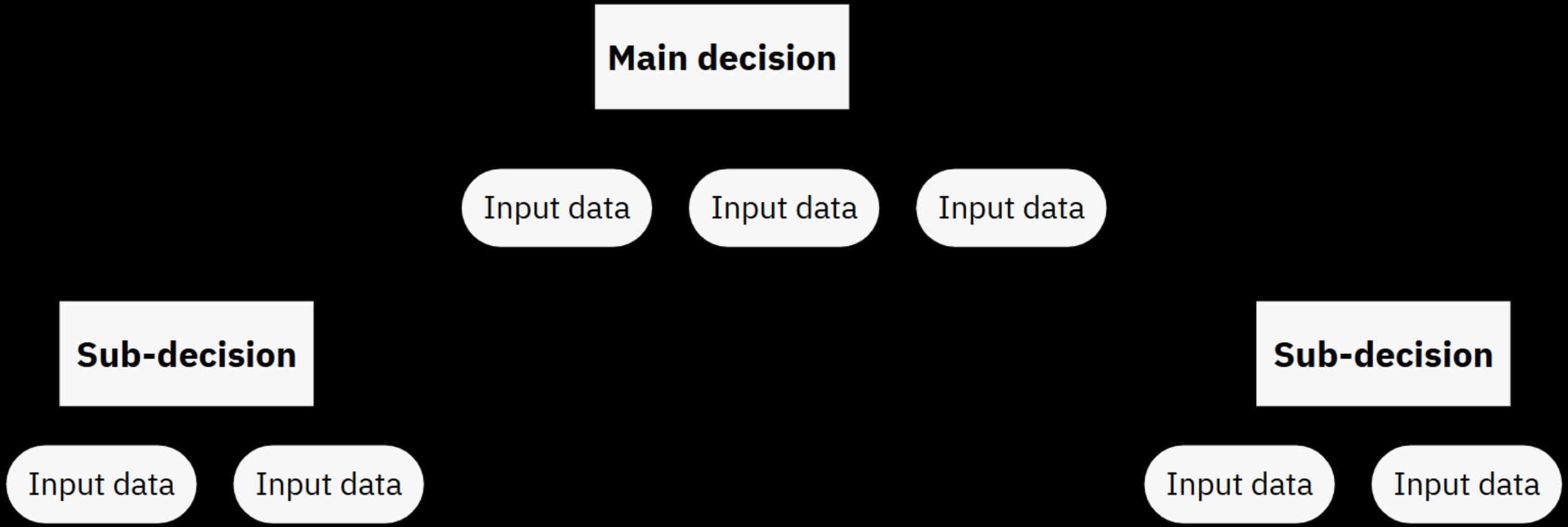
# What is the top down approach?

A strategy used to model complex decisions by starting with the main decision and then breaking it down into smaller, more manageable decisions.

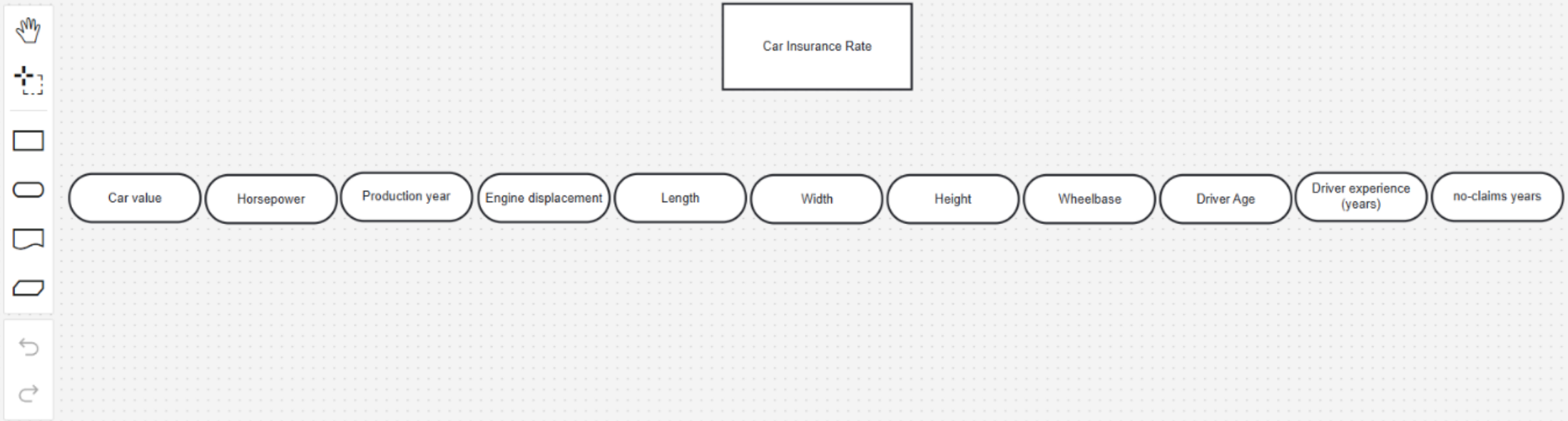


# What is the top down approach?

You should have a maximum of four inputs for each decision box in your diagram.



# Top down approach example

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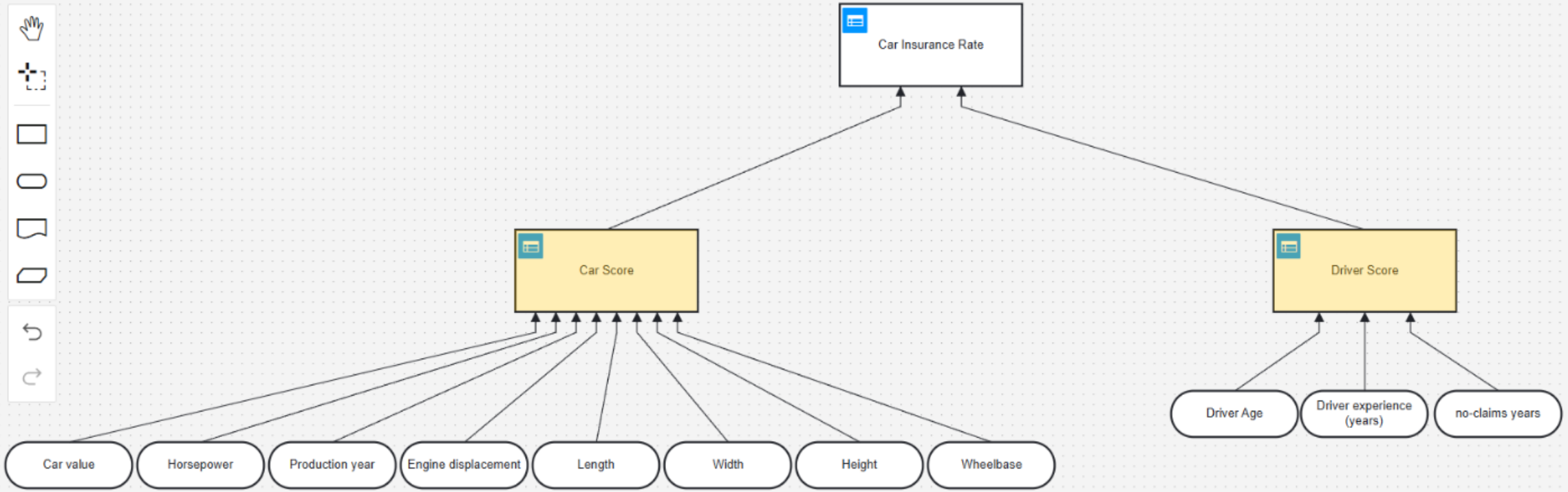
# Top down approach example

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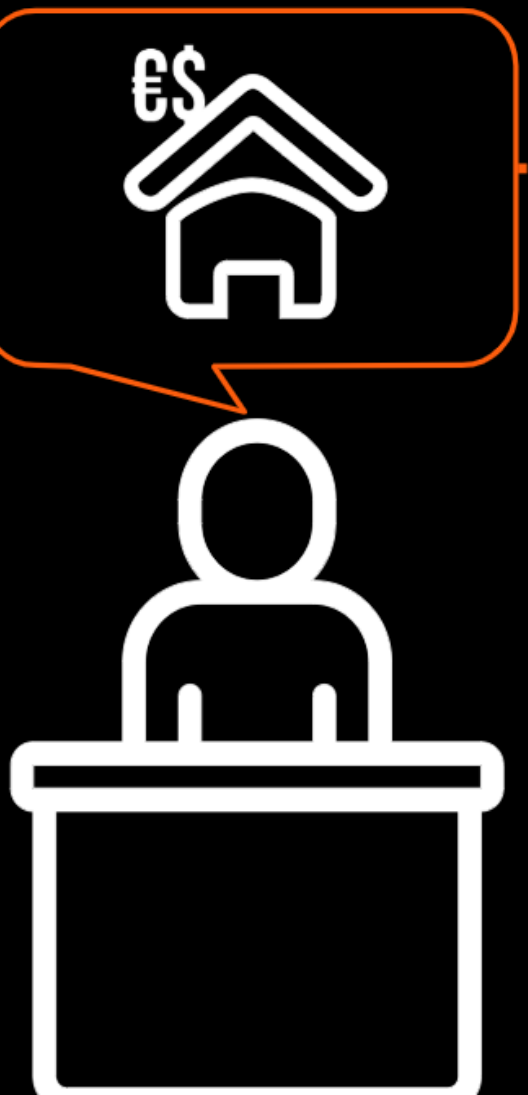
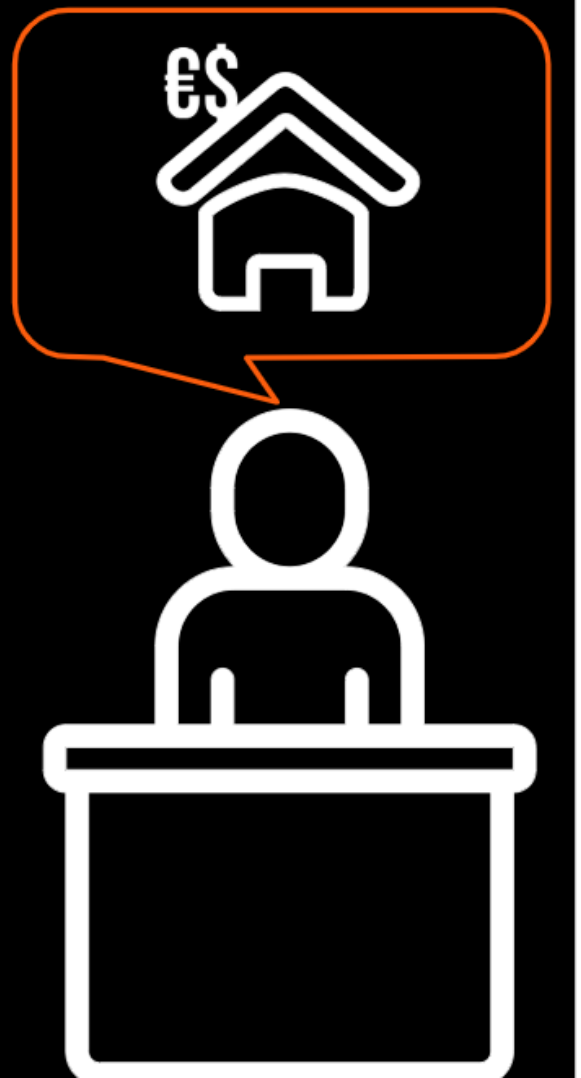
Try it yourself

# Exercise - real estate loan




The final piece of the puzzle that the bank needs to approve the loan terms is the **interest rate decision.**

# Exercise - real estate loan




To determine the interest rate, you first consider two key aspects:

- **Risk factor**
- **Loan-to-Value (LTV) ratio**

Since the LTV ratio depends on the overall value of the property you dig deeper. The total value of the property consists of:

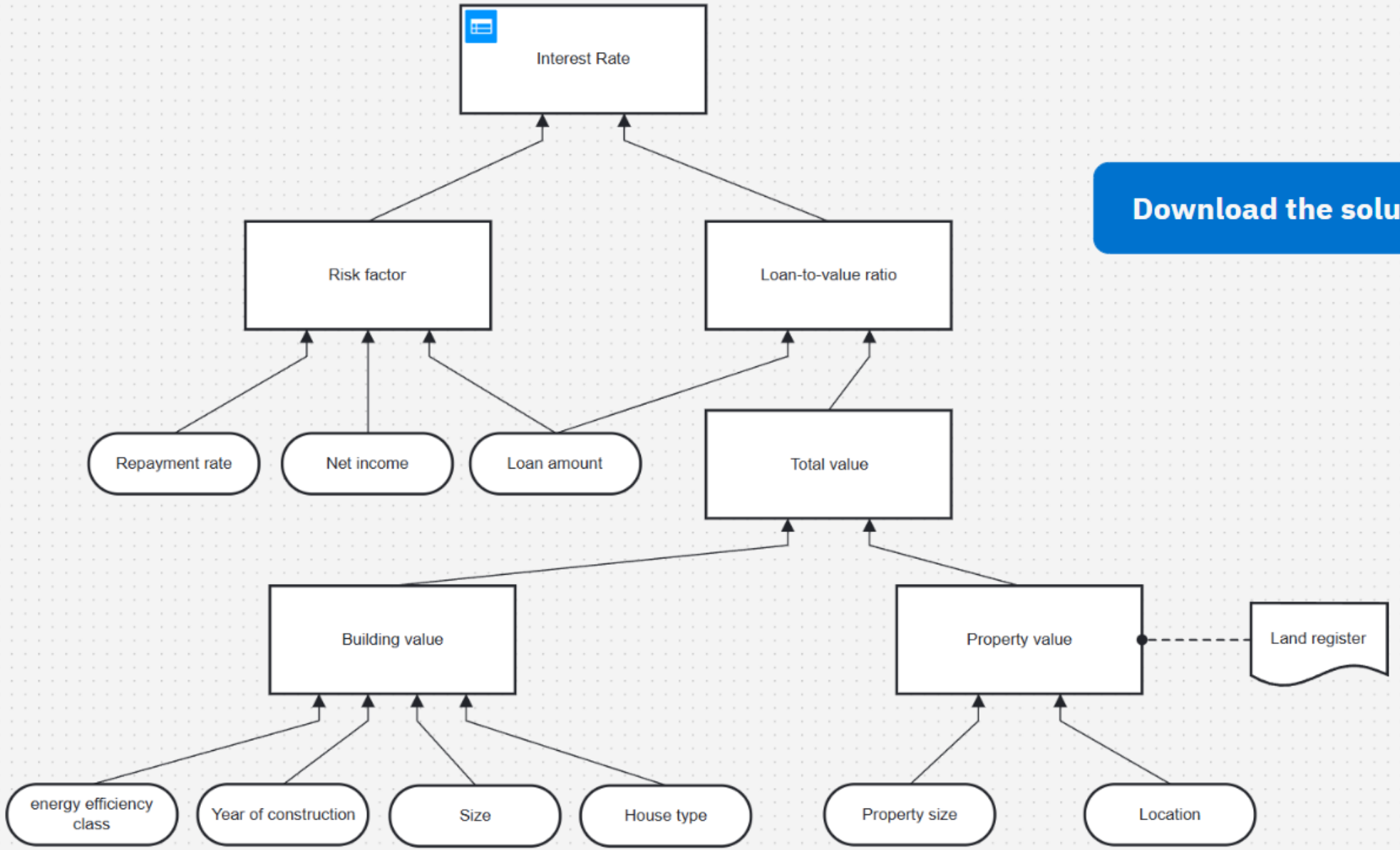
- **Building value**
- **Property value**

To accurately determine the Property Value, you consult an external source:
the **Land register,** which provides critical details about land evaluation.

At every step, you gather essential input data to support each decision:

- Risk factor depends on the applicant's repayment rate, net income and loan amount
- LTV ratio requires the loan amount and total value
- Building value relies on factors like energy efficiency class, year of construction, size and house type
- Property value is influenced by property type, and location

# Exercise solution: real estate loan DRD




Download the solution

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# Key takeaways

1. A DRD is a visual map of the decision-making process including: input data, knowledge sources and decision boxes

2. When making decisions, you figure out an output value based on different input values using logical definitions. You can easily show this decision logic with decision tables or literal expressions.

3. Name your decisions based on their output. It makes things clearer.

4. Use the top down approach to model complex decisions by starting with the main decision and then breaking it down into smaller, more manageable decisions.