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Developing Business Rules

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Objectives

After completing this lesson, you should be able to:

- Describe business rule concepts
- Describe the Oracle Business Rules architecture
- Describe the Rules Engine
- Explain the role of the Oracle Business Rules dictionary
- Create rules with the JDeveloper Rules Designer
- Integrate a simple rule with a BPEL process
- Describe the role of the Rules SDK

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Agenda

- Business Rules: Introduction
- Business Rules in the Oracle SOA Suite

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Business Rules: Introduction

Business rules are declarative statements that describe business policies or key business decisions. Examples of business rules include:

- Business policies such as spending policies and approval matrixes
- Constraints such as valid configurations and regulatory requirements
- Computations such as discounts and premiums
- Reasoning capabilities such as offers based on customer value

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Business Rules Component

A *decision component*, which is also called a *business rule service component*, supports the use of Oracle Business Rules in a SOA composite application. Decision components can be called within a composite application:

- By a BPEL component
- By a human task
- By the dynamic routing capability of Oracle Mediator
- Directly by the SOA composite client

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Business Rules Use Cases

Business rules can be used in various ways in composite applications:

- Dynamic processing
  - Rules can perform routing within a business process based on service-level agreements or other guidelines.
- Externalization of business rules in a business process
  - Many conditions must be evaluated in a business process. The parameters for these conditions can be changed independently of the process.
- Data validation and constraint checks
  - Validate input documents or apply constraints on requests.
- Human task routing
  - Policy-based task assignments to specific roles or users
  - Load balancing of tasks among users

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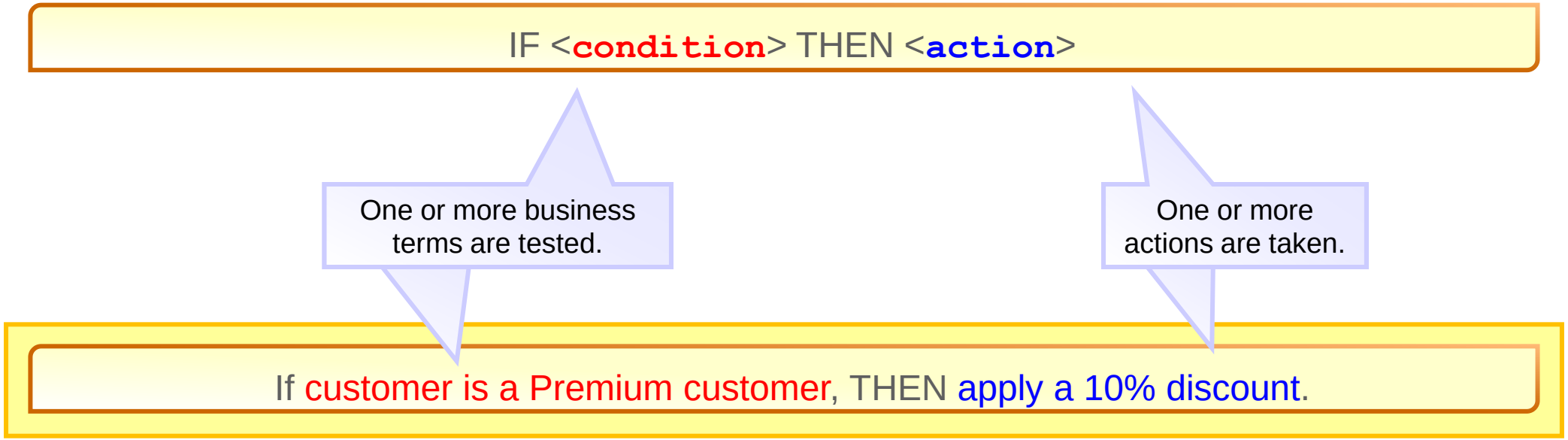
Declarative Rules



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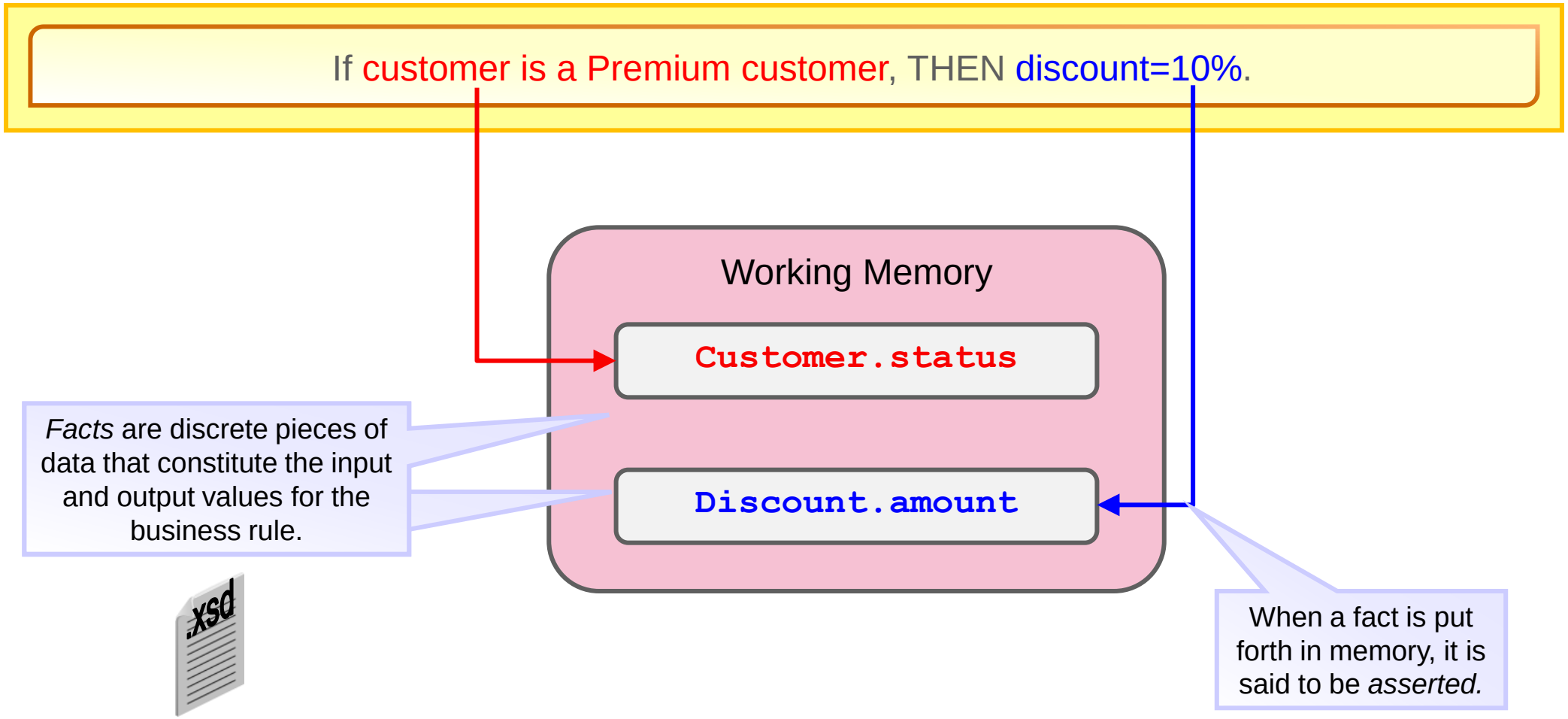
Facts



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Decision Tables

A *Decision* Table provides a compact representation of all possible if/then permutations.

Decision Table	R1	R2	R3
CONDITION `If shipChoice`	`two_day`	`five_day`	`next_day` or `international`
ACTION `Assert carrier`	`RedShipper`	`GreenShipper`	`BlueShipper`

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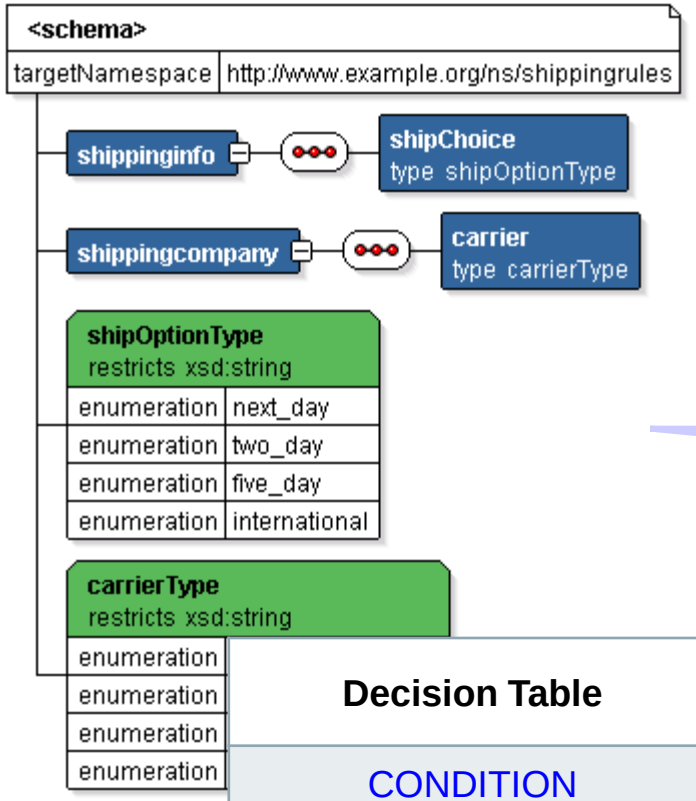
Value Sets



Value sets define a list of values, a range of values, or an enumeration of values for a specified type.

Value sets are defined as types in an XSD file. They define the possible values for **`shipChoice`** and **`carrier`**.

Decision Table	R1	R2	R3
CONDITION **`If shipChoice`**	**`two_day`**	**`five_day`**	**`next_day`** or **`international`**
ACTION **`Assert carrier`**	**`RedShipper`**	**`GreenShipper`**	**`BlueShipper`**

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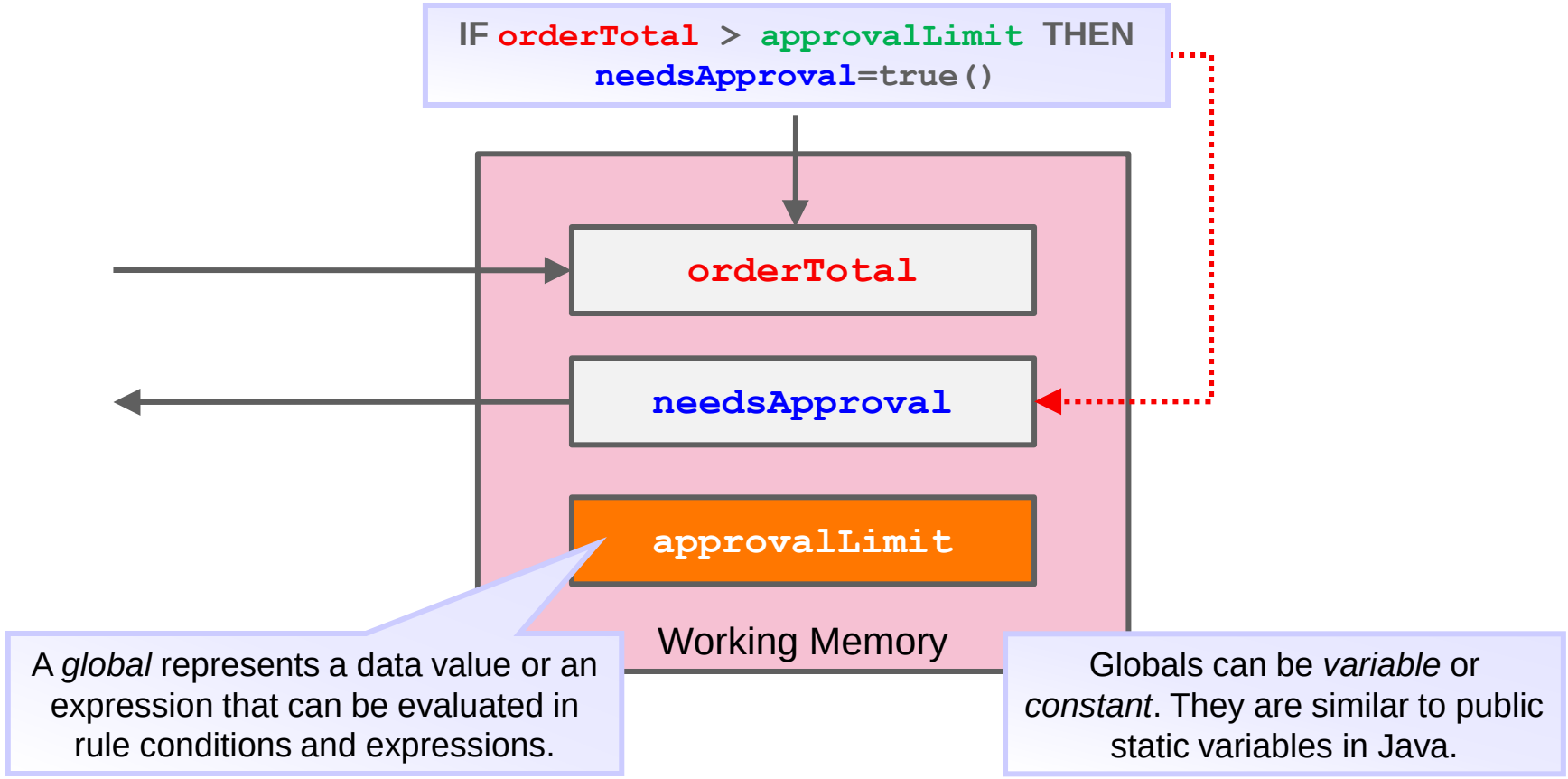
Globals



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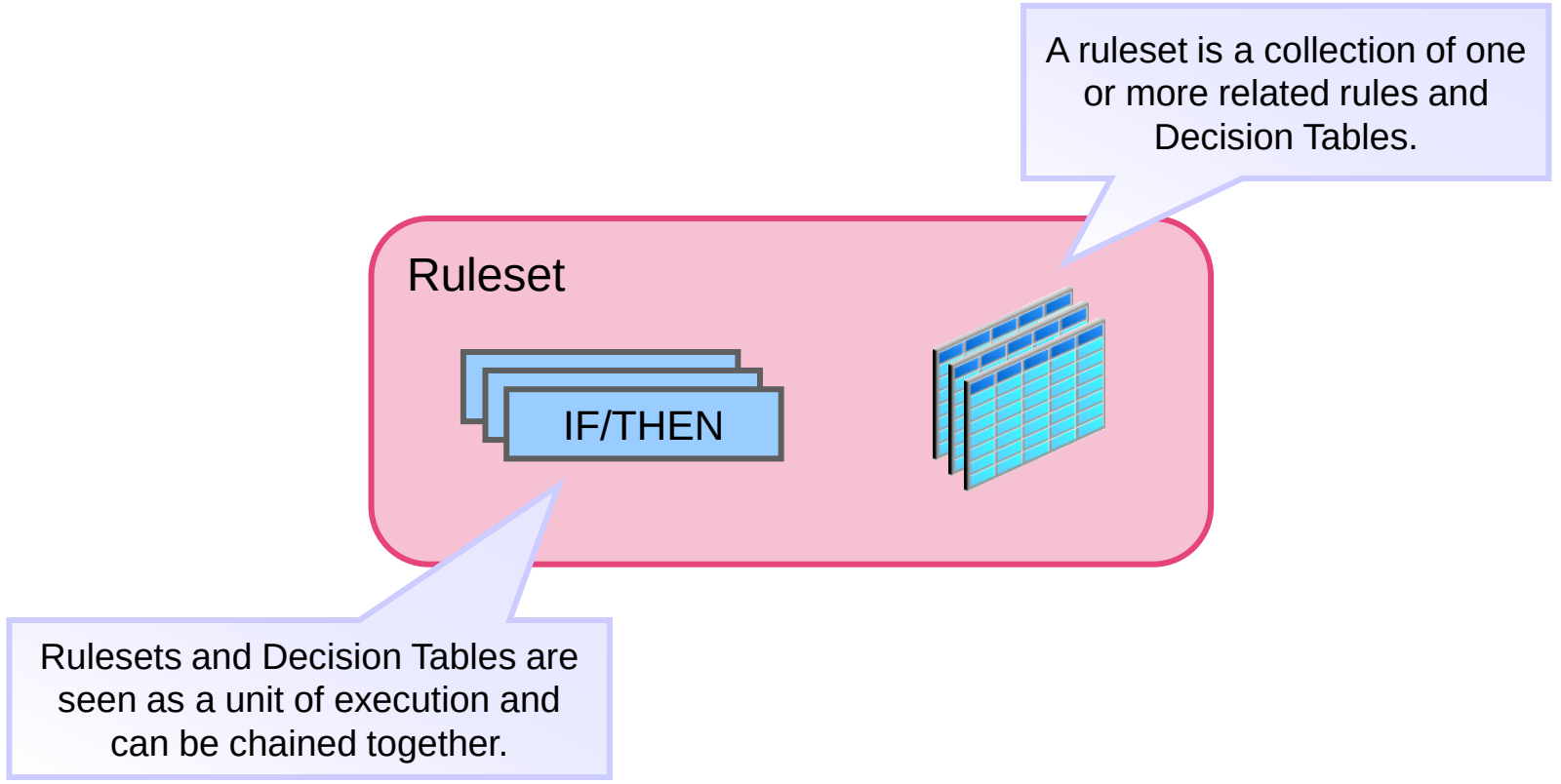
Rulesets



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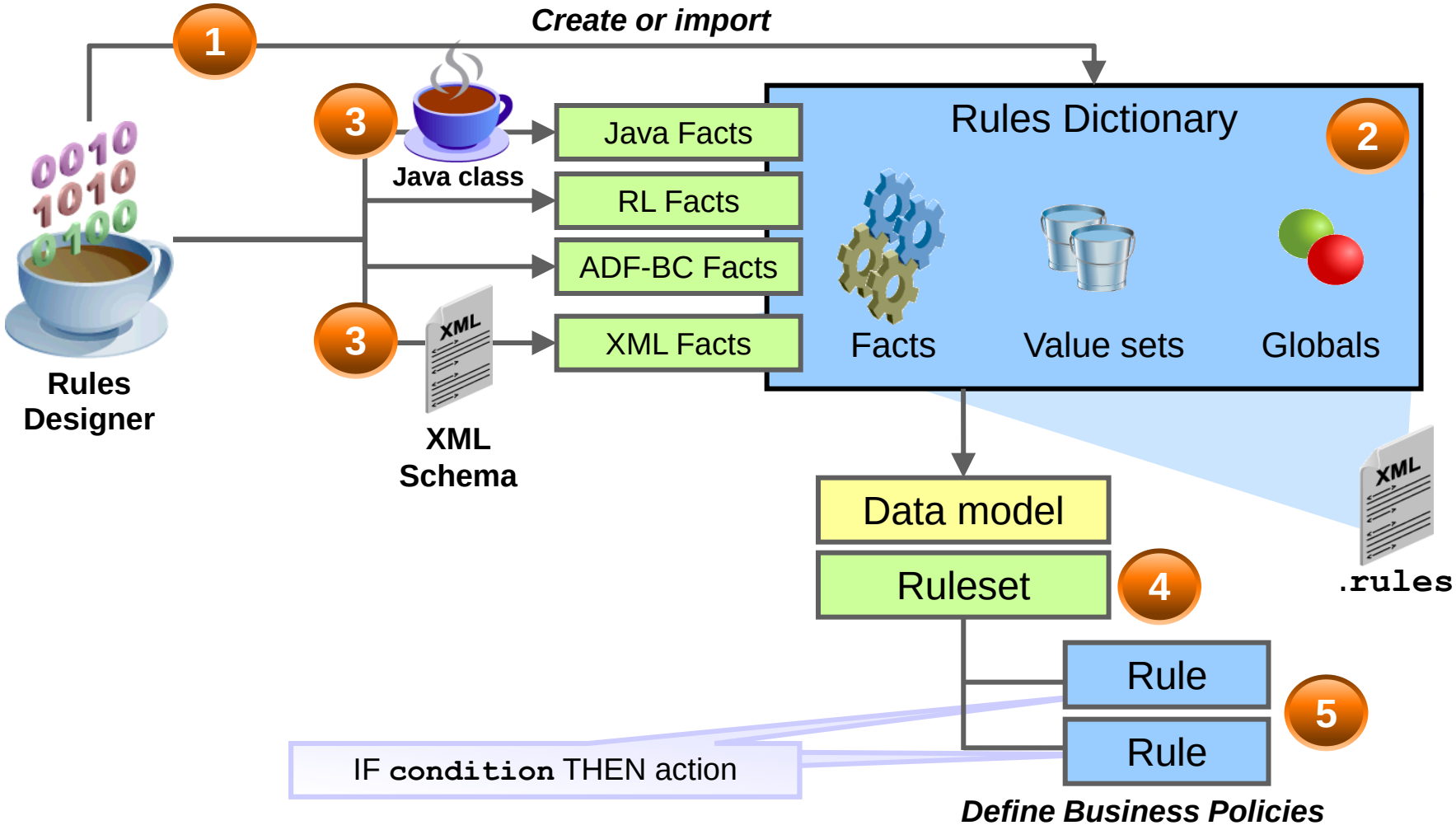
Rules Dictionary



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Oracle Business Rules RL Language

The **goldCust** rule uses a Java class containing the customer data, **cust.**

```
rule goldCust {
  if (fact Customer cust && cust.SpentInLastMonths(3) > 500 ){
              assert (new GoldCustomer(cust: cust));
  }
}
```

An instance of the **GoldCustomer** RL class is asserted, representing a customer who spends more than $500 in a three-month period.

```
rule goldDiscount {
   if (fact Order ord & fact GoldCustomer(cust: ord.customer) )
       {
            ord.discount = 0.1;
            assert(ord);
       }
}
```

The RL fact GoldCustomer is used to infer that if a customer spent $500 in the past three months, the customer is eligible for a 10% discount.

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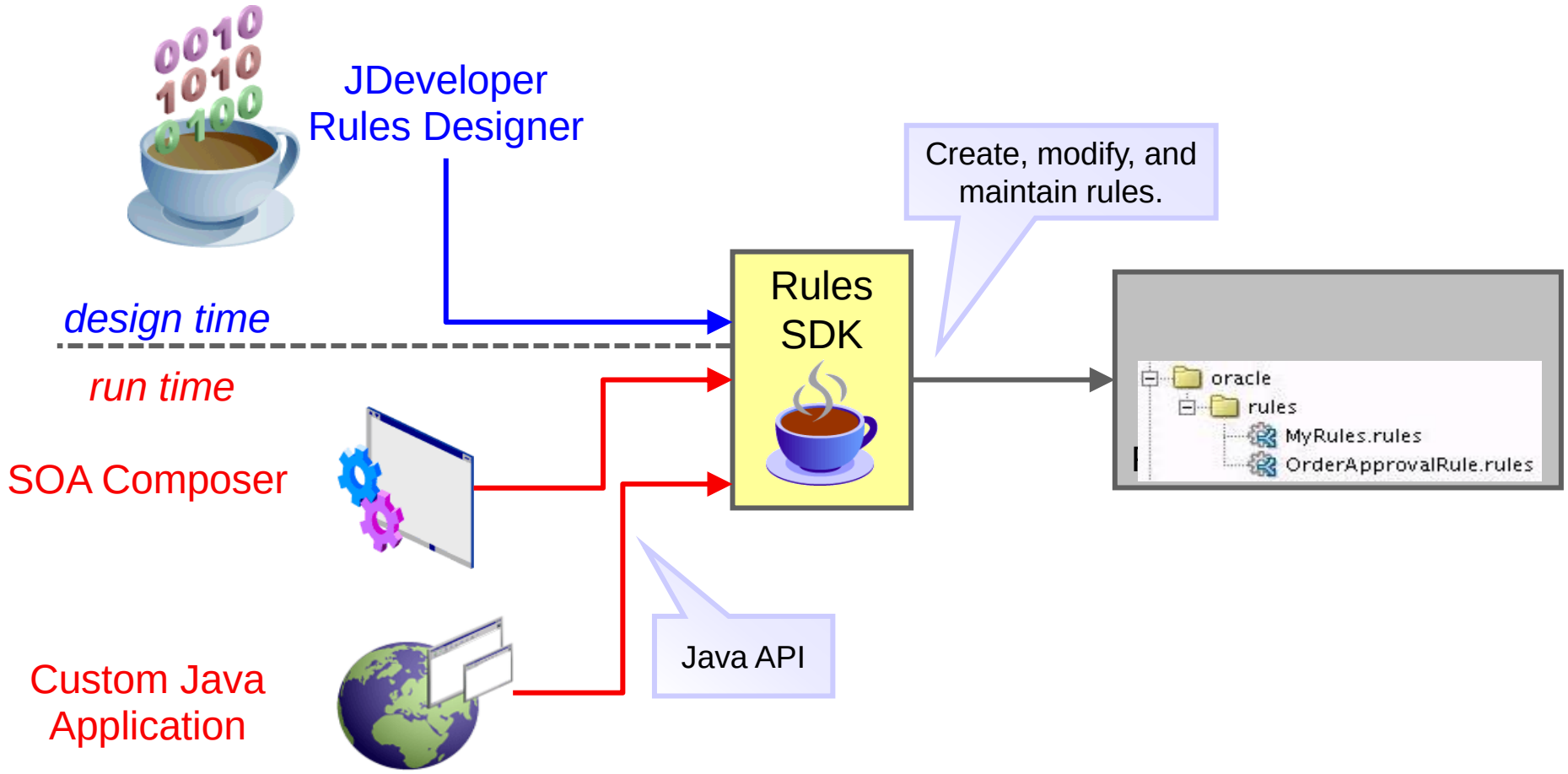
Oracle Business Rules SDK



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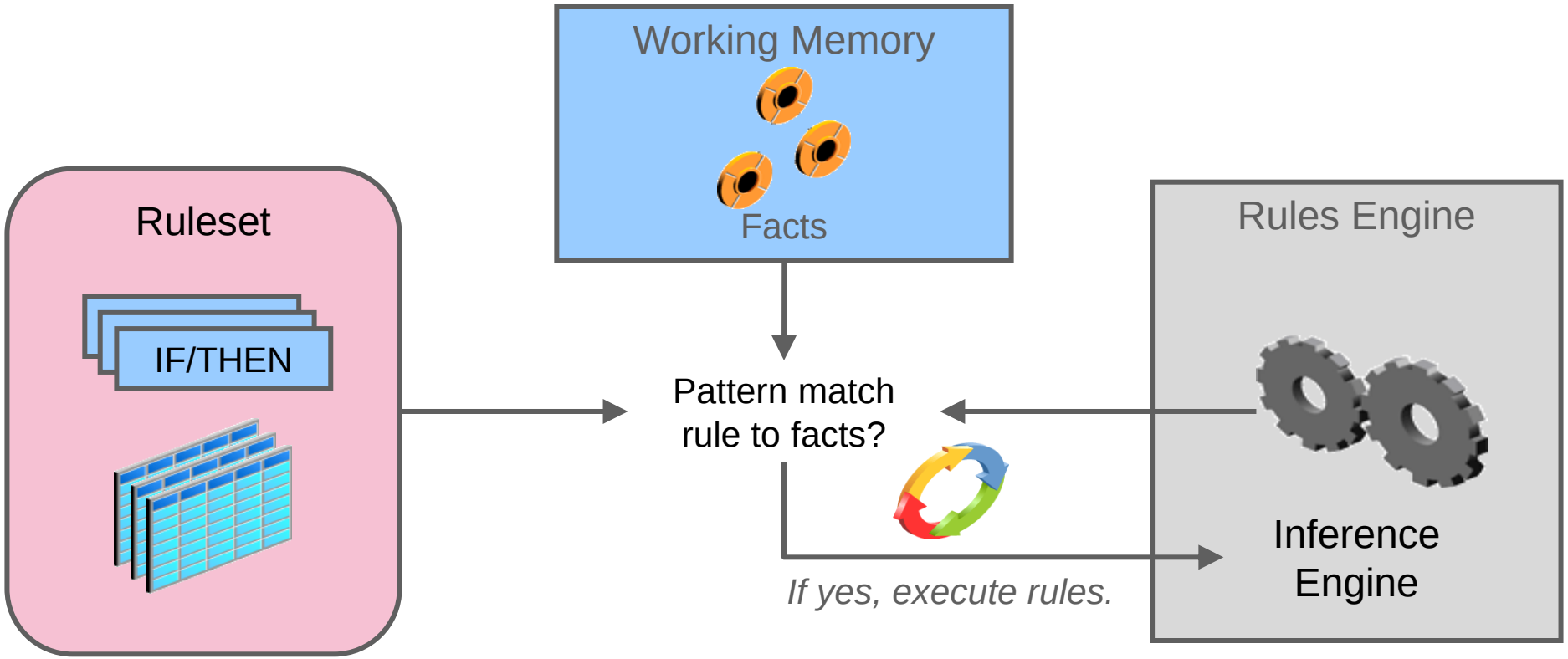
Oracle Business Rules Components



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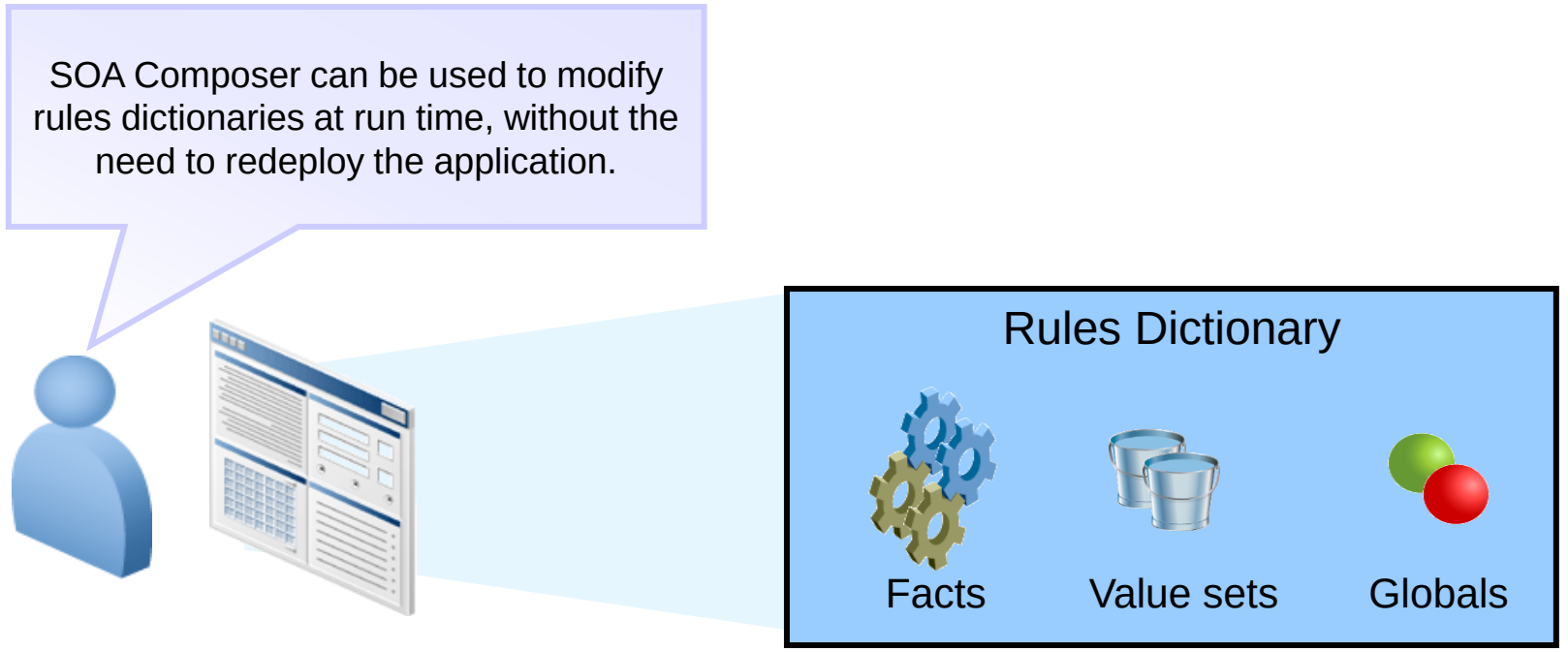
Editing Business Rules at Run Time



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Quiz

A _____ is a collection of one or more rules that are seen as a unit of execution.

a. Fact
b. Ruleset
c. Dictionary

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Agenda

- Business Rules: Introduction
- Business Rules in Oracle SOA Suite

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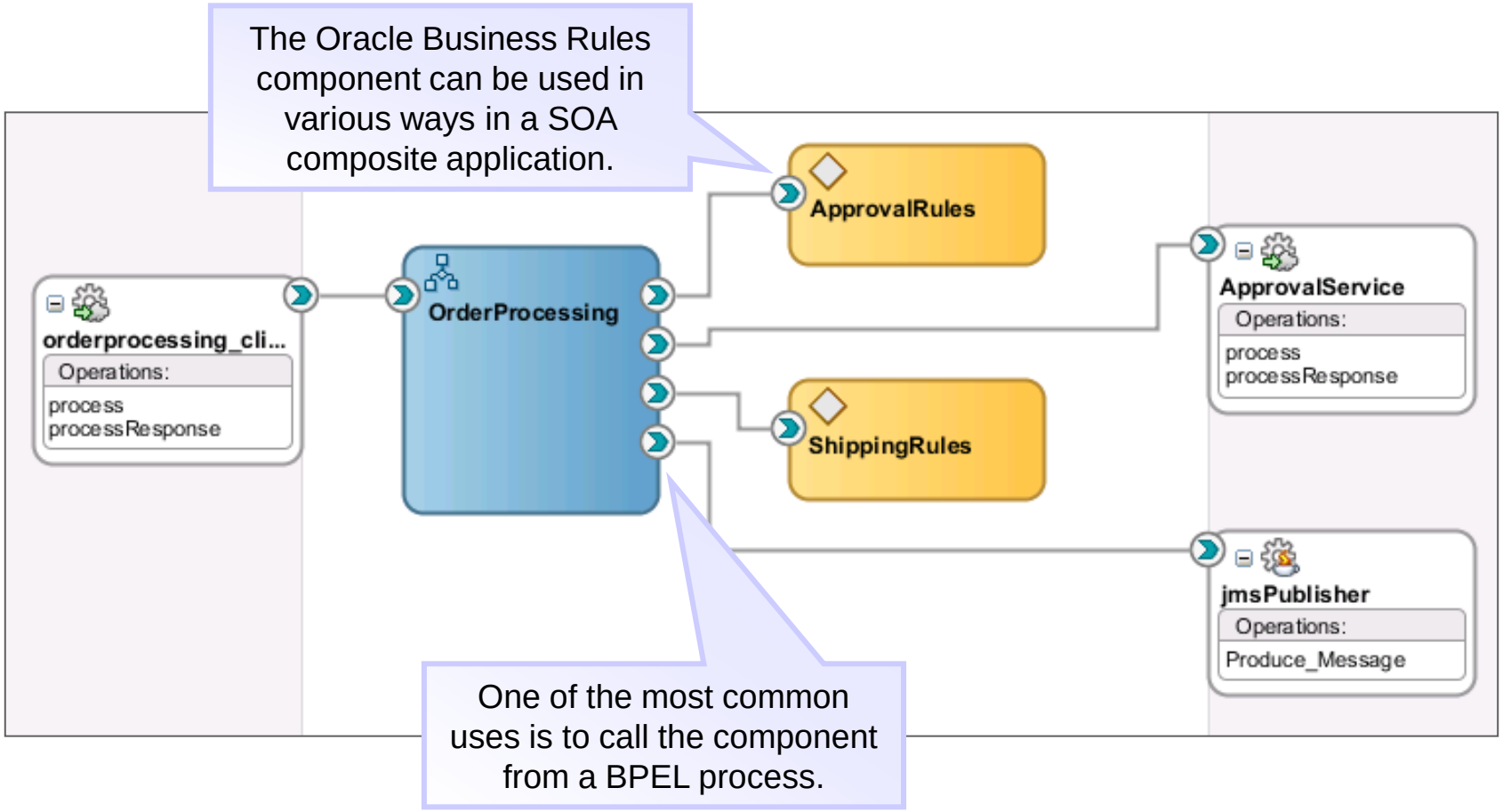
Business Rules Component: Overview



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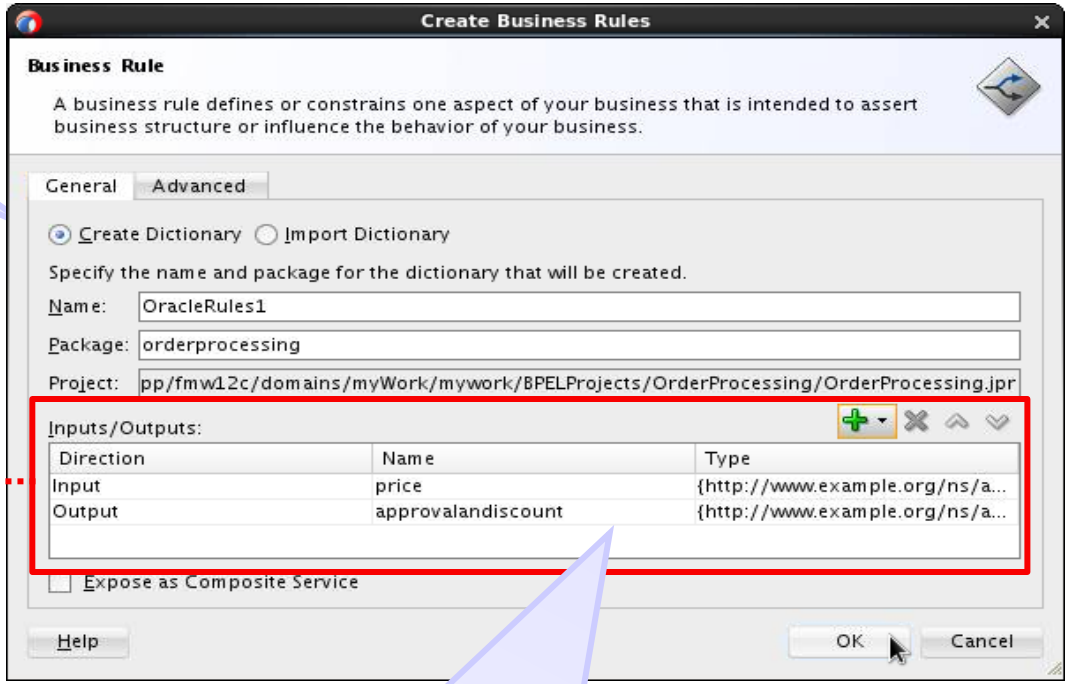
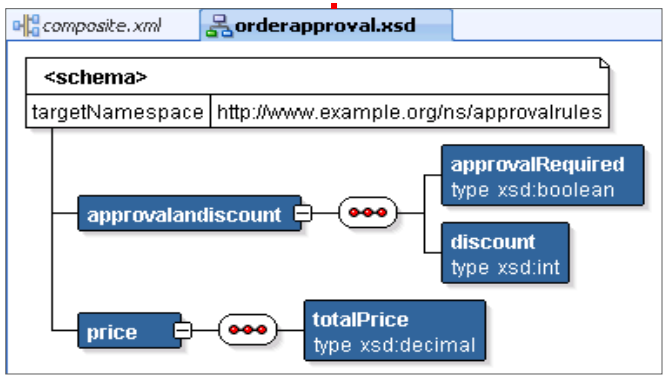
Creating a Business Rules Service Component

Create or import a dictionary.





Specify the initial XML fact structures and the default Decision service input and output message structures.

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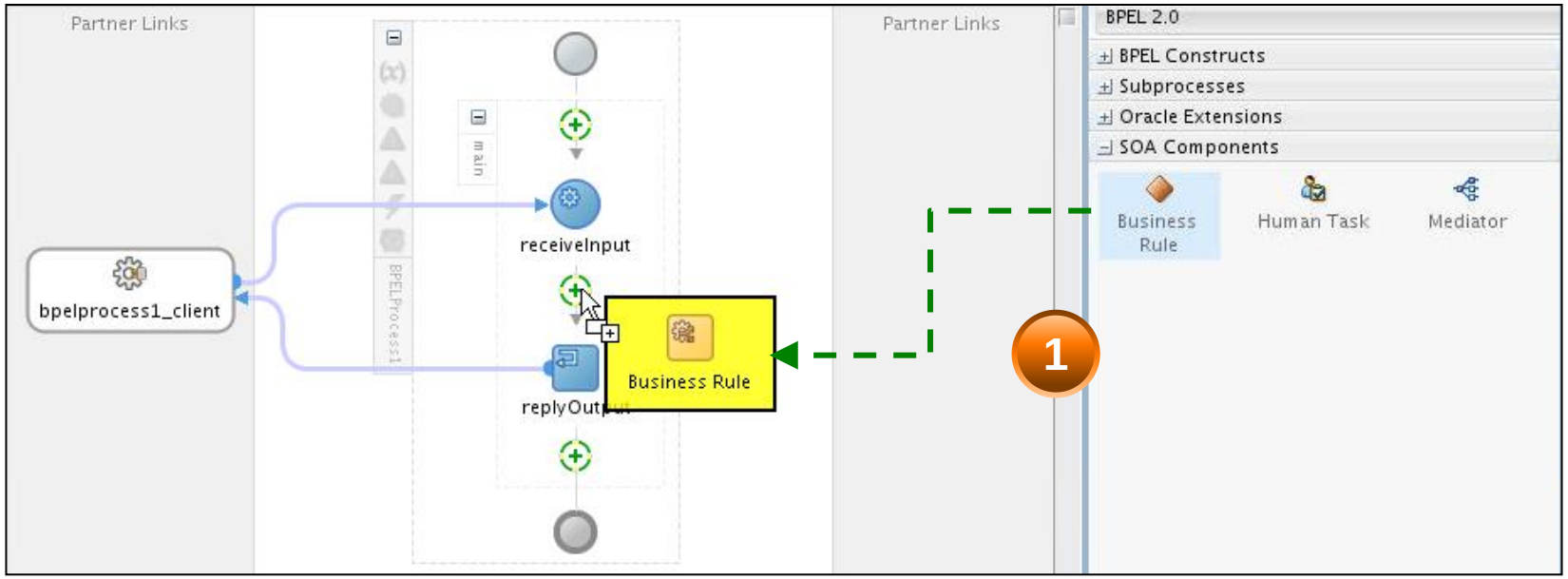
Adding a Business Rule to a BPEL Process



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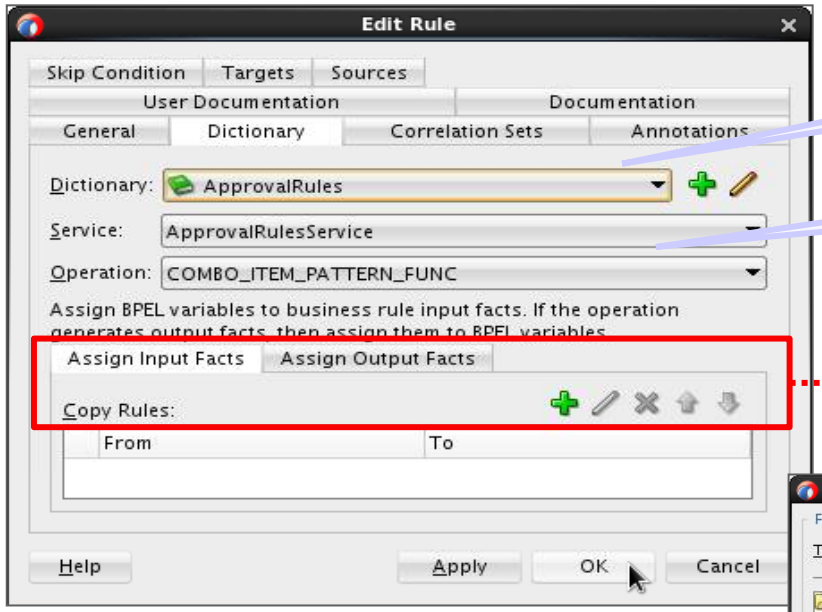
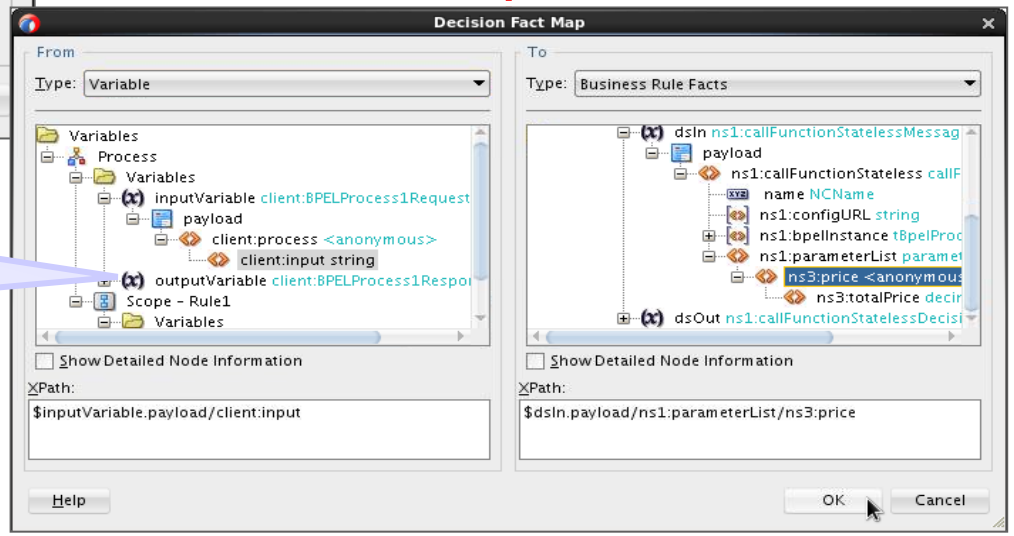
Configuring a Business Rule in a BPEL Process



Select a dictionary.

Select the operation.



Map BPEL variable values to input and (if the business rule is synchronous) output facts.

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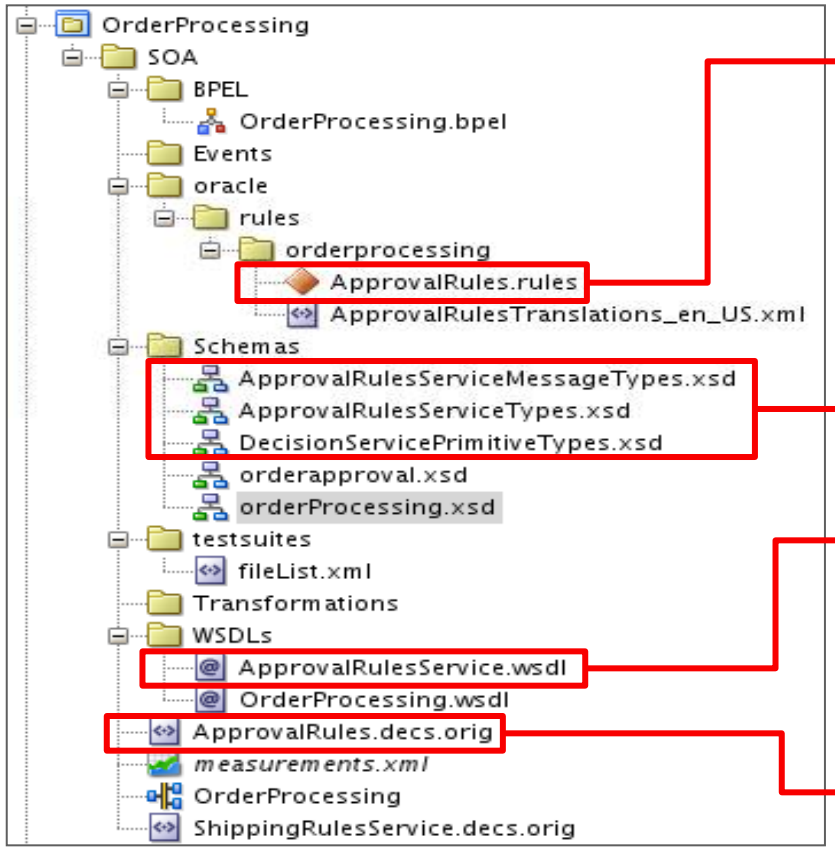
Examining Business Rules Component Files



The Business Rules dictionary contains the ruleset definitions, rule, facts, and globals.

The Decision Service XML Schema defines the structures for the input and output facts.

The Decision Service WSDL document defines the basic stateless and stateful web service operations that can be invoked.

The Business Rules metadata defines the mapping of the Decision service operations to the Decision functions.

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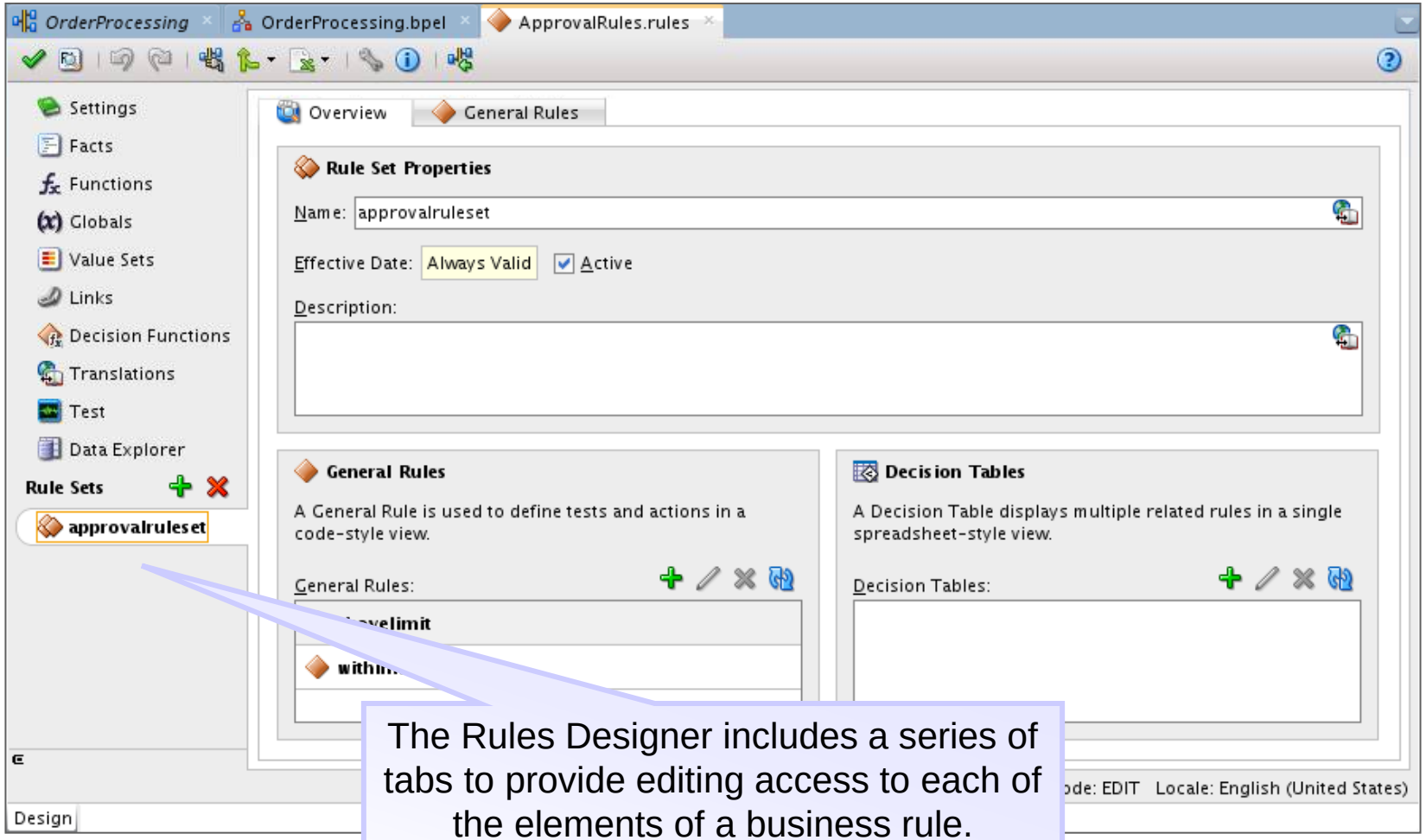
Editing the Rules Dictionary



The Rules Designer includes a series of tabs to provide editing access to each of the elements of a business rule.

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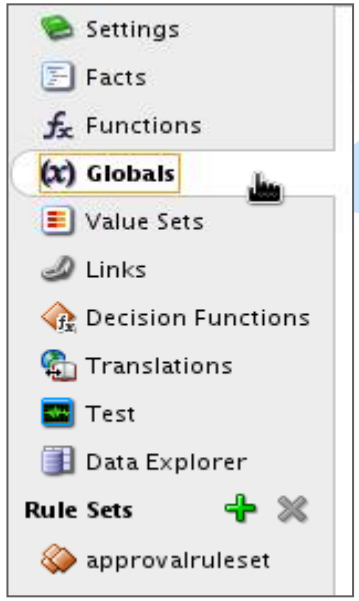
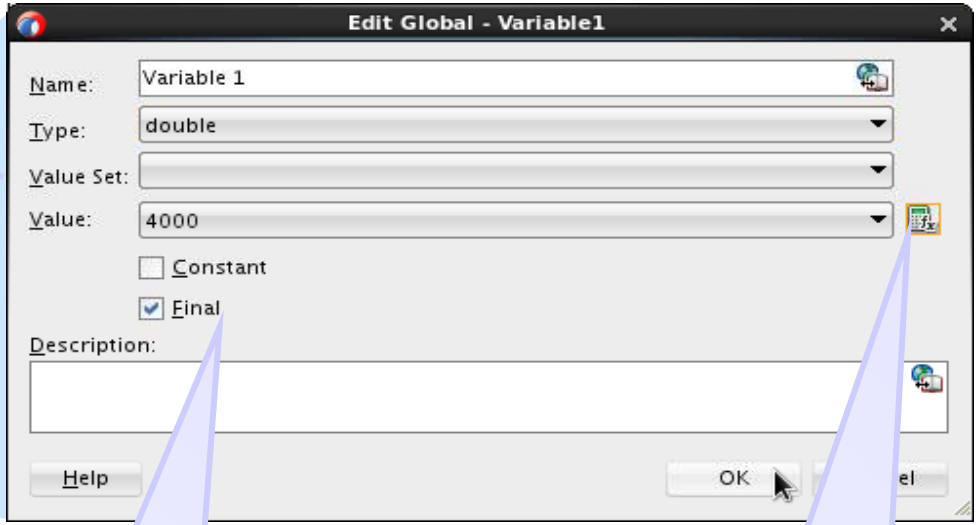
Defining Globals

Assign the global a name, a data type, a value set (optional), and a value.





Specify Constant and/or Final if appropriate.

Use Expression Builder to define a value.

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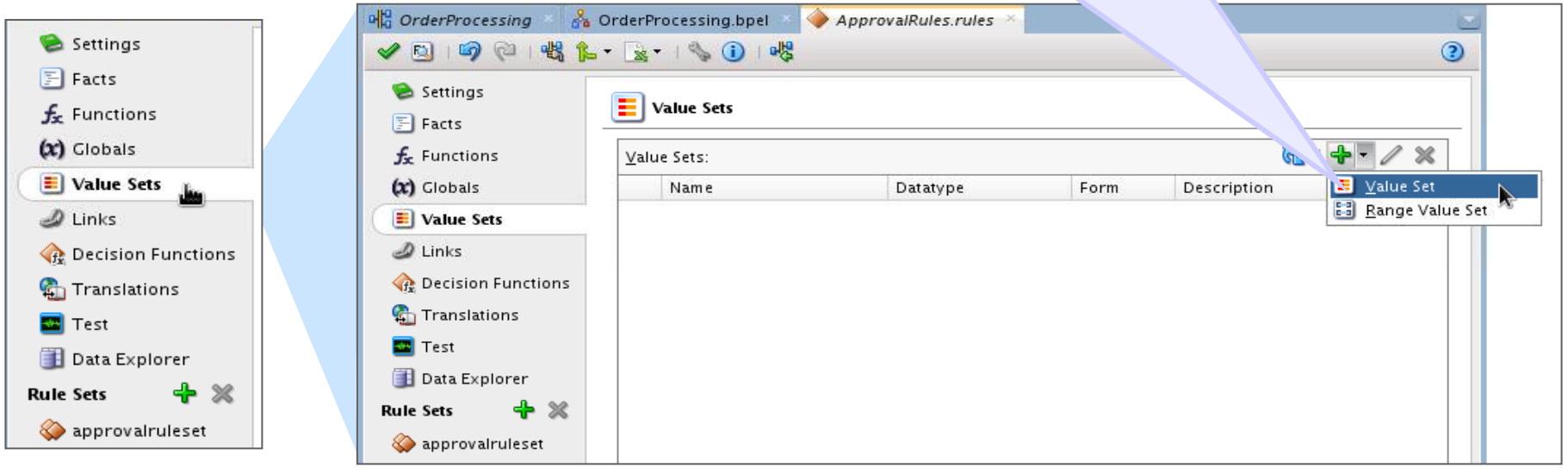
Defining Value Sets

A value set can be a list of values, or it can be a list of ranges that defines a list of value ranges by range endpoints.



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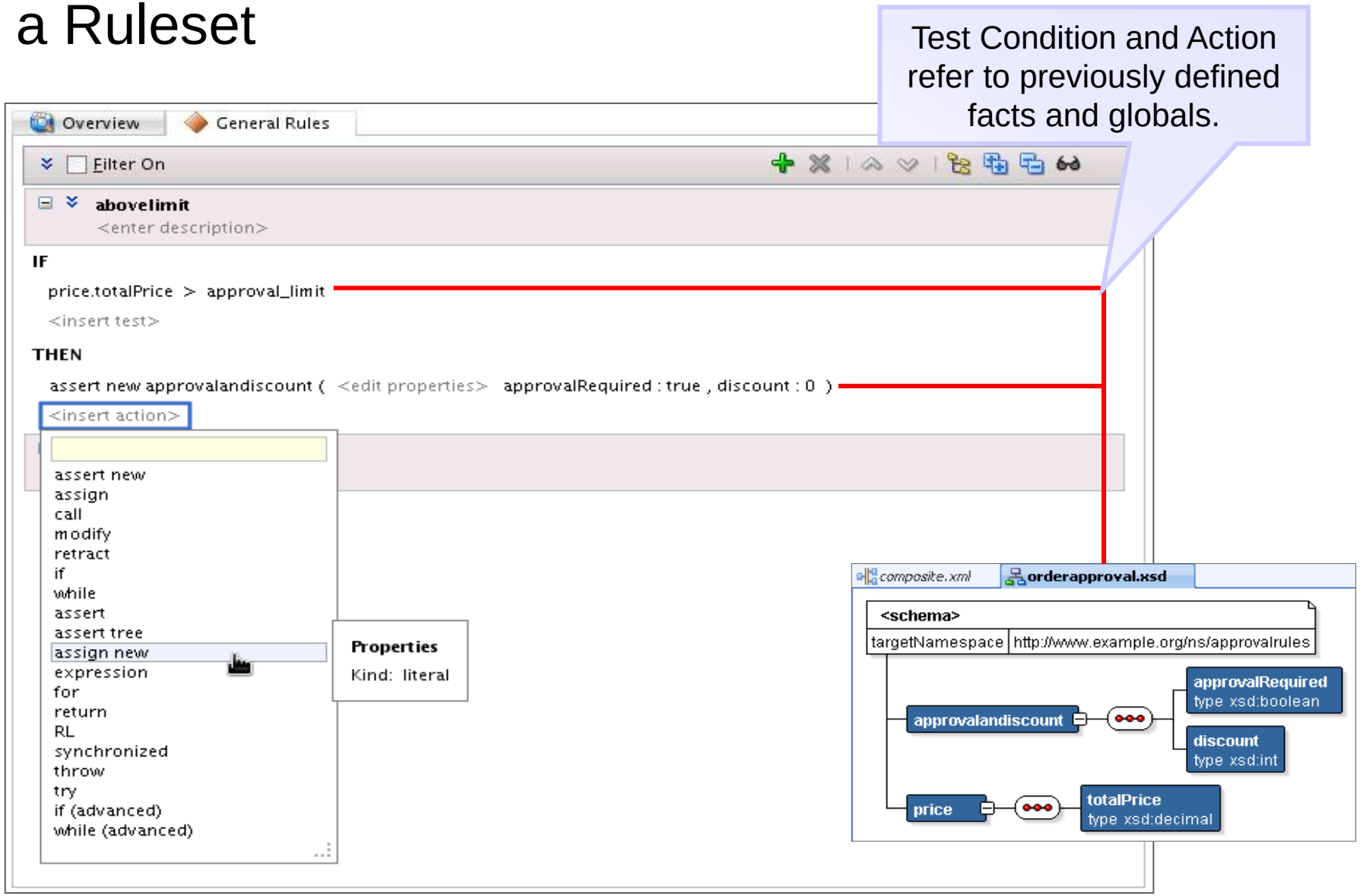
Defining a Ruleset



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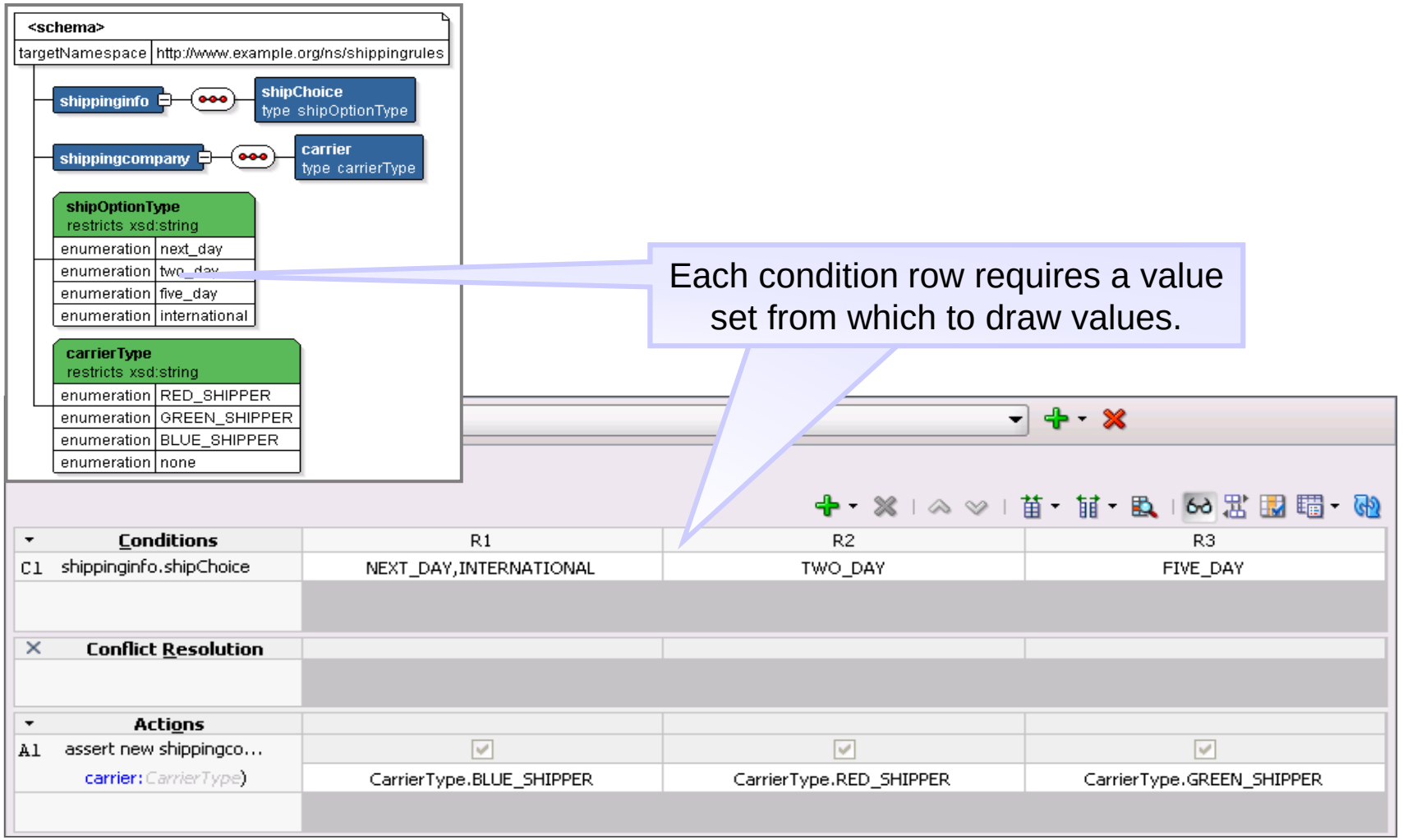
Defining a Decision Table



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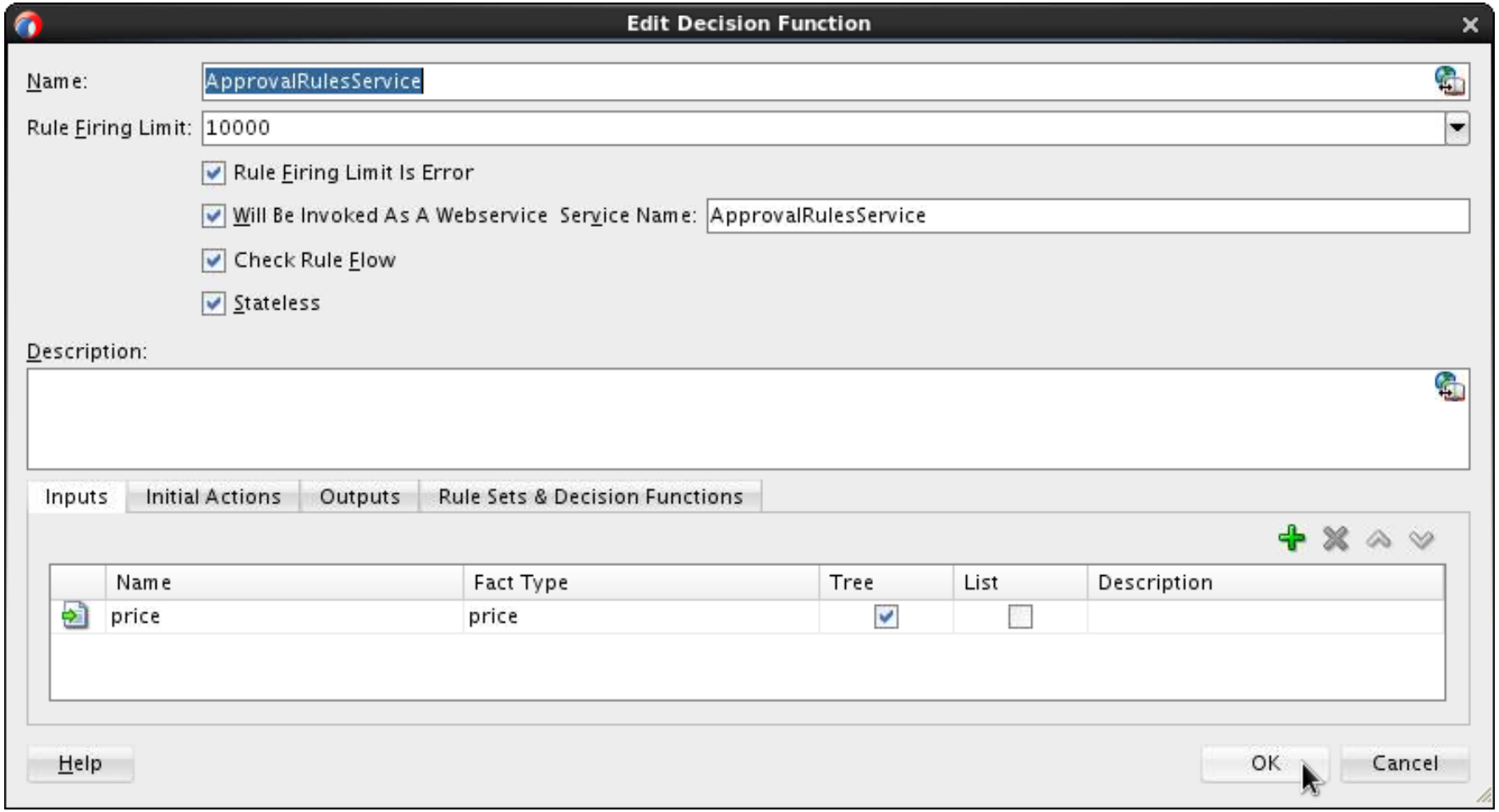
Decision Functions



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Quiz

Which of the following components can execute business rules? (Select all that apply.)

a. Mediator components
b. Clients of the composite application
c. BPEL components
d. Database adapter components
e. Human task components

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Summary

In this lesson, you should have learned how to:

- Describe business rules concepts
- Describe the Oracle Business Rules architecture
- Describe the Rules Engine
- Explain the role of the Oracle Business Rules dictionary
- Create rules with the JDeveloper Rules Designer
- Integrate a simple rule with a BPEL process
- Describe the role of the Rules SDK

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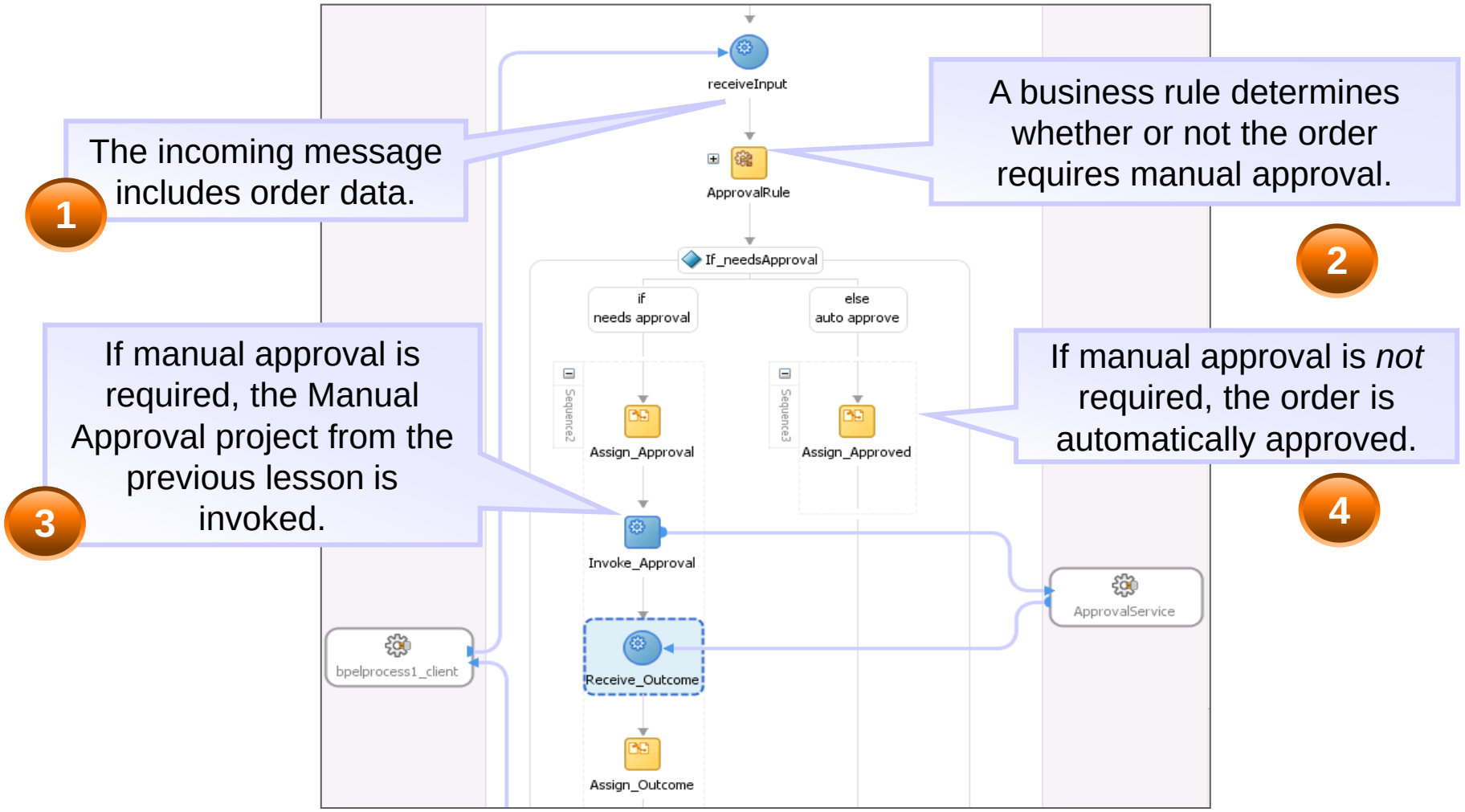
Practice 12-1 to 12-3 Overview



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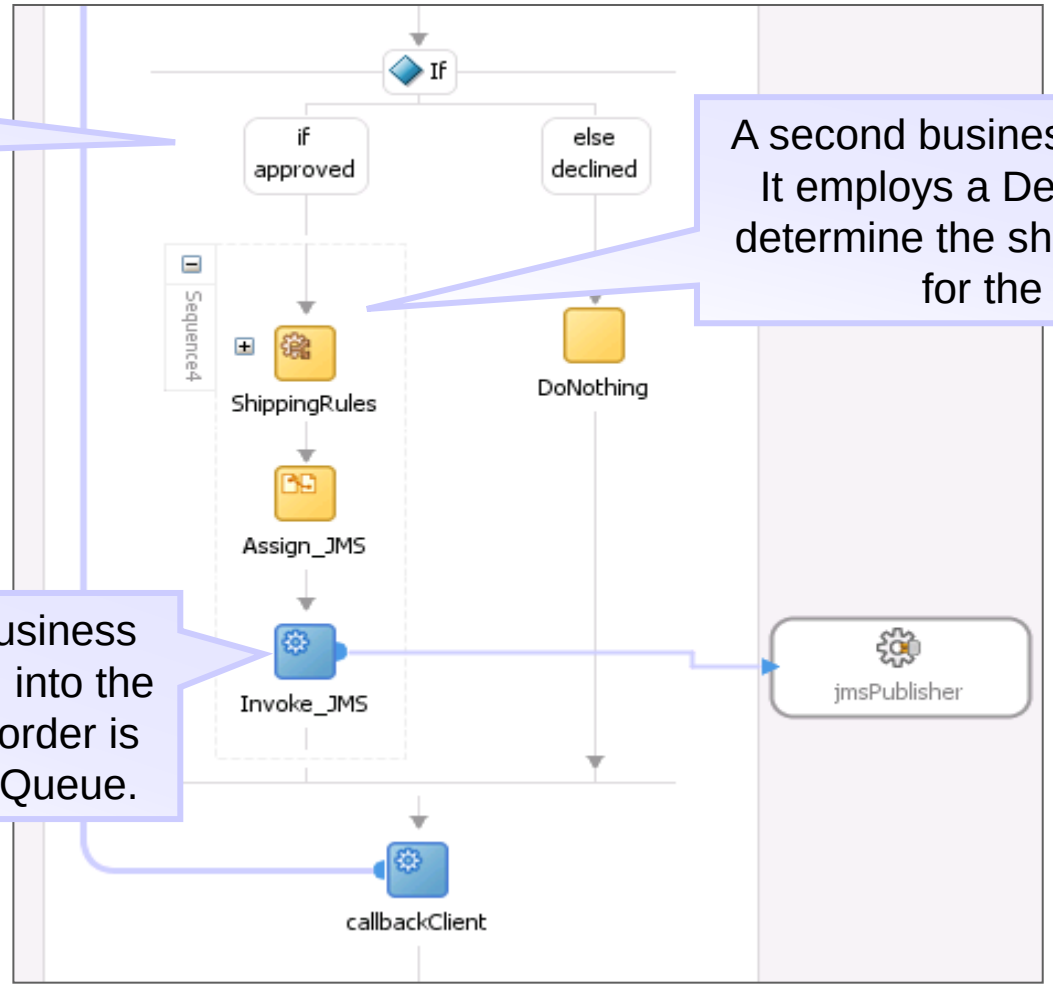
Practice 12-4 to 12-6 Overview

If the order is approved…

5



A second business rule is added. It employs a Decision Table to determine the shipping company for the order.

6

The results of the business rule are incorporated into the order data, and the order is published to a JMS Queue.

7

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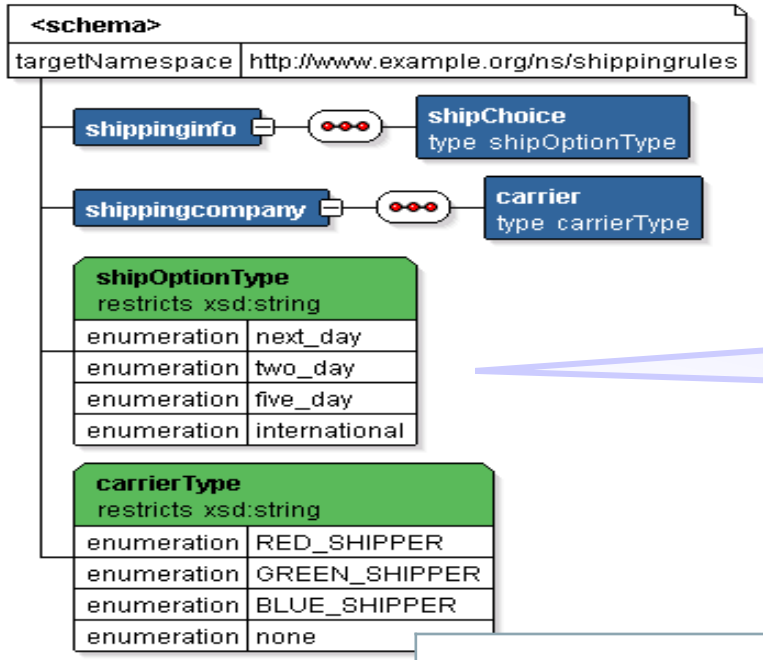
Practice 12-4 to 12-6 Overview



The Decision Table in the second business rule uses a pair of value sets in its definition of conditions and actions to route the order to the proper shipping company.

Decision Table	R1	R2	R3
CONDITION `If shipChoice`	`two_day`	`five_day`	`next_day` or `international`
ACTION `Assert carrier`	`RedShipper`	`GreenShipper`	`BlueShipper`

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