COURSE ABSTRACT

Merative SPM Express Rules for Developers (ADE)

9D60G

Course Description

This self-paced course provides students with a technical understanding of developing Cúram Express Rules (CER) for Merative Social Program Management (SPM).

The course describes how to develop CER rules using the CER Application Development Environment (ADE) and covers the following topics: the CER editor; defining rule elements; CER development approach; testing and debugging CER rules; Timelines, and advanced CER features.

During the course, students will design and implement a simple end-to-end application using CER features.

General Information

Delivery Method: Self-paced with lab.

Audience: This course is intended primarily for developers and technical architects who will work on SPM implementation projects.

Topics: The course covers the following topics:
- The functions and features of CER.
- How to use CER rule elements to implement rule logic.
- How to configure, test, and debug CER rules using Developer and Administrator tools.

Learning Objectives: After completing the course, learners should be able to:
- Select CER elements to implement rule logic.
- Use Developer and Administrator tools to configure, test, and debug rule sets.

- Access and interpret product guides for implementing CER rules.

Prerequisites: It is recommended that learners complete the following courses before taking this course:
- *Merative SPM for Developers (ADE)*
- *Merative SPM for Developers (Customization)*

Duration: 24 Hours

Skill Level: Intermediate

Version: CER training was last updated for SPM V6. However, there have been very few changes to CER since then. The main change is that Key Decision Factor rules were deprecated in V7. The remaining exercises were validated on V7 and run fine.

Notes

The course duration gives learners an estimate of how much time they need to allocate to the course. The course duration does not specify the actual time required to complete the course, which varies by learner. The course agenda shows the schedule for a classroom (ILT) delivery. Learners taking this course in a self-paced environment should allow more time for exercises.

Course Agenda

Unit 1 – Function of CER Rules in SPM

Lesson 1: Course Introduction
Duration: 5 minutes
Learning objectives: After completing this lesson, students should be able to:
- List the course objectives

Lesson 2. Rules in SPM
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- Explain what a rule is from a business and technical perspective
- Outline the use of rules by SPM products and services
- Outline the use of rules by other SPM applications
- List the SPM Modules and Solutions that use rules

Checkpoint Questions
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Recall the key points from the lesson

Lesson 3. Key Elements of Products
Duration: 15 minutes
Learning objectives: After completing this lesson, students should be able to:
- Describe the interrelationship between rules, products, and evidence

Exercise 1-1. Execute Cúram Rules
Duration: 40 minutes
Learning objectives: After completing this exercise, students should be able to:
- Create a case and execute CER rules to determine Eligibility and Entitlement

Lesson 4. What is CER?
Duration: 25 minutes
Learning objectives: After completing this lesson, students should be able to:
- Provide a brief description of CER and the CER environment
- Describe how CER is used to execute rules
- Outline the basic structure of a CER rule set

Checkpoint Questions
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Recall the key points from the lesson

Unit 2 – Configuring Rules Using Basic CER Elements

Lesson 1. General Approach for Developing CER Rules
Duration: 20 min
Learning objectives: After completing this lesson, students should be able to:
- Outline the recommended approach for developing CER rules
- Summarize the steps for developing CER rules
- List the development tools for implementing CER rules

Exercise 1–2. Design a Simple Rule Set
Duration: 60 minutes
Learning objectives: After completing this exercise, students should be able to:
- Design rules for a simple piece of legislation

Lesson 2. The CER Editor
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- Use the Administration application to maintain rules
- Describe the layout of the CER Editor
- Distinguish between the Business and Technical views of the CER Editor
- Use the main features of the CER Editor

Exercise 1–3. Use the CER Editor
Duration: 50 minutes
Learning objectives: After completing this exercise, students should be able to:
- Use the Administration application and CER Editor to navigate a rule set and use the features of the Editor

Lesson 3. Adding a Simple Boolean Rule
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- Outline the naming conventions for Rule Sets, Rule Classes, and Rule Attributes
- Describe how to configure Rule Classes and Attributes
- Explain the purpose of the Reference (Rule) element
- Configure AND, OR, NOT, and Reference elements

Exercise 1–4. Create a New Rule Set
Duration: 40 minutes
Learning objectives: After completing this exercise, students should be able to:
- Implement rules for a simple product using AND, OR, NOT, and the Reference (Rule) elements
- Use the Business and Technical views to define and document rules

Lesson 4. Adding Arithmetic and Selection CER Elements
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- Use the Compare element
- Use the Arithmetic element
- Use Choose....When...Otherwise elements
- Describe how to define a Decision Table
- Outline the use of the Codetable and Rate data types

Exercise 1–5. Add Arithmetic and Selection Elements
Duration: 70 minutes
Learning objectives: After completing this exercise, students should be able to:
- Use the Arithmetic and Compare elements
- Create a new rule class
- Add a rule that uses the Choose, When, and Otherwise elements

Lesson 5. Adding List Elements
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- Describe the purpose of lists in CER rules
- Describe the logic elements that can be applied to lists
- Explain the purpose of list transformation elements, such as Filter, Sort, and Fixed List

Exercise 1–6. Use List Elements
Duration: 40 minutes
Learning objectives: After completing this exercise, students should be able to:
- Complete the implementation of the rules for the sample product
    - Create an attribute that is a list of Rule Classes
    - Use the Repeating Rule element
    - Use the Size element
    - Use the Sum element

Unit 3 – CER Development Tasks

Lesson 1. CER Development Overview
Duration: 20 minutes
Learning objectives: After completing this lesson, students should be able to:
- Outline the steps for designing, implementing, and testing a rule set
- Describe the environment and tools for developing rule sets
- Describe the test-driven development approach for implementing rules

Checkpoint Questions
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Recall the key points from the lesson

Lesson 2. Publishing, Extracting, and Loading Rule Sets
Duration: 20 minutes
Learning objectives: After completing this lesson, students should be able to:
- State the purpose of publishing a rule set
- Describe how to extract a rule set and associated labels
- Describe how to load a rule set into the database
- Explain the purpose of RuleDoc and how to generate it

Exercise 1-7. Publish, Extract and Load a Rule Set
Duration: 35 minutes
Learning objectives: After completing this exercise, students should be able to:
- Publish, extract, and reload a rule set

Exercise 1-8. Generate Rule Doc
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Generate RuleDoc for your rule set

Lesson 3. Testing Rule Sets
Duration: 30 minutes
Learning objectives: After completing this lesson, students should be able to:
- List the Java classes created by the code generator from your rule sets
- Use the API to create sessions and rule objects
- Describe how to unit test rules at different levels
- List the types of changes to rule sets that require you to regenerate the Java classes

Exercise 1-9. Test a Rule Set
Duration: 70 minutes
Learning objectives: After completing this exercise, students should be able to:
- Write and run a unit test to check the rule logic

Lesson 4. Generating SessionDoc
Duration: 20 minutes
Learning objectives: After completing this lesson, students should be able to:
- Describe the output from SessionDoc
- Implement the Description attribute to identify your rule objects
- Generate SessionDoc from your test class

Exercise 1-10. Generate Session Doc
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Generate SessionDoc that includes the Description attribute

Lesson 5. Code Coverage and Testing Tips
Duration: 15 minutes
Learning objectives: After completing this lesson, students should be able to:
- Generate unit-test coverage reports
- Outline useful tips and approaches for testing CER rules
- List the essential CER build targets
- Locate the Javadoc for the CER API

Exercise 1-11. Generate a Coverage Report
Duration: 15 minutes
Learning objectives: After completing this exercise, students should be able to:
- Generate a coverage report

Unit 4 – Configuring Rules Using Advanced CER Features

Lesson 1. Timelines
Duration: 60 minutes
Learning objectives: After completing this lesson, students should be able to:
- State the purpose of Timelines in CER rules
- List the CER elements that support Timelines
- Explain typical approaches for combining Timelines

Exercise 1-12. Implement a Timeline
Duration: 70 minutes
Learning objectives: After completing this exercise, students should be able to:
- Implement a timeline that returns the number of items for a specified date

Lesson 2. Accessing Attributes in Another Class
Duration: 15 minutes
Learning objectives: After completing this lesson, students should be able to:
- Configure initialization attributes
- Describe the use of the Create element

Exercise 1-13. Access an Attribute Using an Anonymous Class
Duration: 30 minutes
Learning objectives: After completing this exercise, students should be able to:
- Add a new class containing initialization attributes and a derived attribute
- Execute the derived attribute from another class using an anonymous class

Lesson 3. Calling Static Methods
Duration: 20 minutes
Learning objectives: After completing this lesson, students should be able to:
- Configure the CallOut element to invoke a static method
- Describe how to pass parameters from your rule to a static method
- List the API for creating Timelines from a static method
- Avoid problems when implementing static methods

Exercise 1-14. Call a Static Method
Duration: 30 minutes
Learning objectives: After completing this exercise, students should be able to:
- Call a static class from your rules using the CallOut element

Lesson 4. Using Inheritance
Duration: 15 minutes
Learning objectives: After completing this lesson, students should be able to:
- Describe how inheritance is implemented in CER
- Describe how to specify abstract classes and interfaces

Exercise 1-15 – Investigate Inheritance in Out-of-the-Box Rules
Duration: 20 minutes
Learning objectives: After completing this exercise, students should be able to:
- Access infrastructure rule sets used for Eligibility and Entitlement to determine how inheritance is used

Lesson 5. Additional CER Elements
Duration: 15 minutes
Learning objectives: After completing this lesson, students should be able to:
- Describe the Frequency Pattern and XML message data types
- Outline the purpose of the Legislation Change, Era, Search, Property, and Period Length and This elements
- Add the Period Length element to determine age from date-of- birth

Exercise 1-16 – Add the Period Length Element
Duration: 30 minutes
Learning objectives: After completing this exercise, students should be able to:
- Use the Period Length element to determine age

Lesson 6. CER References
Duration: 10 minutes
Learning objectives: After completing this lesson, students should be able to:
- List the main parts of the CER Reference Manual
- Access the CER Reference Manual to interpret rule samples in XML

Exercise 1-17 – Interpret Expressions Using the CER Reference Manual
Duration: 30 minutes
Learning objectives: After completing this exercise, students should be able to:
- Access the CER Reference Manual to interpret CER expressions and interpret sample rules that are represented in XML format