**Lab Guide**

IBM Business Automation Manager Open Edition

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Hands-on Lab

Building watsonx Orchestrate Solutions with BAMOE and Cloudant

V1.0

07-Dec-2023



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**Table of Contents**

[0. Introduction 4](#_Toc152860462)

[0.1 Pre-requisites 4](#_Toc152860463)

[1. Build a decision service to calculate speeding fines 5](#_Toc152860464)

[1.1 Before you start 6](#_Toc152860465)

[1.2 Run the Decision Service 9](#_Toc152860466)

[1.3 Test the Decision Service 9](#_Toc152860467)

[2. Generate an OpenAPI specification 12](#_Toc152860468)

[3. Import the OpenAPI into watsonx Orchestrate 14](#_Toc152860469)

[4. Save the decision results to a Cloudant Database 16](#_Toc152860470)

# Introduction

In this Lab you will connect a decision service to watsonX Orchestrate and persist the results to a Cloudant database.

The Lab is structured into four sections.

* Build a decision service to calculate speeding fines.
* Generate an OpenAPI for the decision service.
* Import the OpenAPI into watsonx Orchestrate.
* Save the decision results to a Cloudant database.

## Pre-requisites

To perform this Lab, you need:

* An IBM watsonx Orchestrate SaaS account with Builder role.
* A local machine with VSC BAMOE V9.0 installed.

# Build a decision service to calculate speeding fines

In this task, you ...

* Create a decision service.
* Define the data and logic of the model in Decision Model and Notation (DMN).
* Run the model locally

When defined, the model takes a driver and speeding data as input and produces a penalty.

## Before you start

In this exercise, you will build and test the decision service using Visual Studio Code (VSC) which is the developer environment.

The prerequisites for this Lab are:

* A local Windows Machine with VSC and BAMOE V9.x plugins
* Git Bash shell

1. Open Git Bash by clicking the Git Bash  icon on the Windows **Taskbar** at the bottom of the screen or in the Windows main screen.
2. Within the Git Bash shell, clone the rule project using the command:

git clone <https://github.com/ncrowther/DM_Template>

1. Hit return. You should see the git repository cloned into the local drive:

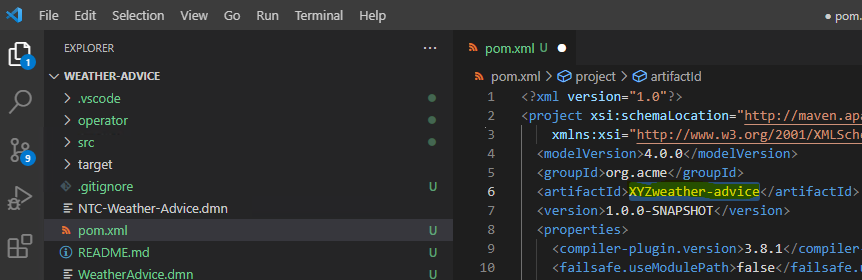
Text

Description automatically generated

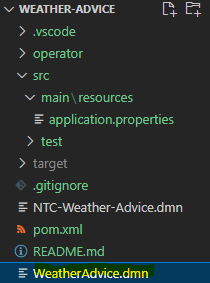
Now open the project with the VSC:

code Weather-Advice

1. VSC will open. See below:



1. On the left-hand side of the Visual Studio Code in the file explorer locate *src\main\resources*\SpeedingFine.dmn

****

Now double-click the DMN file to view it. This opens the DMN Editor:

Diagram

Description automatically generated

## Run the Decision Service

In this step we are going to build and run our decision service in development mode using Quarkus. Quarkus is a container-native Java stack. For more details see <https://quarkus.io/>

1. Within the VSC editor, click on the **Terminal** menu at the top of the screen:



1. In the drop down click on **New Terminal**.

A screenshot of a computer

Description automatically generated with medium confidence

1. In this new terminal window, paste the following:

mvn quarkus:dev

1. Hit return to start the Maven build. You may see warnings in the console. Once built, our decision model is automatically deployed to Quarkus and ready to run in development mode. You should see this:

Graphical user interface, text

Description automatically generated

## Test the Decision Service

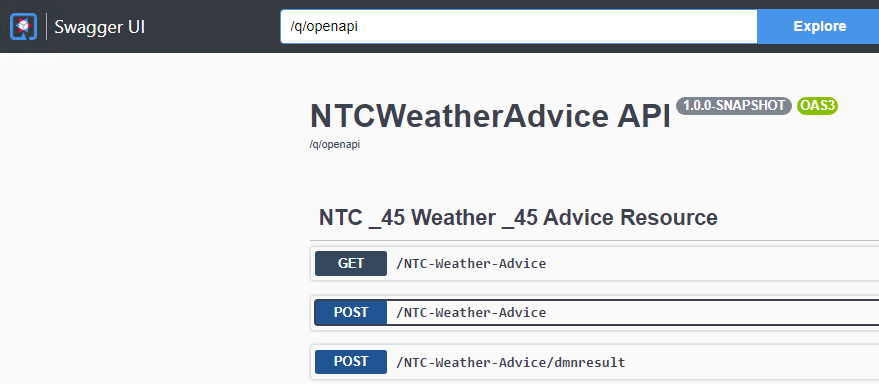
We’ve seen the decision model working in BAMOE Canvas, but let’s look at the API generated by Quarkus.

1. Click on Chrome in the **Taskbar** at the bottom of the screen.  
   Graphical user interface

   Description automatically generated
2. Click the new tab button (+) [localhost:8080/q/swagger-ui](localhost:8123/q/swagger-ui) and paste the following URL into the browser address field and press **Enter**.

<localhost:8123/q/swagger-ui>

**Note:** port *8080* is the default port, your port may be different. You can find the port in the terminal output. You should see the following:



We can see three endpoints for the weather advice service, the GET returns the model in XML, but it’s the two POST endpoints that we are interested in as they execute the model; the only difference between them is that the second one includes additional trace information about intermediate decisions.

1. Click on the **POST /MyName-Weather-Advice** endpoint to expand it, then click the **Try it out** button on the right-side.

A picture containing rectangle

Description automatically generated

The template is created for us. We just need to fill in the data. As you can see its just regular Json.

1. Paste the following into the DMN input:

{

"Name": "Jamie",

"Weather": {

"temperature": "cold",

"rainForecast": 0,

"stormAlert": false

}

}

Click the **Execute** button.

Under **Response Body** you should see:  
  
Text

Description automatically generated

Congratulations, you have built and deployed your decision service on your local machine!

# Generate an OpenAPI specification

# Import the OpenAPI into watsonx Orchestrate

# Save the decision results to a Cloudant Database