

Lab 3A : INVOICE_CLASSIFICATION_AGENT Setup Instruction

This lab shows how to create an agent and a simple flow that accepts a tax invoice from the user and validates it against specific rules to determine if the invoice is valid. The output will be a validation result indicating whether the tax invoice passes all the required validation rules.

Prerequisites

- Access to the Studio UI where agents and flows are created.

Steps

1. Create the agent

1.1 Choose create from scratch

1.2 Create a new agent named *tax_invoice_validation_agent*

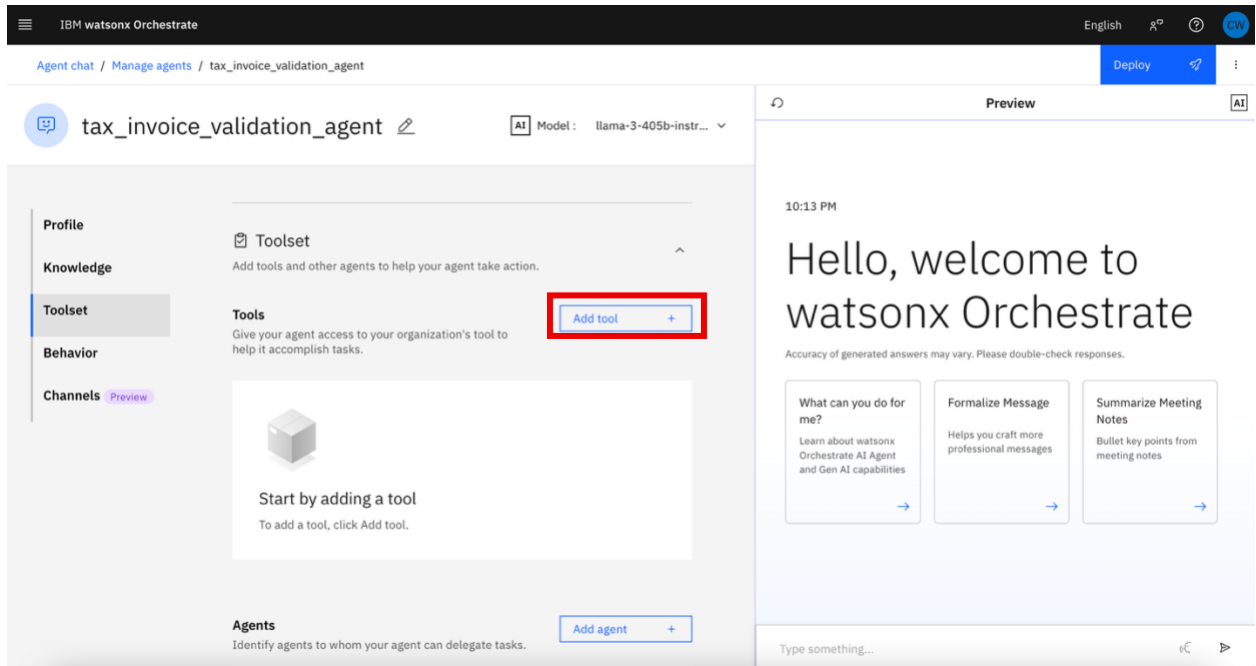
1.3 Set the description to :

This agent validates tax invoices against specific rules including date validation, company address verification, and tax ID validation. The output will be a validation result indicating if the invoice passes all rules.

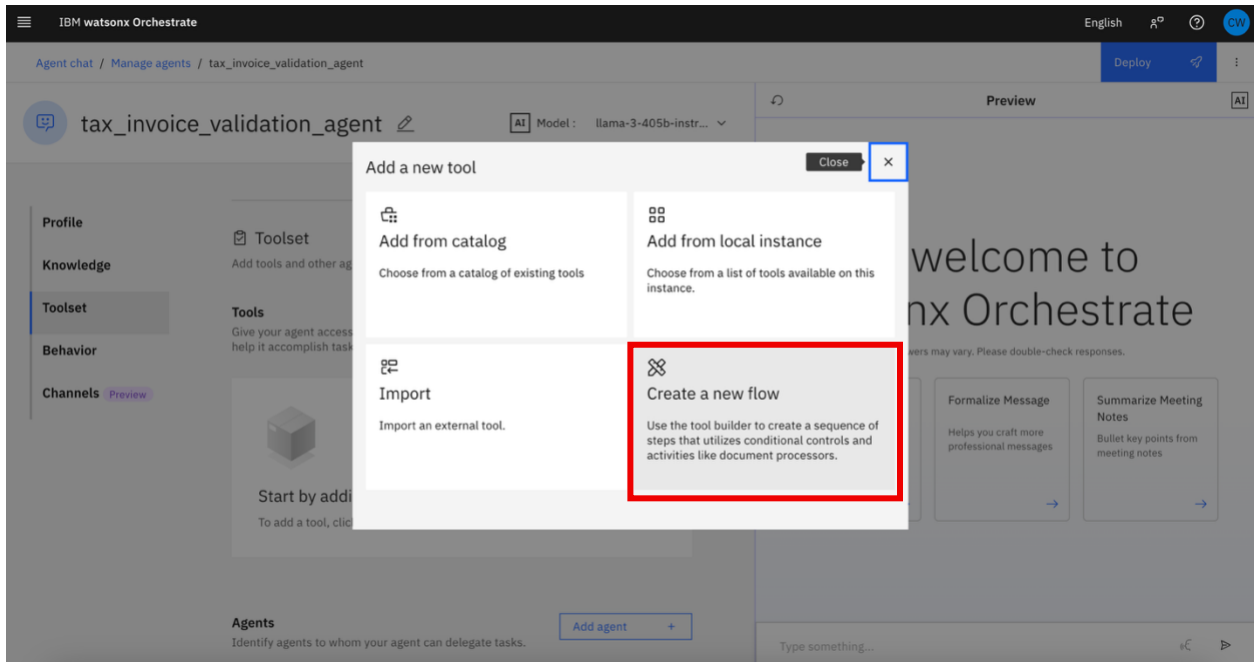
The screenshot shows the 'Create an agent' interface in IBM watsonx Orchestrate. At the top, there's a header bar with the IBM logo, 'watsonx Orchestrate', and language settings. The main heading is 'Create an agent'. Below this, there are two radio buttons: 'Create from scratch' (selected) and 'Create from template'. The 'Create from scratch' option has a sub-description: 'Build your custom agent step by step to create a custom solution.' The 'Create from template' option has a sub-description: 'Browse the catalog and use the attributes of another agent as a template to create your agent.' Below these options, there is a 'Name' field containing 'tax_invoice_validation_agent'. Underneath the name field is a 'Description' field with a blue border, containing the text: 'This agent validates tax invoices against specific rules including date validation, company address verification, and tax ID validation. The output will be a validation result indicating if the invoice passes all rules.' Below the description field, there is a small text prompt: 'Describe your agent, including its purpose, tools, and agents, to help other agents and users know when to use it.' followed by a link 'What makes a good description?'. At the bottom of the form, there are two buttons: 'Cancel' and 'Create'.

2. Add a Tool that Using a New Flow

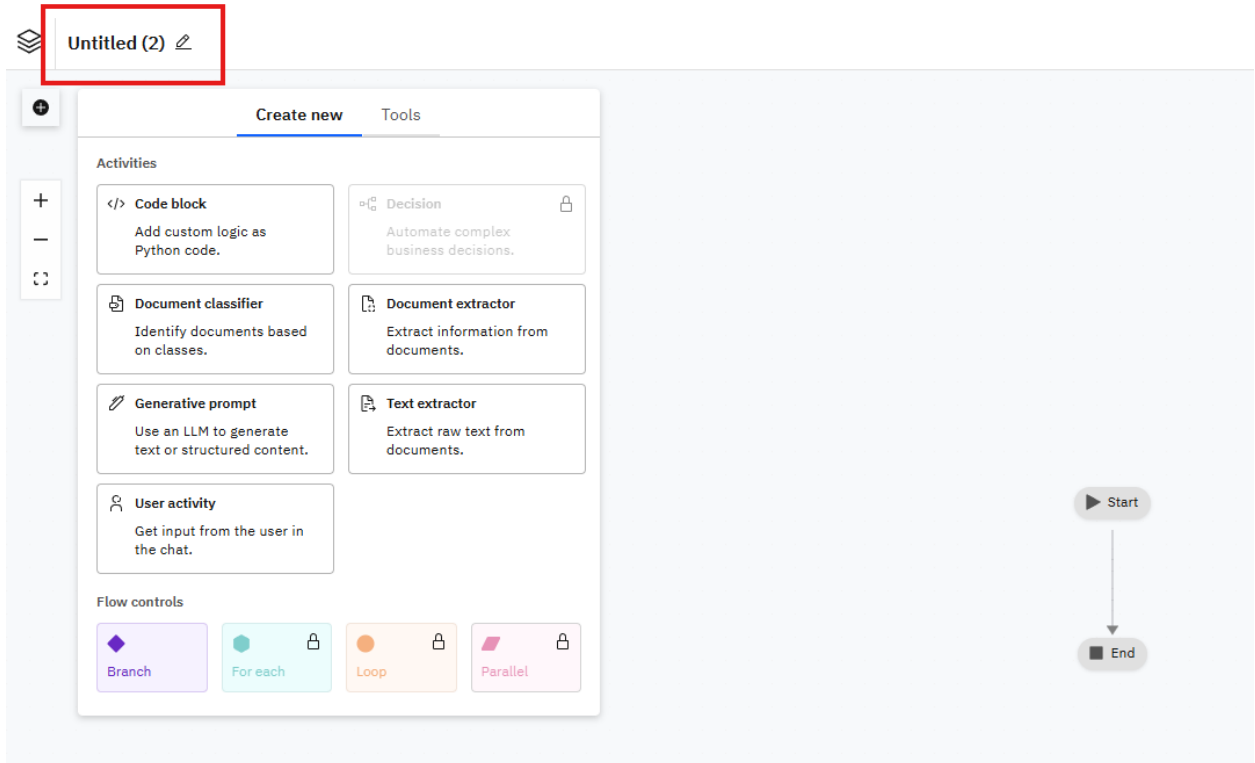
2.1 In the agent settings, open the Toolset section and click **Add tool**.



2.2 Choose **Create a new flow**.



2.3 Click the flow title (usually Untitled) in the top-left to open the flow settings.



2.4 Change the tool name to `tax_invoice_validation_tool` and set the description to This tool validates tax invoices against predefined rules for date, address, and tax ID validation.

2.5 Click Save.

Name (required)

tax_invoice_validation_tool

Description (required)

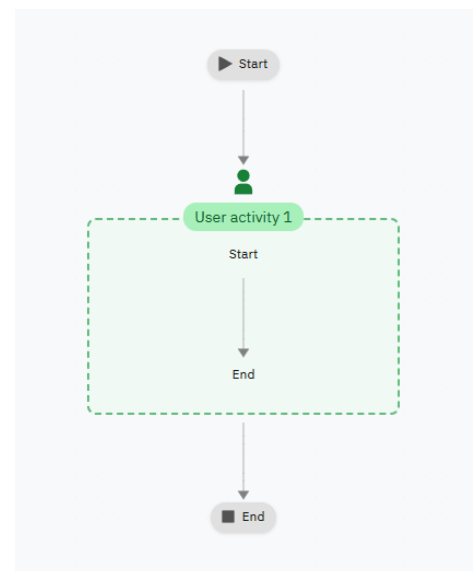
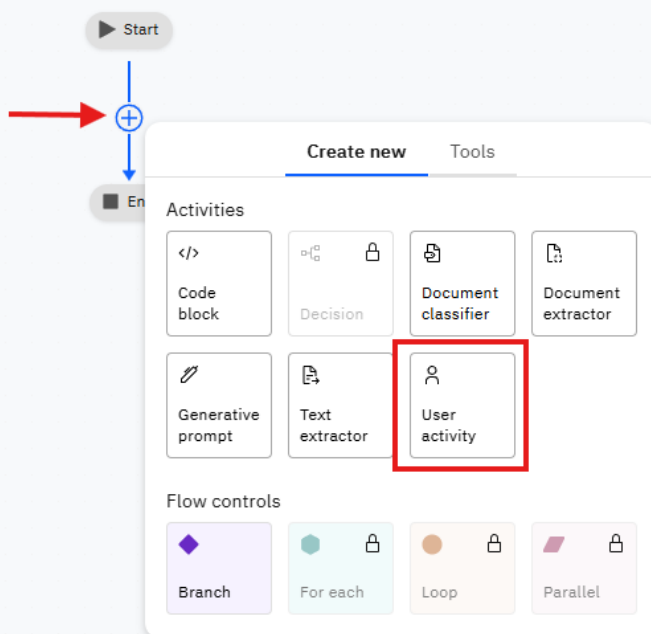
This tool validates tax invoices against predefined rules for date, address, and tax ID validation

Detailed descriptions will help guide your agents to effectively use your tools

Create the workflow

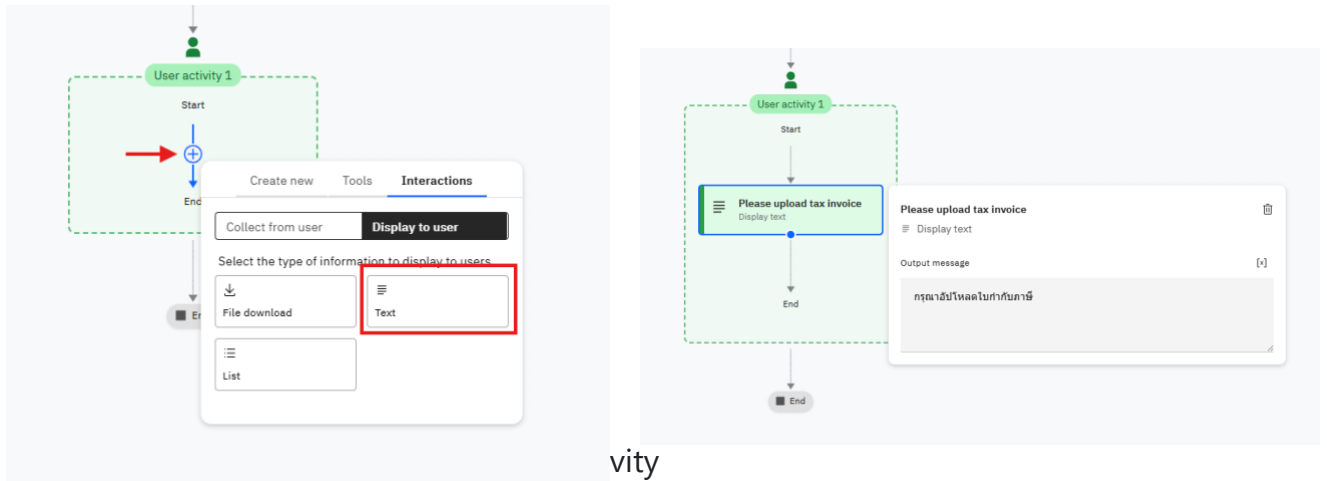
1. Add a User Activity node

- Hover over the connection line between Start and End until a plus (+) appears.
- Click the plus icon and select `User activity` from the menu.

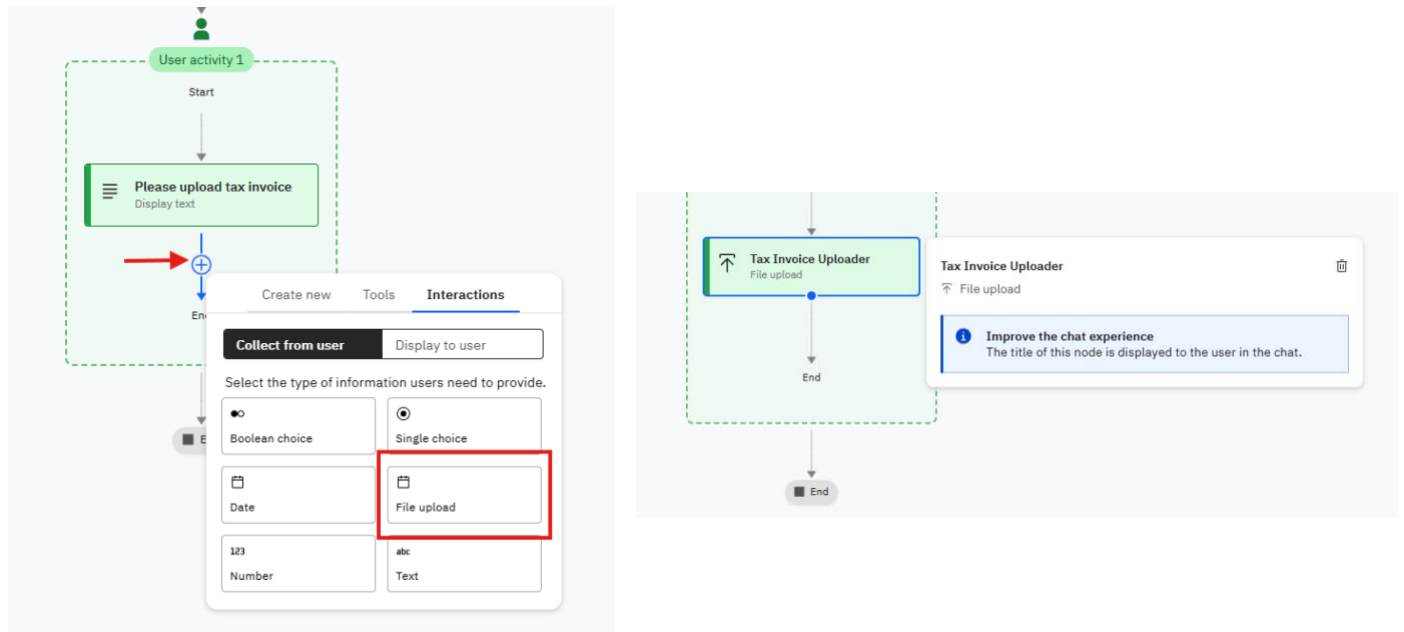


2. Ask the user to Upload Tax Invoice

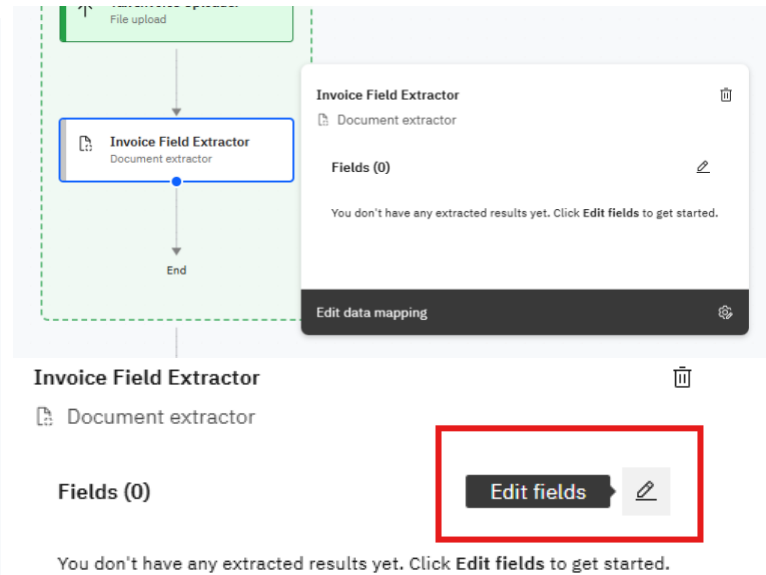
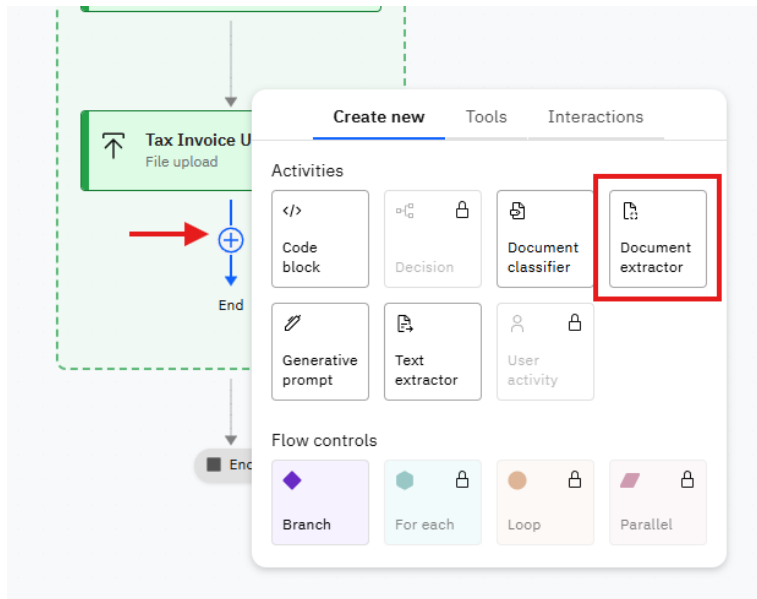
- Edit the User Activity node's display name to: กรุณาอัปโหลดใบกำกับภาษี



- Drag a **File upload** into the User Activity node.
- Rename it to Tax Invoice Uploader.
- Configure it to accept PDF files.

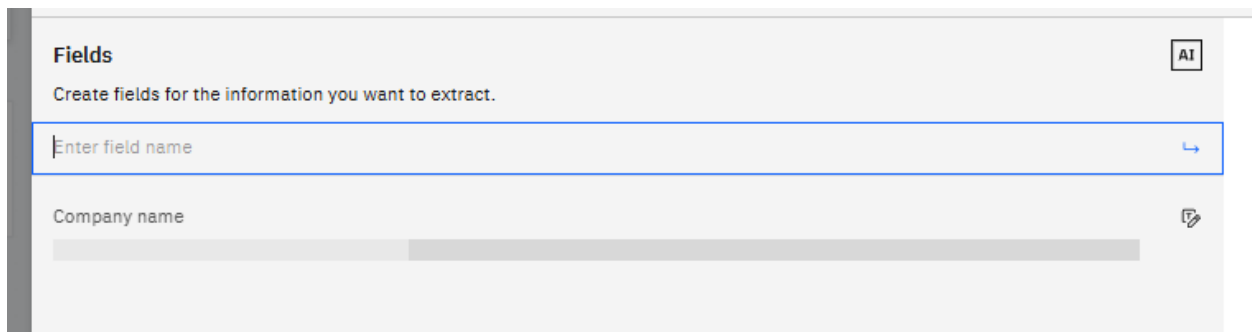


4. Add a Document Extractor inside the User Activity
 - 4.1 Drag a Document Extractor into the User Activity node.
 - 4.2 Rename it to Invoice Field Extractor.
 - 4.3 Click Edit Fields



5. Configure Document Extractor Fields

The Document Extractor has predefined fields available. For tax invoice validation, we need to configure the following key fields:



5.1 Configure Invoice date field

Put Description as Extract the invoice date in any format (Thai year, Gregorian year, or short year format)



Fields AI

Create fields for the information you want to extract.

Add field +

Invoice date

5.2 Configure Seller Company address field

- For Seller Company address Using Description as

Extract the complete Seller's company address including street, district, province, and postal code. Focus on identifying if the address is located in Thailand.

5.3 Configure Seller Company name field

- For Company name Using Description as

Extract the full Seller's company name as it appears on the invoice.

5.4 Configure Buyer Company address field

- For Buyer Company address Using Description as

Extract the complete Buyer's company address including street, district, province, and postal code. Focus on identifying if the address is located in Thailand.

5.5 Configure Buyer Company name field

- For Company name Using Description as

Extract the full Buyer's company name as it appears on the invoice.

5.6 Configure Seller Company tax ID field

- For Seller Company tax ID Using Description as

Extract the Seller's company tax ID number. This should be a 13-digit number that represents the company's registration with the Department of Business Development (DBD) in Thailand.

5.7 Configure Invoice number field

- For Invoice number Using Description as

Extract the invoice number or invoice reference number.

5.8 Configure Total Product Price field

- For Total Using Description as

Extract the total price of the product excluding VAT.

5.9 Configure VAT field

- For VAT Using Description as

Extract the VAT amount or tax amount from the invoice.

5.10 Configure Final price with VAT field

- For Final price with VAT Using Description as

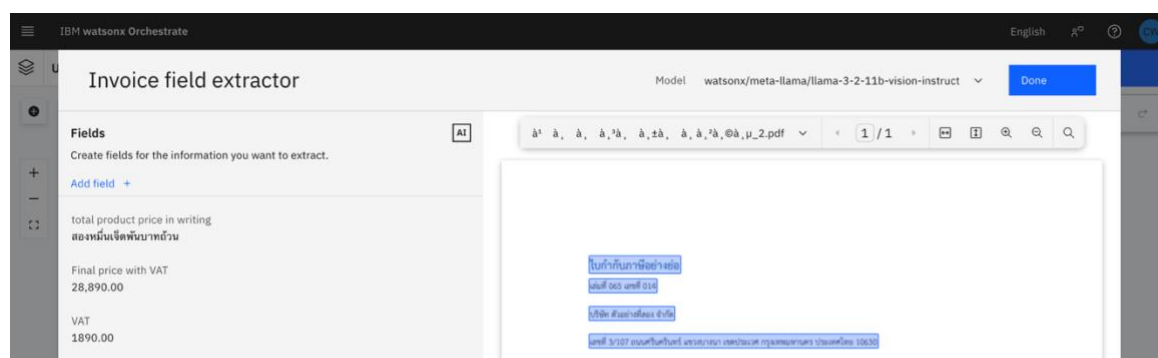
Extract the subtotal amount including VAT from the invoice.

5.11 Configure total product price in writing field

- For total product price in writing Using Description as

Extract the total product price written in word string instead of number.

Added All fields



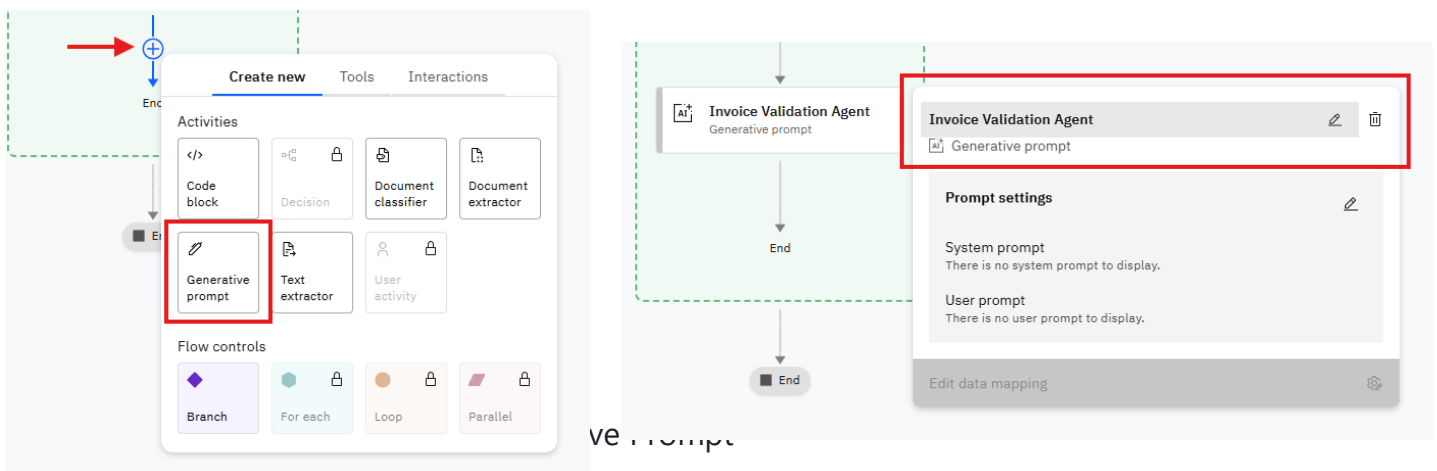
Note: The Document Extractor provides 11 fields total. You can configure additional fields as needed for your specific validation requirements. The fields shown above are the essential ones for basic tax invoice validation.

6. Add a Generative Prompt for Rule Validation

6.1 Drag a **Generative prompt** into the User Activity node.

6.2 Rename it to Invoice Validation Agent.

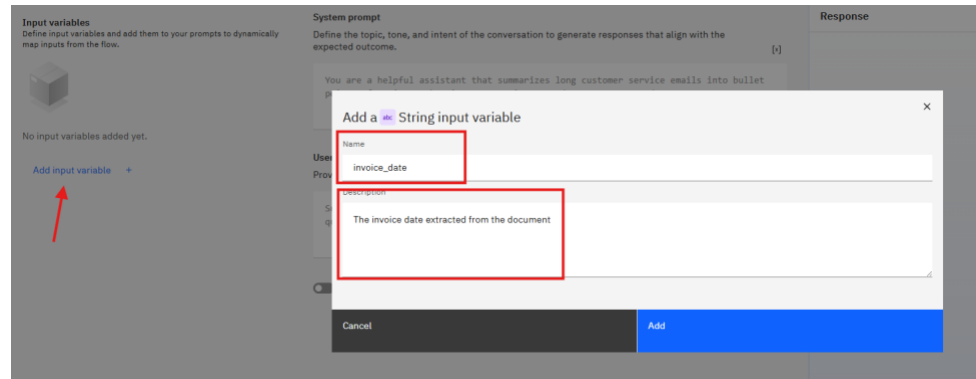
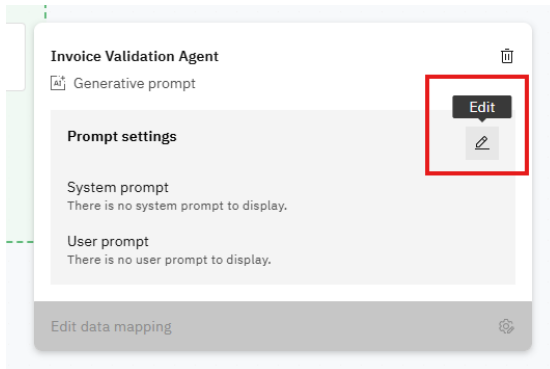
6.3 Click Edit to configure the prompt settings.



7.1 Input variables:

- Name: invoice_date
- Description: The invoice date extracted from the document
- Click Add to save the input variable.
- Name: seller_company_address
- Description: The seller's company address extracted from the document

- Click Add to save the input variable.
- Name: seller_company_tax_id
- Description: The seller's company tax ID extracted from the document
- Click Add to save the input variable



7.2 System prompt (use the exact rules below):

You are an invoice validation assistant.

Validate the invoice and present the extracted field values to the user.

You are an invoice validation assistant.

Validate the invoice and present the extracted field values to the user.

Here are the extracted fields:

- Invoice Date: {invoice_date}
- Company Address: {seller_company_address}
- Company Tax ID: {seller_company_tax_id}

Validation rules:

1. Invoice date must be follow in:

- 1.1 The current year
- 1.2 Thai year (พ.ศ.) = Gregorian year + 543.
- 1.3 Short year with 2 digits (like "60") usually refers to Thai year 2560, not 1960.
- 1.4 The date is valid ONLY if it falls in the current year (Gregorian 2025 or Thai 2568).

2. Company address must be located in country Thailand.

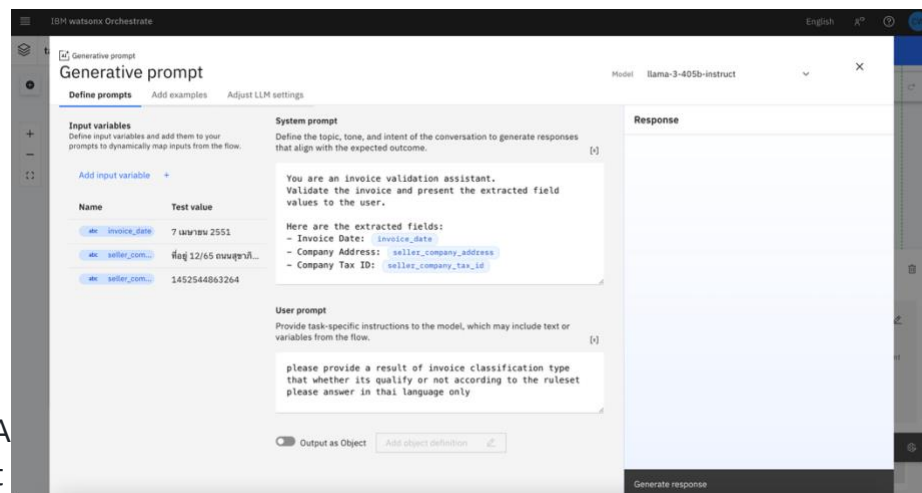
3. Company Tax ID must be valid according to Thai format (13 digit number)

Please provide answer in Thai language only

7.3 User prompt (what the flow will send to the model):

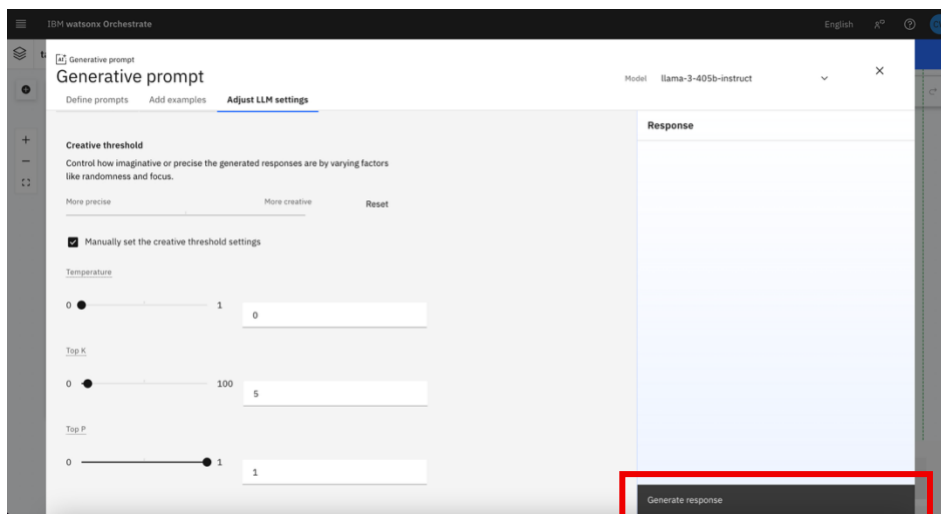
please provide a result of invoice classification type that whether its qualify or not according to the ruleset
please answer in thai language only

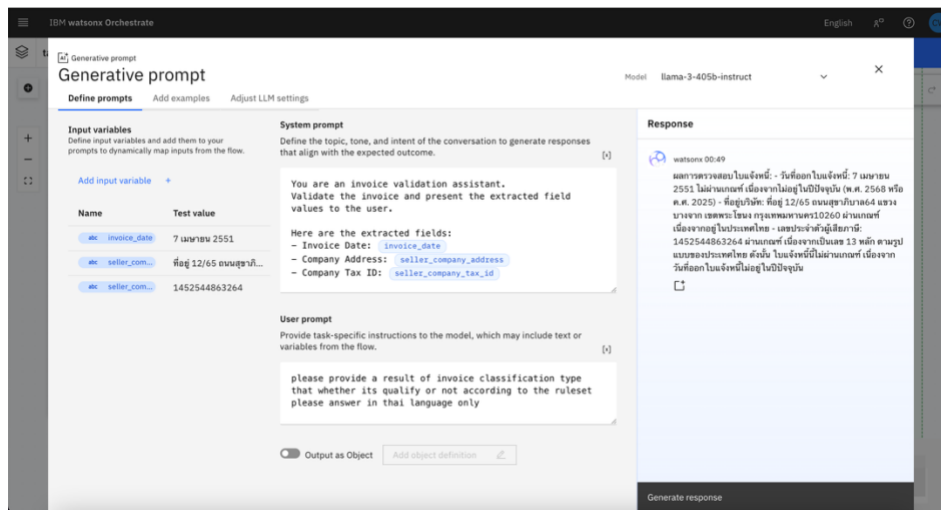
You should see similar to this when the prompt is configured.



Click on Adjust LLM settings.
After that

Once done, click generate response and you should get the output similar to the picture below

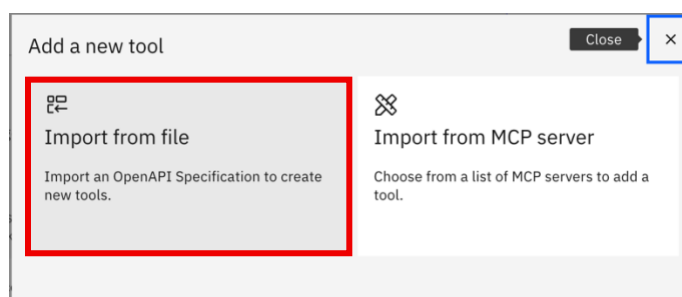
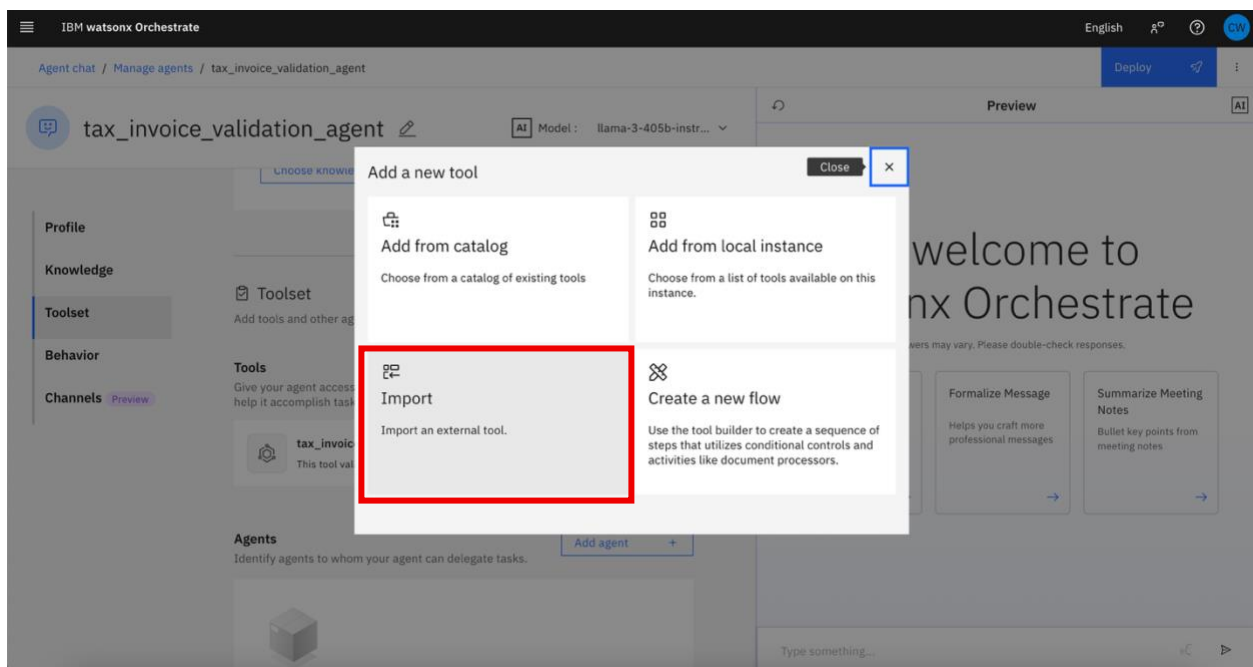
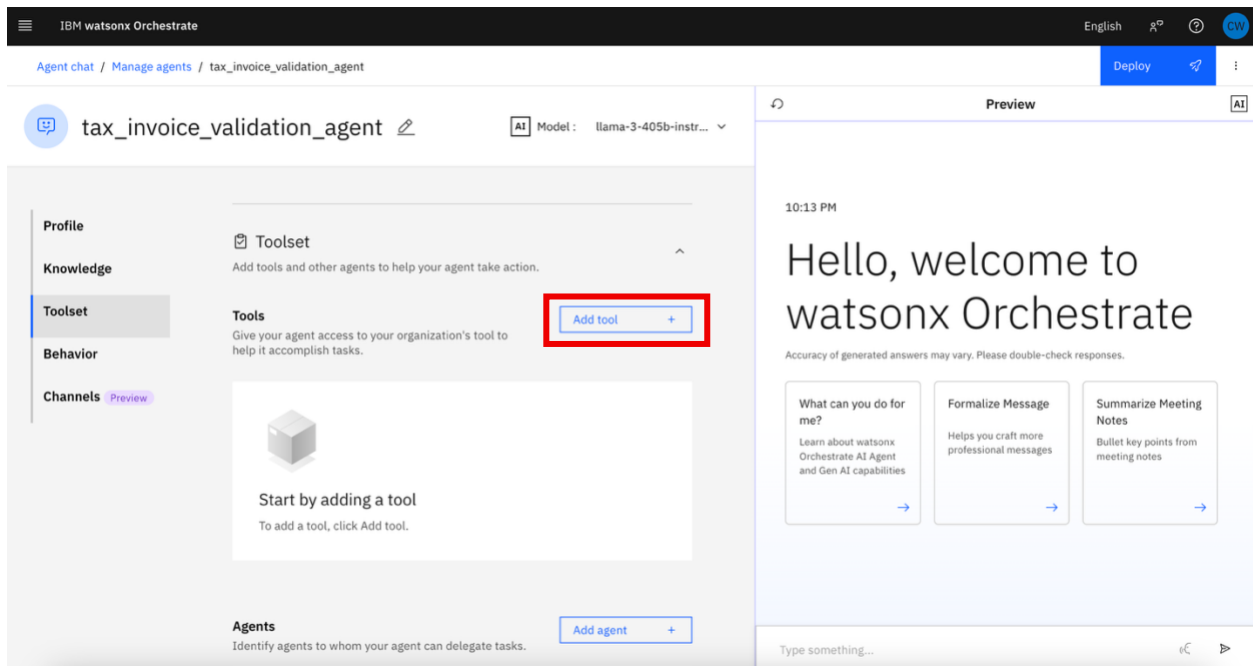




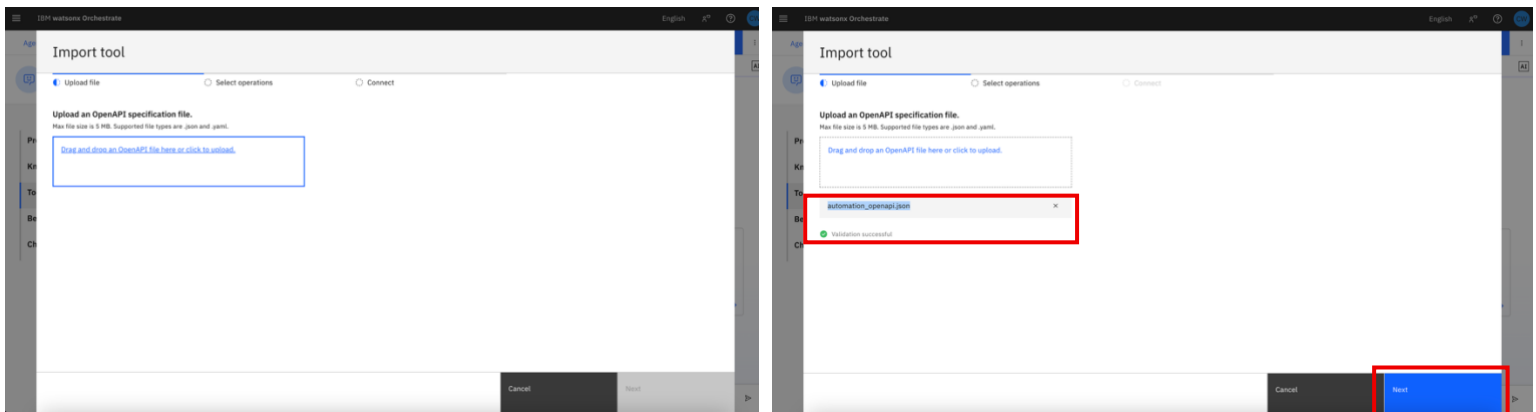
Checkpoint: Current Workflow would be similar like this



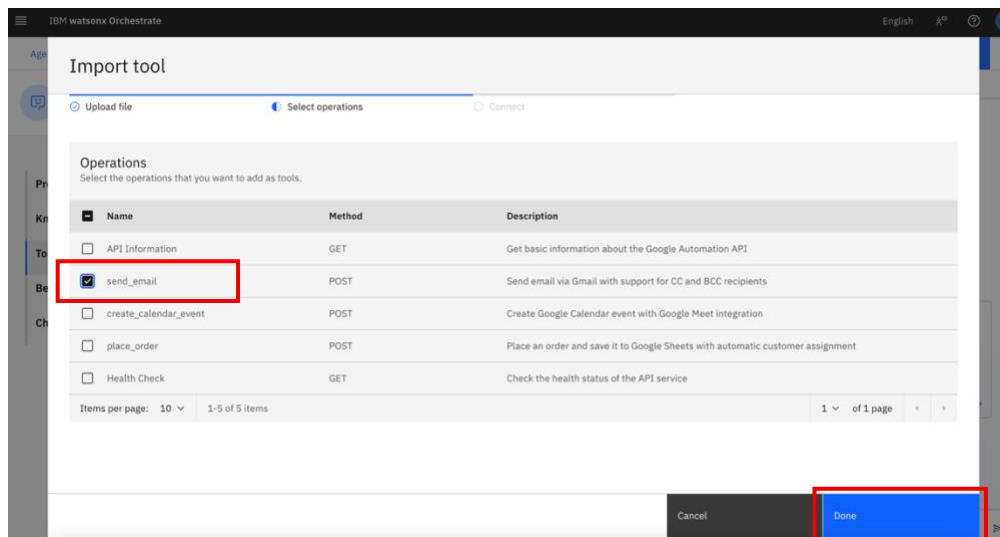
8. Now, head back to the workflow builder. Add new tool and select import from file



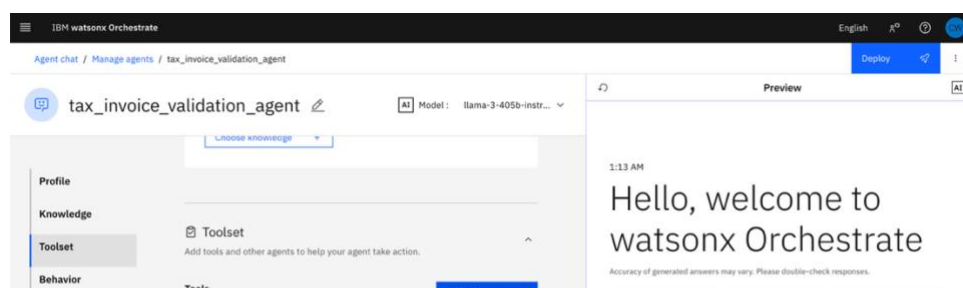
Then upload `automation_openapi.json` the OpenAPI specification file from lab 2. Once done, click next to progress



Select `send_email` tools then click Done



Once done, `send_email` tools should appear on the agent builder screen





Testing

Test the agent with these sample inputs:

1. ฉันต้องการตรวจสอบใบกำกับภาษี
2. ช่วยส่งอีเมลผลการประเมินใบกำกับภาษีไปยัง chananop.wannatipyaporn1@ibm.com ให้น้อย

The screenshot displays the IBM watsonx Orchestrate web interface. The top navigation bar includes the IBM logo, the text 'IBM watsonx Orchestrate', and language/region settings (English, TH, ?). Below the navigation bar, the breadcrumb trail reads 'Agent chat / Manage agents / invoice extraction agent'. The main content area is divided into two panels. The left panel, titled 'invoice extraction agent', contains a sidebar with 'Profile', 'Knowledge', 'Toolset', 'Behavior', and 'Channels'. The 'Toolset' section is active, showing two tools: 'tax_invoice_validation_tool' and 'send_email (4)'. The 'Agents' section is also visible, with a 'Start by adding an agent' prompt. The right panel, titled 'Preview', shows a chat interface with a message from the agent: 'Hello, welcome to watsonx Orchestrate'. Below the message, there are three suggested actions: 'What can you do for me?', 'Formalize Message', and 'Summarize Meeting Notes'. The chat input field at the bottom is labeled 'Type something...'.

1. The Agent will allow you to upload a tax invoice PDF file
2. The Agent will extract the required fields and validate against the rules
3. The Agent will provide a detailed validation result in Thai
4. The agent will send email of the result in Thai