

# C\_AIG

**SAP Certified - SAP Generative AI  
Developer**

## EXERCISES

Course Version: 2511



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# Typographic Conventions

American English is the standard used in this handbook.

The following typographic conventions are also used.

This information is displayed in the instructor's presentation



Demonstration



Procedure



Warning or Caution



Hint



Related or Additional Information



Facilitated Discussion



User interface control

*Example text*

Window title

*Example text*

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## Unit 1

### Exercise 1

# Practice Test: Intelligent Customer Feedback Analysis for E-commerce

### Introduction

In these system-based assessments, you will work on one or more scenarios. Each scenario consists of a set of tasks that you must complete in the system. The scenarios and their corresponding tasks are described below.

For some tasks, you may need to enter specific data into the system. This data is provided in the instructions. You can copy this data directly from this document. Please make sure to follow the instructions carefully.

After completing all required tasks, you must select "**Submit assessment**". Please note that once you submit the assessment, no further changes can be made.



Note:

Take your time to **read each of the instructions carefully**.

**Make sure all required steps are completed before you submit your assessment.**

After you submit, the system will automatically validate your work. Based on this validation, your final score for the assessment will be calculated.

We advise you to manage your time carefully. The assessment is time-limited, and incomplete tasks may affect your final score. If you encounter any technical issues during the assessment (for example, system errors), follow the instructions.

When naming your artifacts part of the name which will be used to uniquely identify your work will be your unique user id in the form of **CERT#####**. The "#####" will be a unique four digit number. The correct use of this number is essential for proper evaluation of your work. Sometimes the number is a part of the name of a file that you are asked to create. If so enter the filename exactly as provided in the instructions. Not following these instructions may result in a failed task.

### Scenario

A large online retailer struggles to manually process and analyze thousands of daily customer emails about various issues like product defects, delivery delays, and return requests. This manual approach is inefficient, inconsistent, and results in customer dissatisfaction.

Your task is to design, develop, and iteratively refine an AI solution using the SAP's generative AI hub. The solution should extract essential insights for fast routing, proactive problem-solving, and ongoing service enhancement.

This scenario consists of four parts. The estimated duration to finish the parts in minutes is added in parentheses. We recommend that you complete the parts in the following sequence.

1. Designing an Initial Prompt and Structuring for Core Feedback Insights (25m)

2. Refining Accuracy and Adding Semantic Depth for Problem Resolution (20m)
3. Evaluating and Selecting the Optimal LLM for Production (20m)
4. Creating an Advanced Multi-Issue Extraction & Prioritization Template (25m)

### Deliverables

Your submission will consist of specific, versioned prompt templates, configured orchestration workflows, and traceable outputs demonstrating your problem-solving process and implementation. You will also be required to save specific AI responses directly into the **Assistant role** of your prompt template for tracking your solution's evolution. Save all your templates in the **orchestration** scenario.

### Sample message for testing your prompts

Sample messages are provided at the end of this document. You can use these messages to develop your prompts as suggested in the tasks below.

### Part 1: Designing an Initial Prompt and Structuring for Core Feedback Insights (25 minutes)

#### Objective

Develop a foundational prompt template that accurately extracts essential customer feedback details into a structured JSON format, ready for immediate departmental routing.

#### Task 1.1: Design and Implement the Base Prompt (Prompt Template Version 1.0.0)

**Instructions:** The customer service, product, and logistics teams need a quick, standardized way to understand the core of a customer's message. Create a new prompt template named **feedback-analyzer-CERT#####**, **version 1.0.0** in SAP's generative AI hub to identify the main issue, sentiment, and any referenced product or order details.



#### Hint:

Click on the top right corner in generative AI hub to find your unique user id in the form of "CERT#####".

**Example:** If your group number is "0123 SAP Learning" your user id will be "CERT0123".

Your template name must include the exact words with your user id. As an example: **feedback-analyzer-CERT0123**. Proper observing of these instructions is critical for you to pass the certification.

1. Define appropriate **System** and **User roles**.
2. The **System** role must clearly state the LLM's primary task (customer feedback analysis) and the desired output schema.
3. The **User** role should contain instructions for processing the input message.
4. Add a variable **user\_email\_placeholder** where you will provide the input message.
5. The output **MUST** be a JSON object containing the following keys:
  - a. **Feedback\_ID**: string (e.g., AUTO-FEED-001)

- b. **Main\_Category:** enum (e.g., Product Issue, Delivery Problem, Return/Refund, General Inquiry, Website/App Issue, Account Issue)
  - c. **Customer\_Sentiment:** enum (Very Negative, Negative, Neutral, Positive, Very Positive)
  - d. **Issue\_Summary:** string (concise summary, max 100 words)
  - e. **Order\_Reference\_ID:** string (e.g., #GGX12345, N/A if not present)
  - f. **Product\_Reference:** string (e.g., "Smartwatch Model X", N/A if not present)
  - g. **Suggested\_Department:** enum (Customer Service, Product Team, Logistics, Returns Processing, Technical Support)
6. Make sure the JSON response contains JSON output only with no additional text or formatting.
7. To develop an effective prompt template:
- a. You can use the prompt editor and sample messages (located at the end of the document) to create and refine multiple versions of the prompts. You can save these prompts for future reference.
  - b. Finally, select the most suitable version for use as the template, **feedback-analyzer-CERT##### version 1.0.0**.

**Hint:**

You can use the sample messages provided in the Sample Messages section after the practice test description

Ensure that you save the prompt template with proper name and version number.

**Caution:**

You need to use the exact template names, variables and version specified for each task. For example, if your user id is "0123 SAP Learning ", you would use the name **feedback-analyzer -CERT0123** and **version 1.0.0**, and variable name **user\_email\_placeholder** for this task. Similarly, ensure correct versions for each of the following tasks like **1.1.0, 1.2.0, 2.0.0** etc. as mentioned in the task. An incorrect naming or version will impact your certification result adversely.

**Expected outcome:** A new prompt template with the name **feedback-analyzer-CERT#####**, **version 1.0.0** with appropriate prompts in the system and user roles and a variable based on the above instructions.

#### **Task 1.2: Implement Enterprise-Grade Prompt Hardening (Prompt Template Version 1.1.0)**

**Instructions:** Update your **feedback-analyzer-CERT#####** template to **version 1.1.0** to implement prompt hardening by adding an "**IMPORTANT**" section within the **System** role. This is to ensure that LLM will not engage in free-form conversation, reveal unintended PII, or accept instructions that deviate from its core task, to maintain data security and operational consistency.

This section must contain **explicit negative instructions** that strictly control LLM's behavior by forbidding actions that would:

- Compromise its **dedicated focus** on customer feedback analysis.
- Lead to the **unnecessary disclosure of any customer's personal data**, beyond the Order\_Reference\_ID or Product\_Reference fields explicitly required in the JSON output.
- Result in a response that is not **clean, parseable JSON**, or unsuitable for automated systems.

**Expected outcome:** The updated prompt template with a **similar name** **feedback-analyzer-CERT#####**, and a **new version 1.1.0** with an additional section for prompt hardening based on the above instructions.

### Task 1.3: Capture the Baseline Output for Evolution (Prompt Template Version 1.2.0)

**Instructions:** Run your **feedback-analyzer-CERT#####** template (**version 1.1.0**) in the Prompt Editor using the following sample customer email in the **user\_email\_placeholder** variable. Once the JSON response is generated, **copy the JSON output and paste it into the Assistant role** of your template and save it to **version 1.2.0**. This will serve as a baseline to track how your solution improves.

Subject: My recent order #GGX56789 – missing item

Hi,  
I received my order #GGX56789 today, but the 'Wireless Headphones' listed on the invoice were not in the box. I am very frustrated as I needed them for a trip this weekend. Please send the missing item or issue a refund immediately. This is unacceptable.



Note:

In case you are unable to execute the prompt due to greyed out **Run** button, click all the input fields (system, user, and variable fields) and check again. You can also try using another model to execute the prompt.

**Expected outcome:** The updated prompt template with a **similar name** **feedback-analyzer-CERT#####**, and a **new version 1.2.0** with an additional **Assistant** role, based on the above instructions.

## Unit 1 Exercise 2

# Refining Accuracy and Adding Semantic Depth for Problem Resolution (Estimated Time: 20 minutes)

### Objective

Improve the LLM's ability to accurately categorize complex feedback and extract specific, actionable details crucial for resolution, not just categorization.

#### Task 2.1: Address Ambiguous Categorization (Prompt Template Version 2.0.0)

##### Instructions:

While knowing the Main\_Category is good, service agents still have to read the full summary to understand what the customer wants (e.g., a replacement, a call, a technical fix). You need to extract specific resolution requests or critical details directly.

Update your **feedback-analyzer-CERT####** template to **version 2.0.0**. Modify the output schema to include a new field: **Actionable\_Resolution\_Points (an array of strings)** to extract 1-3 distinct, concise points detailing what the customer explicitly requests or what specific technical detail needs addressing for resolution.

**Expected Outcome:** The updated prompt template with a **similar name** **feedback-analyzer-CERT####**, **and a new version 2.0.0** with the additional new **Actionable\_Resolution\_Points** field based on the above instructions.

#### Task 2.2: Extract Actionable Resolution Details (Prompt Template Version 2.1.0)

**Instructions:** Run your **feedback-analyzer-CERT####** template (**version 2.0.0**) in the Prompt Editor using the following sample feedback. Once the JSON response is generated, **copy and save this specific JSON output into the Assistant role** of this template version. Save it to a new template **version 2.1.0**. This validates your refinement.

Remember that to use the prompt template in Prompt Editor and generate fresh responses, you need to **delete the all the previous Assistant roles**.

```
Subject: Glitch on checkout page, Order #GGX98765 stuck
Hi Support,
I was trying to complete my purchase for Order #GGX98765 (items:
"Portable Speaker" and "Travel Adapter"), but the website's checkout
page crashed after I entered my payment details. Now the order is
stuck, and I can't try again. I need someone to clear the pending
order and allow me to repurchase, or help me complete it.
```

**Expected outcome:** The updated prompt template with a **similar name** **feedback-analyzer-CERT####**, and a new **version 2.1.0** with an additional **Assistant** role, based on the above instructions.

## Unit 1 Exercise 3

# Evaluating and Selecting the Optimal LLM for Production (Estimated Time: 20 mins)

**Objective:** Systematically evaluate different LLMs using your fully refined prompt template and orchestration workflow. Based on this evaluation, you will configure your solution to use the optimal model for production deployment.

### Task 3.1: Perform Comparative Model Evaluation and Selection

**Instructions:** Using your template (**feedback-analyzer-CERT#####** version 2.1.0), run the following **sample customer feedback messages** three times each time using a **different LLM model** available in the generative AI hub (e.g., GPT-4o Mini, Mistral AI, Gemini)

#### Feedback Message (Delivery Problem - Neutral/Negative):

Subject: Delivery confusion for order #GGX33445

My order #GGX33445 (a "Premium Coffee Maker") was marked as delivered two days ago, but I haven't received it. My neighbor also didn't get it. The tracking link just says "delivered." Can you please investigate with the shipping company and give me an update?

1. After executing your prompt with each model, carefully review the generated JSON output for accuracy, completeness, and adherence to the specified format to ensure the most accurate customer feedback analysis. Pay close attention to Main\_Category, Customer\_Sentiment, Suggested\_Department, and Actionable\_Resolution\_Points.
2. To do this, run your template with each model for the given Feedback Message and review the JSON output. Repeat the same for the next model.
3. **After comparing the results decide which LLM performs best** with your current setup.
4. Copy the JSON output for your selected model using **Feedback Message** and save it to the **Assistant** role of your **feedback-analyzer-CERT#####** template to new **version 2.2.0**, labeling it "**Optimal Model Output**". Labeling is important to track your results.

#### Expected outcome:

The updated prompt template with a **similar** name **feedback-analyzer-CERT#####**, and a new **version 2.2.0** with an additional **Assistant** role based on the above instructions.

## Unit 1 Exercise 4

# Creating an Advanced Multi-Issue Extraction & Prioritization Template (Estimated Time: 25 minutes)

### Objective

Enhance the solution to handle multiple distinct issues within a single customer feedback message, requiring a more complex JSON structure. Introduce a "Priority" field for each identified issue.

#### Task 4.1: Implement Multi-Issue Support & Prioritization (Prompt Template Version 3.0.0)

**Instructions:** Customers often voice several distinct complaints or questions within a single communication , for example a product defect, a shipping delay, and a billing question all in one email. The current schema is designed for a single Main\_Category per feedback. You need to identify all distinct issues and also assign a priority to each to help agents triage effectively.

Update your **feedback-analyzer-CERT#####**, template version 2.0.0 to a new version, **3.0.0**.

- Modify the output JSON schema significantly. The JSON will now comprise two levels, a header level and a line item level. The header level will consist of the fields Feedback\_ID and Overall\_Customer\_Sentiment (representing the general tone of the entire message).
- The line item level should now be structured as an array where each element in the array is a separate JSON object representing a distinct customer issue. Each Issue element MUST contain:
  - **Issue\_ID:** string (e.g., "ISSUE-A", "ISSUE-B") - a unique identifier for each distinct issue found within the current feedback.
  - **Main\_Category:** enum (same as before: Product Issue, Delivery Problem, Return/Refund, General Inquiry, Website/App Issue, Account Issue)
  - **Customer\_Sentiment\_for\_Issue:** enum (Very Negative, Negative, Neutral, Positive, Very Positive) - specific to *this particular issue*.
  - **Issue\_Summary:** string (concise summary for *this specific issue*, max 75 words)
  - **Order\_Reference\_ID:** string (e.g., #GGX12345, N/A if not present, specific to this issue)
  - **Product\_Reference:** string (e.g., "Smartwatch Model X", N/A if not present, specific to this issue)
  - **Actionable\_Resolution\_Points:** array of strings (1-3 distinct, concise points detailing what is needed for *this issue's resolution*).
  - **Priority:** enum (High, Medium, Low) - Based on the urgency, impact on the customer, and severity of *this specific issue*.

**Expected outcome:**

The updated prompt template with a similar name **feedback-analyzer-CERT#####**, and a new version 3.0.0 with updated prompts for the new json format in the **System** and **User** role.

**Task 4.2: Capture Complex Multi-Issue Output for Validation (Prompt Template Version 3.1.0)**

**Instructions:** Run your **feedback-analyzer-CERT#####** template (version 3.0.0) in the Prompt Editor using the following complex sample feedback. Once the JSON response is generated, copy and save this specific JSON output into the **Assistant** role of this **template version 3.1.0**. This validates your ability to handle multi-issue extraction.

```
Subject: Problems with my recent order and account!
```

```
Hello,  
I'm writing because I have two serious issues. First, the "Smart Coffee Maker" (Order #GGX88990) I bought is defective; it keeps leaking. I want a replacement or a full refund. Second, my online account has been showing incorrect order history for months, and I can't update my shipping address. This is very frustrating, and I've tried calling customer service but couldn't get through. Please fix my account and send instructions for the coffee maker return.
```

**Expected outcome:**

The updated prompt template with a similar name **feedback-analyzer-CERT#####**, and a new version 3.1.0 with an additional **Assistant** role, based on the above instructions.

**Sample Messages**

**Sample Message 1: Product Issue (Defective Product)**

```
Subject: Faulty "Smart Blender" - Order #BLEND1234
```

```
Hi Support,  
I received my 'Smart Blender Pro X' (order #BLEND1234) two days ago, and it's already not working correctly. The motor sounds very weak, and it keeps stopping mid-blend. It's clearly defective. I would like a replacement unit sent out immediately, or a full refund if a replacement isn't possible. This is very frustrating as I need it daily for my morning shakes.
```

**Sample Message 2: Delivery Problem (Lost Package)**

```
Subject: Where is my order #PKG5678? Tracking shows delivered but I have nothing!
```

```
To whom it may concern,  
My order #PKG5678 for the "Premium Coffee Subscription" was marked as delivered yesterday, but I haven't received anything. I've checked with my neighbors and the building management, and no one has seen it. This is a recurring issue with your delivery service! Please investigate with the shipping company and locate my package, or send a new one. I'm very upset about this.
```

**Sample Message 3: Website/App Issue (Payment Error)**

```
Subject: Cannot complete purchase - Payment Error on website
```

```
Hello,  
I'm trying to buy the 'Ergonomic Office Chair' and some accessories, but every time I try to complete my payment on your website, it shows a generic 'payment error' message. My card is definitely working on other sites. I've tried multiple times, and now my cart contents might
```

expire! Can you please check what's wrong with your payment gateway? I need to complete this order.

#### Sample Message 4: General Inquiry (Pre-Sales Question)

Subject: Question about "Eco-Friendly Tablet Case" compatibility

Dear Team,

I'm looking at your 'Eco-Friendly Tablet Case' on your website. I have an older tablet model, the "TabPro 7" (from 2021). Will this case be compatible with it, or is it only for newer models? I want to make sure before I make a purchase. Thanks for your help!

#### Sample Message 5: Multi-Issue (Defective Product & Account Billing)

Subject: Two problems: broken headset & duplicate charge for membership!

I have two urgent issues to report! First, the 'Gaming Headset' (order #GAME9012) I bought last week has a broken microphone - it's not picking up my voice at all. This is a critical defect for a gaming product. Second, I noticed a duplicate charge for my 'SimpleBest Premium Membership' on my last statement. I was charged twice this month! Please fix the headset and refund the duplicate membership charge immediately. This is quite disappointing.

#### Sample Message 6: Return/Refund Request (Wrong Item Received)

Subject: Incorrect item sent - Order #CLOTH3456

Hi,

I placed order #CLOTH3456 for a "Blue Summer Dress, size Medium." However, what I received today was a "Red Winter Jacket, size Large." This is completely the wrong item and not what I ordered! I need to return this jacket and either get the correct dress sent to me or receive a full refund. Please provide instructions on how to proceed.