Getting to know watsonx Prompt Lab

We've successfully applied our recently honed Prompt Engineering skills within the Generative AI Classroom environment offered by the Skills Network. While this platform is excellent for experimentation and learning, it's not tailored for high-stakes business operations.

For more professional applications, I suggest turning to watsonx. It offers many AI and data science tools, but as far as this course is concerned, we'll focus on **Prompt Lab**. As expected, it's a prompting tool designed to maximize the benefits of the skills you've developed. However, its user interface differs from what you're used to. In this lab, I'll give you a tour and introduce you to the capabilities of this robust tool.

Register for an account

Begin by **registering for an account** with watsonx.

Register for watsonx.

Please be aware that due to specific geographic and business constraints, some may not be eligible to register. If you encounter this limitation, I apologize for the inconvenience. You can still explore the vast landscape of LLM by opting for alternative services such as ChatGPT.

Getting Started with watsonx

1. Click on **Create account or Log in**. In the next step, click on **Log in**, along the text Already have an IBM Cloud account.Choose the same region you had used to create your account.

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2. Log in again using the credentials you used while signing up with the feature code.

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3. Provide the required information and then click on **Continue**.

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4. After the successful login, you will be prompted to **Take a tour** of the watsonx platform (on your first login), as shown below.

   Note: You may opt for the watsonx walkthrough by clicking **Take a tour** or skip or exit it by clicking **X** at the upper right corner of the screen

5. On completing or exiting the tour, you will reach your IBM watsonx.ai dashboard page, as shown below. Here, you can perform experiments like train, validate, tune, and deploy AI models.

Note: If this is NOT your first login session in the watsonx.ai, you may find the **Prompt Lab** deactivated. In this case, you need to create a project and then select the **Open Prompt Lab** option. You can create a new project by following the given steps.

a. You can view the list of projects for your account using the **Projects** drop-down option in the left panel.

b. You can create a new project by clicking the **New Project** button.

c. Enter the name and description of the project and click **Create**.

d. Go to **Home** using drop-down option in the left panel.

e. You will reach your IBM watsonx.ai dashboard page.Click the first card with Prompt Lab, as shown in the screenshot below.

f. Click on **Associate Service**

g. Select **Watson Machine Learning-vy** and click **Associate**.If Watson Machine Learning is not seen please select **New Service** and add **Watson Machine Learning**

h. Go to **Home** using drop-down option in the left panel.

Please be aware that due to specific geographic and business constraints, some may not be eligible to register. If you encounter this limitation, you can still explore the vast landscape of Large Language Models through alternative services such as ChatGPT.

6. To experiment with a language model, click the first card **with Prompt Lab**, as shown in the screenshot below.

Note: If you have created a new project, click **Open Prompt Lab** in the Start working section

7. You will view the **Welcome to the Prompt Lab** tour page, as shown below.

8. You must check all three acknowledgment boxes to start or skip the tour, as shown below.

Exploring the Prompt Lab

Upon entering the Prompt Lab within your project, you'll be greeted by this interface.Select **Structured** tab if this is not selected by default.

Familiarize yourself with the tool's features. On the left, you'll find icons representing Sample Prompts, Saved Prompts, and History. By default, these are collapsed.

Additionally, observe the options to create a New Prompt, save your current work, and turn on or off the AI Guardrails. These guardrails are essential safety measures designed to prevent the AI from producing harmful or offensive content. Feel free to explore these features.

Once you've had a good look around, let's delve deeper into the tool's primary components.

At the top, you'll spot three tabs: **Chat**, **Structured** and **Freeform**. As the name suggests, the Structured tab offers a guided approach to input, reminiscent of a more advanced version of the AI Classroom you've previously used in this course. On the other hand, the Freeform tab presents a simple textbox, allowing you to directly query the AI.

I'd advise familiarizing yourself with the Structured mode, as it offers a more guided experience.

The three sections I've highlighted for you in blue are:

1. **Instruction Section**: This is akin to our earlier "Prompt Instructions."
2. **Example Section**: Here, you can provide specific input-output pairs to guide the AI, similar to our exercises in the Chain-of-Thought lab.
3. **Try Section**: This is where you'll input your queries. The AI's responses will be displayed in the Output field within this section.

Finally, note the **Generate** button located at the bottom right. Initially, it appears grayed out, indicating that no input has been provided. Once you enter your query, the button will become active, allowing you to submit your input to the AI for processing.

Exercises

The following exercises should familiarize you with the Prompt Lab interface. For future convenience, consider saving prompts which you find particularly useful. You can use them as templates, simply tweaking the input field to suit your current query. This method is both efficient and time-saving.

1. **Basic Query**: Without any prompt instructions or examples, ask the AI: `Give me a list of common fish species in North America`. You might find the output lacking. For instance, I received `List of fish species in North America`. Where's the list? This truncation occurs in part because the default chat setup limits the response to a set word count. Let's rectify this.

2. **Adjusting Model Parameters**: Click the Model parameters settings icon in the top right, as depicted below.

   Adjust the Max token parameter within a range of 1 to 1024. For this exercise, set it to 200, capping our output at 200 words. You can also set a minimum word count and tweak more advanced parameters.

Remember, the cost of using foundation models in IBM WatsonX is determined by usage, which relates to the number of tokens generated. Thus, setting a conservative Max tokens value is cost-effective.

After setting the 200-token limit, close the Model parameters and click Generate again. If the output remains unsatisfactory, don't worry. We have more tricks up our sleeve!

3. **Switching Models**: From the dropdown adjacent to Model parameters, switch from the `flan-ul2` model to IBM's `mpt-7b-instruct2`, `mixtral-8x7b-instruct-v01-q` or `granite-13b-chat-v2` model. Click Generate.

   You should now receive a comprehensive list of common fish species in North America.

   It doesn't apply here, but it's worth noting that if you're pleased with the output, you can also use the top right corner of the Output field to transfer the output to the Example section. This ensures future responses are modeled after this successful example.

4. **Guardrail Safeguards**: You might observe that one entry was omitted due to Guardrail safeguards. Temporarily disable the guardrail at the page's top and generate a new output. Can you identify which panfish species triggered the censor?

5. **Using the Nova System**: Apply the Nova System, as discussed in a previous lab, with this new model. You might need to modify the Max token parameter to view the complete output, but remain conscious of potential costs. A preview capped at 200 tokens should suffice. To initiate a new Prompt, click **New Prompt** at the top. You'll have the option to save the current chat, useful for future reference.

   Note: A new chat will default back to 20 tokens, so remember to readjust it to your preferred value.

6. **Improving English Clarity**: Modify the instructions to state, `Acting as an English professor, you'll take my input, enhance its clarity, and make it sound more native.` Then, input the following fractured English sentence: `Yesterday, I go to big market for buy many fruits, but they no have the apple I like, so me feel sad and come back home without buy anything.` Experiment with various models. The results should be impressive, making this tool invaluable for non-native English speakers.

7. **Translation**: Use the prompt instructions to guide the model to translate your input into Italian or a second language you might speak. Then, input an English sentence. If you do speak a second language, try it with a few different models to see which one performs best. In my case, LLama by Meta did a particularly impressive job with Italian. watsonx is also smart enough to recommend when a specific prompt can benefit from an example, guiding you toward better results.

The Prompt Lab is a versatile tool. Its AI models have helpful capabilities such as generating creative content, answering complex queries, assisting in language translation, summarizing content, extracting specific data from unstructured data, and even simulating specific roles like an English professor, as seen in this lab. It's a testament to the power and utility of modern AI.

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