

AI Application Labs: Tools and Techniques in Non-Degree Business Education

This workshop empowers you to harness the transformative power of AI for tangible business outcomes. Gain a practical understanding of generative AI and its applications in areas like data analysis, content creation, and process automation.

Go beyond the hype and develop the skills to leverage AI for strategic decision-making, competitive advantage, and increased efficiency within your organization.

Learning Objectives

In this workshop, you will:

- Understand the core concepts of how generative AI is revolutionizing industries.
- Navigate leading AI platforms and identify the tools that align with your specific business needs.
- Master prompt engineering techniques to effectively communicate with and direct AI models.
- Go beyond text and leverage AI to analyze images, audio, and video for deeper insights.
- Evaluate AI-generated content, identify trends, and extract knowledge to inform strategic decisions.

There are 3 different types of Generative AI platforms :

- Platforms for consumers.
- Platforms for Developers
- Platforms for Enterprises
- **These are examples of platforms that you can leverage for this lab and for your future use-cases.**
 - **Mistral :**
 - Consumer platform : <https://chat.mistral.ai/chat>
 - Developer platform : <https://console.mistral.ai/>
 - List of models :
 - Mistral Nemo

- Mistral Large 2
 - Mistral small 24.09
 - Specialist models : Codestral, Pixtral
 - Legacy models :
 - Mistral 7B
 - Mistral 8x7B
 - Mistral 8x722B
 - Mistral Large
 - Mistral small 24.02
 - Mistral Medium
- OpenAI :
 - Consumer platform : <https://chatgpt.com/>
 - Developer platform : <https://platform.openai.com/>
 - List of models :
 - Gpt-4o-mini
 - Gpt-4o
 - Gpt-4-turbo
 - Gpt-4
 - Gpt-3.5-turbo
 - Gpt-4o-mini-2024-07-18
 - gpt-3.5-turbo-0125..
- Google :
 - Consumer platform : <https://gemini.google.com/>
 - Developer platform : <https://aistudio.google.com/>
 - List of models :
 - Gemini 1.5 Pro
 - Gemini 1.5 Pro 002
 - Gemini 1.5 Flash 002
 - Gemini 1.5 Flash 8B
 - Gemma 2 2B
 - Gemma 2 9B
 - Gemma 2 27B
- Anthropic :
 - Consumer platform : <https://claude.ai/>
 - Developer platform : <https://console.anthropic.com>
 - List of models :
 - Claude-3.5-sonnet-20240620

- Claude-3-opus-20240229
 - Claude-3-haiku-20240327
 - Claude-2.1
 - Claude-2.0
 - Claude-instant-1.2
- Each of these models is known for its particular performance, latency and safety guardrails.
 - Before leveraging any of these models to production, it is highly recommended to review the documentation of each and select the one that is the most appropriate for your use-case.

Activity 1 : Unlocking Data Insights with Generative AI

Learning Objectives:

- Understand the capabilities of large language models for data analysis.
- Develop skills in prompt engineering to interact effectively with AI.
- Practice analyzing and interpreting AI-generated insights.
- Explore different output formats for presenting data.

Tools:

- Google AI Studio (aistudio.google.com)
- The provided CSV file (with sales data, including dates)
https://drive.google.com/file/d/1KXXkoTQmSTv8O8R0rJ60bw14N20jQvUE/view?usp=drive_link

Instructions:

1. Introduction:

- Do you know that Multimodal Generative AI models can **understand**, **process**, and **generate** human-like text. These models can be incredibly helpful for analyzing data and extracting meaningful insights.

2. Exploring the Data:

- Open the provided CSV file in your local computer.
- Take a few minutes to familiarize yourself with the data. **What are the columns? What types of information does it contain? What questions come to mind when you look at this data?**

3. Prompt Engineering Basics:

- "Prompt engineering" is the art and science of crafting effective instructions for AI models. The way you phrase your questions or requests significantly impacts the model's response.
- Today, we'll practice prompt engineering to analyze our sales data.

4. First Prompts:

- In the AI Studio prompt interface, enter the following prompts, one at a time, and observe & write the model's output:

- **Prompt 1:** "Analyze this spreadsheet and identify the top 3 selling products in Q2 2024."
- **Prompt 2:** "Provide a summary of sales performance by region."

5. Iterative Prompting:

- Now, let's refine our prompts to get more specific or different types of answers. Try these:
 - "Show the top 3 products in Q2 2024 *by revenue*."
 - "Which region had the *lowest* sales in Q2 2024, and what were the total units sold there?"
 - "Compare the sales performance of the top 2 products across all regions."

6. Output Formats:

- AI models can present data in various ways. Experiment with this prompt:
 - "Show the regional sales summary in a table."

7. Advanced Exploration:

- Let's see if the AI can help us with more complex tasks:
 - "Write a formula to calculate the average profit margin for each product."
 - "Generate a formula that identifies products with sales above the average."
 - "If a product's profit margin is below 15%, suggest a potential strategy to increase its profitability."

8. Creative Summary:

- Finally, let's challenge the AI to summarize our findings creatively:
 - "Write a short summary for a CEO describing the key trends in Q2 2024 sales data."

Activity 2 : Explore the different modalities and languages of Generative AI models :

Goal: Evaluate the capabilities of Generative AI models across various input modalities (audio, video, text) and languages.

Part 1: Audio Processing

Input:

https://drive.google.com/file/d/1LSVXTSN_dhi28mV5H-yPgX3u4JxIBrQS/view?usp=drive_link

Prompt 1 (English): "Generate a verbatim transcript of this audio clip."

Prompt 2 (French): "You are a sports commentator specializing in football (soccer). Translate this audio clip into French."

Part 2: Video Processing

1. Input:

drive.google.com/file/d/1LSVXTSN_dhi28mV5H-yPgX3u4JxIBrQS/view?usp=drive_link

2. **Prompts:** Use your preferred prompting style, but ensure the prompts cover these aspects:

- a. Summary: "Summarize the main points of this lecture."
- b. Key Takeaways: "Identify the key takeaways from this lecture."
- c. Presentation Analysis: "Analyze the speaker's presentation style (e.g., clarity, engagement, use of visuals)."

Part 3: Document Processing and Form Filling

1. **Source Document:** (Alice Doe's resume, provided in the image)
2. **Target Form:** (Job Application Form for MNO Inc., provided in the image)
3. **Task:** Use the information from Alice Doe's resume to automatically populate the fields in the job application form.

Example of a prompt :

Here is the source document from which you will get the information needed to fill out the specified field in the target form.

Alice Doe

San Francisco, California | alice.doe@website.com | 123-555-4444 | [LinkedIn](#)

Experience

Marketing Manager, ABC Company,

June 2022-Present

- Developed and executed marketing campaigns that increased website traffic by 25% and generated \$1 million in revenue.
- Managed social media accounts, email marketing, and content creation.

Marketing Specialist, XYZ Corporation,

July 2020-June 2022

- Conducted market research and analyzed data to identify target audiences and develop effective marketing strategies.
- Created and managed marketing materials, including brochures, website content, and social media posts.

Skills

- Marketing Strategy Development
- Market Research and Analysis
- Digital Marketing
- Content Creation
- Social Media Management
- Email Marketing
- Customer Relationship Management (CRM)
- Microsoft Office Suite
- Adobe Creative Suite

Education

Master of Business Administration (MBA), University of California, Berkeley, 2020

Bachelor of Science in Marketing, California State University, Northridge, 2018

Now here is the target form:

Job Application Form for MNO Inc.

Application for: **Marketing Manager**

Personal Information
Full Name: _____
Address: _____
Phone Number: _____
Email Address: _____

Education
Degree(s) Obtained:
University/Institution: _____
Years Attended: _____
GPA (if applicable): _____

Relevant Experience
List up to 2 past experiences:

Experience 1
Company Name: _____
Position Title: _____
Years of Experience: _____
Key Responsibilities and Accomplishments:

Experience 2
Company Name: _____
Position Title: _____
Years of Experience: _____
Key Responsibilities and Accomplishments:

Addition Questions
Why are you interested in this position?

What are your strengths and weaknesses as a marketer?

What is the field name in the red box? What value should I fill in the red box above?
Output the fill value in the last line.

Activity 3 : Improve your prompt engineering skills with these best practices.

This activity focuses on improving your prompt engineering skills by structuring prompts effectively. A well-structured prompt includes six key components:

Activity: Practice crafting prompts using the six components above. Experiment with different combinations to understand their impact on the AI's response.

Persona:

Definition: Persona refers to the identity or role you want the AI to assume when generating the response. It helps set the context and tone for the interaction.

Example: "Imagine you are a friendly customer support agent..."

Context:

Definition: Context provides background information about the situation or scenario in which the conversation takes place. It helps the AI understand the setting and frame its response accordingly.

Example: "...helping a customer troubleshoot a technical issue with their smartphone."

Task:

Definition: Task outlines the specific action or information you want the AI to provide in its response. It clarifies the purpose of the conversation.

Example: "...provide step-by-step instructions to reset the device and restore connectivity."

Exemplar:

Definition: Exemplar offers an example or sample of the type of response you're looking for. It guides the AI by showing the desired style or content.

"For instance, you might say: 'To reset the device, go to Settings > System > Reset > Factory Reset.'"

Format:

Definition: Format specifies how you want the response to be structured or presented. It can include elements like headings, bullet points, or specific sections.

Example: "Please organize your response in a step-by-step format with numbered instructions."

Tone:

Definition: Tone indicates the emotional or conversational tone you want the AI to adopt in its response. It helps convey the desired attitude or style.

Example: "Maintain a polite and patient tone throughout the conversation."

The quality of the AI's response can be further refined using parameters like ``top-p``, ``top-k``, and ``temperature``. These parameters influence the randomness and creativity of the generated text. The output format can also be specified (e.g., plain text or JSON).

Activity 4: Creating a Personalized Study Guide with NotebookLM

Goals:

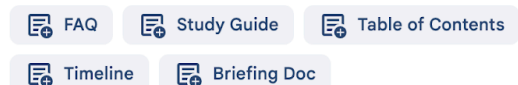
- To learn how to use NotebookLM to generate questions and answers from your own documents.
- To develop a podcast script based on the generated Q&A, focusing on key concepts.
- To create a concise and effective study guide summarizing the key information from your chosen document.

Instructions:

- Choose a Document: Select a document (e.g., a research paper, lecture notes, chapter from a textbook) that you would like to create a study guide for. The document should be in a readable format (e.g., .txt, .pdf, .docx).
- Upload to NotebookLM:
 - Visit notebooklm.com.
 - Click "Try NotebookLM".
 - Click "Create new".
 - Click "Choose file" and upload your chosen document.
 - Click "Generate". Allow the system sufficient time to process your document.

* Notebook guide

Help me create



Audio Overview



Deep dive conversation
Two hosts (English only)

Customize

Generate

Summary

This presentation, "Artificial intelligence in Executive Education Trends, challenges and opportunities," examines the use of generative AI in education. It begins by defining generative AI and outlining its different types, then explores its various applications in education, including content creation, accessibility enhancements, and administrative streamlining. The presentation also analyzes the opportunities and threats of leveraging generative AI, emphasizing the importance of data security, accuracy, and bias mitigation. The final section delves into the implementation strategies for utilizing generative AI within educational institutions.

Suggested questions

What are the potential benefits and challenges of using generative AI in education?

How can generative AI be leveraged to streamline administrative tasks and enhance communication in educational institutions?

What are the most important considerations for responsible and effective deployment of generative AI in various industries?