Project: Transforming Organizational Functions with Generative AI

Estimated time: 60 minutes

Learning objectives

After completing this project, you will be able to:

- Apply generative AI within various organizational functions.
- Use generative AI to enhance customer experience through customer segmentation and personalized recommendations.
- Use generative AI for supplier performance analysis and demand forecasting.
- Utilize generative AI to improve customer support through chatbots.

Welcome to the project on Transforming Organizational Functions with Generative AI!

Scenario

GenKart is a mid-sized e-commerce company that offers a wide range of products, including electronics, fashion, home goods, and sports equipment. Despite a solid customer base, GenKart faces increasing competition and evolving customer expectations. To stay ahead in the market, the company seeks to transform its business processes using generative AI. The company is exploring how generative AI can transform different functions in the company, with a goal to enhance customer experience, optimize operations, and drive growth.

To demonstrate the exercises in this project, you will use IBM's Generative AI Classroom lab, powered by many language models.

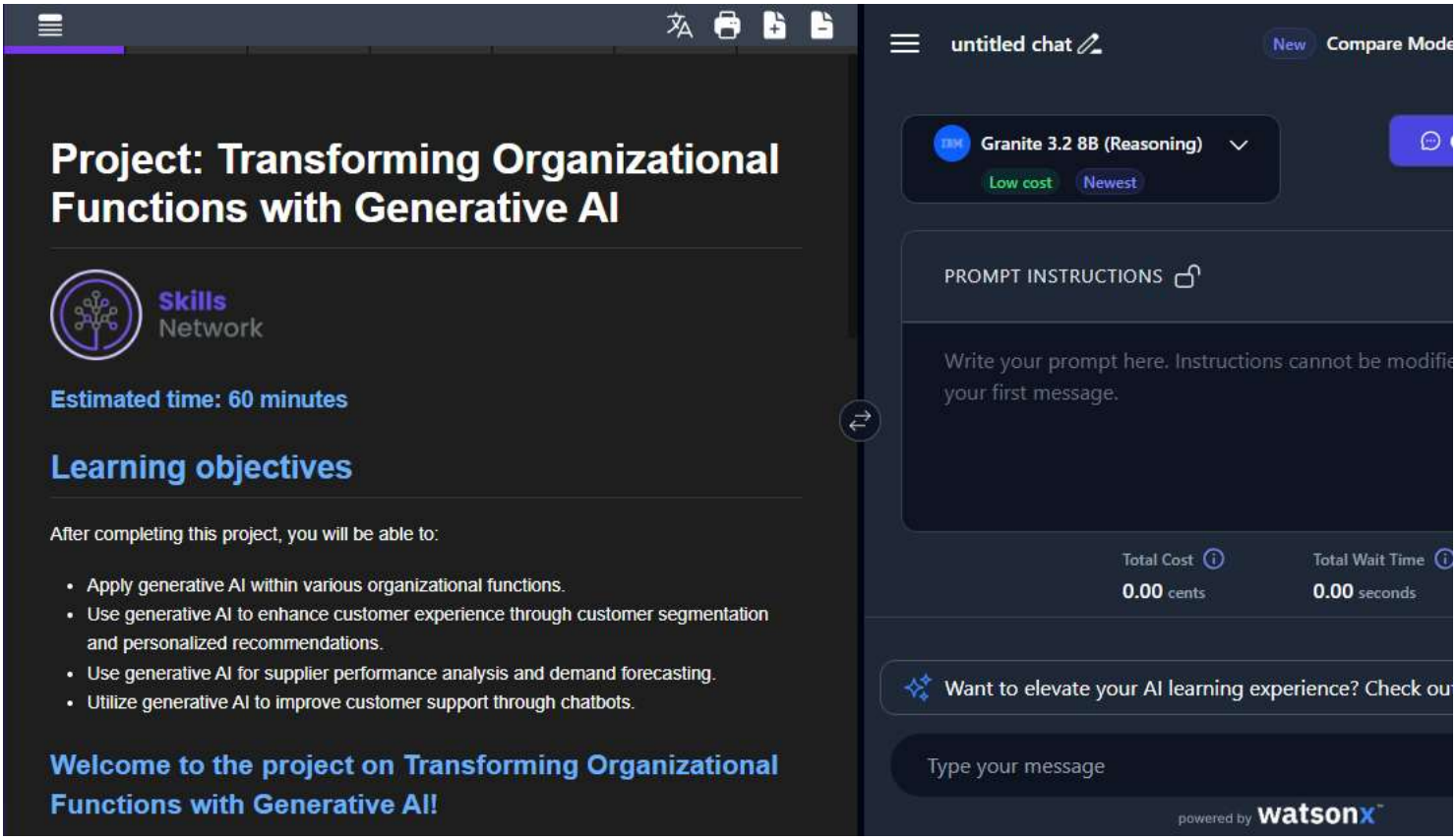
About Generative AI Classroom Lab

Note: This section introduces the Generative AI Classroom Lab's interface. If you are already familiar with it, you can skip this section.

Introduction

The generative AI classroom is a tool where you can write and compare your prompts to generate desired text with real-time chat responses. Moreover, you can choose from multiple generative AI models and learn about their strengths and weaknesses.

You will have both the generative AI classroom environment and instructions on one page in a browser. The instructions will be on the left half of the screen, and the generative AI classroom will be on the right half of the screen. You can interact with the language model using the message and chat fields.

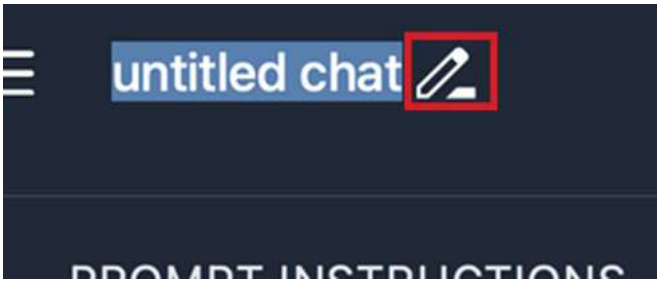


Set up the AI classroom

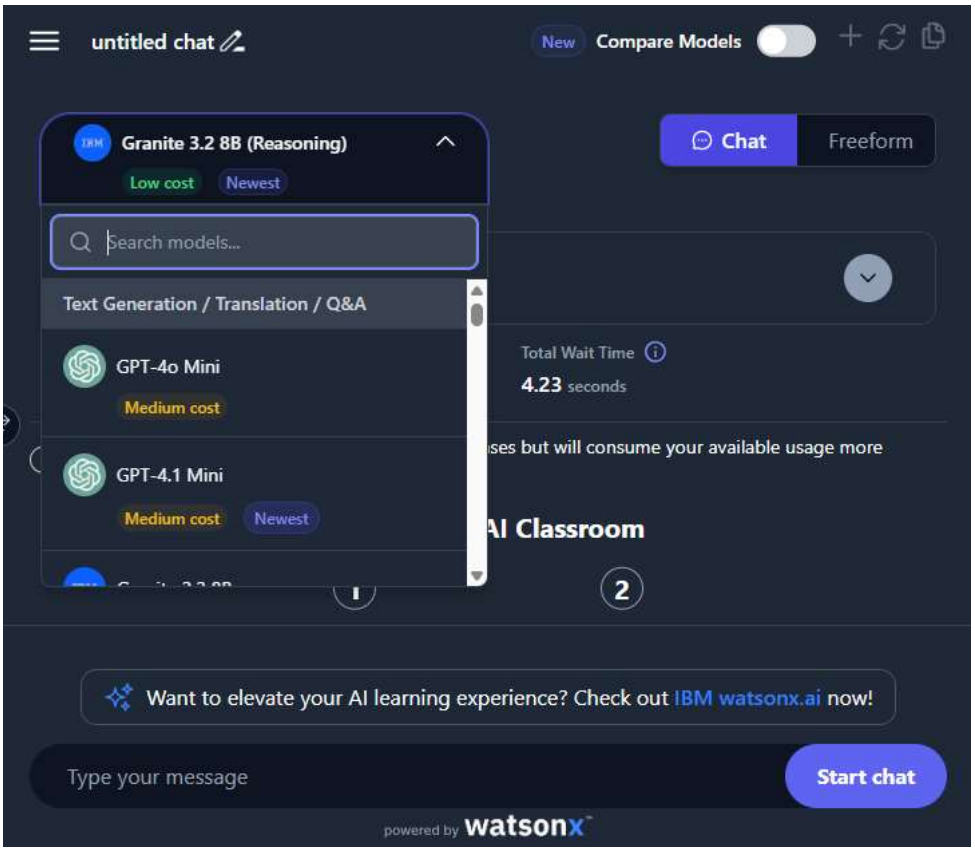
To work on an exercise in the AI classroom, you must first set up your AI classroom for a better learning experience.

Before beginning the exercise, you must:

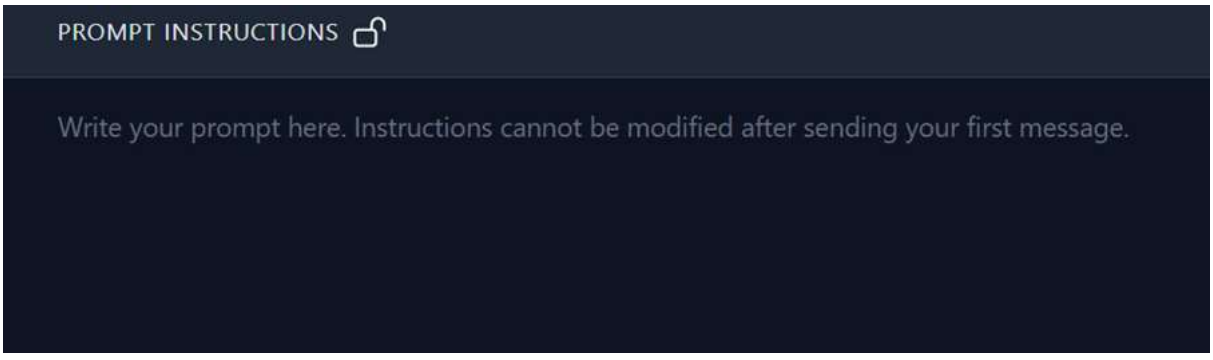
1. **Name the chat**: Use the pencil icon available on the top-left corner of the right pane to name the chat.



2. **Choose the model**: Use the dropdown option from the top-left corner below the name of the chat for the text generation exercise. In this lab, we will work with the **gpt-4o-mini** model.



3. **Give prompt instructions**: Use the **Prompt Instructions** field on the upper right pane of the chat system to provide instructions or any specific details about the context of the required output. These instructions will be locked when you start the chat and cannot be modified later.



4. **Type your message**: Use the text box available at the bottom of the page to write the prompts and converse with the chat system.

Exercise 1: Transforming business functions

As the first step of transformation, GenKart is exploring how generative AI can be used in different functions and aspects. Let's leverage the chatbot in Generative AI Classroom to seek guidance on this.

1. Let's name the new chat as **Transformation of Business Functions**. Also, select the **gpt-4o-mini** model.

2. Instruct the chatbot to provide the context of GenKart's planned business transformation through generative AI and its goals. In the **Prompt Instructions** field, enter the following instruction as the instruction.

```
Consider a mid-sized e-commerce company offering electronics, fashion, home goods, and sports equipment. The company faces increasing competition and
```

3. Next, let's ask the chatbot how generative AI can be useful in achieving this transformation. Let's enter the following message.

```
How can generative AI be used to transform different functions and aspects in this e-commerce company?
```

4. Click the **Start chat** button to generate the response. Here is a sample response. Note that in the response, the chatbot has some significant ways to leverage generative AI to enhance different functions and aspects such as customer experience, marketing and sales, product development, and customer insights and analytics.

Please note that as you work through the labs, the model's results may vary, even when using the same model

Output
Generative AI can significantly transform various functions and aspects of your mid-sized e-commerce company in several ways: 1. **Customer Experience Enhancement** **- Personalized Recommendations:** Generative AI can analyze customer behavior and preferences to create highly personalized product recommendations, improving conversion rates and customer satisfaction. **- Chatbots and Virtual Assistants:** AI-powered chatbots can provide 24/7 customer support, answering queries, guiding users through the purchasing process, and handling returns or complaints, leading to improved customer engagement. **- Content Creation:** AI can generate product descriptions, reviews, and marketing copy tailored to different customer segments, ensuring consistency and relevance across platforms. 2. **Marketing Optimization:** **- Targeted Campaigns** Generative AI can analyze vast amounts of customer data to identify trends and create targeted marketing campaigns, optimizing ad spend and increasing ROI. **- Dynamic Pricing:** AI can help in setting dynamic pricing strategies based on competitor pricing, demand fluctuations, and customer behavior, maximizing profitability. 3. **Inventory and Supply Chain Management** **- Demand Forecasting:** Generative AI can predict future product demand by analyzing historical sales data, seasonal trends, and market conditions, helping optimize inventory levels and reduce overstock or stockouts. **- Supplier Optimization:** AI can assess supplier performance and suggest alternatives based on quality, cost, and delivery times, ensuring a more efficient supply chain. 4. **Product Development:** **- Design Assistance:** AI can assist in product design by generating prototypes or suggesting design improvements based on customer feedback and market trends, speeding up the development cycle.

Output
- **Trend Analysis:** Generative AI can analyze social media and online trends to identify emerging consumer preferences, enabling the company to innovate and stay relevant. 5. **Operational Efficiency** - **Automated Reporting:** Generative AI can automate the generation of reports and insights from data analytics, freeing up time for teams to focus on strategic decision-making. - **Fraud Detection:** AI algorithms can analyze transaction patterns to detect and prevent fraudulent activities, enhancing security and trust. 6. **Customer Insights and Sentiment Analysis:** - **Feedback Analysis:** AI can analyze customer reviews and feedback to gauge sentiment, helping the company understand customer satisfaction and areas for improvement. - **Market Research:** Generative AI can synthesize information from various sources to provide insights into market trends, competitive analysis, and customer preferences. By leveraging these capabilities, your e-commerce company can not only enhance customer experience and operational efficiency but also drive growth and maintain a competitive edge in the evolving market landscape.

Think about it!

How do you think the implementation of generative AI in GenKart's operations affects its workforce, and what strategies could be used to train its employees to be ready for this transformation?

Exercise 2: Personalizing customer experience

As part of the transformation through generative AI, GenKart aims to enhance customer engagement and sales through personalized shopping experiences.

In this exercise, we will demonstrate how an e-commerce company like GenKart can use generative AI for personalizing customer experiences.

1. Continue with the same chat as in Exercise 1. Else, create a new chat and select the **gpt-4o-mini** model. Also, enter the same instructions as provided in Exercise 1 in the **Prompt Instructions** field.

2. An e-commerce company like GenKart can use generative AI to segment customers based on browsing behavior, purchase history, and demographics by providing customer data about pages visited, time spent on each page, and products viewed.

Consider the following (fictitious) data about GenKart's customers and prompt the chatbot to segment the customers based on this data.

Customer A visits electronics and home goods pages frequently.
Customer B buys sports equipment regularly, with an average spend of $200 per purchase.
Customer C is a 30-year-old female from New York with a high income.
Customer D makes 5 purchases per month, primarily in fashion and accessories.
Customer E makes large purchases during holiday sales but is inactive during other times.
Customer F has been shopping on the platform for over 3 years, primarily in electronics.
Customer G makes 2-3 purchases per month, primarily in fashion and sports equipment.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

3. Based on the segments generated in the previous step, GenKart can leverage generative AI to generate product recommendations for each customer segment. Design a prompt and enter it in the Type your message field to generate the output.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

Exercise 3: Supplier performance analysis

In this exercise, we will demonstrate how an organization can leverage generative AI to streamline and optimize operational processes, including supplier analysis, selection, and management.
Let's consider the following (fictitious) data about the suppliers of GenKart.

Supplier M:
• Average delivery time: 5 days
• Quality: 98% of products meet quality standards
• Cost: $15 per unit
• Reliability: 95% on-time delivery rate

Supplier N:
• Average delivery time: 3 days
• Quality: 90% of products meet quality standards
• Cost: $10 per unit
• Reliability: 90% on-time delivery rate

Supplier O:
• Average delivery time: 7 days
• Quality: 95% of products meet quality standards

• Cost: $20 per unit
• Reliability: 98% on-time delivery rate

Supplier P:
• Average delivery time: 4 days
• Quality: 97% of products meet quality standards
• Cost: $17 per unit
• Reliability: 92% on-time delivery rate

Genkart wants to leverage generative AI to analyze supplier performance and recommend the best suppliers based on delivery times, quality, and cost.

1. Continue with the same chat as in Exercise 1. Else, create a new chat and select the **gpt-4o-mini** model. Also, enter the same instructions as provided in Exercise 1 in the **Prompt Instructions** field.

2. Consider the given data about suppliers and design and enter a prompt in the **Type your message** field to evaluate and compare the prompts of different suppliers.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

Think about it!

In what other ways can generative AI improve decision-making in supplier selection and management?

Exercise 4: Demand prediction

In this exercise, we will demonstrate how an e-commerce company can leverage generative AI to analyze historical sales data, seasonal trends, and customer reviews to predict future demand for products.

Let's consider the following (fictitious) sales data, seasonal trends, and customer reviews about GenKart's three products.

Historical Sales Data:

• Product A:
o Monthly sales (units sold) over the past year: [120, 150, 180, 160, 200, 220, 210, 230, 240, 250, 260, 280]
• **Product B**:
o Monthly sales (units sold) over the past year: [80, 90, 85, 100, 110, 120, 130, 125, 140, 150, 160, 170]
• **Product C**:
o Monthly sales (units sold) over the past year: [50, 55, 60, 65, 70, 80, 75, 85, 90, 95, 100, 110]

Seasonal Trends:

Product A:
• High sales in November and December due to the holiday season.
Product B:
• Increased sales in spring and summer (April to August).
Product C:
• High sales in August and September.

Customer Feedback and Reviews:

Product A:
• Positive feedback: 95% of reviews are 4 stars or higher.
• Common feedback: Requests for more color variations.

Product B:
• Positive feedback: 90% of reviews are 4 stars or higher.
• Common feedback: Requests for additional sizes.

Product C:
• Positive feedback: 85% of reviews are 4 stars or higher.
• Common feedback: Requests for more durable materials.

1. Continue with the same chat as in Exercise 1. Else, create a new chat and select the **gpt-4o-mini** model. Also, enter the same instructions as provided in Exercise 1 in the **Prompt Instructions** field.

2. Consider the given data about historical sales data, seasonal trends, and customer reviews and enter a prompt the **Type your message** field to predict future demand.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

Think about it!

What are some benefits of using generative AI for predicting product demand?

Exercise 5: Improving customer support

GenKart can leverage generative AI in a number of ways to improve customer support, including implementing an AI-powered chatbot and analyzing customer sentiment from chat logs and reviews.

AI-powered chatbots can be implemented for instant support, handling customer queries about products, order status, and return requests.

In this exercise, let's demonstrate the conversation of the GenKart chatbot with a user.

1. Create a new chat and name it **Shopping AI chatbot**. Also, select the **gpt-4o-mini** model from the drop-down list at the top right corner.

2. Instruct the chatbot to imagine itself as an AI chatbot for the e-commerce portal, GenKart, and respond to the user's questions. Provide the data based on which the chatbot should answer user's questions.

In the **Prompt Instructions** field, enter the following prompt as the instruction.

```
Imagine you are a Shopping AI assistant for an e-commerce portal, GinKart. You help users find products, compare prices, and make purchasing decision
Data About Laptops
1.      Laptop A: TechMaster Pro 15
o       Price: $1,200
o       Processor: Intel Core i7-10750H
o       RAM: 16GB
o       Storage: 512GB SSD
o       Graphics: NVIDIA GeForce GTX 1660 Ti
o       Display: 15.6" Full HD
o       Battery Life: 8 hours
o       Special Features: RGB keyboard, lightweight design
2.      Laptop B: Gamer's Delight X17
o       Price: $1,500
o       Processor: AMD Ryzen 9 5900HX
o       RAM: 32GB
o       Storage: 1TB SSD
o       Graphics: NVIDIA GeForce RTX 3070
o       Display: 17.3" Full HD with 144Hz refresh rate
o       Battery Life: 6 hours
o       Special Features: Advanced cooling system, customizable RGB lighting
3.      Laptop C: WorkPlay Ultra 14
o       Price: $1,000
o       Processor: Intel Core i5-1135G7
o       RAM: 8GB
o       Storage: 256GB SSD
o       Graphics: Integrated Intel Iris Xe
o       Display: 14" Full HD
o       Battery Life: 10 hours
o       Special Features: Touchscreen, 2-in-1 convertible design
4.      Laptop D: Budget Gamer G15
o       Price: $800
o       Processor: AMD Ryzen 5 4600H
o       RAM: 16GB
o       Storage: 512GB SSD
o       Graphics: NVIDIA GeForce GTX 1650
o       Display: 15.6" Full HD
o       Battery Life: 7 hours
o       Special Features: Durable build, backlit keyboard
5.      Laptop E: UltraPortable Pro 13
o       Price: $1,300
o       Processor: Apple M1
o       RAM: 16GB
o       Storage: 512GB SSD
o       Graphics: Integrated Apple GPU
o       Display: 13.3" Retina
o       Battery Life: 12 hours
o       Special Features: Fanless design, lightweight and ultra-thin
```

3. Next, consider you are a user looking for a laptop with some specific requirements. Enter the relevant prompt in the **Type your message** field to start the conversation.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

4. Continue the conversation to share some specific details about the requirement, such as the processor and its version. Enter the relevant prompt in the **Type your message** field.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

5. Continue the conversation by asking about the laptop's availability in the future.

▶ Click here for an example of a prompt
▶ Click here to view a sample output

Think about it!

• How might integrating AI with human support enhance the overall customer experience?
• What steps can be taken to improve AI assistants' capabilities in handling specialized or highly technical queries in the future?

Summary

Congratulations on completing the project Transforming Organizational Functions with Generative AI.

In this project, you will work on scenarios that illustrate how AI can be leveraged across various domains and aspects of the business, from personalization to customer support, supplier selection, and demand forecasting.

Author(s)

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