Required Assignment 23.1 -Generating a Prompt Using a Gen AI Platform

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***This is a required assignment and counts toward program completion.***

**Overview**

In this assignment, you will create and test different prompts on a Gen AI platform. Evaluate the AI’s responses for relevance, coherence, and creativity to analyze how effectively it handles various types of queries.

**Data**

**Select a Gen AI Platform:** Choose a Gen AI platform that supports text generation, such as OpenAI's GPT or Google's Bard.

**Craft Prompts:** For this assignment, choose three from the following five [prompt types](https://classroom.emeritus.org/courses/9414/files/3868372?wrap=1)[Download prompt types](https://classroom.emeritus.org/courses/9414/files/3868372/download?download_frd=1):

1. Instructional
2. Descriptive
3. Question
4. Completion
5. Example

Then, develop three different prompts to evaluate the platform’s capabilities. Ensure that the prompts vary in subject matter, complexity, and intent.

**Generate Responses:** Input each prompt into the chosen Gen AI platform, and record the responses.

**Analyze Effectiveness:** Evaluate the quality of the responses based on the following criteria:

* **Relevance:** How well does the response address the prompt?
* **Coherence:** Is the response logically structured and easy to understand?
* **Creativity:** For creative prompts, assess the originality and depth of the response.
* **Accuracy:** For informational prompts, check whether the information provided is correct.

**Submission Instructions:**

* Submit a brief report (300–500 words) summarizing your analysis and screenshots or excerpts of the responses generated.

**Select a Gen AI Platform:**

**I choose GPT-4o Mini**

* 1. **In HuggingFace**
  2. **In python code**

**Craft Prompts:**

I choose

1. Instructional
2. Descriptive
3. Question
4. Completion
5. Example

**Generate Responses:** Input each prompt into the chosen Gen AI platform, and record the responses.

Here are prompts and responses:

Prompt 1- Instructional:

Write a brief summary about the effects of high inflation on economy

Response of GPT4o-Mini:

High inflation can have significant and varied effects on the economy. It erodes purchasing power, meaning consumers can buy less with the same amount of money, which can lead to decreased consumer spending and overall economic growth. Businesses may face increased costs for raw materials and wages, leading to reduced profit margins or higher prices for goods and services. This can create a wage-price spiral, where rising wages and prices continuously feed into each other.

High inflation often prompts central banks to raise interest rates to control money supply and stabilize prices. This can increase borrowing costs for consumers and businesses, potentially slowing down investment and economic expansion. Additionally, uncertainty about future inflation can deter long-term economic planning, impacting savings and investments.

Furthermore, high inflation can disproportionately affect low- and fixed-income individuals, as they may struggle more than wealthier citizens to keep up with rising prices. Overall, high inflation can lead to economic instability and may necessitate government intervention to mitigate its effects.

Analyze Effectiveness for Prompt 1- Instructional:

**Relevance:**

The response address the prompt completely and correctly, and then it has high level of relevance.

**Coherence:**

 Response has logical structure and easy to understand. For someone who has knowledge in economics, this answer is very direct and easy to understand. Therefore, it has high level of coherence.

**Creativity:**

This answer covers various dimensions of the effect on economy. At first focused on purchase power, then to uncertainty, then to income and stability. Then it has high level of creativity too.

**Accuracy:**

Information provided are correct, and then its accuracy is high too.

2-Prompt Descriptive

My prompt:

Briefly describe the steps required for writing a good machine learning program

Response:

Writing a good machine learning program involves several key steps:

1. **Define the Problem**: Clearly articulate the problem you want to solve. Identify the goals, the type of output you need, and the criteria for success.
2. **Collect Data**: Gather relevant data that will serve as the foundation for your model. Ensure that the data is diverse, representative, and of high quality.
3. **Preprocess Data**: Clean and prepare the data for analysis. This involves handling missing values, removing duplicates, normalizing or scaling features, and encoding categorical variables.
4. **Explore Data**: Conduct exploratory data analysis (EDA) to understand patterns, correlations, and insights within your dataset. Visualizations can be helpful at this stage.
5. **Select a Model**: Choose an appropriate machine learning algorithm based on the problem type (classification, regression, clustering, etc.) and the nature of the data.
6. **Split the Data**: Divide the dataset into training, validation, and test sets. This helps prevent overfitting and allows for proper evaluation of the model.
7. **Train the Model**: Use the training data to train your model, adjusting parameters as needed to improve performance.
8. **Evaluate the Model**: Assess the model's performance using the validation set, employing relevant metrics (e.g., accuracy, F1 score, RMSE) to determine effectiveness.
9. **Tune Hyperparameters**: Optimize model performance through techniques like grid search or random search to find the best hyperparameters.
10. **Test the Model**: Finally, evaluate the model on the test dataset to assess its generalization ability and ensure it performs well on unseen data.
11. **Deploy the Model**: Once satisfied with the model's performance, deploy it into a production environment where it can be used to make predictions.
12. **Monitor and Maintain**: Continuously monitor the model's performance over time to identify any degradation or shifts in data patterns. Update the model as necessary to maintain its effectiveness.

By following these steps, you can develop a robust machine learning program that effectively addresses your problem.

**Analyze Effectiveness:**

* **Relevance:** How well does the response address the prompt?
* **Coherence:** Is the response logically structured and easy to understand?
* **Creativity:** For creative prompts, assess the originality and depth of the response.
* **Accuracy:** For informational prompts, check whether the information provided is correct.

Write a brief summary about the effects of high inflation on economy

High inflation can have significant and varied effects on the economy. It erodes purchasing power, meaning consumers can buy less with the same amount of money, which can lead to decreased consumer spending and overall economic growth. Businesses may face increased costs for raw materials and wages, leading to reduced profit margins or higher prices for goods and services. This can create a wage-price spiral, where rising wages and prices continuously feed into each other.

High inflation often prompts central banks to raise interest rates to control money supply and stabilize prices. This can increase borrowing costs for consumers and businesses, potentially slowing down investment and economic expansion. Additionally, uncertainty about future inflation can deter long-term economic planning, impacting savings and investments.

Furthermore, high inflation can disproportionately affect low- and fixed-income individuals, as they may struggle more than wealthier citizens to keep up with rising prices. Overall, high inflation can lead to economic instability and may necessitate government intervention to mitigate its effects.

Briefly describe the steps required for writing a good machine learning program

Writing a good machine learning program involves several key steps:

1. **Define the Problem**: Clearly articulate the problem you want to solve. Identify the goals, the type of output you need, and the criteria for success.
2. **Collect Data**: Gather relevant data that will serve as the foundation for your model. Ensure that the data is diverse, representative, and of high quality.
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3-Prompt Completion

My prompt:

“The effect of global trade war can be addressed by the following steps…"

Response:

The effects of a global trade war can significantly impact economies, businesses, and consumers. To mitigate these effects, the following steps can be taken:

1. **Diplomatic Negotiations**: Engage in diplomatic discussions with trade partners to resolve disputes and reach agreements that promote fair trade practices, thereby reducing tariffs and trade barriers.
2. **Diversify Trade Partners**: Businesses and countries should consider diversifying their trade relationships to reduce dependency on specific markets. Exploring new markets can buffer against the adverse effects of tariffs and trade restrictions.
3. **Support Affected Industries**: Implement government support programs for industries and workers adversely affected by trade tensions. This can include financial assistance, retraining programs, and incentives to innovate.
4. **Adjust Supply Chains**: Businesses may need to reassess and adapt their supply chains to minimize cost impacts and disruptions caused by tariffs. This could involve sourcing materials from different countries or localizing production.
5. **Invest in Domestic Production**: Governments and businesses should consider investing in domestic manufacturing and production capabilities. This can help reduce reliance on foreign goods and create local jobs.
6. **Promote Free Trade Agreements**: Pursue new or strengthen existing free trade agreements with other countries to foster a more cooperative trade environment and reduce tariffs.
7. **Enhance Consumer Awareness**: Inform consumers about the potential consequences of a trade war on pricing and availability of goods. Building awareness can help consumers make informed choices.
8. **Monitor Economic Indicators**: Keep a close eye on economic indicators to assess the ongoing impact of trade tensions. This data can guide timely policy adjustments and economic responses.
9. **Foster Innovation**: Encourage research and development in trade-sensitive industries to enhance their competitiveness and ability to adapt to changing trade dynamics.
10. **Engage in Public Discourse**: Facilitate open discussions about the impacts of trade policies on different sectors of the economy, fostering a collaborative approach to address challenges and develop solutions.

By taking these steps, stakeholders can better manage and mitigate the negative impacts of a global trade war, promoting resilience and adaptive capacity within economies.