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

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**Introduction:**

**I choose GPT-4o Mini as AI platform**

* 1. **In Hugging Face**
  2. **In python code**

**Craft Prompts:**

I choose

1. Instructional
2. Descriptive
3. Completion

Here are prompts and responses. I also attached python code and screen shot.

**Prompt 1- Instructional**

My prompt:

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

Response of GPT4o-Mini:

High inflation can have widespread effects on an economy, impacting consumers, businesses, and policymakers.

1. **Decreased Purchasing Power**: As prices rise, consumers experience a decline in purchasing power, meaning their money buys fewer goods and services. This can lead to reduced consumer spending, which drives economic growth.
2. **Increased Cost of Living**: Higher prices for essential goods and services—such as food, housing, and fuel—can strain household budgets, particularly for low- and middle-income families.
3. **Uncertainty**: Inflation creates uncertainty in the economy, making it difficult for businesses to plan for the future. Companies may delay investments or hiring decisions, leading to slower economic growth.
4. **Interest Rates**: Central banks typically respond to high inflation by raising interest rates to cool off the economy. While this can help reduce inflation, it also increases borrowing costs for consumers and businesses, potentially leading to decreased spending and investment.
5. **Wage-Price Spiral**: If inflation persists, workers may demand higher wages to keep up with rising costs, which can lead to further increases in prices as businesses pass on higher labor costs.
6. **Impact on Savings and Investments**: Inflation erodes the real value of money; therefore, savings lose purchasing power over time unless interest rates on savings accounts outpace inflation. Investors may seek assets that traditionally hedge against inflation, such as real estate or commodities.
7. **Wealth Inequality**: Inflation can exacerbate wealth inequality, as individuals with fixed incomes or savings may struggle more than those with assets that appreciate with inflation.

Overall, high inflation presents significant challenges for economic stability and growth, influencing consumption patterns, investment decisions, and overall financial health for individuals and businesses alike. Addressing it effectively requires careful monitoring and responsive economic policies.

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 of GPT4o-Mini:

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 for Prompt 2- Descriptive:

Relevance:

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

Coherence:

Logical structure of response is very good and the answer is easy to understand. Defining a problem, gathering data, feature engineering, EDA, train/test, model selection, split data, model evaluation, test, deployment and monitoring are all covered in answer. Therefore, it has high level of coherence.

Creativity:

This answer covers various all factors are related to write a good machine learning algorithms. It is normal answer but with detail, then its creativity is good.

Accuracy:

Information provided are correct, and then its accuracy is high too. However, to check the accuracy we need to define detail questions, but for our prompt, it has high accuracy.

**3-Prompt Completion**

My prompt:

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

Response:

The effects of a global trade war on an economy can be significant and multifaceted, impacting various sectors and the overall economic landscape. To mitigate these effects, several strategic steps can be taken:

1. **Diversification of Trade Partners**: Countries should seek to establish and strengthen trade relationships with a broader range of partners to reduce dependence on any single country. This can help buffer against the negative impacts of tariffs and trade barriers imposed by larger economies.
2. **Enhancing Domestic Production**: Investing in domestic industries and manufacturing capabilities can reduce reliance on imported goods. This can involve incentivizing local businesses, providing subsidies, and supporting research and development to drive innovation.
3. **Investment in Technology and Automation**: Embracing technological advancements can enhance productivity and competitiveness. Investments in automation and digital tools can help businesses adapt to new market conditions and improve efficiency.
4. **Support for Affected Industries**: Governments can implement targeted support measures for industries most affected by trade disputes, including financial aid, tax breaks, or training programs for workers to help them transition to new jobs.
5. **Negotiation and Diplomatic Efforts**: Engaging in diplomatic negotiations to resolve trade disputes can help de-escalate tensions. Countries can work through international organizations or bilateral agreements to create frameworks that promote fair trade.
6. **Monitoring Supply Chains**: Businesses should assess and adapt their supply chains to identify vulnerabilities created by trade wars. This may involve sourcing materials from alternative suppliers or reshoring certain production processes.
7. **Consumer Education and Advocacy**: Encouraging consumers to support local products and businesses can help stimulate domestic economies. Public campaigns can raise awareness of the impacts of trade conflicts and promote local economic resilience.
8. **Investment in Workforce Development**: Providing training and reskilling programs for workers in industries affected by trade wars can help them adapt to changing job markets, thus maintaining employment levels and economic stability.
9. **Maintaining Flexibility in Economic Policy**: Governments should remain agile in their economic policies, implementing measures that can quickly respond to the evolving landscape of international trade and protect domestic interests.
10. **Monitoring and Evaluation**: Establish a system to track the economic impacts of a trade war continuously, allowing policymakers to adjust their strategies based on real-time data and projections.

By implementing these steps, countries can better navigate the challenges presented by a global trade war and work towards stabilizing and revitalizing their economies.

Analyze Effectiveness for Prompt 3- Completion

Relevance:

The response address only some part of the prompt. Is has been related only for some part of the question and does not cover all dimensions, especially does not cover trade wars on economy such as effect on economic growth, inflation, unemployment. Then relevance is low.

Coherence:

Logical structure of response is not so good, as it only cover one part of the prompt; even I think the GPT4o-Mini could not understand the question well. Then the response has low level of coherence.

Creativity:

This answer covers only some part of the answer, on that part, it has creativity, but in general, it has low level of creativity.

Accuracy:

Information provided is not accurate, as it does not all parts of the prompt. Then accuracy is low.

**4-Summary**

I chose prompts Instructional, Descriptive and Completion. Then I chose GDT4o-Mini as AI platform.

I can summary the results as following table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Relevance | Coherence | Creativity | Accuracy |
| Prompt 1- Instructional | Very high | Very high | Very high | Very high |
| Prompt 2- Descriptive | Very high | Very high | Very high | Very high |
| Prompt 3- Completion | Very low | Very low | Very low | Very low |
| Summary | Fluctuates from very high to low | Fluctuates from very high to low | Fluctuates from very high to low | Fluctuates from very high to low |

Then as summary shows, depend on the prompt, the Relevance, coherence, creativity, and accuracy can be high or low. It means this AI platform can create very good answer for some questions, especially for Instruction and descriptive, but has bad performance in completion prompt.