**In the course of Prompt Engineering of udemy ,we learnt about Enhancing Learning, Through Effective Prompts that is as follows :**

**What is Prompt Engineering?**

Prompt engineering involves the process of designing and creating prompts or questions that encourage learners to think critically, reflect on the course material, and actively engage in their learning journey. These prompts serve as catalysts for discussions, reflections, and knowledge application.

In the Udemy course "Prompt Engineering," one of the key concepts we explored was the significance of enhancing learning through effective prompts. Prompt engineering plays a crucial role in shaping the inputs provided to machine learning models and determining the quality of the resulting outputs. By understanding and implementing effective prompts, we can optimize the learning process and improve the performance of our models.

Effective prompts serve as the guiding instructions or questions that prompt the model to generate the desired output. They provide the necessary context, constraints, or hints to steer the model's behavior towards the desired outcome. By carefully designing prompts, we can influence the model's decision-making process and enhance its ability to generate accurate and relevant responses.

One aspect of enhancing learning through effective prompts is the art of question formation. Crafting well-formed questions requires considering the desired answer format, the level of specificity, and the information required from the model. By framing questions that are clear, concise, and unambiguous, we can elicit precise and informative responses from the model.

Context setting is another critical component of effective prompts. Providing relevant context helps the model understand the task at hand and enables it to generate responses that are contextually appropriate. By incorporating relevant information, such as background knowledge or previous conversational context, we can improve the model's comprehension and generate more coherent and accurate responses.

Specificity is also a crucial factor in prompt engineering. By making prompts specific, we can guide the model to focus on the relevant details and avoid ambiguous or generic responses. Specific prompts provide clear instructions and reduce the model's reliance on assumptions or guesswork, resulting in more accurate and targeted outputs.

Furthermore, effective prompts can incorporate techniques such as priming, where preceding prompts or examples are used to influence subsequent responses. By priming the model with specific patterns or examples, we can shape its behavior and enhance its ability to generalize or conform to desired patterns.

Throughout the course, we explored various strategies and techniques for prompt engineering. We learned about the importance of domain knowledge and iterative experimentation in refining prompts for optimal results. Additionally, we delved into advanced topics like prompt programming, where we can leverage programming concepts to create dynamic and adaptable prompts.

The impact of effective prompts extends beyond individual model performance. Well-designed prompts can contribute to ethical considerations in machine learning, ensuring that models generate outputs that align with desired values and avoid harmful biases or misinformation.

In conclusion, the course "Prompt Engineering" on Udemy enlightened us about the significance of enhancing learning through effective prompts. By mastering the art of question formation, context setting, specificity, and other techniques, we can shape the behavior of machine learning models and improve their performance. Prompt engineering empowers us to generate accurate, relevant, and contextually appropriate outputs, opening up possibilities for diverse applications in natural language processing and beyond.

**In the course of Azure Fundamental Core Services in Microsoft learn ,we have learnt about azure services as follows:**

Azure, Microsoft's cloud computing platform, offers a wide range of services to help businesses build, deploy, and manage applications and services through Microsoft-managed data centers.

**Azure Virtual Machines (VMs):** Azure VMs allow you to create and manage virtual machines in the cloud. You can choose from a variety of pre-configured VM sizes or create your own custom VMs to meet specific requirements. Azure VMs offer flexibility, scalability, and high availability, enabling you to run a wide range of applications.

**Azure App Service**: Azure App Service is a fully managed platform that enables you to build, deploy, and scale web applications and APIs. It supports various programming languages, such as .NET, Java, Python, and Node.js. With features like automatic scaling, continuous deployment, and integration with Azure DevOps, App Service simplifies the process of building and managing web applications.

**Azure Storage:** Azure Storage provides scalable and secure cloud storage for various types of data. It includes Blob storage for storing unstructured data, File storage for file sharing, Queue storage for reliable messaging, and Table storage for NoSQL data. Azure Storage offers high durability, availability, and performance, making it suitable for a wide range of storage needs.

**Azure SQL Database:** Azure SQL Database is a fully managed relational database service that offers high performance, scalability, and security. It supports both single databases and elastic pools, allowing you to scale resources based on demand. With built-in intelligence, automated backups, and advanced security features, Azure SQL Database simplifies database management and ensures data integrity.

**Azure Functions**: Azure Functions is a serverless computing service that allows you to run your code without provisioning or managing servers. It enables you to build event-driven solutions and execute code in response to various triggers, such as HTTP requests, timers, or messages from other Azure services. Azure Functions supports multiple programming languages and integrates with other Azure services seamlessly.

**Azure Virtual Network (VNet):** Azure Virtual Network enables you to create isolated virtual networks within Azure and connect them securely to your on-premises networks. It provides network segmentation, traffic filtering, and control over IP address ranges. With VNet, you can establish secure communication between resources, control network traffic flow, and implement network security policies.

**Azure Active Directory (Azure AD):** Azure Active Directory is a cloud-based identity and access management service that helps you manage user identities and access to resources. It provides features like single sign-on, multi-factor authentication, role-based access control, and integration with thousands of popular SaaS applications. Azure AD simplifies user management and enhances security across your organization.

These are just a few examples of the fundamental core services offered by Azure. Microsoft continues to expand its services and introduce new capabilities to meet the evolving needs of businesses. Whether you're a developer, IT professional, or business owner, Azure provides a comprehensive set of tools and services to help you leverage the power of the cloud and drive innovation in your organization.

In conclusion, Azure's fundamental core services offer a robust and scalable infrastructure for building and deploying applications in the cloud. From virtual machines and app services to storage and databases, Azure provides a wide range of services to meet various business requirements. By leveraging these services, organizations can enhance productivity, improve scalability, and drive digital transformation.

**Problem statement : Azure Cognitive Service ( using computer vision) for Text Extraction from Images**

The Computer Vision Azure Cognitive Service is a powerful tool provided by Microsoft that enables developers to extract text from images using advanced computer vision algorithms. This service utilizes Optical Character Recognition (OCR) technology to accurately identify and extract text from images, making it easier to process and analyze textual information contained within images.

**Features and technologies used:**

**Text Recognition:** The Computer Vision service can detect and extract text from images, including printed and handwritten text. It can handle a wide range of languages and character sets, making it suitable for multilingual applications.

**OCR Accuracy:** The service employs sophisticated OCR algorithms to achieve high accuracy in text extraction. It can handle challenging scenarios such as noisy images, low-resolution text, and complex backgrounds, ensuring reliable results.

**Image Format Compatibility:** The Computer Vision service supports various image formats, including JPEG, PNG, and TIFF, allowing users to process images from different sources.

**Layout Analysis:** The service can analyze the layout and structure of the extracted text, providing information about the position, bounding boxes, and order of the recognized text elements. This feature is particularly useful when dealing with complex documents or images with multiple text regions.

**Handwritten Text Recognition:** In addition to printed text, the service can also recognize and extract handwritten text from images. This capability is valuable for applications that involve digitizing handwritten documents or extracting information from forms and surveys.

**Integration and Scalability:** The Computer Vision Azure Cognitive Service can be easily integrated into applications through REST APIs, SDKs, and client libraries. It offers scalability, allowing developers to process large volumes of image-to-text conversions efficiently. Use Cases: The Computer Vision Azure Cognitive Service for text extraction from images has a wide range of applications.

**Document Digitization:** It allows organizations to automate the process of converting physical documents into digital formats, making them searchable and editable.

**Text Extraction from Images:** It enables the extraction of text from images for further analysis, such as extracting information from receipts, extracting text from product labels, or capturing text from screenshots.

**Accessibility:** The service can be used to enhance accessibility by converting text in images into audio or braille for visually impaired individuals.

**Data Extraction and Analysis:** The extracted text can be used for data extraction and analysis purposes, such as extracting key information from invoices, forms, or surveys.

Here is the source code for the same :

import requests

import json

# Replace 'YOUR\_ENDPOINT' and 'YOUR\_SUBSCRIPTION\_KEY' with your actual values

endpoint = 'YOUR\_ENDPOINT'

subscription\_key = 'YOUR\_SUBSCRIPTION\_KEY'

# URL of the image you want to extract text from

image\_url = 'https://example.com/image.jpg'

# API endpoint for text extraction

api\_url = f'{endpoint}/vision/v3.2/read/analyze'

# Request headers

headers = {

'Content-Type': 'application/json',

'Ocp-Apim-Subscription-Key': subscription\_key

}

# Request payload

data = {

'url': image\_url

}

# Send POST request to the API endpoint

response = requests.post(api\_url, headers=headers, json=data)

response.raise\_for\_status()

# Get the operation ID from the response

operation\_url = response.headers['Operation-Location']

operation\_id = operation\_url.split('/')[-1]

# API endpoint for retrieving the result

result\_url = f'{endpoint}/vision/v3.2/read/operations/{operation\_id}'

# Check the status of the operation and retrieve the result

while True:

result\_response = requests.get(result\_url, headers=headers)

result\_data = result\_response.json()

if result\_data['status'] == 'succeeded':

break

elif result\_data['status'] == 'failed':

print('Text extraction failed.')

break

# Extract the extracted text from the response

extracted\_text = ''

for result in result\_data['analyzeResult']['readResults']:

for line in result['lines']:

extracted\_text += line['text'] + ' '

# Print the extracted text

print('Extracted Text: ', extracted\_text)

**INPUT:**



**OUTPUT:**

SCANNED FILE

OCR SOFTWARE

EDITABLE FILE