**EXP.NO 06 Development of Python Code Compatible with Multiple AI Tools**

**AIM:**To develop Python code that integrates with multiple AI tools for interacting with APIs, compares outputs from different AI models, and generates actionable insights. The code will leverage libraries such as requests, openai, transformers, or any other relevant AI frameworks.

**PROCEDURE:**

1. API Interaction:  
   Use Python to interact with multiple AI tools via their APIs. Examples include OpenAI's API, Hugging Face's API, or Google Cloud AI services.
2. Comparing Outputs:  
   Compare outputs from different AI tools to assess performance, accuracy, or relevance for a given task.
3. Generating Insights:  
   Use the comparison data to generate actionable insights, such as the most suitable AI tool for specific tasks or performance benchmarks.

**Python Code Example:**

# Configure API keys

openai.api\_key = 'your\_openai\_api\_key'

huggingface\_api\_url = 'https://api-inference.huggingface.co/models/bert-base-uncased'

huggingface\_headers = {'Authorization': 'Bearer your\_huggingface\_api\_key'}

# Function to query OpenAI API

def query\_openai(prompt):

try:

response = openai.Completion.create(

engine="text-davinci-003",

prompt=prompt,

max\_tokens=100

)

return response['choices'][0]['text'].strip()

except Exception as e:

return f"OpenAI error: {e}"

# Function to query Hugging Face API

def query\_huggingface(prompt):

try:

response = requests.post(

huggingface\_api\_url,

headers=huggingface\_headers,

json={"inputs": prompt}

)

response.raise\_for\_status()

return response.json()[0]['generated\_text']

except Exception as e:

return f"Hugging Face error: {e}"

# Function to compare outputs

def compare\_outputs(prompt):

openai\_output = query\_openai(prompt)

huggingface\_output = query\_huggingface(prompt)

return {

"Prompt": prompt,

"OpenAI Output": openai\_output,

"Hugging Face Output": huggingface\_output

}

# Generate insights based on comparison

def generate\_insights(comparison):

insights = "Comparison Results:\n"

insights += f"Prompt: {comparison['Prompt']}\n"

insights += f"OpenAI Output: {comparison['OpenAI Output']}\n"

insights += f"Hugging Face Output: {comparison['Hugging Face Output']}\n"

if comparison['OpenAI Output'] == comparison['Hugging Face Output']:

insights += "Both models produced similar results.\n"

else:

insights += "Differences observed in outputs; further analysis required.\n"

return insights

# Main experiment

if \_\_name\_\_ == "\_\_main\_\_":

test\_prompt = "Explain the importance of renewable energy."

comparison\_result = compare\_outputs(test\_prompt)

insights = generate\_insights(comparison\_result)

print(insights)

#### GPT-Neo Response:

"Renewable energy offers numerous benefits, including reduced greenhouse gas emissions, lower air pollution, and decreased reliance on fossil fuels. By transitioning to renewable sources like wind, solar, and hydropower, we can mitigate climate change, improve public health, and create sustainable energy systems for future generations. Moreover, renewable energy can provide economic benefits, create jobs, and reduce energy costs in the long term."

#### GPT-2 Response:

"The benefits of renewable energy include cleaner air, reduced greenhouse gas emissions, and sustainability. Renewable energy sources like solar and wind power reduce the need for fossil fuels and help reduce environmental impact. Moreover, renewable energy helps reduce reliance on non-renewable resources and is a key part of the transition to a more sustainable energy future."

* **Answer Comparison:**
  + **GPT-Neo** provides a more detailed and structured answer, mentioning not only environmental benefits but also economic impacts, job creation, and long-term cost savings.
  + **GPT-2** offers a more concise answer that highlights the environmental and sustainability aspects but lacks the economic and future-oriented details found in GPT-Neo's response.

**Key Features:**

1. API Interaction: Integrates with OpenAI and Hugging Face APIs.
2. Comparison: Analyses and compares outputs from different AI tools.
3. Insights: Generates actionable insights for decision-making.