### **Take-Home Project: Presentation and Demo for Complex Purchase Order and Invoice Management**

### **Scenario Overview:**

A multinational corporation is struggling with managing purchase orders, invoices, and goods received across a vast network of vendors and countries. The challenges include:

* **High Volume and Complexity:** Large transaction volumes with cross-country dependencies.
* **Disparate Systems:** Data is scattered across multiple systems, leading to poor visibility.
* **Chaotic Data Lake:** A previous vendor integrated all systems into a data lake but did not structure the data. Now, tens of thousands of documents are dumped daily into the data lake with no clear organization.
* **Skeptical Customer:** The customer is wary because the previous vendor failed. They want to see a demo using public data before giving access to their data lake to ensure this approach won’t fail like the last one.

### **Objective:**

Your task is to **design and deliver a presentation and demo** that demonstrates:

1. **Why Your Solution Will Succeed:** Convince the customer of your superior approach compared to the previous vendor.
2. **Live Demo of a Prototype:** Showcase a working prototype that ingests, classifies, and reconciles documents from a simulated data lake. Feel free to use OpenAI Assistant to build the Demo.
3. **Actionable Insights:** Provide meaningful insights and reports relevant to procurement and finance teams.
4. **Scalability and Reliability:** Demonstrate why the solution or our company can handle large volumes of data and is built to scale

d\_model=768

No:of heads = 12

d\_k=768/12=64

d\_k=d\_v=d\_model/h

Q=X\*W\_q=(batch\_size,seq\_len,d\_model)\*(d\_model,d\_k)->(batch\_size,seq\_len,d\_k)

K=X\*W\_k=(batch\_size,seq\_len,d\_model)\*(d\_model,d\_k)->(batch\_size,seq\_len,d\_k)

V=X\*W\_v=(batch\_size,seq\_len,d\_model)\*(d\_model,d\_k)->(batch\_size,seq\_len,d\_v)

Attentionsoftmax(Q\*kt/sqrt(d\_k)\*v

Lets say

X=(batch\_size=1,seq\_len=1,d\_model=768)

1.linear projection to get Q,K,V

Q=X\*W\_q=(1,3,768)\*(768)=(1,3,768)

K=X\*W\_k=(1,3,768)\*(768)=(1,3,768)  
V=X\*W\_=(1,3,768)\*(768)=(1,3,768)

Your company wants to build an autonomous customer-support agent that can handle user queries over chat or email end-to-end, escalate to a human when needed, and learn continuously from feedback.

