**Intelligent Search**

**Overview**

Intelligent search and recommendation systems are essential in SAP Customer Experience (CX) to enhance user engagement, optimize product discovery, and improve customer satisfaction. This document outlines how NLP (Natural Language Processing) and LLMs (Large Language Models) can be used to implement a semantic search engine and personalized recommendations for SAP CX.

**Key Features**

* Semantic Search: Uses NLP-based sentence embeddings to understand customer queries and find the most relevant products.
* Product Recommendations: Identifies similar products based on textual descriptions and customer search behavior.
* Machine Learning-Based Ranking: Uses cosine similarity on vectorized product descriptions to rank recommendations.

**Technologies Used**

* Sentence Transformers (BERT-based model): For embedding product descriptions and user queries.
* Scikit-learn: For calculating cosine similarity.
* Python: Core programming language for implementation.

**Advantages of This Approach**

* Better Search Accuracy: Uses NLP for understanding user intent, rather than keyword matching.
* Personalized Recommendations: Finds relevant products based on similarity scores.
* Scalability: Can be extended to handle thousands of products in SAP Commerce Cloud.
* Multilingual Support: Works with different languages for global users.

**Future Enhancements**

* Integration with SAP Commerce Cloud API for real-time product recommendations.
* Fine-tuning with SAP-specific data to improve accuracy.
* User behavior-based recommendations using deep learning models like GPT or BERT.

**Conclusion**

This implementation provides intelligent search and recommendations in SAP CX by leveraging NLP and LLMs. It enhances the user experience by offering context-aware and highly relevant product suggestions. By integrating this with SAP's existing CX solutions, businesses can significantly improve customer satisfaction and conversion rates.