**Data Science Use Case Document Template**

**1. Problem Statement**

**Description:**  
Telecom companies provide a wide range of content through OTT platforms, streaming services, and other value-added products. However, delivering relevant and engaging recommendations to diverse customer bases remains a challenge. Generic recommendations often fail to captivate users, leading to lower engagement and higher churn rates. An AI-powered content recommendation system is required to enhance user experiences and drive content consumption.

**2. Target Variable / Number of Clusters**

**Definition:**  
The target outcome includes personalized content recommendations tailored to user preferences, viewing history, and engagement patterns. Clustering can be used to group users with similar content preferences.

**3. Input Variables / Parameters**

**Key Influencers:**

* User demographics (e.g., age, location, language)
* Viewing and browsing history
* Engagement metrics (e.g., likes, watch duration, skips)
* Trending content and social media interactions
* Time of access and device type

**4. Sector**

**Telecom**

**5. Approach / Technology Used**

**Technology Stack:**

* **Collaborative Filtering Models:** For identifying content based on user similarity.
* **Content-Based Filtering:** Recommending items similar to what users have engaged with.
* **Deep Learning Models:** For advanced recommendation strategies using user embeddings and neural networks.
* **Natural Language Processing (NLP):** To analyze metadata, descriptions, and reviews of content.
* **Real-Time Analytics:** For delivering dynamic and context-aware recommendations.

**6. Benefits**

* Increased user engagement through personalized content delivery.
* Higher customer retention and reduced churn.
* Improved monetization through targeted ads and premium content offers.
* Scalability to handle diverse user preferences and large content libraries.
* Insights into content trends and user behavior.

**7. Expected Outcome**

* **Enhanced Engagement:** 20-40% increase in content consumption.
* **User Retention:** Higher loyalty due to a better user experience.
* **Revenue Growth:** Boost in subscriptions and ad revenue from targeted offerings.
* **Content Optimization:** Identification of high-performing and underperforming content.

**8. Challenges / Risks**

* Data sparsity for new or inactive users (cold-start problem).
* Privacy concerns with analyzing user behavior data.
* Balancing personalization with content diversity.
* High computational demands for real-time recommendations.