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How to do the feature engineering:

We are considering the following features

1) **Engagement-Based Features (Popularity & Interaction)**

• **view\_count** → Total number of views (indicates general interest).

• **upvote\_count** → Number of upvotes (reflects popularity).

• **exit\_count** → How many users left the post (low exit count may indicate high engagement).

• **comment\_count** → More comments = More engagement.

• **share\_count** → Indicates virality and high relevance.

• **bookmark\_count** → A strong signal for high user preference.

• **rating\_count & average\_rating** → User feedback on quality.

✅ **Why?**

Popular and highly rated posts should be **prioritized** in recommendations.

2) **Content-Based Features (Category & Topic)**

• **category.name** → Helps in **grouping similar posts** for recommendations.

• **topic.name** → Example: “Animation & Motion Graphics” (useful for topic-based recommendations).

• **title** → Example: “forest shooting” (used in NLP-based similarity matching).

• **tags** → Example: ['socialmedia', 'marketing', 'business', 'technology'] (used for content-based filtering).

• **post\_summary** → Can be used for **semantic similarity search**.

✅ **Why?**

This helps recommend **similar posts** to users based on their preferences.

3) **User Behavior Features (Personalization)**

• **username** → Can track user-specific preferences.

• **user\_type** → Example: "hirer" (recommending based on user roles).

• **following** → If a user follows someone, prioritize their posts.

• **upvoted & bookmarked** → Helps in **collaborative filtering**.

✅ **Why?**

**Personalized recommendations** based on past interactions improve relevance.

4) **Time-Based Features (Recency & Trends)**

• **created\_at** → Helps in **recency-based recommendations**.

• **Trending Factor** → Posts with **high engagement in a short time** should be **boosted**.

✅ **Why?**

Recent and trending posts tend to be more **relevant and engaging**.

**Cold Start Problem Solutions**

Since new users/posts lack engagement history, use:

1. **Trending Content** → Prioritize posts with **high upvotes, shares, and views**.

2. **Category/Topic-Based Matching** → Recommend **popular posts** from the same category or topic.

3. **User Preference Bootstrapping** → Ask users for **interest selection** on sign-up.

4. **Collaborative Filtering** → Use data from **similar users** to make recommendations.

**Final Approach**

• **Hybrid Model** → Combine **collaborative filtering (user engagement)** and **content-based filtering (tags, category, topic)**.

• **ML Techniques** → Train a **Neural Network or Matrix Factorization** model using engagement signals.

• **Cold Start Handling** → Recommend **popular & category-matched posts** to new users.