Skill / Job Recommender Application
Literature Survey

Introduction:

The recommender system is becoming part of every business. The business tries to increase its revenue by raising the user's interaction by recommending new items based on user preferences. We have witnessed the rise of Netflix in the entertainment domain, using their strategies to implement a recommender system into their existing ecosystem. But there has been a minimal study in the hiring field from the perspective of a job seeker. To start any research, it is quintessential to review relevant work in the domain and technology.

Recommender Systems:

In recent years, the interest in recommender systems has dramatically increased. In the Recommendation algorithm, it classifies into four types: Content-based filtering, Collaborative filtering, Rule-based, and Hybrid approaches.

- **Collaborative Filtering** is a technique is based on the human ratings that are given to an item by a user and find similarity between different users who have given similar ratings to an items. The essential operation used here is the memory-based nearest neighbour approach to group users who have a similar interest. Collaborative filtering has an advantage over content-based filtering techniques, but due to the nature of the hiring process, a job cannot be rated by the user and will not be possible to create a similarity matrix.

- **Content-based filtering** are the most subjective and descriptive based filtering. It can also be called as attribute-based recommender as it uses the explicitly defined property of an item. It is an approach to an information retrieval or machine learning problem. The assumption made in content-based filtering is that user prefers item with similar properties. Content-based filtering recommends items to the user whose properties are similar to the item which the user has previously shown interest.

- **Rule-based Filtering** techniques depend upon decision rules such as an automatic or manual decision rule that are manipulated to obtain a

recommendation for the user profile. Currently, the E-commerce industry uses a rule-based filtering technique to recommend an item based on the demographic region of a user, purchase history, and other attributes that can be used to profile an user.

- **Hybrid filtering** is incorporation of multiple techniques to improve the performance of recommendation. Different types of hybrid filtering techniques that could be used by integrating CF, CBF, and RBF.

    1. **Weighted:** The similarity score obtained from different recommendation components are coupled numerically to get one better recommendation.
    2. **Mixed:** Recommendations obtained from different recommending techniques are put together and presented as one recommendation.
    3. **Switching:** choosing one among the recommendation components based on the scenarios where it suits best.
    4. **Feature Combination:** Attributes derived from diverse knowledge origins are fused and supplied to a recommendation algorithm.
    5. **Feature Augmentation:** One recommendation technique is used to compute a set of attributes of user or item, which is part of the input to the next recommendation technique. Two or more recommendation techniques are serialised to get on recommendation.
    6. **Cascade:** Recommending systems are given strict priority, with the lower priority ones breaking ties in the scoring of the higher ones.