ABSTRACT

World Wide Web and social media carry an enormous amount of information to the people across the globe. This information is exploded through a wide range of applications and social networks such as Facebook, Twitter. In this process, users are constantly troubled with overloaded information and as a result, they face chaos in choosing the right information at right time. The users may find difficult to select product/items, career guidance information and other services in the online. To resolve and offer the appropriate recommendation to the users, a generic framework for online recommendation system in the social media environment is required. Therefore, it is the responsibility of the researcher to provide authenticated recommendations to the users in the online.

The recommendation system in a social media environment is driven by processing the different collections of online information. In this research, the product based on online information and career guidance service based information is taken into account. The social media network such as Facebook, Twitter and other e-commerce sites like Amazon and Flipkart were prominently used for retrieving the needy information such as reviews and features. The primary objective of this research is to develop a generic framework for online recommendation system for the selection of products, offering career guidance information, selection of movies, books, institutions etc.,

This research work emphasizes the development of a generic framework in four different phases, (i) user query process, (ii) data acquisition from social media, (iii) opinion mining and offering recommendation to the user and (iv) establishing the personalization factor in recommendation along with ranking. In the user query process phase, users tend to give their requirements in the form of natural language statements which is transformed into an interoperable one. Revised keyword extraction algorithm
is used to transform the user query into interoperable one. In the data acquisition phase, information from heterogeneous social media is acquired and processed for analysis. Reviews and features of the various products were collected and classified using support vector machine in which review data were classified into the positive review, negative review and mixed review. The features are obtained using revised rapid automatic keyword extraction technique from which the reviews are processed step by step. Further, the extracted features and reviews are clustered based on the similarity of the product. Similarly in the data acquisition phase, for career guidance service recommendation, the student’s information is collected from social media and clustered based on the requirement. In the end, the necessary information for recommendation is stored in the data repository which consists of a huge volume of organized social media data.

In opinion mining and recommendation phase, review and feature data are verified and a hybrid approach is used for the recommendation process. The collected reviews are analyzed based on the user opinions using sentiment analysis, in which the system evaluates the review sentiments and suitable recommendation offered to the requested user. In the user personalization and ranking phase, other suggested similar products and career guidance service information are identified and retrieved. The retrieved similar products and career guidance service information are ordered based on the features. The Revised rainbow algorithm is used to generate the similar information based on the feature similarity and user personalized information.

To rank the similar products and career guidance service information, generated product lists and career guidance service information with its relevant attributes are analyzed using the linear regression technique. The product lists and career guidance service information along with the attributes are normalized based on the attribute values. The corresponding attributes are assigned with weight so that one can differentiate the need for the individual attributes based on the impact. Along with the ranking of other products and service information, the end users personalized information
such as user interest, user profile, user feedback, user ratings are also considered for personalized recommendation.

This research work tries to resolve the common issues which are reflected in the existing approaches such as sparsity problem, cold start problem, scalability, time delays, non-response, inaccurate solutions and loss of information. The performance of the system is also measured using f-measure metrics. Unlike the other recommendation system, this research work ensures the user personalization, data integrity, data authenticity and reliable ranking along with the recommendations. This research work is explored with a vast degree of social media data in which more than 5000 dynamic reviews are extracted and 4800 queries from live users are processed. The end result of the recommendation system along with ranking improves by 96.5 % for service recommendation and 67.6% for product based recommendation. This system also resolves the various issues involved in the earlier version of the recommendation system.