The current scenario of world wide web with a big bang has affected a sea of change in the lives of people that it is impossible to spend even a second, devoid of data. The method of summarization of text documents has begun to play a significant part in information gathering. From the past times, summarization is carried out physically by the humanity, which then resulted in a tedious task as the volume of data become larger and larger. With the intension of clearing this issue, automatic text summarization has become a major necessity to efficiently manage the crowded data. Former investigation on text summarization has been targeted at summarizing pre-specified documents devoid of other requisites, and is generally termed as generic summarization. Automatic document summarization, in turn, is the function of abridging the size of documents at the time of offering significant semantic content. Its goal is to locate a synopsis of a document without taking the trouble of going through the whole document. In the recent days, several methods have been introduced for the purpose of automatic text summarization. The methods use different conventional algorithms for obtaining the best summary, but still there exists some setback in obtaining the quality summary. The main objective of the research work is to develop a system which provides a quality summary which concentrates in reducing the redundancy of sentence occurrences, to retrieve the significant sentences from the wide scope of the given documents and avails priority to incorporate the dissimilar sentence from the input document set. To achieve the above objective, three approaches have been proposed for summarization.

In the first approach, the deep learning algorithm with restricted Boltzmann machine is employed. The contrastive divergence learning
algorithm is used to train the Restricted Boltzmann Machine (RBM) which is the basic elementary unit. The proposed method initially collects the input documents for pre-processing and feature vector extraction. After extracting the feature vector they are initialized to RBM. Then the proposed approach holds two phases namely training and testing phase. In the training phase the RBM is trained with the contrastive divergence learning algorithm. Training phase provides the optimal sentence score for the given inputs. In testing phase, new input documents are tested based on the trained RBM obtained from the training phase. The trained RBM generates the actual sentence score for the given input documents. Finally the summary is generated based on the sentence score and the length of the summary. Evaluation of the proposed approach is done with help of precision, recall and f-measure. While comparing with the existing query oriented deep extraction system the f-measure value is increased by 0.0662.

In the second approach, the input documents are availed to pre processing. The pre processed documents are then subjected to feature vector extraction. The extracted feature vector is given as input to the fuzzy model. The fuzzy model is used to assign the balanced weight for the extracted feature vector. Based on the balanced weight, fuzzy model generates the optimized fuzzy sentence score for each sentence. The fuzzy sentence score is updated in the feature vector matrix. The updated feature vector matrix is given as input to the RBM. Now the RBM is trained and tested to generate the actual sentence score for the new input documents. Eventually with the help of sentence score generated by the RBM and the length of the summary, a quality summary is generated. Quality of the proposed approach is estimated by precision, recall and f-measure. Final result of f-measure value is increased by 0.1315 and 0.0653 with respect to query oriented deep extraction system and deep learning algorithm respectively.
In third approach after pre processing, the extracted feature vector is availed as input to the fuzzy model. The fuzzy model is employed to provide the balanced weight for the extracted feature vector based on the fuzzy rules. These fuzzy rules are optimized by the hybrid genetic PSO method. Based on the optimized fuzzy rules, fuzzy model generates the optimized fuzzy sentence score for each sentence, which is updated in the feature vector matrix. The RBM is trained based on the updated feature vector matrix and tested to generate the actual sentence score for the new set of input documents. At last an efficient summary is generated with the sentence score and the length of the summary. Experiment results demonstrate the efficiency of the proposed approach with help of precision, recall and f-measure. Ultimately the f-measure value is boosted by 0.1821, 0.1159 and 0.0506 while comparing with query oriented deep extraction system, deep learning algorithm and deep learning algorithm integrated with fuzzy model respectively.