In the field of natural language processing, study of data mining tools has grown considerable in scope and significance. Data mining tools have the potential to boost application specific performance in this domain by providing efficient extraction of useful information. The current project proposed a hand writing character recognition algorithm to mark the answers present on the answer sheet images as provided in the data set. The main focus of this project included the pre-processing and recognition of handwritten characters. A data mining algorithm based on techniques of red marks filtering, image Binarization using histogram equalization and image segmentation using horizontal and vertical projection histogram was developed. All the images were preprocessed using this algorithm; resulting in target characters segmentations. Lenet – 5, a kind of convolutional neural network was applied on these segmented out characters as a tool of handwritten character recognition. Matlab implementation of this algorithm involved building training and test data sets. Implementation results show that algorithm developed for the handwritten recognition can recognize characters with classification accuracy up to 90%. Thus the proposed algorithm can be optimized to gain benefits in number of similar hand written characters recognition needs in the domain of natural language processing.