RESULT AND DISCUSSION

The experimental results are obtained by training the SVM classifier and neural networks in Matlab R2018a. The dataset is initially divided into the ration of 75% and 25%. The initial 75% is used for training purposes and the rest for validation.

The Computer Vision toolbox is one of the toolboxes that are present in MatlabR2018a, that is actually used to create the proposed model. The model is generated by giving various parameters such as its number of iterations, the type of classifier to be used and so on after which the dataset is loaded into the classifier for evaluating the parameters.
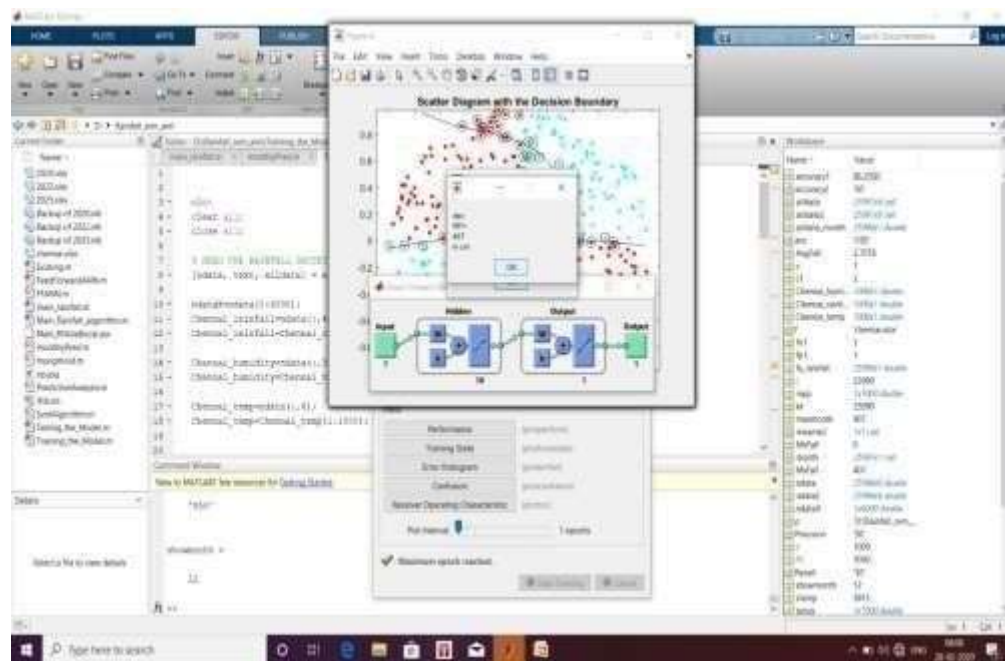

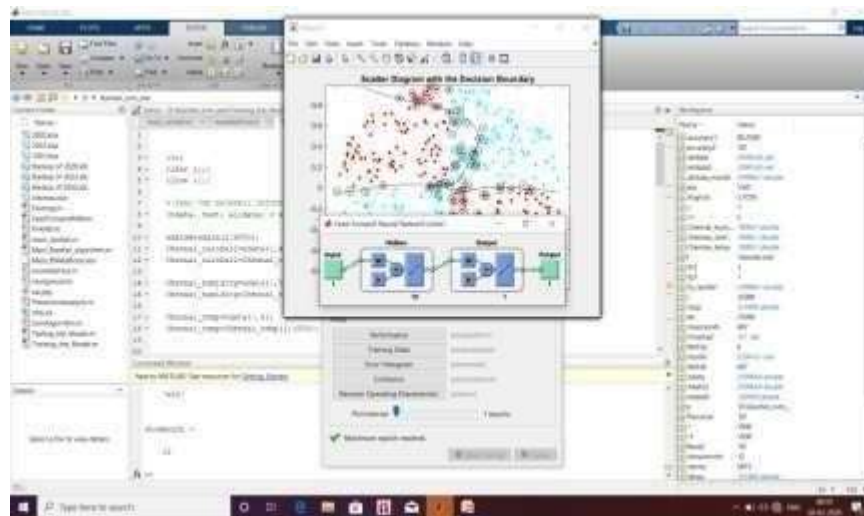*Fig.1.1 Rainfall Prediction in December*

Fig 1.2 scatter diagram with the decision boundary

Firstly SVM classifier is used to predict the rainfall areas. In Fig 1.2 is could be well seen that the segregation of the areas is done on the basis of rainfall. The areas with rainfall are categorized and then separated from the areas that are not affected by the rainfall. The values of predicting the rainfall using the generated model are the depicted in Fig 1.3 The proposed model is highly efficient when compared with the other existing model in means of accuracy rate while predicting the occurrence of rainfall.
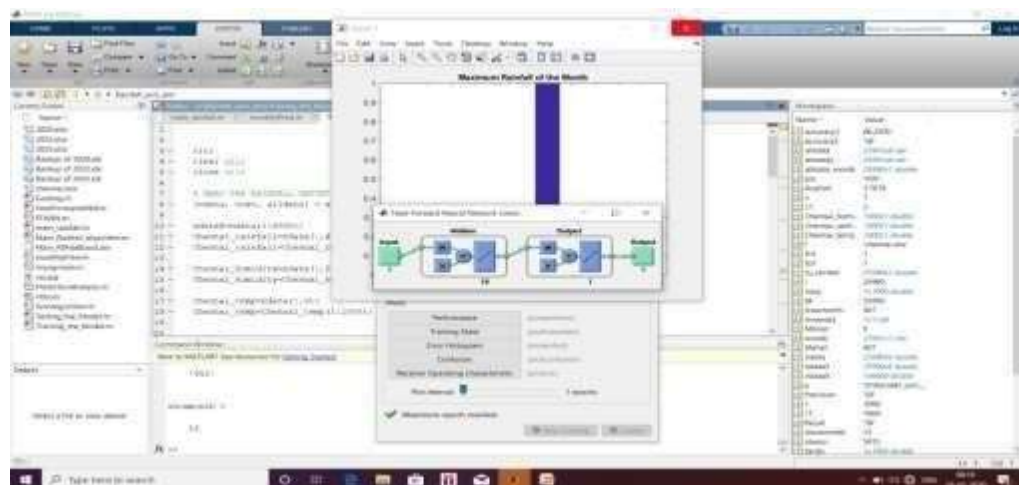

Fig1.3 maximum rainfall of the month

The dataset is also given to ANN where the features are not determined. ANN is usually used when a larger amount of data is used and features are not known. ANN extracts the features and learns in Fig 1.4. Only 75% in the dataset is used for training purposes. The rest 25% is used for validation purposes. When the classifier is trained, new examples are given inputs from the validation set and validated for its accuracy.

Fig 1.4 Feed Forward Neutral Network View

Feed forward neural network is an artificial neural network wherein connections between the nodes do *not* form a cycle. As such, it is different from its descendant: recurrent neural networks.

The feed forward neural network was the first and simplest type of artificial neural network devised. In this network, the information moves in only one direction, forward, from the input nodes, through the hidden nodes (if any) and to the output nodes. There are no cycles or loops in the network.
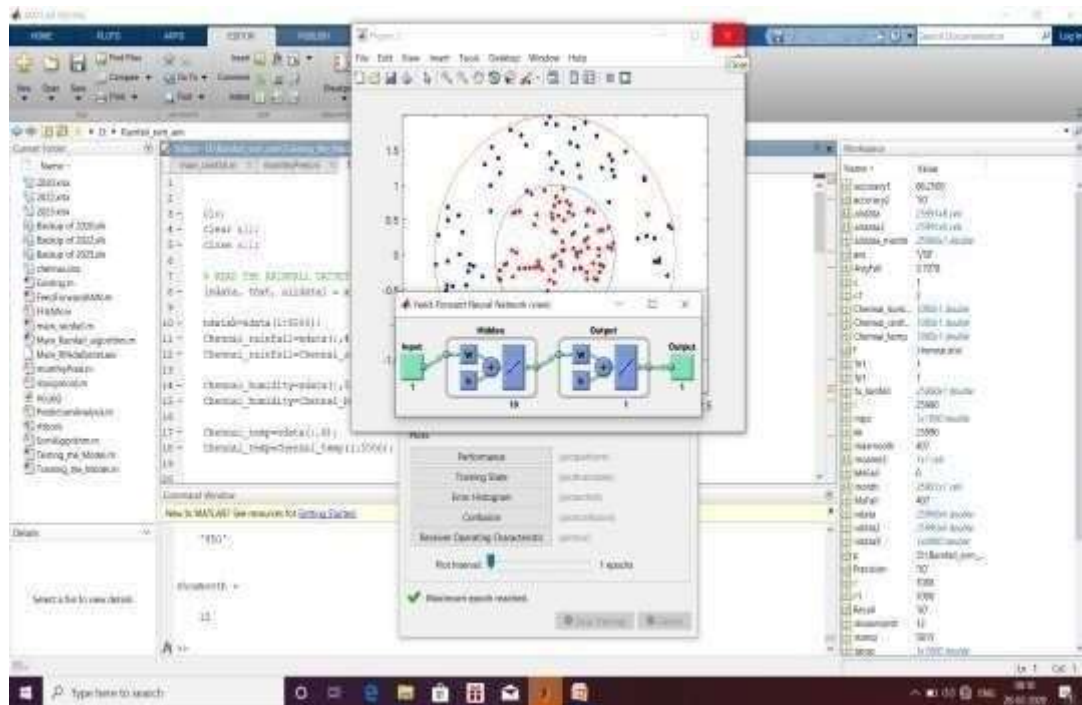
Fig5.5 Hidden Output Input Presentation

This official website provides the overall rainfall all over India on mm of the past 23 years. We use different machine learning algorithm to predict the rainfall of the next month by taking the train data as the previous months as past months. Mainly we did the train the data with initial months and predict the rainfall of the net month.
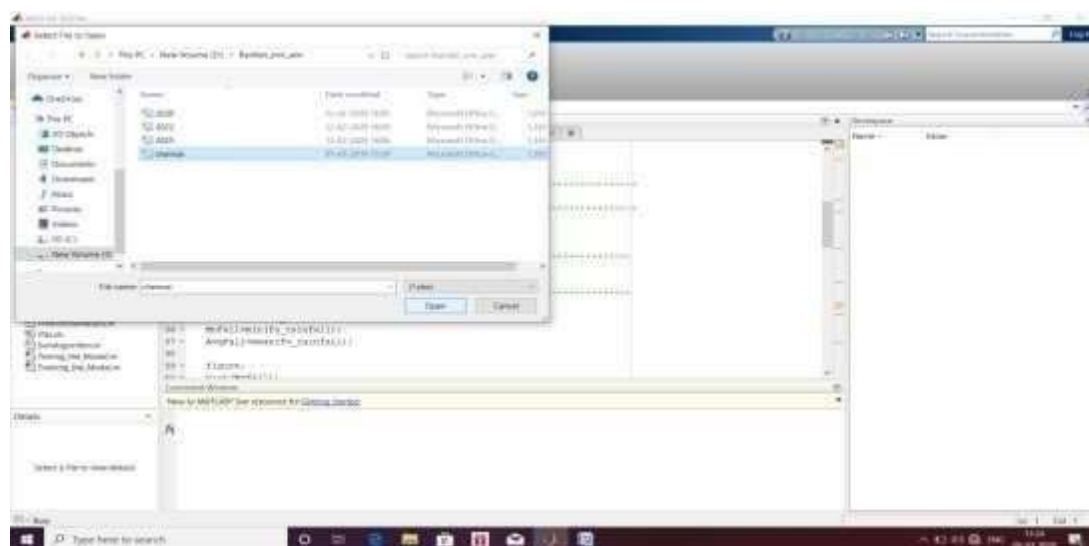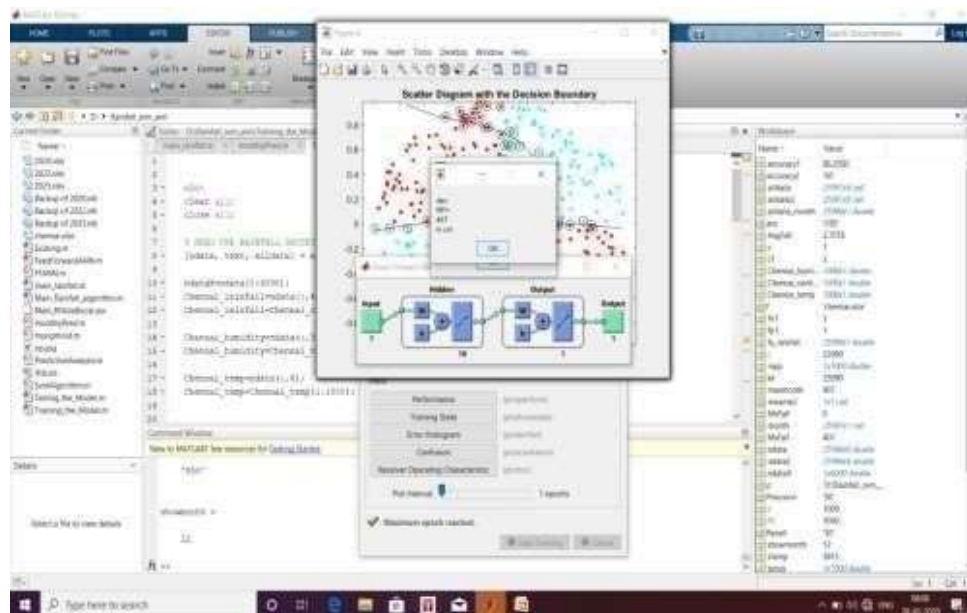

Fig1.6 Training Data Sheet

Fig 1.7 Rainfall Prediction In December

STEPS USED:

Step 1: Collect the rainfall dataset from the open repository data.gov.in with no. of multiple features.

Step 2: Data Cleaning, Data Pre-processing and feature selection.

Step 3: Output will be algorithm with the optimized result.

- we have taken the all India states rainfall dataset which comprises various features such as temperature, humidity, time, area and other details and also includes if there was rainfall or not.

- This file is first to read and is preprocessed to feed it as an input to the SVM and ANN classifier. The SVM classifier is used to give only two output whether it will rain or not.

- The features are categorized accordingly and then the output is generated when a new input is given from the learning it is done from the previous given data.