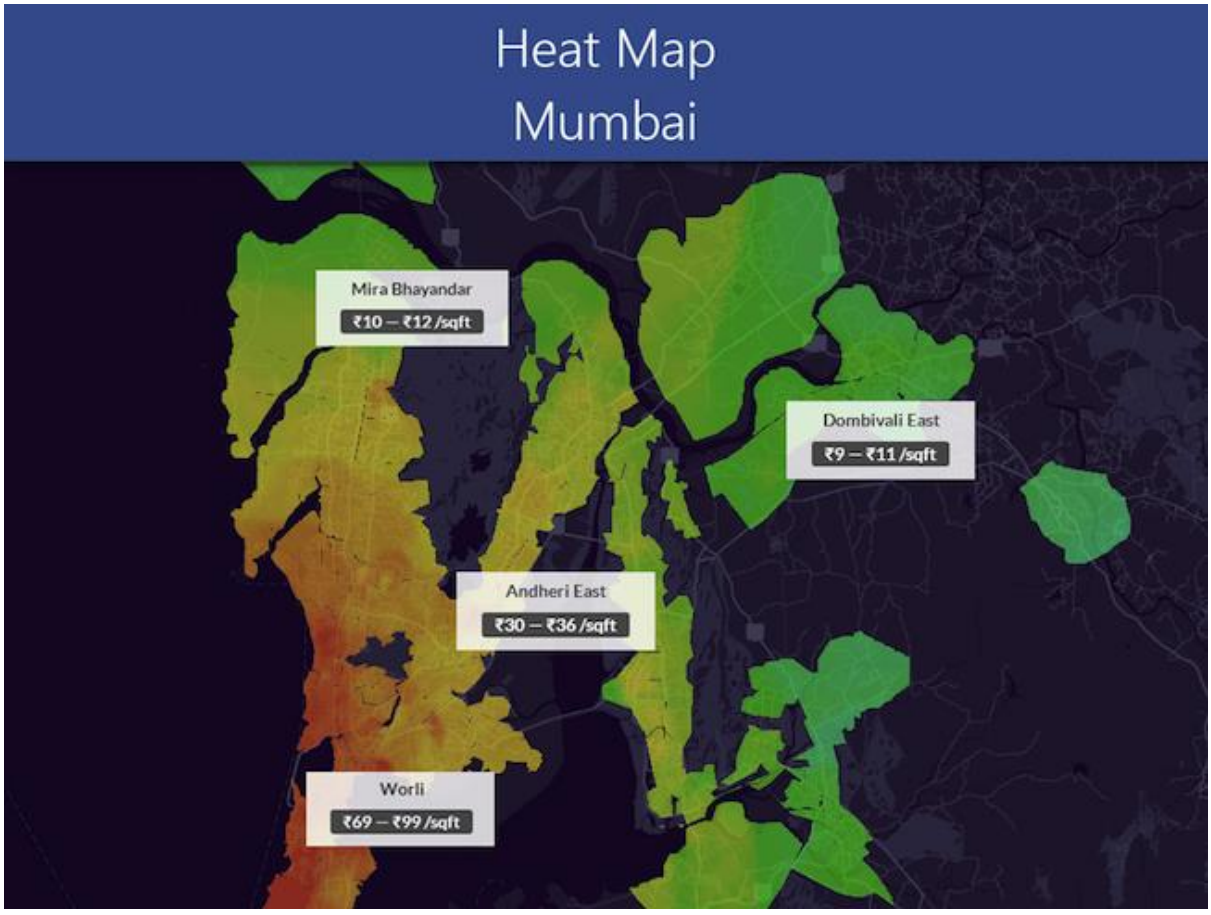
HOUSE PRICE PREDICTION USING DEEP LEARNING

Abstract: There comes a point in everyone's life when the person wishes to buy or sell a house. First consider a scenario where a person needs to buy a house. The person will look for his/her desired house for a sensible price tag. The person will have some features decided what he/she wants to have in the house. The person will be able to decide whether the type of house he/she is looking for is worth of the price or not. Similarly, consider a scenario where a person needs to sell a house. By making use of the house price prediction system, the seller would be able to decide what all features he/she could add in the house so that the house can be sold for a higher price. Hence, from both the above scenarios we can confirm that house price prediction is useful both for the buyer and seller.



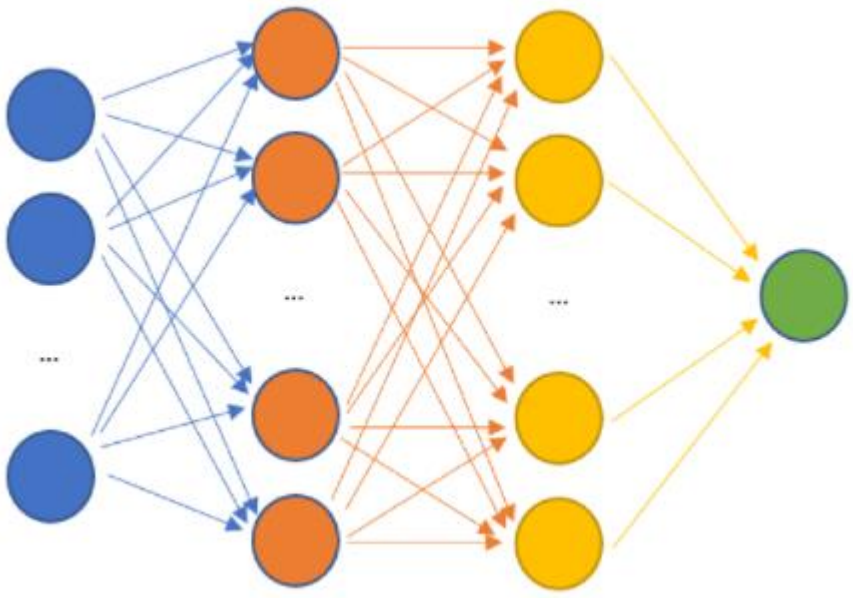
Usually when people want to buy a house, they look for a house which has a reasonable cost, and which has all the desired features they want in the house. The house price prediction will help them to decide whether the house they desire to buy is worth of the price or not. Similar is the case with people who want to sell the house. By making use of the house price prediction

system, the seller would be able to decide what all features he/she could add in the house so that the house can be sold for a higher price.

KERAS FOR PRICE PREDICTION

Keras supports the use of Convolutional Networks as well as Recurrent Networks and also their combinations. Keras Models are mainly sequential models. A linear composition of Keras layers forms a sequential model. It is simple and easy to implement. Keras Models represent the ANNs. Every Keras Sequential Model is a composition of Keras layers. ANN layers are represented, like the Input layer, an output layer, convolution layer etc.

The first thing we have to do is to set up the architecture. Let's first think about what kind of neural network architecture we want. Suppose we want this neural network:



Now, we need to describe this architecture to Keras. We will be using the Sequential model, which means that we merely need to describe the layers above in sequence.

A Sequential model is appropriate for a plain stack of layers where each layer has exactly one input tensor and one output tensor. Schematically, the following Sequential model is equivalent to this function: A Sequential **model** is not appropriate when model has multiple inputs or multiple outputs.

Telling it which algorithm you want to use to do the optimization

Telling it what loss function to use

Telling it what other metrics you want to track apart from the loss function

We specify the architecture with the Keras Sequential model.

We specify some of our settings (optimizer, loss function, metrics to track) with *model.compile*

We train our model (find the best parameters for our architecture) with the training data with *model.fit*

We evaluate our model on the test set with *model.evaluate*

CONCLUSION

I have used the sequential model to predict the price of different houses. It comes under the area of deep learning which one of the types of machine learning is. All the steps required for the successful completion of the house price prediction system have been completed. There are some improvements and additions which can be done. The first is the ability to increase and update the dataset on a regular basis. This will make the prediction system more correct and accurate. Another improvement which can be done is add a location feature which can help the users to predict the price of houses located all over India.