2. (20 points) Consider the House Price Prediction dataset (Dataset Link). Suppose you need to predict the Sale Price of a house and for the task you want to use a neural network with 3 hidden layers. Write a report on how you would modify your above neural network for such task with proper reasoning.

Neural network of question1 needs to be changed in following ways-

1. Given dataset also contains categorical data. Therefore we need to convert it to appropriate format. This can be done in two ways-
- Integer Encoding : Map each unique category of feature with a integer value. For example if the column is ‘Colour’ and it has unique values ‘red’ mapped to 1 ‘blue’ mapped to 2 and ‘green’ mapped to 3, then if a row has value ‘red’ for its colour attribute it can be encoded as 1. This approach is not very useful as the values with higher numerical mapping will be given preference.

- One-hot-encoding: In the above example instead of mapping with integer values, binary mapping will be done. If colour attribute has value ‘red’ the encoding will be 1,0,0.

2. Dataset contains NaN and missing values, replace NaN values with 0 and missing values with the corresponding column’s mean value.

3. Since it is a linear regression problem, we can use same activation function which we used in hidden layers.

4. Mean Squared Error will be used as cost function.`