

DEEP LEARNING

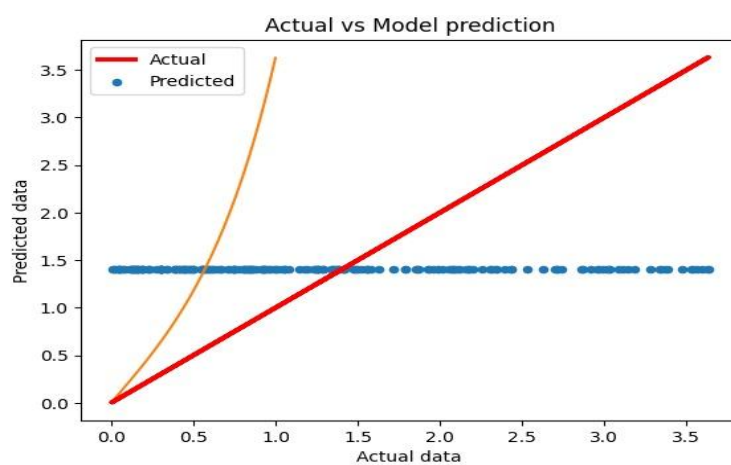
ASSIGNMENT 3

NAME-SPANDAN PRASAD SETH

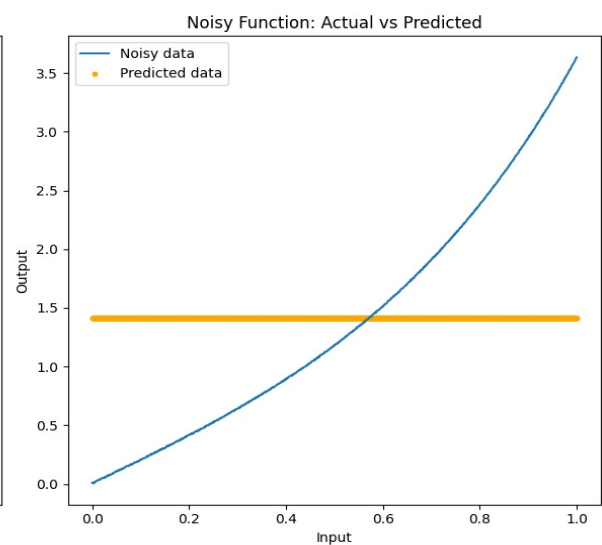
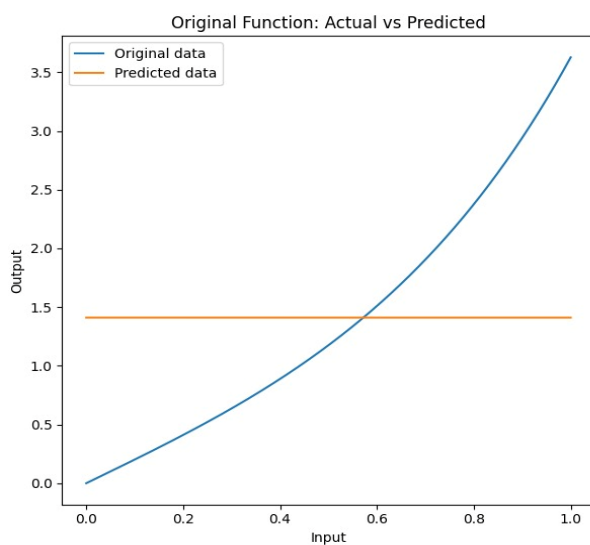
ENTRY NO-2022MEB1348

QUESTION 1-

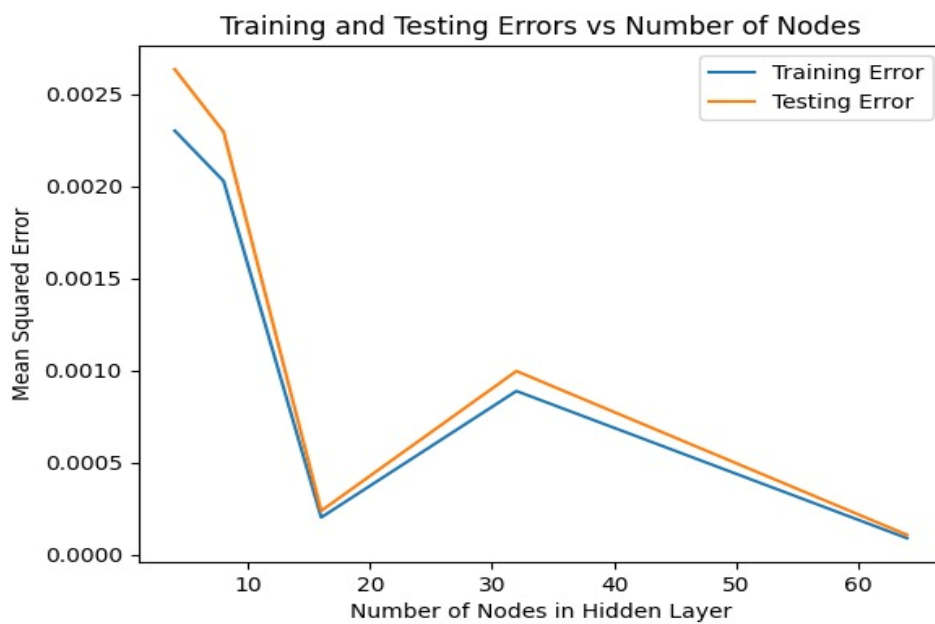
1.1.ACTUAL VS MODEL PREDICTION(for sinh)



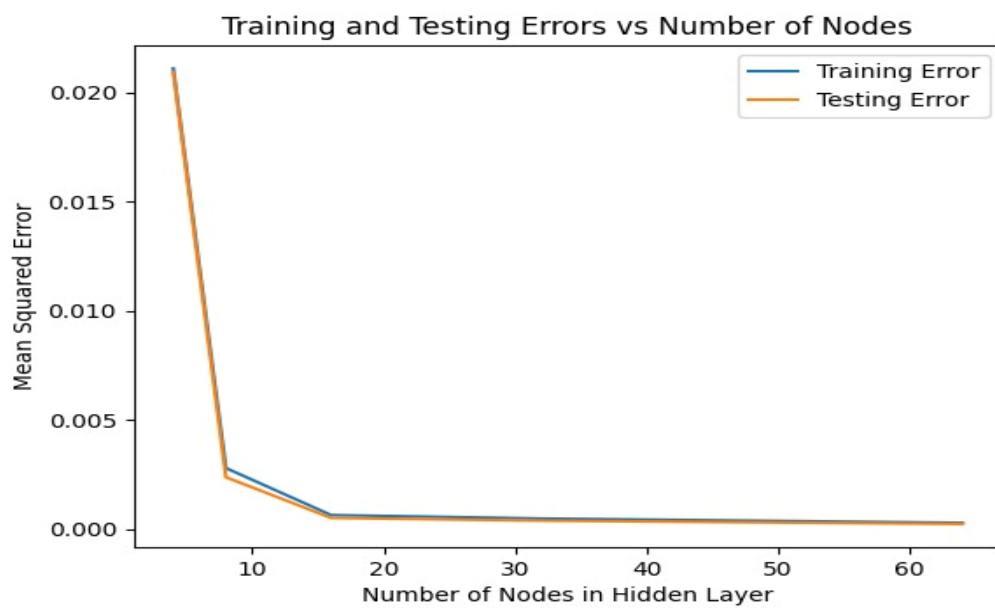
1.2.ORIGINAL FUNCTION AND NOISY FUNCTION ACTUAL VS PREDICTED(for sinh)



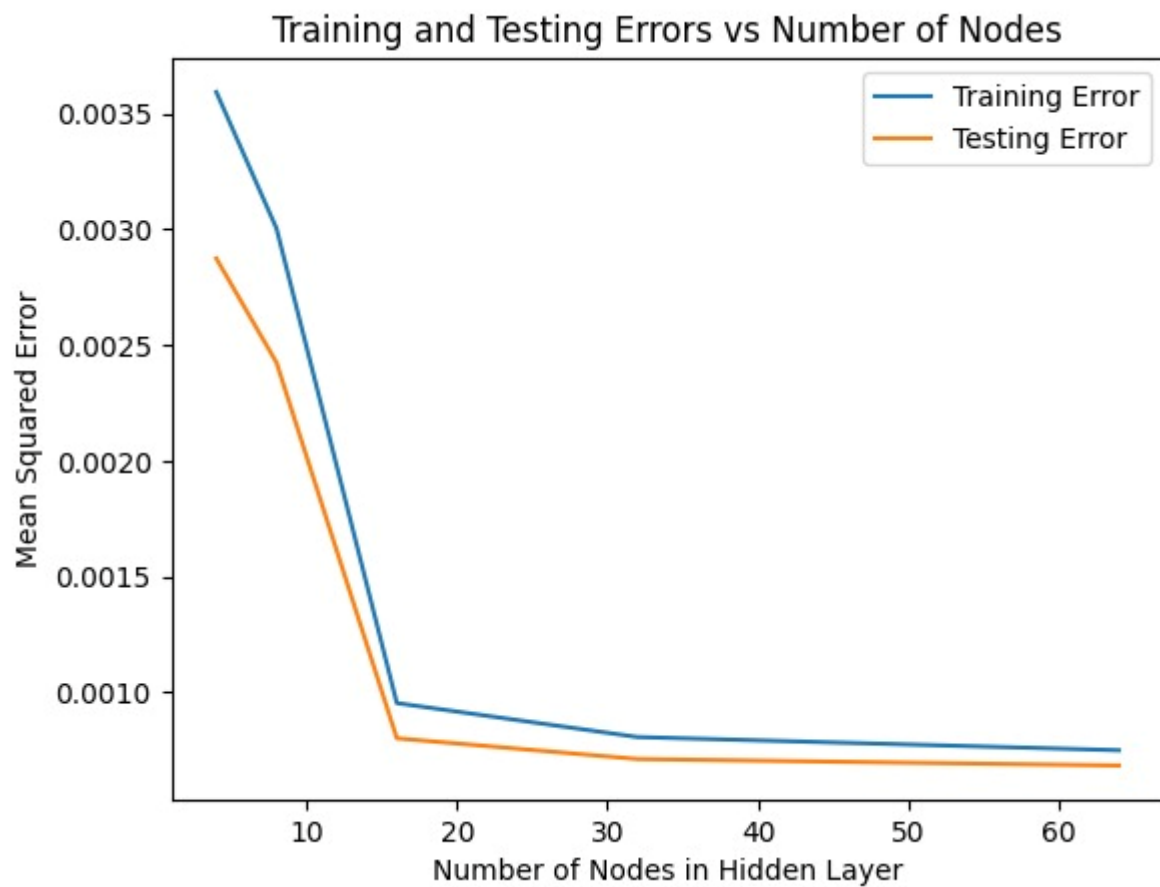
1.3 TRAINING AND TESTING ERRORS VS NUMBER OF NODES FOR NOISE 0.01 (for sinh)



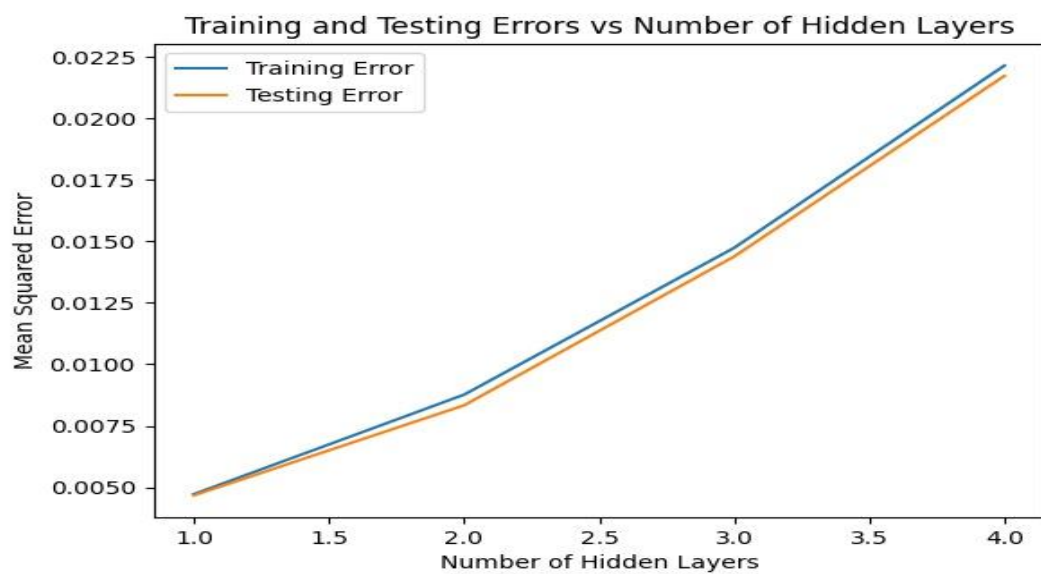
1.4 TRAINING AND TESTING ERRORS VS NUMBER OF NODES FOR NOISE 0.05(for sinh)



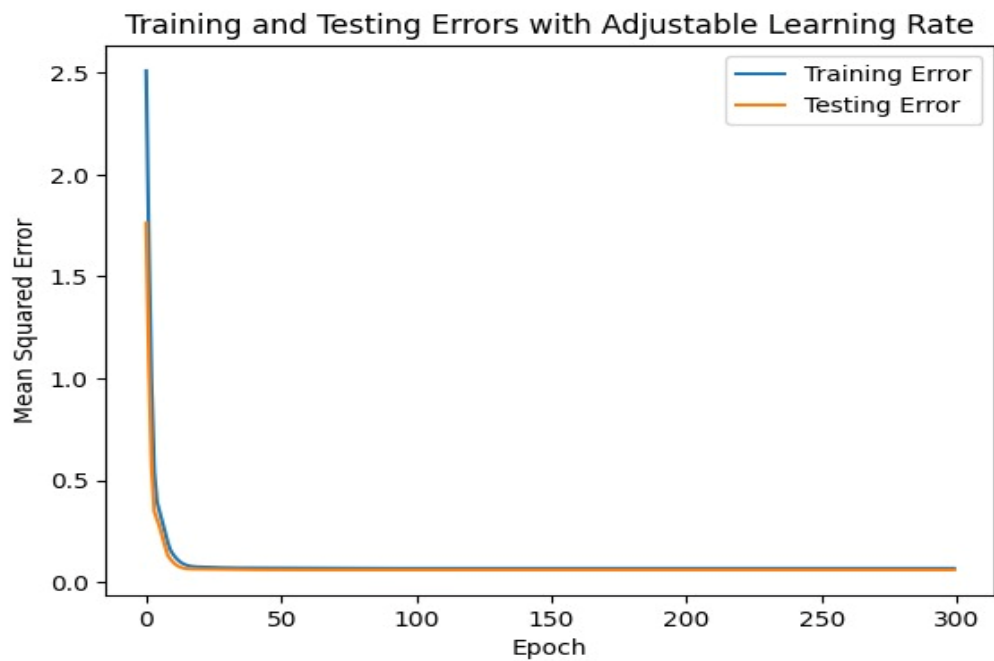
1.5 TRAINING AND TESTING ERRORS VS NUMBER OF NODES FOR NOISE 0.09 (for sinh)



1.6) TRAINING AND TESTING ERROR VS NUMBER OF NODES (FOR sine)



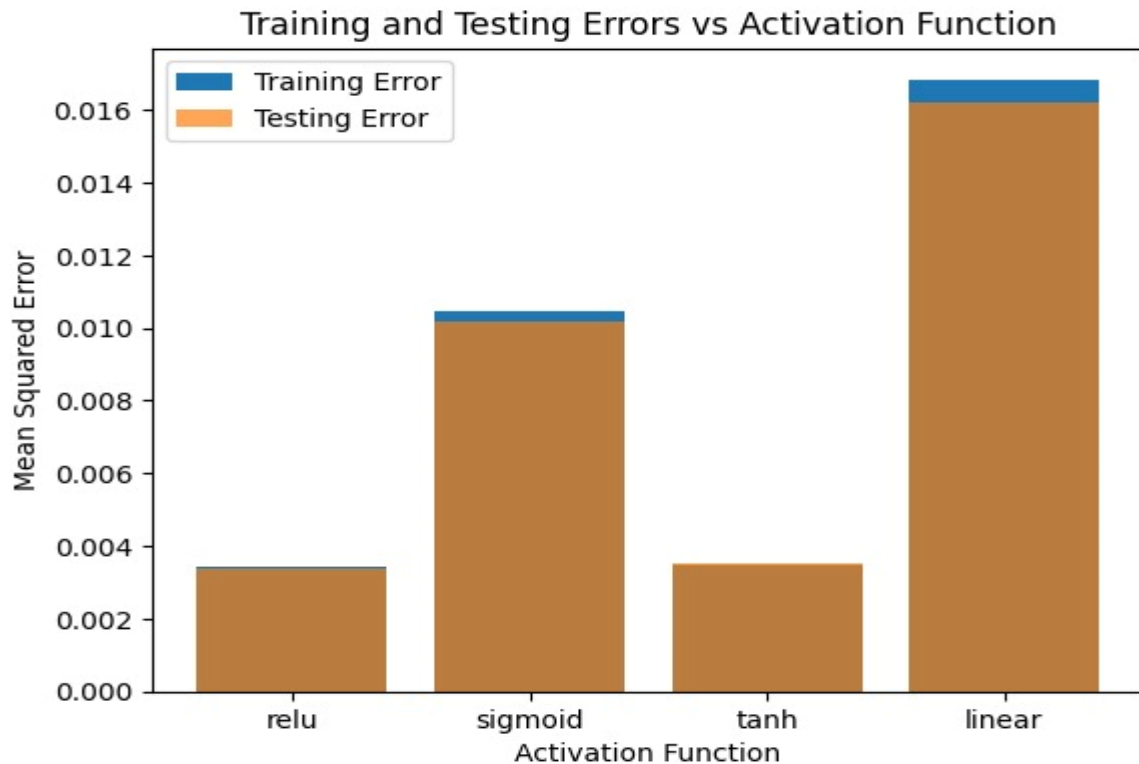
1.7 TRAINING AND TESTING ERROR WITH ADJUSTABLE LEARNING RATE (for sinh FUNCTION)



1.8 TRAINING AND TESTING ERRORS VS DATA SIZE (FOR SINE FUNCTION)



1.9 TRAINING AND TESTING ERRORS VS ACTIVATION FUNCTION(FOR SINE FUNCTION)



QUESTION-2

Using NumPy and Keras, a neural network model is created to predict the suitability of a design based on force and velocity inputs. The dataset is split into training and testing sets, and a sequential neural network model with three layers is built and trained using binary cross-entropy loss and the Adam optimizer. After training for 50 epochs, predictions are made on the test set, and accuracy is calculated to evaluate the model's performance. Finally, the test accuracy is printed out.