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Quantitative Analysis
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Problem Set 11

Computer Exercise

1. Load the `Carseats` data set in `ISLR`. Use `CompPrice`, `Income`, `Advertising`, `Population`, `Price`, `Age` and `Education` as independent variables and `Sales` as the dependent variable. Setting `set.seed(1234)`, split the data with 80 percent as the training set and the remaining 20 percent as the testing set. Please answer the following questions:

   (a) Please fit the training set into a `linear regression` and compute the MSE with the testing set.

   (b) Please fit the training set into a `neural network` with 3 hidden layers which have 5, 3 and 2 neurons, respectively. Plot this fitted network and compute the MSE.

   (c) Compare the two models in (a) and (b). Which one performs better?

   (d) Please draw a 1×2 plot with `Sales` on the x-axis and predicted values of the two models on the y-axis.