NN1

install.packages("neuralnet", dependencies = TRUE)

library(neuralnet)

set.seed(1)

housing\_index <- sample(nrow(Housing), 1/2 \* nrow(Housing))

housing\_train <- Housing[housing\_index, ]

housing\_test <- Housing[-housing\_index, ]

head(housing\_train)

head(housing\_test)

normalize <- function(x) {return((x-min(x))/(max(x)-min(x)))}

trainingnorm <- as.data.frame(lapply(housing\_train,normalize))

testingnorm <- as.data.frame(lapply(housing\_test,normalize))

housingnet <- neuralnet(SalePrice ~PoolArea+BsmtHalfBath+ WoodDeckSF+ LotArea+ OverallCond+ Kitchen+ LotFrontage+ Fireplaces+ BsmtFullBath+ HalfBath+ Bedroom+ BsmtFin+ FullBath+ OverallQual+ YearBuilt+ TotalBsmtSF+ TotRmsAbvGrd+ GarageArea+ GarageCars, trainingnorm, hidden=3,lifesign="minimal", linear.output=TRUE, threshold=0.01)

plot(housingnet)

temp\_test <- subset(testingnorm, select = c("PoolArea","BsmtHalfBath","WoodDeckSF",

"LotArea","OverallCond","Kitchen","LotFrontage","Fireplaces","BsmtFullBath",

"HalfBath","Bedroom","BsmtFin","FullBath", "OverallQual", "YearBuilt", "TotalBsmtSF", "TotRmsAbvGrd", "GarageArea", "GarageCars"))

head(temp\_test)

housingnet\_results <- compute(housingnet, temp\_test)

predicted\_price <- housingnet\_results$net.result

cor(predicted\_price, testingnorm$SalePrice)

NN2

install.packages("neuralnet", dependencies = TRUE)

library(neuralnet)

set.seed(10)

housing\_index <- sample(nrow(Housing), 1/2 \* nrow(Housing))

housing\_train <- Housing[housing\_index, ]

housing\_test <- Housing[-housing\_index, ]

head(housing\_train)

head(housing\_test)

normalize <- function(x) {return((x-min(x))/(max(x)-min(x)))}

trainingnorm <- as.data.frame(lapply(housing\_train,normalize))

testingnorm <- as.data.frame(lapply(housing\_test,normalize))

housingnet <- neuralnet(SalePrice ~PoolArea+BsmtHalfBath+WoodDeckSF+LotArea+OverallCond

+ Kitchen+LotFrontage+Fireplaces+BsmtFullBath+HalfBath+Bedroom+ BsmtFin+ FullBath

+OverallQual+YearBuilt+TotalBsmtSF+TotRmsAbvGrd+ GarageArea+ GarageCars, trainingnorm, hidden=c(4,4), lifesign="minimal", linear.output=TRUE, threshold=0.01)

plot(housingnet)

temp\_test <- subset(testingnorm, select = c("PoolArea","BsmtHalfBath","WoodDeckSF",

"LotArea","OverallCond","Kitchen","LotFrontage","Fireplaces","BsmtFullBath",

"HalfBath","Bedroom","BsmtFin","FullBath", "OverallQual", "YearBuilt", "TotalBsmtSF", "TotRmsAbvGrd", "GarageArea", "GarageCars"))

head(temp\_test)

housingnet\_results <- compute(housingnet, temp\_test)

predicted\_price <- housingnet\_results$net.result

cor(predicted\_price, testingnorm$SalePrice)