Informe Hackathon Team 25

ICAI. Machine Learning.

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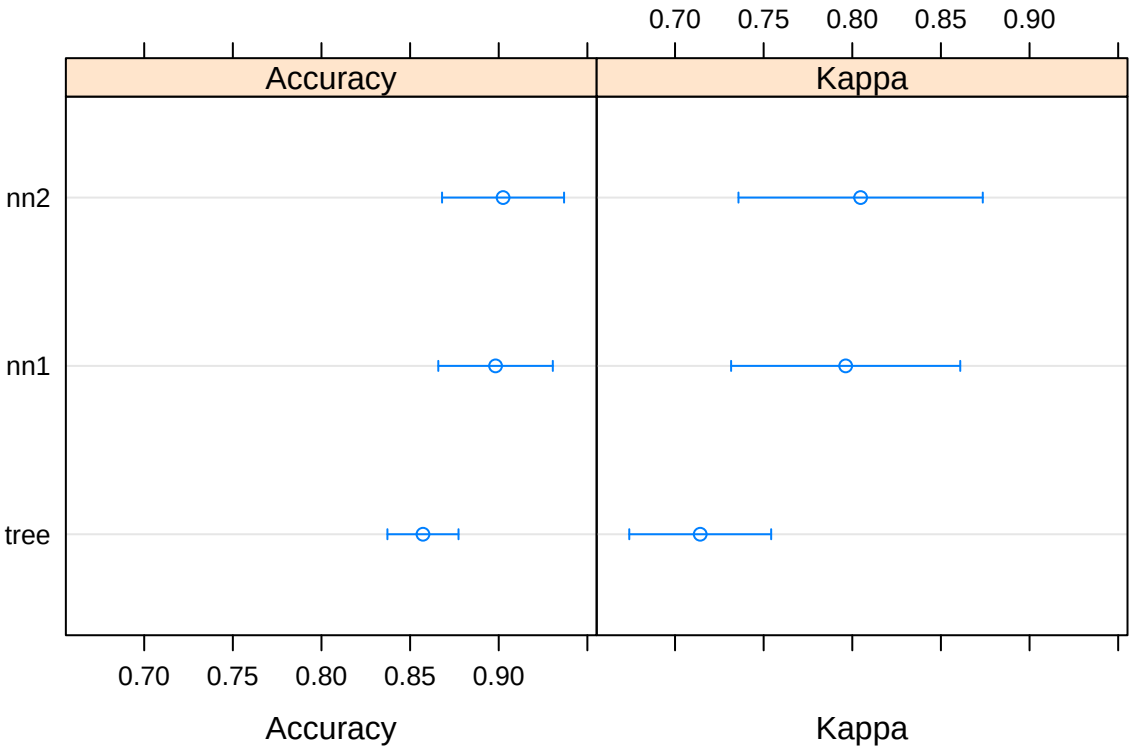
Comparación

Lo primero que compararemos de los tres modelos será el accuracy (en intervalo de confianza) junto con el parámetro kappa.

```
transformResultsR <- resamples(list(tree = tree.fit, nn1 = mlp.fit, nn2 = mlp2.fit))
summary(transformResultsR)
```

```
##
## Call:
## summary.resamples(object = transformResultsR)
##
## Models: tree, nn1, nn2
## Number of resamples: 10
##
## Accuracy
##           Min.   1st Qu.    Median      Mean   3rd Qu.      Max. NA's
## tree 0.8101266 0.8386076 0.8607595 0.8572628 0.8831169 0.8860759    0
## nn1  0.7974684 0.8849805 0.8981662 0.8982136 0.9297712 0.9610390    0
## nn2  0.7948718 0.8849805 0.9226607 0.9024438 0.9358974 0.9487179    0
##
## Kappa
##           Min.   1st Qu.    Median      Mean   3rd Qu.      Max. NA's
## tree 0.6205572 0.6766697 0.7207583 0.7142075 0.7660759 0.7716030    0
## nn1  0.5948718 0.7691750 0.7963506 0.7962749 0.8594641 0.9220911    0
## nn2  0.5897436 0.7694041 0.8453323 0.8046993 0.8717527 0.8974359    0
```

```
dotplot(transformResultsR)
```



Confidence Level: 0.95

Tras ello miraremos a las diferentes curvas ROC que generan los modelos y veremos cual de ellas tiene mayor AUC.

```
library(pROC)
reducedRoc <- roc(response = fTS_eval1$Y, fTS_eval1$tree_prob$YES)
plot(reducedRoc, col="black")
auc(reducedRoc)
```

```
## Area under the curve: 0.89
```

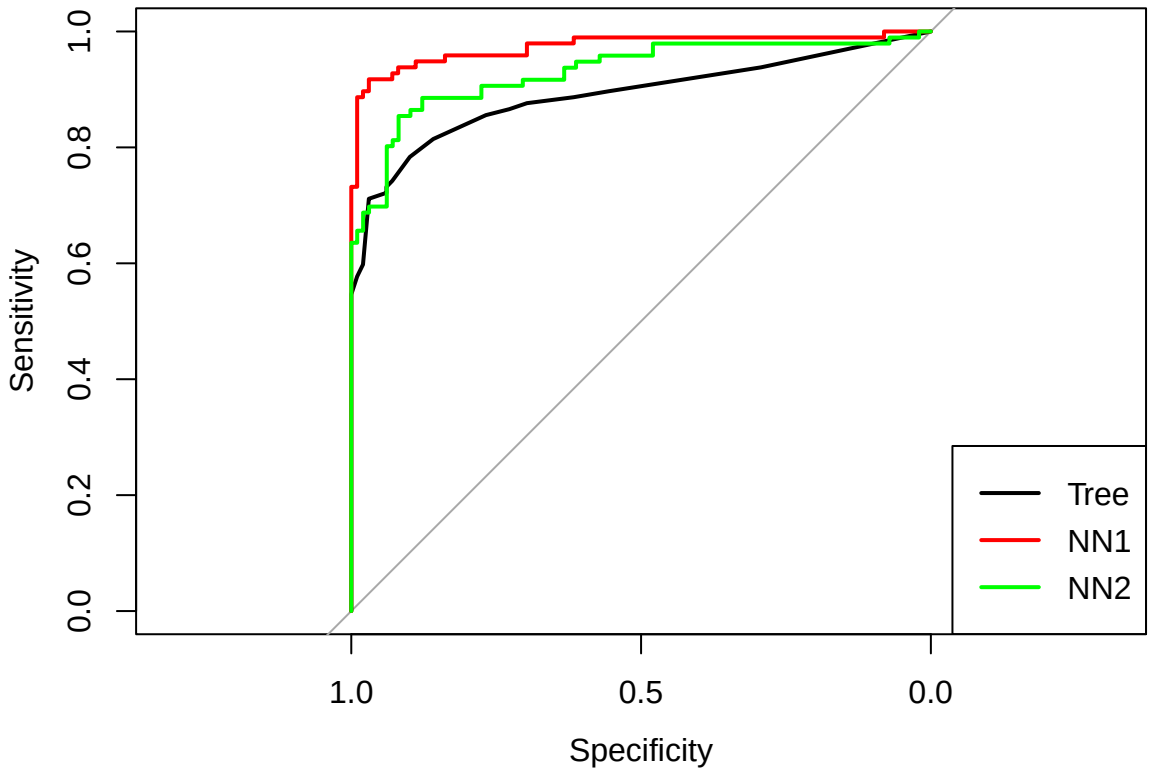
```
reducedRoc <- roc(response = fTS_eval2$Y, fTS_eval2$mlp_prob$YES)
plot(reducedRoc, add=TRUE, col="red")
auc(reducedRoc)
```

```
## Area under the curve: 0.9735
```

```
reducedRoc <- roc(response = fTS_eval3$Y, fTS_eval3$mlp_prob$YES)
plot(reducedRoc, add=TRUE, col="green")
auc(reducedRoc)
```

```
## Area under the curve: 0.9301
```

```
legend("bottomright", legend=c("Tree", "NN1","NN2"), col=c("black", "red","green"), lwd=2)
```



Por último miramos el accuracy en la matriz de confusión de test de cada uno de los modelos.

```
confusionMatrix(fTS_eval1$tree_pred, fTS_eval1$Y, positive = "YES")$overall[1]
```

```
##  Accuracy
## 0.8418367
```

```
confusionMatrix(fTS_eval2$mlp_pred, fTS_eval2$Y, positive = "YES")$overall[1]
```

```
##  Accuracy
## 0.9336735
```

```
confusionMatrix(fTS_eval3$mlp_pred, fTS_eval3$Y, positive = "YES")$overall[1]
```

```
## Accuracy
## 0.871134
```