**Report on All Models**

**Logistic Regression report:**

I have applied logistic regression on car eval dataset. I split dataset into 70% train,10% validate and 20% test data. I have applied cross validation with 10 folds. Model parameters are:

max\_iter=5000, multi\_class='ovr', solver='saga'

Model accuracy is 88%. I calculate confusion matrix, sensitivity,

Specificity and I plot roc\_auc curve. Then I store the actual and predicted results in a csv file. I also save the model weights in my local drive.

**Decision Tree report:**

I have applied decision tree on car eval dataset. I split dataset into 70% train,10% validate and 20% test data. I have applied cross validation with 10 folds. Model default parameters are used.

Model accuracy is 91%. I calculate confusion matrix, sensitivity,

Specificity and I plot roc\_auc curve. Then I store the actual and predicted results in a csv file. I also save the model weights in my local drive.

**Random Forest report:**

I have applied random forest on car eval dataset. I split dataset into 70% train,10% validate and 20% test data. I have applied cross validation with 10 folds. Model parameters are:

n\_estimators=10,random\_state=101

Model accuracy is 89%. I calculate confusion matrix, sensitivity,

Specificity and I plot roc\_auc curve. Then I store the actual and predicted results in a csv file. I also save the model weights in my local drive.

**K Nearest Neighbors report:**

I have applied K nearest neighbors on car eval dataset. I split dataset into 70% train,10% validate and 20% test data. I have applied cross validation with 10 folds. Model parameters are:

n\_neighbors=8

I choose this value by using elbow method.

Model accuracy is 88%. I calculate confusion matrix, sensitivity,

Specificity and I plot roc\_auc curve. Then I store the actual and predicted results in a csv file. I also save the model weights in my local drive.

**Support Vector Machine report:**

I have applied support vector machine on car eval dataset. I split dataset into 70% train,10% validate and 20% test data. I have applied cross validation with 10 folds. Model parameters are:

kernel='linear', C=1000

Model accuracy is 98%. I calculate confusion matrix, sensitivity,

Specificity and I plot roc\_auc curve. Then I store the actual and predicted results in a csv file. I also save the model weights in my local drive.