```
#################################################################
#####
################### Neural Net Classifer ########################
#####


Best estimater data...

MLPClassifier(activation='relu', alpha=0.001, batch_size='auto', b
eta_1=0.9,
              beta_2=0.999, early_stopping=False, epsilon=1e-08,
              hidden_layer_sizes=(300, 200, 100, 50, 10),
              learning_rate='constant', learning_rate_init=0.001,
max_fun=15000,
              max_iter=10000, momentum=0.9, n_iter_no_change=10,
              nesterovs_momentum=True, power_t=0.5, random_state=N
one,
              shuffle=True, solver='adam', tol=0.0001, validation_
fraction=0.1,
              verbose=False, warm_start=False)

############### Neural Net Results on the test set:
              precision    recall  f1-score   support

           A       0.57      0.38      0.45        56
           B       0.55      0.63      0.59       125
           C       0.50      0.51      0.50        65

    accuracy                           0.54       246
   macro avg       0.54      0.50      0.51       246
weighted avg       0.54      0.54      0.54       246


############### Probabbility of guessing test label by chance:
Test label Counts:
Counter({'B': 125, 'C': 65, 'A': 56})

Probabilities of gussing by chance:
C: 0.26
A: 0.23
B: 0.51

################ End Neural Net Classifer ########################
#####
#################################################################
#####


#################################################################
#####
################### XGBoost Classifer ###########################
#####
```

```
Best estimater data...

XGBClassifier(base_score=0.5, booster='gbtree', colsample_bylevel=
1,
              colsample_bynode=1, colsample_bytree=1, gamma=0,
              learning_rate=0.05, max_delta_step=0, max_depth=6,
              min_child_weight=1, missing=None, n_estimators=100,
n_jobs=1,
              nthread=None, num_class=3, objective='multi:softprob
',
              random_state=0, reg_alpha=0, reg_lambda=1, scale_pos
_weight=1,
              seed=None, silent=None, subsample=1, verbosity=1)

######################## XGB Results on the test set:
              precision    recall  f1-score   support

           A       0.50      0.27      0.35        56
           B       0.55      0.84      0.67       125
           C       0.65      0.26      0.37        65

    accuracy                           0.56       246
   macro avg       0.57      0.46      0.46       246
weighted avg       0.57      0.56      0.52       246


############### Probabbility of guessing test label by chance:
Test label Counts:
Counter({'B': 125, 'C': 65, 'A': 56})

Probabilities of gussing by chance:
C: 0.26
A: 0.23
B: 0.51

################ End XGBoost Classifer ############################
#####
####################################################################
#####
```