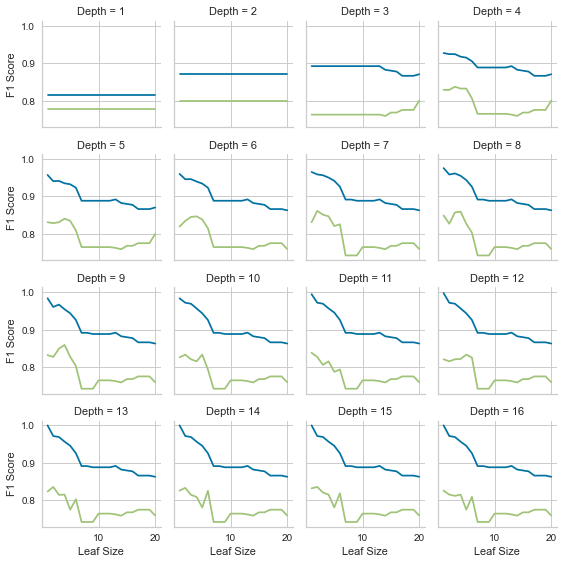
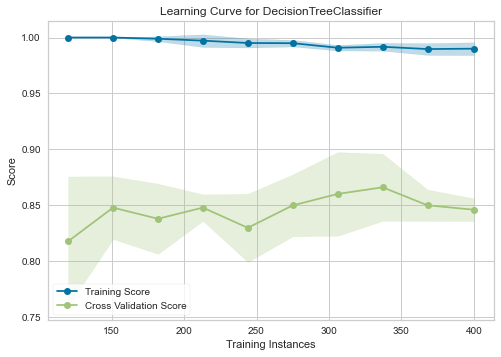
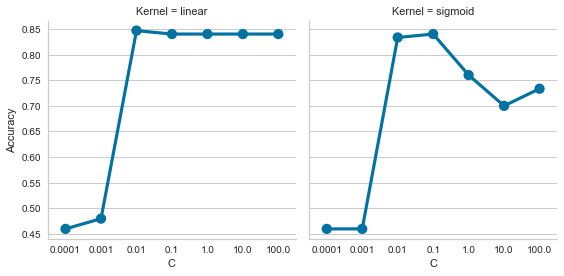
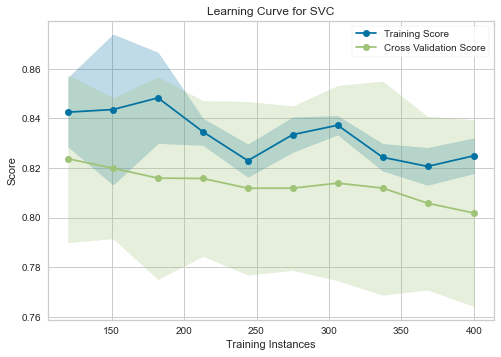
1. Decision Tree  
  
1.1 Hyperparameters Exploration  
  
For this project, Decision Tree will be hypertuned by adjusting: ['max\_depth', 'min\_samples\_leaf']. The following chart shows how the accuracy is affected when the hyperparamter(s) are changed:  
  
  
  
1.2 Hypertuning  
  
GridSearchCV was performed for Decision Tree classifier. The optimal value of max\_depth was 9. The optimal value of min\_samples\_leaf was 1. Likewise the accuracy of Decision Tree classifier was 72 when the optimized hyperparameter(s) value(s) were used.



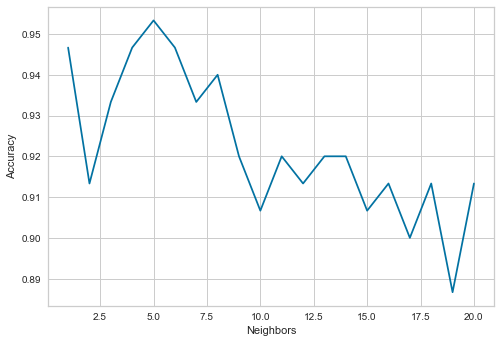


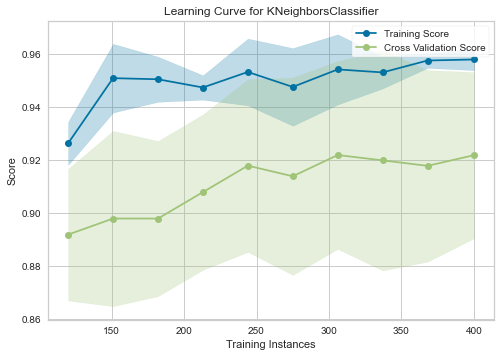
2. Support Vector Machine  
  
2.1 Hyperparameters Exploration  
  
For this project, Support Vector Machine will be hypertuned by adjusting: ['C', 'kernel']. The following chart shows how the accuracy is affected when the hyperparamter(s) are changed:  
  
  
  
2.2 Hypertuning  
  
GridSearchCV was performed for Support Vector Machine classifier. The optimal value of C was 0.01. The optimal value of kernel was linear. Likewise the accuracy of Support Vector Machine classifier was 73 when the optimized hyperparameter(s) value(s) were used.



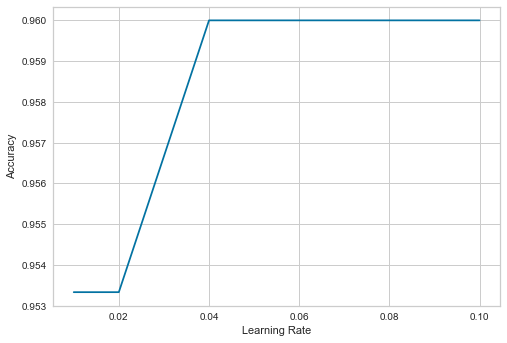


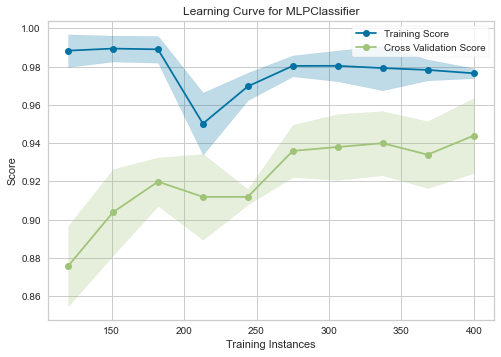
3. K-Nearest Neighbors  
  
3.1 Hyperparameters Exploration  
  
For this project, K-Nearest Neighbors will be hypertuned by adjusting: ['n\_neighbors']. The following chart shows how the accuracy is affected when the hyperparamter(s) are changed:  
  
  
  
3.2 Hypertuning  
  
GridSearchCV was performed for K-Nearest Neighbors classifier. The optimal value of n\_neighbors was 3. Likewise the accuracy of K-Nearest Neighbors classifier was 74 when the optimized hyperparameter(s) value(s) were used.





4. Neural Network  
  
4.1 Hyperparameters Exploration  
  
For this project, Neural Network will be hypertuned by adjusting: ['hidden\_layer\_sizes', 'learning\_rate\_init']. The following chart shows how the accuracy is affected when the hyperparamter(s) are changed:  
  
  
  
4.2 Hypertuning  
  
GridSearchCV was performed for Neural Network classifier. The optimal value of hidden\_layer\_sizes was 81. The optimal value of learning\_rate\_init was 0.04. Likewise the accuracy of Neural Network classifier was 75 when the optimized hyperparameter(s) value(s) were used.





5. Gradient Boosting  
  
5.1 Hyperparameters Exploration  
  
For this project, Gradient Boosting will be hypertuned by adjusting: ['max\_depth', 'n\_estimators']. The following chart shows how the accuracy is affected when the hyperparamter(s) are changed:  
  
  
  
5.2 Hypertuning  
  
GridSearchCV was performed for Gradient Boosting classifier. The optimal value of max\_depth was 3. The optimal value of n\_estimators was 90. Likewise the accuracy of Gradient Boosting classifier was 76 when the optimized hyperparameter(s) value(s) were used.

