ISSUE 1

Tags: beginner, good first issue, machine learning, hacktoberfest

### **Description**

Given multi-class classification problem, predict the age of Abalone (a type of Shellfish). Target output is value of Rings (Age = Rings + 1.5).

The dataset can be found [here](https://archive.ics.uci.edu/ml/datasets/abalone)

The given features are

1. Sex
2. Length
3. Diameter
4. Height
5. Whole weight
6. Shucked weight
7. Viscera weight
8. Shell weight

**Details**

* Technical Specifications: python, pandas, numpy, scikit-learn
* Type of issue: Multiple issues
* Time Limit: 2 days

**Issue requirements / progress**

Train the model on training data. Predict target values using test data. Use accuracy and f1\_score metrics to evaluate the performance.

Note: Each pull request should be a solution using only one model.

(in check boxes)

Using Logistic Regression

Using Decision Tree Classifier

Using Gaussian Naive Bayes

Using K-Nearest Neighbor Classifier

Using Support Vector Machine Classifier

Using Random Forest Classifier

Using Multi-layer Perceptron (MLP) Classifier

Using Quadratic Discriminant Analysis

Using AdaBoost Classifier

**Resources**

* To help you get started, the starter code abalone-age-prediction.ipynb is present in /machineLearning/abalone-age
* Jupyter notebook [installation](https://jupyter.org/install.html)
* Python [tutorial](https://docs.python.org/3/tutorial/index.html)
* Numpy [tutorial](https://www.tutorialspoint.com/numpy/index.htm)
* Pandas [tutorial](https://www.tutorialspoint.com/python_pandas/)
* Scikit-learn [Logistic Regression](https://scikit-learn.org/stable/modules/generated/sklearn.linear_model.LogisticRegression.html)
* Scikit-learn [Decision Tree Classifier](https://scikit-learn.org/stable/modules/generated/sklearn.tree.DecisionTreeClassifier.html)
* Scikit-learn [Gaussian Naive Bayes](https://scikit-learn.org/stable/modules/generated/sklearn.naive_bayes.GaussianNB.html)
* Scikit-learn [K-Nearest Neighbours](https://scikit-learn.org/stable/modules/generated/sklearn.neighbors.KNeighborsClassifier.html)
* Scikit-learn [Support Vector Machines](https://scikit-learn.org/stable/modules/generated/sklearn.svm.SVC.html)
* Scikit-learn [Random Forest Classifier](https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestClassifier.html)
* Scikit-learn [MLP Classifier](https://scikit-learn.org/stable/modules/generated/sklearn.neural_network.MLPClassifier.html)
* Scikit-learn [Quadratic Discriminant Analysis](https://scikit-learn.org/stable/modules/generated/sklearn.discriminant_analysis.QuadraticDiscriminantAnalysis.html)
* Scikit-learn [AdaBoost Classifier](https://scikit-learn.org/stable/modules/generated/sklearn.ensemble.AdaBoostClassifier.html)

### **Directory Structure**

Place your solution file in path as follows.

* For Logistic Regression /machineLearning/abalone-age/lr/<your\_solution\_file>
* For Decision Tree Classifier /machineLearning/abalone-age/dtc/<your\_solution\_file>
* For Gaussian Naive Bayes /machineLearning/abalone-age/gnb/<your\_solution\_file>
* For K Neighbors Classifier /machineLearning/abalone-age/knn/<your\_solution\_file>
* For Support Vector Classifier /machineLearning/abalone-age/svc/<your\_solution\_file>
* For Using Random Forest Classifier /machineLearning/abalone-age/rfc/<your\_solution\_file>
* For Using Multi-layer Perceptron (MLP) Classifier /machineLearning/abalone-age/mlp/<your\_solution\_file>
* For Using Quadratic Discriminant Analysis /machineLearning/abalone-age/qda/<your\_solution\_file>
* For Using AdaBoost Classifier /machineLearning/abalone-age/adb/<your\_solution\_file>

### **Note**