Python_Lesson4: Python Programming

Lesson Overview:
In this lesson we will introduce classification.
a. Classification algorithm
b. Scikit learn
c. Advanced concept related to machine learning algorithm like overfitting, underfitting, cross validation, evaluation for clustering methods

Use Case Description:
k-nearest neighbor classifier

Programming elements:
Classification

Data Set:

URL: https://umkc.box.com/s/ea6wn1cidukan67t02j60nmp1ljln3kd
The name of target Column is **Type**

In class programming:
1. find the correlation between 'survived' (target column) and 'sex' column for the Titanic use case in class. Do you think we should keep this feature?

2. Implement Naïve Bayes method using scikit-learn library
Use dataset available in https://umkc.box.com/s/ea6wn1cidukan67t02j60nmp1ljln3kd
Use **train_test_split** to create training and testing part
Evaluate the model on testing part using score and

```
classification_report(y_true, y_pred)
```

3. Implement linear SVM method using scikit library
Use the same dataset above
Use **train_test_split** to create training and testing part
Evaluate the model on testing part using score and

```
classification_report(y_true, y_pred)
```

Which algorithm you got better accuracy? Can you justify why?

ICP Submission Guidelines:
1. Submit your source code and documentation to GitHub and represent the work through readme file properly (submit your screenshots as well. The screenshot should have both the code and the output)
2. Once completed, must be presented to TA or Instructor before the completion of the class
3. Submission after deadline is considered as a late submission (check the late submission policy in the syllabus).
4. Comment your code appropriately

Evaluation Criteria:
1. Completeness of Features
2. Code Quality (https://en.wikipedia.org/wiki/Best_coding_practices)
3. Time
4. Feedback Submission

Note: *Cheating, plagiarism, disruptive behavior and other forms of unacceptable conduct are subject to strong sanctions in accordance with university policy. See detailed description of university policy at the following URL: https://catalog.umkc.edu/special-notices/academic-honesty/*