AI Assignment 4

MULTI-LABEL EMOTION CLASSIFICATION – MACHINE LEARNING CYCLE

By

Team IOIT

AI 2024 Online Summer Internship

Make Your Place in Top 20% AI Engineers of the World

Multi-label Emotion Classification
(Machine Learning Cycle)

Quick Recap – AI Assignment 3

AI Assignment 3 focussed on **Single Lable Text Classification** in two forms: (1) Binary Classification from Text, and (2) Multi-class Classification from Text.

Aim

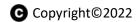The focus of this Assignment is on **Multi-label Text Classification.**

The aims of this Assignment are:
- To introduce how to develop Machine Learning based Real-world Applications using NLTK, Python, Pandas and Scikit-learn
- To introduce how we can develop Machine Learning Models by using the Data in which FEATURES are EXTRACTED from Text (for Multi-label Text Classification)
- To introduce how we can execute the Machine Learning Cycle (Training Phase, Testing Phase, Application Phase and Feedback Phase) to develop Real-world Applications

Learning Outcomes

After reading, understanding, analyzing and doing this Assignment, In Sha Allah, you will learn:

- How to use NLTK, Python, Pandas and Scikit-learn to build Machine Learning based Real-world Application?
- How to execute Machine Learning Cycle (Training Phase, Testing Phase, Application Phase and Feedback Phase) to develop Real-world Applications using the Data in which FEATURES are EXTRACTED from Text (for Multi-label Text Classification)?

Tasks

Note that this Assignment is planned, designed, and developed using a HalfCooked Approach i.e., some work is done by the instructor and the remaining will be done by you. Since the Assignment is to develop Machine Learning based Realworld Applications using NLTK, Python, Pandas and Scikit-learn. Following the Half-Cooked Approach, Instructor has provided with the Code, Data, and Documentation, for the Project titled: Multi-label Emotion Classification from Text. Note that the Multi-label Emotion Classification from Text Project is developed using Train-Test Split Approach. Your job is to carry out the Tasks given below and answer the associated questions.

Your main job is to Code, Document and Develop Prototype System for the TODO Task, i.e., Multi-label Abstract Classification from Text, by performing the following Tasks.

- **Task 1**
    - Run the Code for Multi-label Emotion Classification from Text (using Train-Test Split Approach)
- **Task 2**
    - Edit the Code given for Multi-label Emotion Classification from Text , so that it works for Multi-label Abstract Classification from Text
    - Note
        - Use all the instances given in the todo_task_multi_label_abstrat_classification_dataset File.

Guidelines for Assignment Submission

Deadline: 4-Aug-2024 (23:59 PST)

How to Submit?
Upload your Assignment Solution on Microsoft Teams. Upload the following files:
1. Jupyter Notebook File
2. Jupyter Notebook in HTML Format
3. Dataset(s)
4. Any Other Files