**DSCI – 633**

**Foundations of Data Science and Analysis**

**Assignment 2**

**Objective:**

Program 3 tasks (see below) in python. A skeleton of the code is provided in the Google colab notebook. Required python, math, and libraries and the ML Model are provided in the first few cells of the python notebook. Note: No libraries should be used for RMSE, Confusion matrix, accuracy, precision, and recall from scikit learn.Code commenting is required for every cell you write code in.

**Tasks:**

1. Code Root Mean Square Error function

Reference from class slides - [Lecture: 2](https://github.com/aiforsec/RIT-DSCI-633-FDS/tree/main/Syllabus/Lecture02), Slide: Model Performance

1. Code Confusion Matrix functions

Reference from class slides - [Lecture: 3](https://github.com/aiforsec/RIT-DSCI-633-FDS/tree/main/Syllabus/Lecture03), Slide: Performance measures

1. Code Accuracy, Precision, and Recall functions

Reference from class slides - [Lecture: 3](https://github.com/aiforsec/RIT-DSCI-633-FDS/tree/main/Syllabus/Lecture03), Slide: Performance measures

To review topics, go through class slides, or [Hands-on Machine learning book](https://www.knowledgeisle.com/wp-content/uploads/2019/12/2-Aur%C3%A9lien-G%C3%A9ron-Hands-On-Machine-Learning-with-Scikit-Learn-Keras-and-Tensorflow_-Concepts-Tools-and-Techniques-to-Build-Intelligent-Systems-O%E2%80%99Reilly-Media-2019.pdf): Chapter 3.

**Deadline:** Thursday, 09/15/2022 11:59 pm EST

**Implementation and Submission:** [*(Link to Colab notebook)*](https://colab.research.google.com/drive/1fMH1v3WRrfM6T4oCeb1mNh5v4woNOnwN#scrollTo=hI-egO1-RRlV)

Use the linked python notebook for implementation. Submit the link of your implementation in MyCourses under the Assignment 2 section. Add your official name & RIT email address to the top of the colab notebook.

**Follow up questions:**

Post questions on the course slack channel or discuss with TA – Addl Tariq during office hours.

**Grading Rubric**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Competent**  **Performance** | **Acceptable Performance** | **Mediocre**  **Performance** | **Low**  **Performance** | **No Performance** |
| All  program runs as required with provided accuracy. | A small number of minor problems in one of the functions, e.g., issues in predict of class probabilities. | Coding of function might have error in logic OR Code does not run, but logic is correct. | Basic programming done, but multiple functions contain logical issues. | None of the objective is achieved. |
| (10 points) | (8 points) | (6 points) | (4 points) | (0 points) |

***IMPORTANT:*** *No copying or plagiarism of the code from peers or the internet. Mention the name of your classmate with whom you “discussed” your approach.*