

Date: 18/01/2025

Submission Date: 27/01/2025

Assignment 1

Course Code: 202046702

Course Title: Artificial Intelligence and Machine Learning

Exploring Forest Fires Dataset

Dataset Link: https://www.kaggle.com/datasets/gustavomodelli/forest_fires-in-brazil

Instructions:

- Download the dataset from the provided Kaggle link.
- Complete the following tasks using Python and Pandas library.
- Write Python code to accomplish each task.
- Include comments in your code to explain each step.
- Submit the Python script or Jupyter Notebook containing your code and the output/results of each task.

Tasks:

1. Display Top 5 Rows of The Dataset.
2. Check Last 5 Rows.
3. Find Shape of Our Dataset (Number of Rows and Number of Columns).
4. Getting Information About Our Dataset Like Total Number Rows, Total Number of Columns, Datatypes of Each Column and Memory Requirement.
5. Check For Duplicate Data and Drop Them.
6. Check Null Values in The Dataset.
7. Get Overall Statistics About the Dataframe.
8. Rename Month Names to English.
9. Total Number of Fires Registered.
10. In Which Month Maximum Number of Forest Fires Were Reported?
11. In Which Year Maximum Number of Forest Fires Was Reported?
12. In Which State Maximum Number of Forest Fires Was Reported?

13. Find Total Number of Fires Were Reported in Amazonas.
14. Display Number of Fires Were Reported in Amazonas (Year-Wise).
15. Display Number of Fires Were Reported in Amazonas (Day-Wise).
16. Find Total Number of Fires Were Reported In 2015 And Visualize Data Based on Each 'Month'.
17. Find Average Number of Fires Were Reported from Highest to Lowest (State-Wise).
18. To Find the State Names Where Fires Were Reported In 'dec' Month.

Note: Use can any visualization libraries (e.g., Matplotlib, Seaborn) for visualization tasks. Make sure your code is well-commented and organized.