Exploratory Data Analysis and Visualization Mini-Project Guidelines

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Project Title: Exploratory Data Analysis and Visualization Showcase

Dataset: https://archive.ics.uci.edu/dataset/547/algerian+forest+fires+dataset

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Project Tasks:

1. **Data Selection:**
    - Dataset Name:
    - Data Source:
    - Brief Description:
2. **Data Loading and Transformation:**
    - Libraries Used: Pandas, NumPy
    - Steps Taken: (Describe how you loaded the data, handled missing values, and performed transformations)
3. **Exploratory Data Analysis (EDA):**
    - Statistical Summaries: (Include mean, median, standard deviation, etc.)
    - Distributions: (Describe the distribution of key variables)
    - Correlations: (Explore relationships between variables)
    - Outliers: (Identify and handle outliers if any)
4. **Data Visualization:**
    - Libraries Used: Matpltolib
    - Types of Visualizations Created :
        - Histograms:
        - Box Plots:
        - Scatter Plots:
        - Heatmaps:
        - Time-Series Plots:
    - Interactive Visualizations (if applicable):
5. **Critical Review:**
    - Identify any misleading visualizations.
    - Discuss the ethical consequences of misrepresenting data.
6. **Dimensionality Reduction (Optional for advanced students):**

- Techniques Used: (e.g., PCA - Principal Component Analysis)
- Visualization after Dimensionality Reduction:

7. **Documentation and Presentation:**
    - Summary of Key Findings: (Include main insights and trends discovered)
    - Explanation of Visualizations: (Explain the purpose and interpretation of each visualization)
    - Ethical Considerations: (Reflect on ethical aspects of data representation)
    - Presentation Format: (Specify if it's a slide presentation, Jupyter Notebook, etc.)

Evaluation Criteria:

- **Data Preparation and Cleaning:** /20
- **Exploratory Data Analysis:** /25
- **Quality and Relevance of Visualizations:** /30
- **Critical Review and Ethical Considerations:** /15
- **Documentation and Presentation:** /10

Submission Guidelines:

- **Deadline:** 20/12/2023
- **Submission Format:** Projects (code/ charts/ texts) must be edited/submitted online using Google Colab or similar platform.

Note:

- Properly document your code and analysis steps.
- Ensure your visualizations are clear, labeled, and easy to interpret.
- Plagiarism will not be tolerated; all work must be original.

Good luck with your project!