System Administration Guide

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Universal Data Cleaning & Exploration App  
Author: Inas Al Sheikhli  
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System Overview

The Universal Data Cleaning & Exploration App is a standalone data preprocessing tool designed to run on modern desktop operating systems. It enables users to upload CSV files, apply various cleaning operations, visualize data, and export clean datasets. This guide provides instructions for maintaining and managing the software environment, particularly for system administrators.

System Configuration

1. Hardware Requirements:  
- Minimum 4GB RAM, 2-core CPU, 512MB GPU (optional)  
- Disk space: Minimum 200MB  
  
2. Software Requirements:  
- Python 3.9+  
- Libraries: pandas, numpy, seaborn, matplotlib, Flask (if web deployed)  
- OS: Windows 10+, macOS 11+, Ubuntu 20.04+

System Maintenance

- Perform periodic backups of user datasets and log files.  
- Update Python libraries via pip to ensure compatibility.  
- Log critical user actions for security audits.  
- Monitor resource utilization using OS-native monitoring tools.

Security Processes

The application runs locally and does not transmit user data externally. Basic authentication is used for role-based access. Data is stored temporarily in system memory and removed on session end.  
  
Recommended practices:  
- Ensure system file permissions prevent unauthorized access to logs or cache.  
- Enforce OS-level security policies (e.g., antivirus, firewall, encryption).

Appendices

A. Configuration File Template  
B. Maintenance Checklist  
C. Contact Information

Requirements Traceability Matrix