SR UNIVERSITY

# CSV Upload & Automated Data Summary Using Flask

A Mini Project Report Submitted By

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In partial fulfillment of the course “AI Assisted Coding”

Under the guidance of
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## ACKNOWLEDGEMENT

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# INTRODUCTION

Data analysis plays a crucial role in modern software applications, enabling users to extract meaningful insights from raw datasets.CSV files are widely used for storing such data, but manually analyzing them can be slow and inefficient. This project provides a simple web-based solution where users can upload a CSV file and instantly receive an automatic summary that includes statistics, missing values, correlations, and sample records. Built using Flask and Pandas, the system makes data exploration faster, easier, and accessible through any web browser.

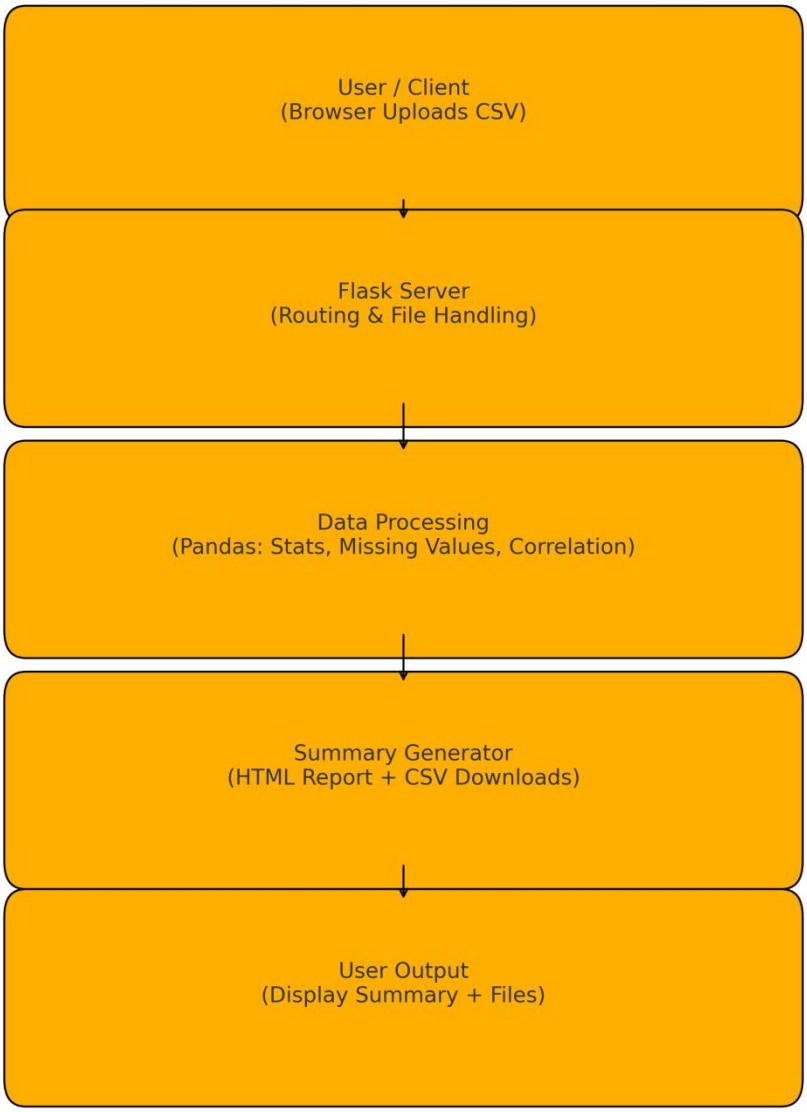
**Key Features of the System:**

- Upload any CSV file through a web interface
- Automatic data summary generation
- Detection of missing values
- Numerical statistics (mean, std, min, max, quartiles)
- Categorical column analysis
- Correlation matrix for numeric fields
- Display of first and last 5 rows
- Option to download summary as CSV
- Lightweight and user-friendly

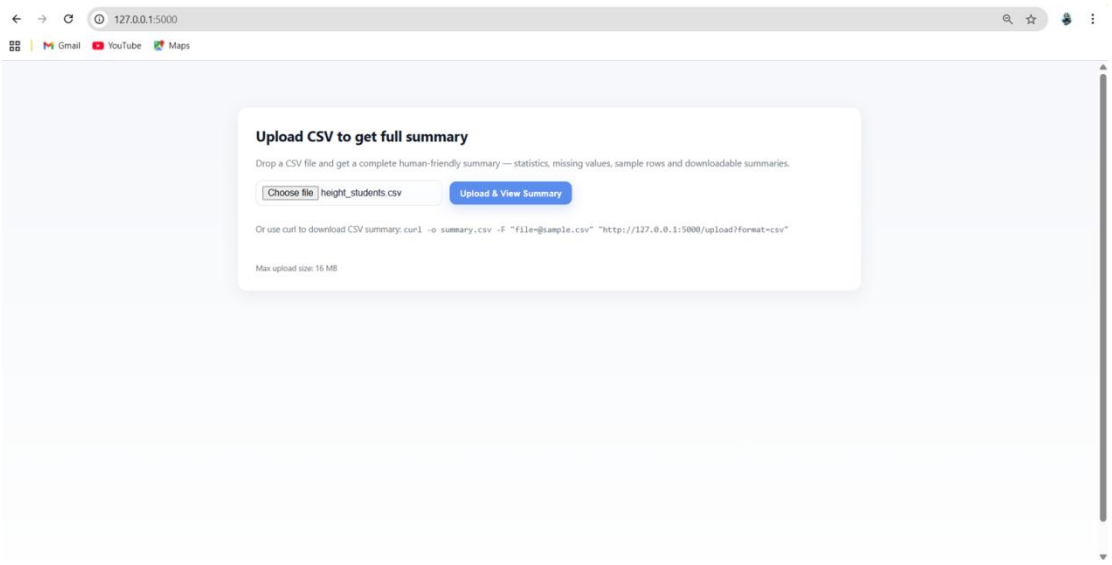
# TECHNOLOGIES USED

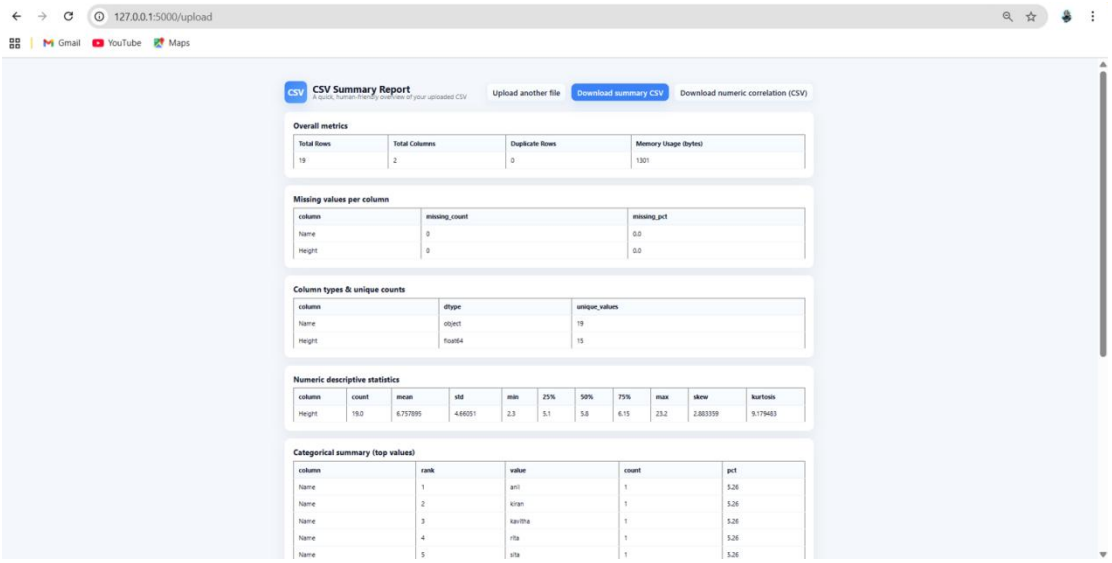
| Component | Technology |
| --- | --- |
| Backend Framework | Flask (Python) |
| Data Processing | Pandas, NumPy |
| Frontend | HTML, CSS (via Flask templates) |
| File Handling | Flask File Upload |
| Optional Libraries | Matplotlib (safe backend), OS, IO |
| Programming Language | Python 3 |

# System Architecture Diagram



# SAMPLE OUTPUTS



# CONCLUSION

This project successfully demonstrates how Flask and Pandas can be integrated to automate data exploration tasks. By allowing users to upload any CSV file and instantly receive detailed insights—such as summary statistics, missing values, correlations, and sample records—the system provides an efficient and user-friendly approach to initial data analysis. It eliminates the need for manual coding or complex tools and offers a quick, accessible solution that can be used by students, analysts, and beginners. Overall, the project enhances understanding of backend development, data processing, and web integration while delivering a practical and functional application.