IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 2, January 2024

Intelligent Automation in File Management: Addressing Data Accessibility and Redundancy

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Abstract: *File management is a critical task for computer users, but it has not received enough attention. Our research identified three reasons for studying file management: understanding user behaviour, identifying the factors that influence it, and improving the user experience. This paper presents an overview of relevant frameworks and introduces the Smart Data Management System, a Python-based project designed to improve data organization, accessibility, and utilization in existing databases.*

Keywords: File Management.

I. INTRODUCTION

File management refers to the process of organizing, storing, and retrieving data files effectively and efficiently. As the amount of digital data generated by businesses and individuals continues to grow, the need for streamlined and automated file management systems becomes increasingly important. Smart file management systems offer advanced features such as real-time synchronization, automated backups, and intelligent organization to help users manage their files more efficiently. These systems are designed to simplify the storage, retrieval, and sharing of files while improving data security and reducing the risk of data loss.

Computer users interact with digital files and folders daily, making file management a fundamental part of modern computer use. However, file management is a complex and challenging activity that requires personal organization skills and psychological understanding. As technology advances and new features like cloud services and networked storage are added, file management becomes increasingly more complex. To ease this complexity and to manage files efficiently, there is a growing demand for streamlined solutions like smart data management systems. In this context, the paper aims to provide a comprehensive review of the relevant literature and to understand the current state and limits of knowledge about file management.

II. LITERATURE SURVEY

A comprehensive review of existing literature on data management systems reveals a growing demand for streamlined solutions. This section discusses various approaches, tools, and frameworks employed in data management, highlighting gaps and challenges addressed by the Smart Data Management System. By analysing related works, we establish the uniqueness and innovation of our project.

III. METHODOLOGY / PROPOSED SYSTEM

The Smart Data Management System is a comprehensive platform that enhances the organization and accessibility of data. This system is built using Python as the primary language, ttkbootstrap for a user-friendly interface, and psutil for efficient resource management. The main goal of this system is to optimize database operations, ensuring smooth data handling and retrieval.

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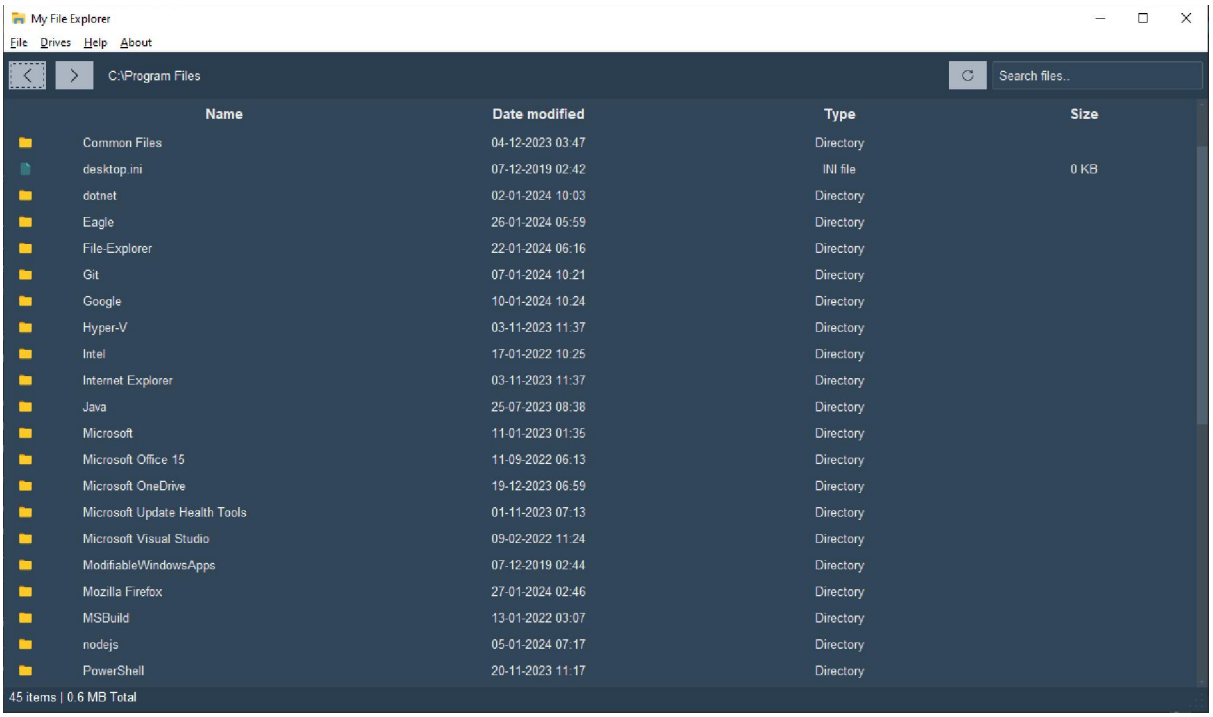

Fig 1: Project Output

This project is a file explorer application developed in Python. It provides a graphical user interface (GUI) for users to navigate and interact with their file system. The application initializes the GUI theme, creates the main window, and populates the file explorer with initial data.

The GUI components are constructed, and event handlers for user interactions are set up. The appearance of the file explorer is configured, and actions like double-clicking on items, opening a context menu, and selecting items are handled.

The file explorer is updated with the current directory's file and folder information. Additional details like file size, modification date, and file type are gathered. The application provides a user-friendly interface for file and folder management, with features like tagging, copying, pasting, and deleting.

In addition to basic file navigation and management, the application offers unique features like file tagging. Users can assign tags to files, which can be used for categorization or quick identification. The tags are stored and retrieved from a JSON file, allowing persistence across sessions. The application also supports automated user-defined actions on files. For instance, users can set up rules to automatically move or copy files based on certain criteria, such as file type or size. This automation can help streamline file management tasks and improve efficiency.

IV. CONCLUSION

The Smart Data Management System offers advanced features to manage files efficiently, making it a unique and innovative project. Its integrated modules ensure seamless data handling and retrieval, empowering organizations to make informed decisions based on processed data. Therefore, it is a promising solution for efficient data management.

V. ACKNOWLEDGMENT

We would like to express our sincere gratitude to Mrs. B.V. Jadhav for her exceptional guidance and support throughout the research process. Her valuable insights and suggestions have been invaluable in shaping this paper. We would also like to extend our thanks to our peers who provided their assistance and input, which greatly contributed to the success of this project. Without their guidance, this research would not have been possible. Once again, thank you to Mrs. B.V. Jadhav and our peers for their invaluable contributions.

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