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Real-Time Memory Allocation

# Tracker

Project Overview

# • - A web-based real-time memory tracking visualization tool. • - Offers insights for developers and system administrators. • - Interactive UI, live visualization, and history tracking features.

# Module-Wise Breakdown

• 1. UI Module (HTML, CSS) - Accessible and responsive design.  
• 2. Memory Tracking (JavaScript) - Tracks deallocation and allocation.  
• 3. Visualization (Chart.js) - Offers realtime graph updation.

• 4. Data Simulation (MemorySimulator) - Simulates memory activities.  
• 5. User Controls - Includes Start, Stop, and Clear Data features.  
Key Functionalities

* Start/Stop Memory Tracking • Real-time Graph Updates
* View Metrics:
* Total Memory • Used Memory • Free Memory • Maintain Allocation History • Responsive Web Design

Technology Used

## • - HTML, CSS, JavaScript • - Chart.js for Visualization .

## 

# Revision Tracking on GitHub

* - Repository: [**Real-Time-Memory-Allocation-Tracker**](https://github.com/sauravsuman18/Real-Time-Memory-Allocation-Tracker)
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# Problem Statement

•Efficient management of memory allocation is paramount in software development.  
•Problems: Performance bottleneck, wasteful usage of resources, debugging challenge.  
•Solution: Real-Time Memory Allocation Tracker has interactive visualization and monitoring for memory optimization.

Conclusion & Future Scope

# • The tool is successful in tracing memory in real-time. •Future Improvements: •Implement with real system memory API. •Improve UI with analytics. •Offer optimization recommendations.

# References

• - [GitHub Repository]( <https://github.com/sauravsuman18/Real-Time-Memory-Allocation-Tracker> )

## **Problem Statement**

• Efficient management of memory allocation is an important area of software development, particularly for applications that deal with dynamic data structures and high-performance computing. Inadequate real-time visibility into memory usage can cause performance bottlenecks, wasteful resource usage, and longer debugging time. The Real-Time Memory Allocation Tracker resolves this problem by offering an interactive and visualized view of memory allocation, enabling developers and administrators to monitor and optimize memory usage efficiently.

## **CODE (SOLUTION)**

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