Course Name: Computing with IT Management

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Lecturer Name: Enda Lee

Game Library Optimization with IoT Sensors and Recommendation System

Student Name: Ricardo Danganan Jnr

Student Email: x00191395@mytudublin

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Due Date:

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Project Overview

This project aims to develop a web-based application that analyses your Steam library and provides personalized game recommendations based on your gaming habits and preferences. The system will utilize data from IoT sensors (such as gaming hardware metrics) and user input to enhance the gaming experience, as well as connect to Steam for real-time updates and notifications.

Problems and Solutions

Problems

1. **Overwhelming Game Choices:** Gamers often have large libraries with many titles, making it difficult to decide what to play next.
2. **Underutilized Games:** Many users do not fully explore or play all the games they own, leading to wasted potential.
3. **Difficulty in Tracking Game Performance:** Users may not have insights into their gaming performance across different titles.
4. **Missed Game Releases:** Gamers might miss out on new game releases or updates that align with their interests.

Solutions

1. **Personalized Recommendations:** The application will analyse gameplay data (time spent, frequency of play) and provide tailored suggestions for games to play next.
2. **Game Utilization Tracking:** Users can see metrics on which games they've played the most, least, and those they haven't tried yet, helping them make informed decisions on what to play.
3. **Performance Insights:** Integrate IoT sensors to monitor gaming hardware performance (e.g., CPU/GPU load during gameplay) and correlate that with the games being played, providing insights into how to optimize performance for specific titles.
4. **Steam Connectivity:** Connect to the Steam API to pull in the user's game library and play history, allowing for more accurate recommendations and tracking.
5. **Notifications for Latest Games:** Implement a notification system that alerts users to new game releases, discounts, and updates based on their library and interests.

Key Features

- **Dashboard Overview:** A user-friendly dashboard displaying game statistics, recommendations, performance insights, and Steam connectivity.
- **Recommendation Engine:** A backend algorithm that uses user data to generate personalized game suggestions.
- **Performance Monitoring:** Integration with IoT sensors to track hardware performance metrics in real time while playing different games.

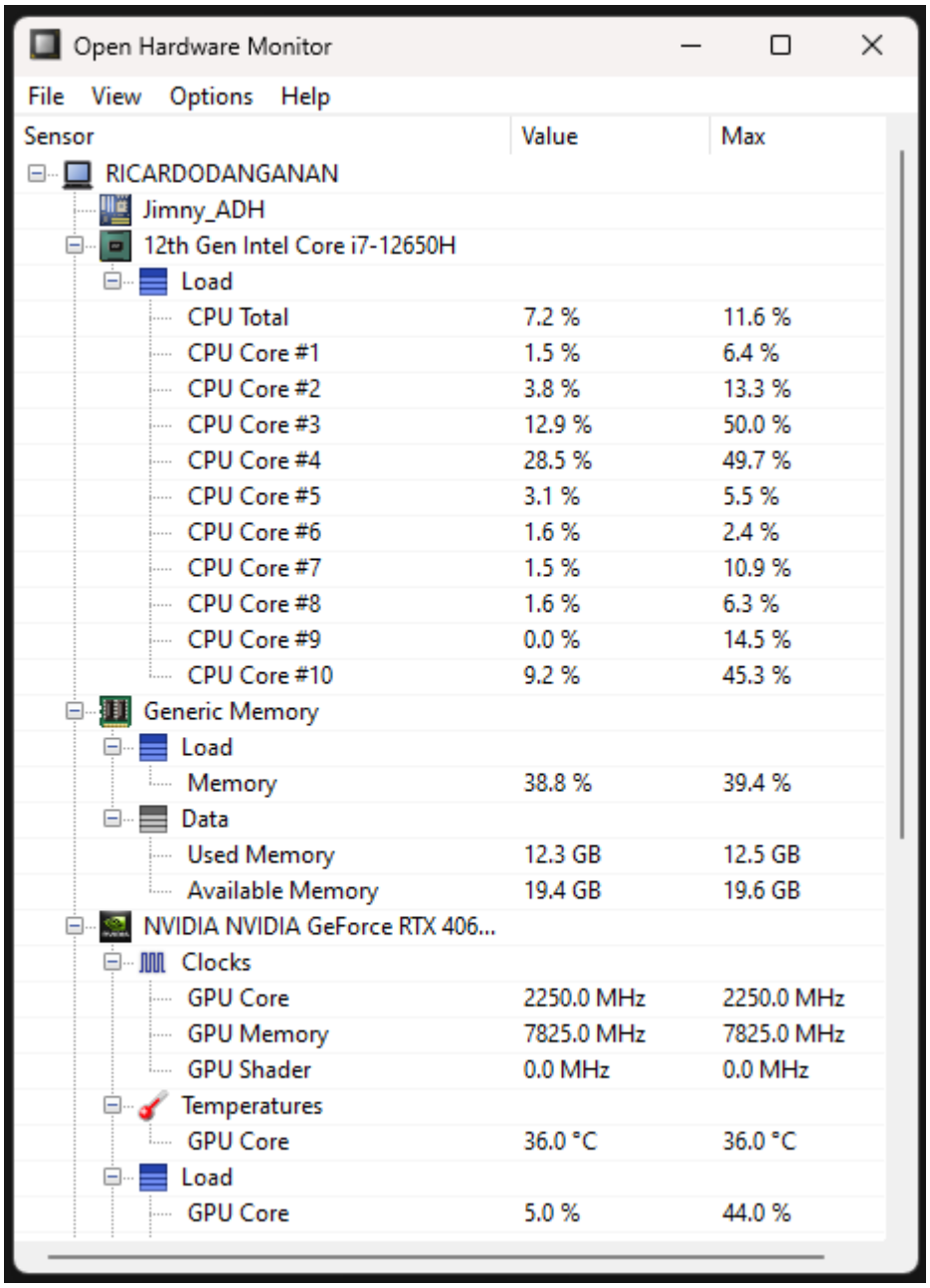
- **Library Analytics:** Insights into which games are most played, least played, and gameplay patterns.
- **Steam Integration:** A direct connection to the Steam API to access the user's library, play history, and game details.
- **Notification System:** Alerts for new game releases, special discounts, and updates on games in the user's library.

Technical Requirements

1. **Frontend Development:**
   - **Framework:** React for building a responsive web interface.
   - **Styling:** CSS and Bootstrap for clean and intuitive design.
2. **Backend Development:**
   - **Server Environment:** Node.js for handling API requests and game data processing.
   - **Database:** Use MongoDB or Supabase to store user data, game libraries, performance metrics, and notification settings.
3. **IoT Integration:**
   - **Sensors:** Research the use of IoT sensors for tracking CPU/GPU performance during gameplay. ()
   - **APIs:**
     Explore Steam API for accessing game data, user library information, and notifications for new releases.
     Investigate third-party libraries or services that can provide game update notifications.

Smart Gaming Dashboard with IoT Sensor Integration

I will use Open Hardware Monitor to gather real-time metrics such as CPU temperature and GPU usage. It will run a local web server with an HTTP API that my Node.js backend will access to retrieve performance data. This data will be displayed on my React frontend, providing users with insights and alerts for any performance issues, along with a notification system for suggested optimizations.



Future Plans

I will try to research how to access and use the Steam API to retrieve game data, user statistics, and the latest releases. I will also explore IoT sensors that can be integrated into the gaming setup for real-time performance monitoring. Additionally, I will review existing game recommendation systems and libraries to identify best practices and areas for improvement. The next steps include setting up a basic React application to display the user's Steam library and game statistics, researching how to connect to the Steam API for user data retrieval and notifications, and exploring IoT sensors for performance monitoring.