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PROJECTS

Library Management System | *TypeScript, Next.JS 14, Tailwind CSS, PostgreSQL, Figma* | [SJSUL](#)

- Proposed an RBAC model for a library management system to streamline access control for various use cases
- Utilized Next.JS 14 and Next.JS App Router for building a performant and scalable front end architecture
- Refined web application performance and SEO by implementing static rendering on static sites, which significantly reduced initial page load times
- Leveraged Next.JS Server Actions, each requiring authorization using a JSON Web Token, to develop a secure back end API allowing users to interface with the PostgreSQL database without exposing API endpoints
- Enhanced interactivity by integrating client-side components, ensuring responsive user interactions while maintaining stringent security policies for client to API interactions
- Implemented Search and Pagination filters with SQL queries, using React Suspense to stream data components from the server while using loading skeletons as data component placeholders allowing for a smooth user experience
- Planned and organised an Entity Relationship Diagram (ERD) for optimal database management and articulated clear system requirements through the delineation of use cases and corresponding diagrams

Event Scheduler | *MongoDB, Express.JS, React.JS, Node.JS, Redux, Material UI, RESTful, OAuth 2.0* | [Bookbunny](#)

- Programmed a full stack CRUD web application for event scheduling, seamlessly interfacing with the Google Calendar API via OAuth 2.0
- Engineered a comprehensive user management system, encompassing provisioning, authentication, authorization, de-provisioning, password reset, and email verification features. Leveraged bcrypt and JSON Web Tokens to ensure robust security
- Implemented email integration using Nodemailer, enabling user notifications and other necessary communication
- Built a RESTful API with Express.js and Node.js for frontend-database interactions
- Utilized Redux to share the websites theme and user details across multiple components
- Employed an interactive and reusable schedule component to retrieve schedule data and graphically view or modify schedules
- Created UI wireframes and custom graphical assets to establish a strong design system

Tetris React App | *React.JS, Three.JS* | [Tetris](#)

- Re-implemented a Javascript Tetris game in React.JS and developed a custom, responsive user interface
- Designed a custom 3D logo asset and utilized Three.JS to apply pixelized post-processing effects

Automated Content Creation Bot | *Python, Google Cloud Platform, Selenium* | [Github](#)

- Developed and deployed an automated bot using Python raking in 50k+ views and engagement weekly
- Leveraged Selenium WebDriver for extracting and parsing multimedia content from websites with complex DOM structures
- Utilized FFmpeg for automated video processing and rendering, transforming raw data into short-form videos
- Serviced a Virtual Machine instance on Google Cloud Platform's Compute Engine that the bot was hosted on, leveraging cloud services for optimal performance and daily operation
- Established Google Cloud Monitoring and Logging for real-time tracking of the bot's performance metrics