Alexander Prospal

Cleveland, OH

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Education

Master of Science in Computer Science　　　　　　　　　　Expected Graduation: January 2029
Case Western Reserve University, Cleveland, OH

Bachelor of Science in Computer Science　　　　　　　　　Expected Graduation: May 2028
Case Western Reserve University, Cleveland, OH

Bachelor of Arts in Economics (Quantitative Methods Track)　　　Expected Graduation: May 2028
Case Western Reserve University, Cleveland, OH

Honors Diploma　　　　　　　　　　　　　　　　　　　　Graduated: 2024
Campus International High School, Cleveland, OH

Projects

Secure Password Manager Application　　　　　　　　CSDS 344: Computer Security

- Designed and implemented a secure password management system in Java to store, retrieve, and manage user credentials through a structured MVC architecture
- Developed a data model to encapsulate password objects with controlled access, validation logic, and persistent storage handling
- Implemented file-based data persistence to securely load and save encrypted credential data across sessions
- Built a JavaFX-based graphical user interface with multiple controllers to handle user authentication, password listing, and CRUD operations
- Enforced input validation and separation of concerns between application logic, data model, and UI controllers to ensure maintainability and security

Theater Inventory Database System　　　　　　CSDS 341: Intro to Database Systems

- Designed and implemented a fully normalized relational database in PostgreSQL to manage costumes, props, performers, and show assignments for a theater organization
- Defined primary keys, foreign keys, composite keys, and referential integrity constraints to enforce data consistency and eliminate redundancy (3NF schema design)
- Wrote advanced SQL queries including multi-table joins, grouping and aggregation, nested subqueries, and constraint-based filters to answer operational and reporting questions
- Developed a Python application layer with a command-line interface to connect to the database, execute parameterized queries, and safely process user input
- Implemented realistic business logic such as inventory tracking, availability checks, and summary statistics through structured query design and controlled transaction handling

Relevant Coursework

Machine Learning, Algorithms, Database Systems, Data Visualization (R), Computer Security, Linear Algebra, Statistics, Discrete Mathematics, Microeconomic and Macroeconomic Theory

Technical Skills

- **Programming Languages:** Python, R, SQL, Java
- **Computer Science Concepts:** Algorithms, Data Structures, Databases, Machine Learning
- **Mathematics:** Linear Algebra, Discrete Math, Calculus, Statistics

Additional Information

- Strong communication skills developed through collaborative academic work
- Highly organized, dependable, and attentive to detail in fast-paced, public-facing environments
- Comfortable following established policies and procedures while taking initiative to address issues proactively
- Calm and professional under pressure; able to balance multiple responsibilities independently and as part of a team