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\*\*Subject:\*\* Proposal for Video Game Collection Application

**### Purpose**

The purpose of this memo is to propose a database-driven Windows Forms desktop application for managing video games of multiple platforms and genres. The app will contain game details such as title, release date, developer, and publisher, list gaming platforms (e.g., Xbox, PlayStation, PC), include game genres (e.g., RPG, FPS, Adventure), and provide organized collection management. This application will allow users to create, manipulate, search, and browse records within a SQL Server database, meeting all the project requirements outlined in the assignment.

**### Project Overview**

The Video Game Collection application will allow users to maintain a personal database of video games supporting multiple platforms and genres. The application will include the following key components. Such as title, release date, developer, and publisher, list gaming platforms (e.g., Xbox, PlayStation, PC), include game genres (e.g., RPG, FPS, Adventure), and provide organized collection management.

**### Database Design**

The database will consist of six main tables:

1. \*\*Users Table\*\*: To store user authentication details.
2. \*\*Games Table\*\*: To store information about each video game.
3. \*\*Genres Table\*\*: To list different genres.
4. \*\*Platforms Table\*\*: To list different platforms.
5. \*\*GameGenres Table (Many-to-Many Relationship)\*\*: To establish a many-to-many relationship between Games and Genres.
6. \*\*GamePlatforms Table (Many-to-Many Relationship)\*\*: To establish a many-to-many relationship between Games and Platforms.

**### Application Key Features**

1. User Authentication

* Login Screen: Users can log in with a username and password stored in the database.
* Account Security: Passwords are stored as hashes, enhancing security.
* Access Control: Only authenticated users can access the application’s main features.

1. Game Management

* Add, Edit, Delete Games: Users can add new games, update existing game details, or delete games.
* Game Details: Store and display details like title, publisher, release date, genres, and platforms.

1. Genre and Platform Assignment

* Assign Genres and Platforms: Users can assign multiple genres and platforms to each game, reflecting real-world categorization.
* Many-to-Many Management: Users can update these assignments as genres and platforms change or new games are added.

1. Game Browsing and Search

* Search Games: Users can search for games by title, genre, or platform.
* Browse with Filters: View games by selected genre or platform using filters.
* DataGridView Display: Show games and associated information in a structured, sortable table.

1. Multi-Document Interface (MDI)

* Form Container: The app will have a main MDI form that houses all other forms for a streamlined navigation experience.
* Status Updates: A status strip displays feedback (e.g., “Ready”, “Adding…”) based on user actions.

1. Application Info and Navigation

* Splash Screen: Shows the app name and version briefly at startup.
* About Form: Lists application properties, version information, and other details accessible from the menu.
* Navigation Toolbar: Offers quick access to common tasks like adding games, browsing, and navigating between records.

1. Data Integrity Rules

* Unique Game Title per Platform: Prevents duplicate titles for the same platform.
* Minimum Associations: Ensures each game has at least one genre and platform before it can be saved.

**### Business Rules**

1. Unique Game Title per Platform

* Description: Each game title must be unique on each platform to prevent duplicates. This ensures users can’t mistakenly add the same game title multiple times for a single platform.
* Reason: Helps maintain accurate records and simplifies searching by avoiding redundant entries.

1. Minimum Associations Requirement

* Description: A game must be associated with at least one genre and one platform before it can be saved in the database.
* Reason: Ensures each game entry is meaningful and properly categorized, making it easier for users to browse and filter through their collection.