My proposed project, working title “Magic: the Gathering™ - Unofficial Collector’s Compendium,” seeks to provide an easier and more detailed system for cataloguing a user’s Magic the Gathering™ collection; including options for listing the artist of the card’s graphics as well its storage location to permit for more robust cataloguing and storage. This project is intended to be built in a modular fashion to allow for the addition of further access methods, details, and functions in the future as time and resources allow.

The final product of this enterprise application should fulfill the following list of requirements by the end of the designated production period. Requirements may be subject to change according to time and resource restrictions.

1. Generalized Application/Website Requirements
   * Ability to register users [1](#Reference_Database)
   * Ability to perform CRUD functions against database [1](#Reference_Database)
   * Implement two-factor authentication including any combination of:
     + [Optional] Fingerprint AND/OR Face Authentication (\*Requires APP\*)
     + [Optional] IMEI Verification of device (\*Requires APP\*)
     + IP Address Verification (AFTER first registration. Email Verify Required)
     + Random number verification over email/SMS
     + Security Question Challenges
     + Captcha
   * Admin-Only tools to
     + Track Usage
     + Manage Users
     + Deliver Statistics
   * User support / Documentation
2. Specific Application/Website Requirements
   * Method to store data [1](#Reference_Database)
   * Ability to search collection by:
     + [Optional] Artist
     + Card Name
     + Color
     + Content (Card Text)
     + [Optional] Keywords / Abilities (Ex. Flying, Lifelink, Infect, etc)
     + Mana Cost (Standard or, optionally, converted)
     + [Optional] Rarity
     + Set
     + Type / Subtype (Ex. Artifact, Enchantment, etc)
     + [Optional] Format Legality (Search Modifier)
   * Ability to Create, Read, Update and Delete entries based on search
     + If card doesn’t exist in the collection, search against card repository [2](#Reference_ThirdPartyAPI) and allow the user to add the matching card to their collection.
     + If the card does exist in the collection, permit the user to increase or decrease the number within their collection. Additionally, permit user to edit details such as location(s) and artist.
   * Collection will prioritize card name in list display. When reading the details of a single entry, show greater differentiation. Separate by:
     + Set
     + Foil / Non-Foil
     + Artist
     + Storage Location
     + [Optional] Card condition
     + [Optional] Card grade
   * Digging down to single location/set/etc will show full card details
   * Maintain card integrity.
     + Only permit ‘valid’ cards to be added to the collection [2](#Reference_ThirdPartyAPI)
     + Do not permit users to edit the card details (Cost, Type, Contents, etc)
   * Maintain collection integrity.
     + Users will not have access to perform CRUD operations on any database entry that does not pertain to their own personal collection.
   * Admin tools
     + Track user logins (IP Address, Login/Logout Times, Average Access length)
     + User Role management
     + User Deletion
     + Statistics:
       - Average number of times users access site per week/month/year
       - Overall average access length
       - [Optional] Variance in activity by hour
       - [Optional] List of Top 25 cards in all user’s collections (By presence in total user’s collection, then amount present)
   * [Optional] Implement predictive text for search (as/if possible)
     + Only search for predictive targets when a space is entered
       - ONLY if the search bar is NOT null or whitespace.
   * [Optional] Implement voice search
   * [Optional] Implement card scanning (\*Requires APP\*)
3. Additional Resources requirements to be Included
   * Database (Azure) 1
     + Standard Microsoft Identity Suite
     + User Account
       - Account Verification Details (As Needed)
       - Facilitates narrowing user access
       - Acts as bridge-table
     + User Access
       - Linked by Account ID
       - Lists IP Address and Time of Login/Logout events
       - [Optionally] Holds an automatically updated Average for Access Time
     + User Collection
       - Linked by Account ID
       - Contains a list of card names within the user’s collection
       - Contains a total quantity for each card
       - [Optional] Contains Color Identity for each card
     + Card Details + Related Tables (To be mapped in separate document.)
   * Third Party Web Service Access for card repository 2
     + Magic: The Gathering Developers
       - .NET SDK
     + Scryfall API (Utilized either solely, or for images)
       - [Optional] Gonkers’ SDK

OR

* + - * [Optional] jdharmon’s SDK

1. Additional requirements may be added in the future

The following is a more pared down/simplified list of basic functions / features that are intended to be present within the final product.

* Create, Read, Update, and Delete cards within collection
* Group cards under common name, but drill-down to specific details/locations
* Ensure accuracy of card details. (No fake cards)
* Robust search
* User data / collection is persistent and integrity is upheld

As a passion project, this product’s scope may grow exponentially. At present, points of note/interest include the potential for a scanning and/or voice-search function, as well as the desire for predictive/suggestive text. Caution must be taken to ensure that scope does not exceed what is possible within the given timeframe.

Before the end of the first sprint, coder(s) should have the following features available/implemented:

* Database rough draft available. Must be in operable condition.
* User Registration online.
* Two factor authentication should be implemented or nearing completion.

(Psst, Mr. Cottrell. The database rough draft is more difficult than it sounds in this case. My intended design is surprisingly complex. This will likely take up the vast majority of the week, especially since I must also work on my game design sprint within the same timeframe.)