

# Software Engineering Career Track

## Capstone One: Step Two - Write a Project Proposal

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### Magic The Gathering Stats Dashboard Project Proposal

1. What goal will your website be designed to achieve?
  - Record a decklist
  - Deck expense tracker
  - Mana curve tracker
2. What kind of users will visit your site? In other words, what is the demographic of your users?

People who play the game Magic The Gathering would benefit from this site.
3. What data do you plan on using? You may have not picked your actual API yet, which is fine, just outline what kind of data you would like it to contain.

The Scryfall API provides lots of card information. I'm planning on keeping track of every card in a deck. Also, allowing a user to have multiple decks. Some of the card information to be stored is the card name, card PNG, mana cost, and USD price.
4. In brief, outline your approach to creating your project (knowing that you may not know everything in advance and that these details might change later). Answer questions like the ones below, but feel free to add more information:
  - a. What does your database schema look like?

I specially play the commander format of MTG, so I'm basing the webpage off it.

Decks	
deckID (PRIMARY KEY)	commanderID
1	1
2	2

Cards				
cardID (PRIMARY KEY)	name	png	manaCost	priceUSD
1	Atraxa, Praetors' Voice	Link to Picture	X	\$X.XX
2	Zedruu the Greathearted	Link to Picture	X	\$X.XX

**b. What kinds of issues might you run into with your API?**

- Downloading & saving PNG pictures may be an issue
- Different versions of cards may be an issue (foil, etc)

**c. Is there any sensitive information you need to secure?**

No, it's all public information.

**d. What functionality will your app include?**

Shows all decks for a user, and then shows all cards in a given deck

Shows the total cost of each deck as well as statistics for each card

Shows the mana curve for each deck in graph form

**e. What will the user flow look like?**

The main screen shows the decks to choose from

The user chooses a deck, then the deck statistics are shown

**f. What features make your site more than CRUD? Do you have any stretch goals?**

I can add a recommendation system for completed decks. Meaning, based on the cards already in the deck/the deck's colors, I can display similar cards for the user to check out.

**Please create a GitHub repository for this Capstone Project and label it accordingly.**

### **Exploring (free) APIs — The Scryfall REST-like API (<https://scryfall.com/docs/api>)**

After searching through lists of public APIs, by far my favorite is the Scryfall API. This API stores information on Magic The Gathering cards in a JSON format. In my freetime, I've been playing the MTG card game, and I think an application that uses this API would be really interesting. I also think that I would regularly use this application to help me with MTG as a hobby.

### **Identifying Initial Project Ideas — Please come up with three project ideas**

These are listed in order of what I'd like to work on.

#### **1. Magic the Gathering — Deck Expense Tracker**

MTG cards can get really expensive, and decks can easily cost hundreds of dollars. The difference between a powerful deck and a weak deck often comes down to how much money you're willing to invest in your cards. Are you willing to buy a \$20 card or are you going to include a budget version instead? Many decklists include the price range such as "Budget Zedruu Deck Under \$50!!!" But do these players have all of these card prices memorized...? No, there's more than 20,000 MTG cards published! I've seen plenty of players make their own spreadsheets for their decklists while individually googling the prices of each card. There must be a better way... Personally, I would like to make sure I'm not spending too much on MTG cards, but it's hard to keep track of. I propose a system which keeps track of my decks and each card's price. These stats will be easily viewable via a webpage.

#### **2. Magic the Gathering — Mana Curve Tracker**

One of the main considerations when building a MTG deck is the mana curve. A lower mana curve means you can cast your spells earlier and more frequently. A higher mana curve means you have to wait a bit longer to cast your spells. Each spell has a mana cost, such as 3. Typically, decks are aiming for a low average mana cost. Players calculate this typically by separating the cards into piles which share the same mana cost, then visually seeing where most of the cards lie. This would be much faster if this were automated, so that's what I'm suggesting. This probably involves a graph to easily display the data.

#### **3. Magic the Gathering — Inventory System**

MTG players tend to have huge collections of cards. When making a deck, you may have a particular card in mind, but you have no idea where to find it. It's lost in hundreds or thousands of cards, and you don't know where to start looking. So, you just order another one. I've heard this happen plenty of times among players, and it can get frustrating very quickly. Wouldn't it be nice if you had a system which kept track of which cards you owned, how many of that card you have, and where to find it? I'm proposing a system that keeps track of that.