

# **CS4347 Database Systems**

Final Project Deliverable 2

# **EBRUXMTG**

John M Kasperbauer II

Shawn Francis

Toluwanimi Ololade

Ashley Nguyen

Zach Leach

Hayden Rogers

Kashir Khan

Dustin Nguyen

# 1. Introduction

## EBRUxMTG

<https://github.com/zcl190002/4347-007-teamMTG>

### Tasking

Zach Leach

- **Coordination and tasking:** assigning clear and actionable tasks to be completed independently by team members, and coordinating the completion of these tasks by team members.
- **Formal report:** completing report related content and compiling tasks completed by other members (see below).

Hayden Rogers

- **3NF Normalization (draft):** normalize each table in the database to 3NF. For each table changed, state what changes were made to the table and why they were changed (both what and why). If the table was already in 3NF, state why the table did not need to be changed.

Kashir Khan

- **CREATE VIEW:** implement one CREATE VIEW for the database and indicate what it is for.

Toluwanimi Ololade

- **Normalized EER model using tool:** modeling the updated EER model draft using an online tool.

John M Kasperbauer II

- **Dependency diagrams:** draw a dependency diagram for each table. Must be done using a tool.

Ashley Nguyen

- **Presentation slides:** draft the structure and format the slides for the presentation.

Shawn and Dustin

- **User interface:** create user interface and upload screenshots of INSERT, UPDATE, and DELETE statements. Create a README.txt file explaining how to run the program.

### Project roadmap/timeline (Oct. 19 - Nov. 17):

<https://github.com/users/zcl190002/projects/1/views/3>

- **Week 1:** Assign tasks, 3NF normalization draft, CREATE VIEW, begin creating user interface
- **Week 2:** Normalized EER diagram, normalized database implementation, dependency diagrams
- **Week 3:** Compile formal report, ensure everything is complete
- **Week 4:** Formal report buffer time, create presentation slides

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# **CS4347 Database Systems**

Final Project Deliverable 1

# **EBRUXMTG**

John M Kasperbauer II

Shawn Francis

Toluwanimi Ololade

Ashley Nguyen

Zach Leach

Hayden Rogers

Kashir Khan

Dustin Nguyen

## **0. Description**

### **EBRUxMTG**

<https://github.com/zcl190002/4347-007-teamMTG>

#### **Tasking**

Zach Leach

- **Coordination and tasking:** assigning clear and actionable tasks to be completed independently by team members, and coordinating the completion of these tasks by team members.
- **Formal report:** completing report related content and compiling tasks completed by other members (see below).

Dustin Nguyen

- **EER model rough draft:** completing a draft of the EER model, such that another team member (Tolu) can easily model it using an online tool.

Toluwanimi Ololade

- **EER model using tool:** modeling the EER model draft using an online tool.

Hayden Rogers

- **ER model rough draft:** completing a draft of the ER model, such that another team member (Ashley) can easily model it using an online tool.

Ashley Nguyen

- **ER model using tool:** modeling the ER model draft using an online tool.

Kashir Khan

- **Database implementation and query statements:** implement the relational database according to the ER model and run the required queries on it, providing screenshots for proof.

John M Kasperbauer II

- **Deliverable 2 tasks:** responsible for creating dependency diagrams (deliverable 2).

Shawn Francis

- **Deliverable 2 tasks:** responsible for creating the database user interface (deliverable 2).

#### **Project roadmap/timeline (Sep. 14 - Oct. 18):**

<https://github.com/users/zcl190002/projects/1/views/3>

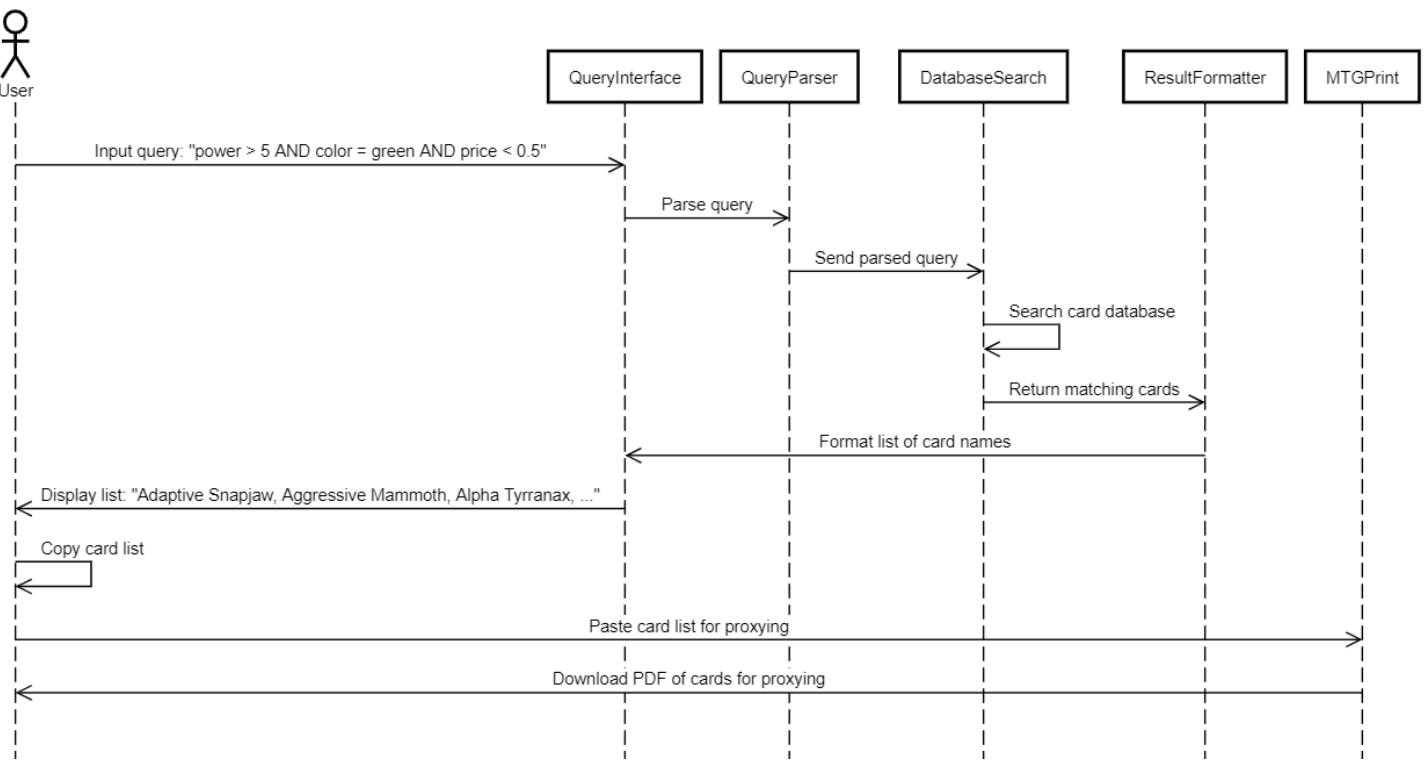
- **Week 1:** assign tasks, clarify project vision
- **Week 2:** EER model draft
- **Week 3:** Relational schema draft, EER diagram with tool
- **Week 4:** Relational schema diagram, relational database implementation and queries, deliverable one report
- **Week 5:** Buffer time

# 1. Introduction

There isn't a simple way to search for the names of Magic: The Gathering cards by attribute. Currently you can search for cards and get a list of card images [1] or download card data in JSON [2]. However, in both cases you can't directly get a list of card names.

Our project is going to streamline this process so users can search for cards by property and get a list of card names in text format more easily. This will make it significantly easier to copy/paste names of cards into online deck building [3] and card proxying tools [4].

Example use-case: user inputs a query like: "power > 5 AND color = green AND price < 0.5", then the program outputs the list of card names: "Adaptive Snapjaw, Aggressive Mammoth, Alpha Tyranax, ...", then the user copy/pastes that list of cards into the website MTGPrint [4] for card proxying. Hypothetical sequence diagram below:



Note: for sake of scope, we will only implement the *database portion* of this application. Our intent is to have a working prototype of the database, so that we can build an application that satisfies the example use case above at a later date. As such, the database will be limited in scope; consisting only of a set of about 300 cards.

## 2. Background and Related Work

Our project is a relational database for querying Magic: The Gathering (MTG) card properties using SQL. We compare it to three existing MTG data resources: MTGJSON (2013) [5], Scryfall (2017) [6], and 17Lands (2019) [7]. These comparisons highlight differences in data structure, query methods, user interaction, information scope, and update processes. Our database focuses on efficient property-based queries, returning lists of matching card names. It differs from these platforms in its use of a custom relational schema, direct SQL querying, and emphasis on specific card attributes for search purposes. What follows is a detailed description of how each application compares to ours.

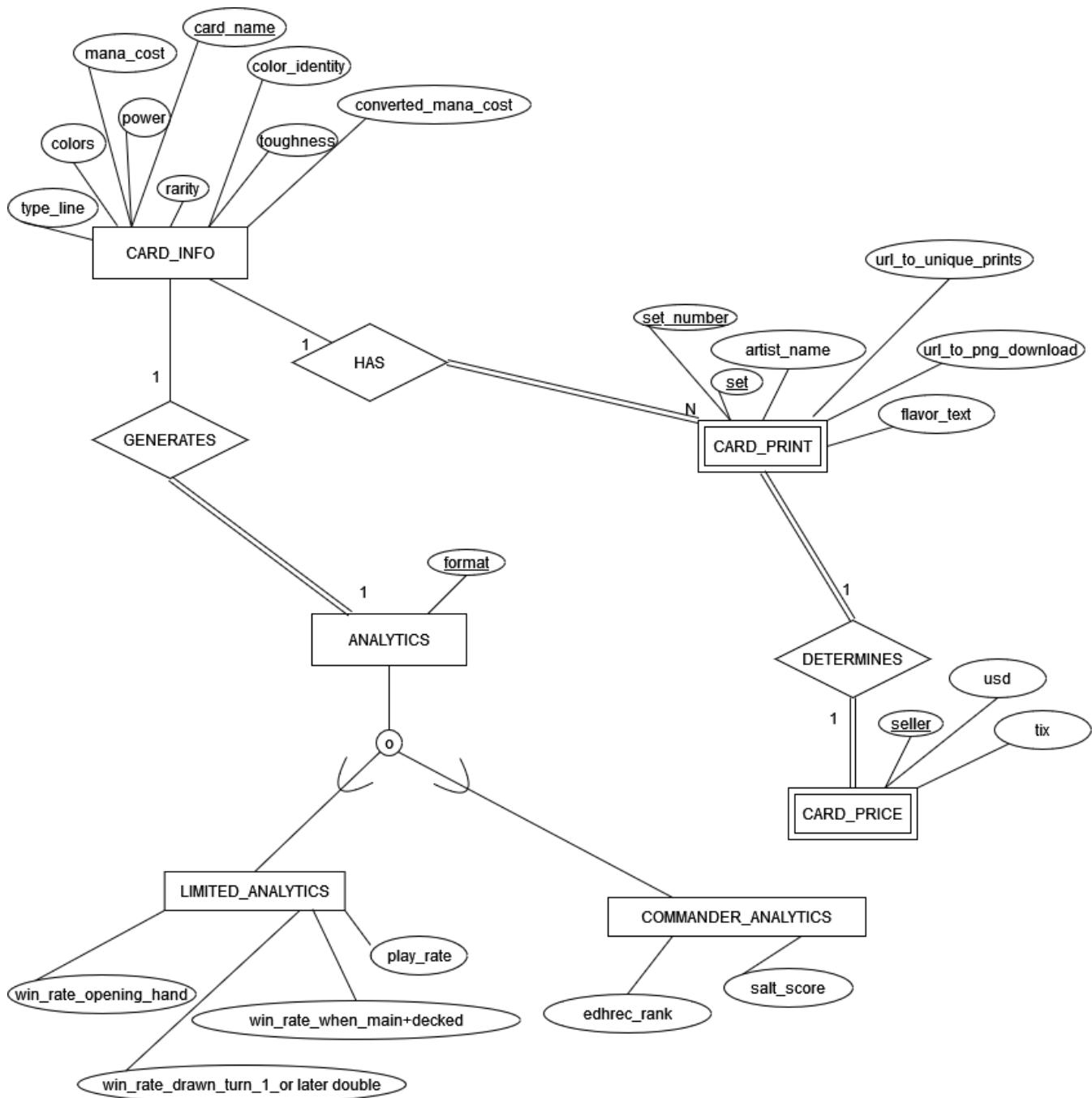
MTGJSON was an early MTG data resource. While MTGJSON provides downloadable JSON files with card data, our project uses a relational database schema that we designed. MTGJSON includes a wide range of card attributes, but our database focuses on properties most relevant for querying. MTGJSON is primarily used as a data source for other MTG tools and websites, whereas our database is intended for direct user interaction via SQL queries. MTGJSON provides full card data objects, but our database returns lists of matching card names based on specified properties. Lastly, MTGJSON is regularly updated with each new set release, while our database will require manual updates to incorporate new card data.

Scryfall is another major MTG data platform. While Scryfall offers a web-based interface and API for searching card data, our project is a standalone relational database queried directly with SQL. Our database focuses on a subset of card attributes chosen for property-based querying, whereas Scryfall includes a comprehensive range of card information and media assets. Scryfall supports complex searches using a custom syntax, but our database relies on SQL queries. Users interact with Scryfall through its web interface or API, while our project expects direct database interaction using SQL. Scryfall is regularly updated with new set releases, but our database will need manual updates. Lastly, Scryfall can return full card data and images, while our database queries output lists of matching card names.

17Lands takes a different approach to MTG data. Our project differs significantly from it. While 17Lands collects data from MTG Arena game logs to analyze gameplay statistics, our database focuses on card attributes for general querying. 17Lands provides a web interface for exploring data and visualizations, primarily for Limited formats, whereas our project is a standalone database queried directly with SQL. The purpose also differs: 17Lands helps players improve their gameplay strategies, while our database is for general card queries. 17Lands updates continuously with new gameplay data, but our database will need manual updates for new card sets. Lastly, 17Lands is specific to MTG Arena and Limited formats, while our database isn't tied to any particular platform or format.

### 3. Design & Implementation (Phase I)

#### 3.1. EER Conceptual Data Model Design



### 3.2. Relational Data Model Design

All foreign keys are set to CASCADE on UPDATE and DELETE.

#### CARD\_INFO

card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
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#### CARD\_PRINT

card_name	set	set_number	artist_name	url_to_unique_prints	url_to_png_download	flavor_text
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#### CARD\_PRICE

card_name	set	set_number	seller	tix	usd
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#### ANALYTICS

card_name	format
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#### LIMITED\_ANALYTICS

card_name	format	win_rate_in_main_deck	play_rate	win_rate_opening_hand	win_rate_drawn
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#### COMMANDER\_ANALYTICS

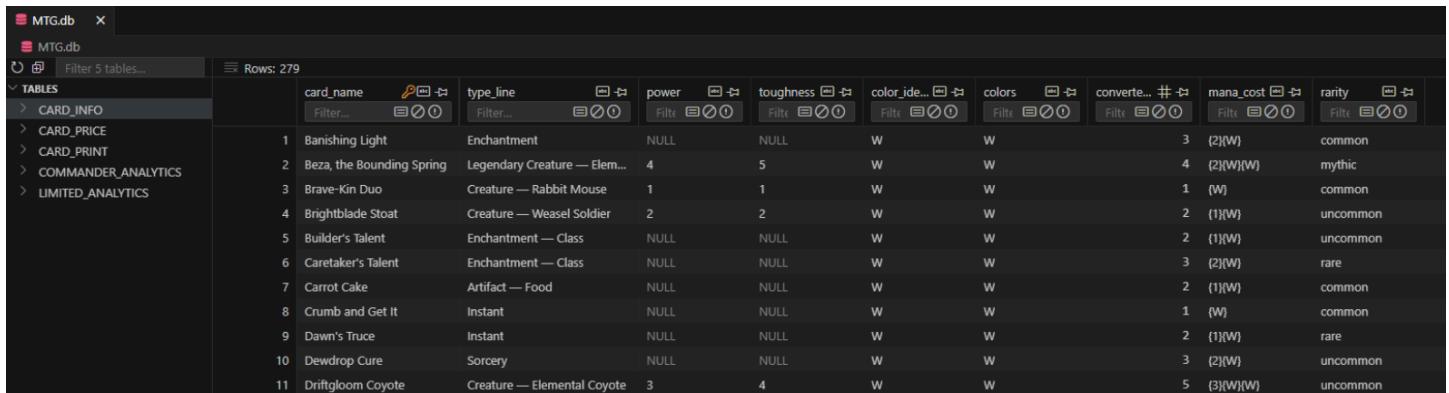
card_name	format	edhrec_rank	salt_score
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### 3.3. Create your Database and Populate

The following screenshots demonstrate that our SQL database has a minimum of 5 tables, each populated with a minimum of 10 rows. The table creation statements are provided as well.

CARD\_INFO Table



A screenshot of the MTG.db interface in DBeaver. The left sidebar shows the database structure with 'TABLES' expanded, listing 'CARD\_INFO' and other tables like 'CARD\_PRICE', 'CARD\_PRINT', 'COMMANDER\_ANALYTICS', and 'LIMITED\_ANALYTICS'. The main area displays the 'CARD\_INFO' table with 279 rows. The columns are: card\_name, type\_line, power, toughness, color\_identity, colors, converted\_mana\_cost, mana\_cost, and rarity. The data includes various Magic: The Gathering cards such as Banishing Light, Beza, the Bounding Spring, Brave-Kin Duo, Brightblade Stoat, Builder's Talent, Caretaker's Talent, Carrot Cake, Crumb and Get It, Dawn's Truce, Dewdrop Cure, and Driftgloom Coyote, each with its respective type, power/toughness, color identity, and rarity.

	card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
1	Banishing Light	Enchantment	NULL	NULL	W	W	3	(2){W}	common
2	Beza, the Bounding Spring	Legendary Creature — Element	4	5	W	W	4	(2){W}{W}	mythic
3	Brave-Kin Duo	Creature — Rabbit Mouse	1	1	W	W	1	{W}	common
4	Brightblade Stoat	Creature — Weasel Soldier	2	2	W	W	2	(1){W}	uncommon
5	Builder's Talent	Enchantment — Class	NULL	NULL	W	W	2	(1){W}	uncommon
6	Caretaker's Talent	Enchantment — Class	NULL	NULL	W	W	3	(2){W}	rare
7	Carrot Cake	Artifact — Food	NULL	NULL	W	W	2	(1){W}	common
8	Crumb and Get It	Instant	NULL	NULL	W	W	1	{W}	common
9	Dawn's Truce	Instant	NULL	NULL	W	W	2	(1){W}	rare
10	Dewdrop Cure	Sorcery	NULL	NULL	W	W	3	(2){W}	uncommon
11	Driftgloom Coyote	Creature — Elemental Coyote	3	4	W	W	5	(3){W}{W}	uncommon

```
sqlite> CREATE TABLE CARD_INFO (
(x1...>     card_name TEXT PRIMARY KEY,
(x1...>     type_line TEXT,
(x1...>     power TEXT,
(x1...>     toughness TEXT,
(x1...>     color_identity TEXT,
(x1...>     colors TEXT,
(x1...>     converted_mana_cost REAL,
(x1...>     mana_cost TEXT,
(x1...>     rarity TEXT
(x1...> );
```

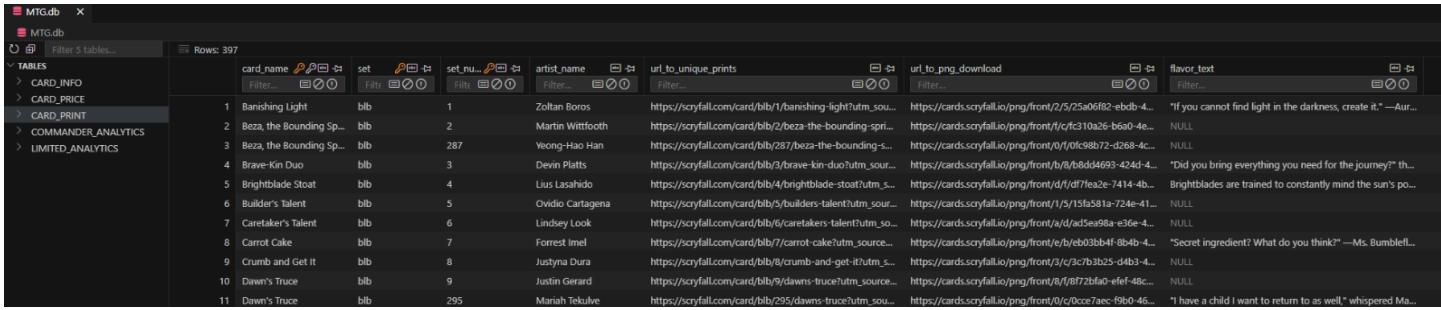
## CARD\_PRICE Table

Rows: 1,191

		card_n...	set	set_...	seller	tix	usd
		Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
1	Banishing Light	blb	1	tcgplayer	NULL	15	
2	Banishing Light	blb	1	cardmarket	NULL	0.03	
3	Banishing Light	blb	1	cardhoarder	0.02	NULL	
4	Beza, the Bounding...	blb	2	tcgplayer	NULL	12.2	
5	Beza, the Bounding...	blb	2	cardmarket	NULL	12.2	
6	Beza, the Bounding...	blb	2	cardhoarder	40.6	NULL	
7	Beza, the Bounding...	blb	287	tcgplayer	NULL	13.37	
8	Beza, the Bounding...	blb	287	cardmarket	NULL	13.37	
9	Beza, the Bounding...	blb	287	cardhoarder	43.22	NULL	
10	Brave-Kin Duo	blb	3	tcgplayer	NULL	0.03	
11	Brave-Kin Duo	blb	3	cardmarket	NULL	0.03	

```
sqlite> CREATE TABLE CARD_PRICE (
(x1...>     card_name TEXT,
(x1...>     "set" TEXT,
(x1...>     set_number TEXT,
(x1...>     seller TEXT,
(x1...>     tix REAL,
(x1...>     usd REAL,
(x1...>     PRIMARY KEY (card_name, "set", set_number, seller),
(x1...>     FOREIGN KEY (card_name) REFERENCES CARD_PRINT(card_name),
(x1...>     FOREIGN KEY ("set") REFERENCES CARD_PRINT("set"),
(x1...>     FOREIGN KEY (set_number) REFERENCES CARD_PRINT(set_number)
(x1...> );
```

## CARD\_PRINT Table



The screenshot shows a SQLite database window with the following details:

- Database:** MTG.db
- Tables:** CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS
- Current Table:** CARD\_PRINT
- Rows:** 397
- Columns:** card\_name, set, set\_number, artist\_name, url\_to\_unique\_prints, url\_to\_png\_download, flavor\_text
- Data Preview:** The table contains 11 rows of data, with columns showing card names like "Banishing Light", "Beza, the Bounding Sp...", and "Brave-Kin Duo", their sets ("blb"), set numbers (1-295), artists (Zoltan Boros, Martin Whittooth, etc.), URLs for unique prints and PNGs, and flavor text.

```
sqlite> CREATE TABLE CARD_PRINT (
(x1...>     card_name TEXT,
(x1...>     "set" TEXT,
(x1...>     set_number TEXT,
(x1...>     artist_name TEXT,
(x1...>     url_to_unique_prints TEXT,
(x1...>     url_to_png_download TEXT,
(x1...>     flavor_text TEXT,
(x1...>     PRIMARY KEY (card_name, "set", set_number),
(x1...>     FOREIGN KEY (card_name) REFERENCES CARD_INFO(card_name)
(x1...> );
```

## COMMANDER\_ANALYTICS Table

MTG.db X

MTG.db

Filter 5 tables... Rows: 253

TABLES

- > CARD\_INFO
- > CARD\_PRICE
- > CARD\_PRINT
- > COMMANDER\_ANALYTICS
- > LIMITED\_ANALYTICS

	card_name	format	edhrec_r...	salt_score
1	Banishing Light	Commander	2326	0.32
2	Beza, the Bounding Spring	Commander	9415	0.19
3	Brave-Kin Duo	Commander	13667	0.12
4	Brightblade Stoat	Commander	18106	0.21
5	Builder's Talent	Commander	15629	0.04
6	Caretaker's Talent	Commander	3698	0.46
7	Carrot Cake	Commander	13029	0.03
8	Crumb and Get It	Commander	11932	0.05
9	Dawn's Truce	Commander	2278	0.43
10	Dewdrop Cure	Commander	12107	0.12
11	Driftgloom Coyote	Commander	21650	0.04

```
sqlite> CREATE TABLE COMMANDER_ANALYTICS (
(x1...>     card_name TEXT,
(x1...>     format TEXT,
(x1...>     edhrec_rank INTEGER,
(x1...>     salt_score REAL,
(x1...>     PRIMARY KEY (card_name, format),
(x1...>     FOREIGN KEY (card_name) REFERENCES CARD_INFO(card_name)
(x1...> );
```

## LIMITED\_ANALYTICS Table

MTG.db x MTG.db

Filter 5 tables... Rows: 271

	card_name	format	win_r...	play_rate	win_rate...	win_rate...
	Filter...	Filter...	Filter...	Filter...	Filter...	Filter...
1	Season of Loss	Limited	0.655999999...	129.8	0.619	0.680999999...
2	Dreamdew Entrancer	Limited	0.652	266.77	0.628	0.665
3	Sword of Fire and Ice	Limited	0.652	23.88	0.645999999...	0.655999999...
4	Valley Questcaller	Limited	0.640999999...	234.05	0.66	0.625
5	Fecund Greenshell	Limited	0.64	287.62	0.618	0.655
6	Mabel, Heir to Cragflame	Limited	0.64	164.21	0.647	0.634
7	Maha, Its Feathers Night	Limited	0.633	124.02	0.612	0.647
8	Warren Warleader	Limited	0.631	112.02	0.611	0.647
9	Manifold Mouse	Limited	0.63	177.58	0.638	0.624
10	Innkeeper's Talent	Limited	0.627	272.84	0.654	0.607
11	Ygra, Eater of All	Limited	0.627	122.5	0.613	0.637

```
sqlite> CREATE TABLE LIMITED_ANALYTICS (
(x1...>     card_name TEXT,
(x1...>     format TEXT,
(x1...>     win_rate_in_main_deck REAL,
(x1...>     play_rate REAL,
(x1...>     win_rate_opening_hand REAL,
(x1...>     win_rate_drawn REAL,
(x1...>     PRIMARY KEY (card_name, format),
(x1...>     FOREIGN KEY (card_name) REFERENCES CARD_INFO(card_name)
(x1...> );
```

### 3.4. Database Query Execution (from inside your SQL client) [25pts]

The following screenshots demonstrate that SELECT, INSERT, DELETE, and UPDATE statements work on our database.

#### CARD\_INFO SELECT

```
sqlite> .open MTG.db
sqlite> SELECT * FROM CARD_INFO WHERE converted_mana_cost > 6;
Eddy murk Crab|Creature - Elemental Crab|5|5|U|U|7.0|{5}{U}|{U}|uncommon
Huskburster Swarm|Creature - Elemental Insect|6|6|B|B|8.0|{7}{B}|uncommon
Colossalification|Enchantment - Aura||G|G|7.0|{5}{G}|{G}|rare
sqlite> INSERT INTO CARD_INFO (card_name, type_line, power, toughness, color_identity, colors, converted_mana_cost, mana_cost, rarity)
...> VALUES ('New Fake Card', 'Creature - Dragon', '6', '6', 'R', 'R', 6, '{4}{R}{R}', 'rare');
sqlite> DELETE FROM CARD_INFO WHERE card_name = 'New Fake Card';
sqlite> UPDATE CARD_INFO SET rarity = 'mythic' WHERE card_name = 'Banishing Light';
```

#### CARD\_INFO INSERT



The screenshot shows a SQLite database window with the following details:

- Tables:** CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS.
- CARD\_INFO Table Data:**

id	card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
226	Empyros Anger	Creature — Green Wizard	2	2	R,U	R,U	3	{1}{R}{U}	uncommon
226	Hedgealler Mentor	Creature — Rat Wizard	3	3	R,U	R,U	3	{1}{R}{U}	uncommon
237	Veteran Guard...	Creature — Mouse Soldier	3	4	R,W	R,W	4	{3}{R}{W}	common
238	Vineveep Mentor	Creature — Squirrel Druid	3	2	B,G	B,G	2	{B}{G}	uncommon
239	Vren, the Releas...	Legendary Creature — Bat R...	3	4	B,U	B,U	4	{2}{B}{U}	rare
240	Wandettale Mentor	Creature — Raccoon Bard	2	2	G,R	G,R	2	{R}{G}	uncommon
241	Vyra, Eater of All	Legendary Creature — Ele...	6	6	B,G	B,G	5	{3}{B}{G}	mythic
242	Zoradine, Cosmos ...	Legendary Creature — Bat C...	3	3	B,W	B,W	3	{1}{W}{B}	rare
243	Barkform Harvester	Artifact Creature — Shapech...	2	3	-	-	3	{3}	common
244	Bumbleflower's Sh...	Artifact	NULL	NULL	-	-	2	{2}	common
245	Fountainport Bell	Artifact	NULL	NULL	-	-	1	{1}	common
246	Heirloom Epic	Artifact	NULL	NULL	-	-	1	{1}	uncommon
247	Patchwork Banner	Artifact	NULL	NULL	-	-	3	{3}	uncommon
248	Short Bow	Artifact — Equipment	NULL	NULL	-	-	2	{2}	uncommon
249	Starforged Sword	Artifact — Equipment	NULL	NULL	-	-	4	{4}	uncommon
250	Tangle Tumbler	Artifact — Vehicle	NULL	NULL	-	-	3	{3}	uncommon
251	Three Tree Mascot	Artifact Creature — Shapech...	2	1	-	-	2	{2}	common
252	Fabled Passage	Land	NULL	NULL	-	-	0	-	rare
253	Fountainport	Land	NULL	NULL	-	-	0	-	rare
254	Hidden Grotto	Land	NULL	NULL	-	-	0	-	common
255	Lilypad Village	Land	NULL	NULL	U	-	0	-	uncommon
256	Lupinflower Village	Land	NULL	NULL	W	-	-	-	-
257	Mudflat Village	Land	NULL	NULL	B	-	-	-	-
258	Oakhollow Village	Land	NULL	NULL	G	-	-	-	-
259	Rodface Village	Land	NULL	NULL	R	-	-	-	-
260	Three Tree City	Legendary Land	NULL	NULL	-	-	-	-	-
261	Uncharted Haven	Land	NULL	NULL	-	-	-	-	-
262	Plains	Basic Land — Plains	NULL	NULL	W	-	-	-	-
263	Island	Basic Land — Island	NULL	NULL	U	-	-	-	-
264	Swamp	Basic Land — Swamp	NULL	NULL	B	-	-	-	-
265	Mountain	Basic Land — Mountain	NULL	NULL	R	-	-	-	-
266	Forest	Basic Land — Forest	NULL	NULL	G	-	-	-	-
267	Irix, Riptide Rogue	Legendary Creature — Otter...	3	3	R,U	R,U	-	-	-
268	Byrko, Long Ear of...	Legendary Creature — Rabbi...	4	4	G,W	G,W	-	-	-
269	Serra Redeemer	Creature — Angel Soldier	2	4	W	W	-	-	-
270	Chammed Sleep	Enchantment — Aura	NULL	NULL	U	U	-	-	-
271	Meld Spring	Sorcery	NULL	NULL	U	U	-	-	-
272	Thieving Otter	Creature — Otter	2	2	U	U	-	-	-
273	Name Leik	Instant	NULL	NULL	R	R	-	-	-
274	Colossalification	Enchantment — Aura	NULL	NULL	G	G	-	-	-
275	Giant Growth	Instant	NULL	NULL	G	G	-	-	-
276	Rabid Bite	Sorcery	NULL	NULL	G	G	-	-	-
277	Sword of Vengeance	Artifact — Equipment	NULL	NULL	-	-	-	-	-
278	Blossoming Sands	Land	NULL	NULL	G,W	-	-	-	-
279	Swiftwater Cliffs	Land	NULL	NULL	R,U	-	-	-	-
280	Fake Dragon	Creature	5	5	R	Red	-	-	Mythic

## CARD\_INFO DELETE

MTGdb x MTG.db Filter 5 tables... Rows: 279

CARD\_INFO CARD\_PRICE CARD\_PRINT COMMANDER\_ANALYTICS LIMITED\_ANALYTICS

	card_name	type_line	power	toughness	color_idc	colors	converted_mana_cost	rarity
235	Tempest Angler	Creature — Otter Wizard	2	2	R,U	R,U	3	(1)(U)(B)(R)
236	Tidecaller Mentor	Creature — Rat Wizard	3	3	B,U	B,U	3	(1)(U)(B)
237	Veteran Guardsman	Creature — Mouse Soldier	3	4	R,W	R,W	4	(B)(R)(W)
238	Vinecoop Mentor	Creature — Squared Druid	3	2	B,G	B,G	2	(B)(G)
239	Vren, the Relentless	Legendary Creature — Rat R.	3	4	B,U	B,U	4	(B)(B)(R)
240	Wanderlust Mentor	Creature — Raccoon Bard	2	2	G,R	G,R	2	(R)(G)
241	Igra, Eater of All	Legendary Creature — Elemental	6	6	B,G	B,G	5	(B)(B)(G)
242	Zorahne, Cocones	Legendary Creature — Bat C.	3	3	R,W	R,W	3	(1)(W)(B)
243	Barkform Harvester	Artifact Creature — Shapechaser	2	3			3	{(1)}
244	Bumblebeewax's Sh...	Artifact	NULL	NULL	-	-	2	{(2)}
245	Fountainport Bell	Artifact	NULL	NULL	-	-	1	{(1)}
246	Herloom Epic	Artifact	NULL	NULL	-	-	1	{(1)}
247	Patchwork Banner	Artifact	NULL	NULL	-	-	3	{(3)}
248	Short Bow	Artifact — Equipment	NULL	NULL	-	-	2	{(2)}
249	Starforged Sword	Artifact — Equipment	NULL	NULL	-	-	4	{(4)}
250	Tangle Tumbler	Artifact — Vehicle	NULL	NULL	-	-	3	{(3)}
251	Three Tree Mace	Artifact Creature — Shapechaser	2	1	-	-	2	{(2)}
252	Fabled Passage	Land	NULL	NULL	-	-	0	-
253	Fountainport	Land	NULL	NULL	-	-	0	-
254	Hidden Grotto	Land	NULL	NULL	-	-	0	-
255	Loyal Village	Land	NULL	NULL	U	-	-	common
256	Lupinflower Village	Land	NULL	NULL	W	-	-	-
257	Mudflat Village	Land	NULL	NULL	B	-	-	-
258	Oakhollow Village	Land	NULL	NULL	G	-	-	-
259	Rockface Village	Land	NULL	NULL	R	-	-	-
260	Three Tree City	Legendary Land	NULL	NULL	-	-	-	-
261	Uncharted Haven	Land	NULL	NULL	-	-	-	-
262	Plains	Basic Land — Plains	NULL	NULL	W	-	-	-
263	Island	Basic Land — Island	NULL	NULL	U	-	-	-
264	Swamp	Basic Land — Swamp	NULL	NULL	B	-	-	-
265	Mountain	Basic Land — Mountain	NULL	NULL	R	-	-	-
266	Forest	Basic Land — Forest	NULL	NULL	G	-	-	-
267	Bria, Ripple Rogue	Legendary Creature — Otter...	3	3	R,U	R,U	-	-
268	Byrke, Long Ear of...	Legendary Creature — Rabbit...	4	4	G,W	G,W	-	-
269	Serra Redemeer	Creature — Angel Soldier	2	4	W	W	-	-
270	Charmed Sleep	Enchantment — Aura	NULL	NULL	U	U	-	-
271	Mind Spring	Sorcery	NULL	NULL	U	U	-	-
272	Thieving Otter	Creature — Otter	2	2	U	U	-	-
273	Flame Lash	Instant	NULL	NULL	R	R	-	-
274	Colosification	Enchantment — Aura	NULL	NULL	G	G	-	-
275	Giant Growth	Instant	NULL	NULL	G	G	-	-
276	Rabid Bite	Sorcery	NULL	NULL	G	G	-	-
277	Sword of Vengeance	Artifact — Equipment	NULL	NULL	-	-	-	-
278	Blossoming Seeds	Land	NULL	NULL	G,W	-	-	-
279	Seawater Crafts	Land	NULL	NULL	R,U	-	-	-

C:\Users\Omen\Desktop\sqlit... +

```

SQLite version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open <filename>" to reopen on a persistent database.
sqlite> open MTG.db;
sqlite> INSERT INTO CARD_INFO (card_name, type_line, power, toughness, color_identity, colors, converted_mana_cost, mana_cost, rarity) VALUES ('Fake Dragon', 'Creature', '5', '5', 'R', 'Red', 5.0, '3RR', 'Mythic');
sqlite> DELETE FROM CARD_INFO WHERE card_name = 'Fake Dragon';
sqlite>

```



## CARD\_INFO UPDATE

MTG.db

Filter 5 tables... Rows: 280

**CARD\_INFO**

card_name	type_line	power	toughness	color_idc	colors	converted_mana_cost	rarity
Verminous Auger	Creature — Unholy Beast	4	4	W	WW	3	Uncommon
Tidecaller Mentor	Creature — Rat Wizard	3	3	BU	BU	3	[B][W][R]
Veteran Guardsman	Creature — Mouse Soldier	3	4	RW	RW	4	[B][W][W]
Vineveep Mentor	Creature — Squired Druid	3	2	BG	BG	2	[B][G]
Wren, the Relentless	Legendary Creature — Rat Rogue	3	4	BU	BU	4	[B][R][B]
Wandertale Mentor	Creature — Raccoon Bard	2	2	GR	GR	2	[R][G]
Igza, Eater of All	Legendary Creature — Elemental Cat	6	6	RG	RG	5	[B][R][G]
Zoraine, Cosmos Caller	Legendary Creature — Bat Cleric	3	3	BW	BW	3	[B][W][B]
Barkform Harvester	Artifact Creature — Shapeshifter	2	3	-	-	3	[S]
Bumbleflower Sharepot	Artifact	NULL	NULL	-	-	2	[2]
Fountainport Bell	Artifact	NULL	NULL	-	-	1	[1]
Herloom Epic	Artifact	NULL	NULL	-	-	1	[1]
Patchwork Banner	Artifact	NULL	NULL	-	-	3	[S]
Short Bow	Artifact — Equipment	NULL	NULL	-	-	2	[2]
Starforged Sword	Artifact — Equipment	NULL	NULL	-	-	4	[4]
Tangle Tumbler	Artifact — Vehicle	NULL	NULL	-	-	3	[S]
Three Tree Mascot	Artifact Creature — Shapeshifter	2	1	-	-	2	[2]
Fabled Passage	Land	NULL	NULL	-	-	0	-
Fountainport	Land	NULL	NULL	-	-	0	-
Hidden Grotto	Land	NULL	NULL	-	-	0	-
Ulyssad Village	Land	NULL	NULL	U	-	-	-
Lupinflower Village	Land	NULL	NULL	W	-	-	-
Mudflit Village	Land	NULL	NULL	B	-	-	-
Oakholloe Village	Land	NULL	NULL	G	-	-	-
Rockface Village	Land	NULL	NULL	R	-	-	-
Three Tree City	Legendary Land	NULL	NULL	-	-	-	-
Uncharted Haven	Land	NULL	NULL	-	-	-	-
Plains	Basic Land — Plains	NULL	NULL	W	-	-	-
Island	Basic Land — Island	NULL	NULL	U	-	-	-
Swamp	Basic Land — Swamp	NULL	NULL	B	-	-	-
Mountain	Basic Land — Mountain	NULL	NULL	R	-	-	-
Forest	Basic Land — Forest	NULL	NULL	G	-	-	-
Brix, Ripple Rogue	Legendary Creature — Otter Rogue	3	3	RU	-	-	-
Byrke, Long Ear of the L.	Legendary Creature — Rabbit Soldier	4	4	GW	-	-	-
Serra Redeemer	Creature — Angel Soldier	2	4	W	-	-	-
Charmed Sleep	Enchantment — Aura	NEUTRAL	NEUTRAL	U	-	-	-
Thieving Otter	Creature — Otter	2	2	U	-	-	-
Flame Lash	Instant	NEUTRAL	NEUTRAL	R	-	-	-
Colcocaification	Enchantment — Aura	NEUTRAL	NEUTRAL	G	-	-	-
Giant Growth	Instant	NEUTRAL	NEUTRAL	G	-	-	-
Rabid Bile	Sorcery	NEUTRAL	NEUTRAL	G	-	-	-
Sword of Vengeance	Artifact — Equipment	NULL	NULL	-	-	-	-
Blossoming Sands	Land	NULL	NULL	GW	-	-	-
Swiftwater Cliffs	Land	NULL	NULL	RU	-	-	-
Test Card	Creature	3	3	W	White	3	WW

SQLite version 3.06.1 2024-08-13 09:16:08 (UTF-16 console I/O)

Connected to a transient in-memory database.

sqlite> open MTG.db to reopen on a persistent database.

sqlite> INSERT INTO CARD\_INFO (card\_name, type\_line, power, toughness, color\_identity, colors, converted\_mana\_cost, mana\_cost, rarity) VALUES ('Test Card', 'Creature', '3', '3', 'W', 'White', 3.0, '1WW', 'Common');

sqlite>

MTG.db

Filter 3 tables... Rows: 280

**CARD\_INFO**

card_name	type_line	power	toughness	color_idc	colors	converted_mana_cost	rarity
Verminous Auger	Creature — Unholy Beast	4	4	W	WW	3	Uncommon
Tidecaller Mentor	Creature — Rat Wizard	3	3	BU	BU	3	[B][W][R]
Veteran Guardsman	Creature — Mouse Soldier	3	4	RW	RW	4	[B][W][W]
Vineveep Mentor	Creature — Squired Druid	3	2	BG	BG	2	[B][G]
Wren, the Relentless	Legendary Creature — Rat Rogue	3	4	BU	BU	4	[B][R][B]
Wandertale Mentor	Creature — Raccoon Bard	2	2	GR	GR	2	[R][G]
Igza, Eater of All	Legendary Creature — Elemental Cat	6	6	RG	RG	5	[B][R][G]
Zoraine, Cosmos Caller	Legendary Creature — Bat Cleric	3	3	BW	BW	3	[B][W][B]
Barkform Harvester	Artifact Creature — Shapeshifter	2	3	-	-	3	[S]
Bumbleflower Sharepot	Artifact	NULL	NULL	-	-	2	[2]
Fountainport Bell	Artifact	NULL	NULL	-	-	1	[1]
Herloom Epic	Artifact	NULL	NULL	-	-	1	[1]
Patchwork Banner	Artifact	NULL	NULL	-	-	3	[S]
Short Bow	Artifact — Equipment	NULL	NULL	-	-	2	[2]
Starforged Sword	Artifact — Equipment	NULL	NULL	-	-	4	[4]
Tangle Tumbler	Artifact — Vehicle	NULL	NULL	-	-	3	[S]
Three Tree Mascot	Artifact Creature — Shapeshifter	2	1	-	-	2	[2]
Fabled Passage	Land	NULL	NULL	-	-	0	-
Fountainport	Land	NULL	NULL	-	-	0	-
Hidden Grotto	Land	NULL	NULL	-	-	0	-
Ulyssad Village	Land	NULL	NULL	U	-	-	-
Lupinflower Village	Land	NULL	NULL	W	-	-	-
Mudflit Village	Land	NULL	NULL	B	-	-	-
Oakholloe Village	Land	NULL	NULL	G	-	-	-
Rockface Village	Land	NULL	NULL	R	-	-	-
Three Tree City	Legendary Land	NULL	NULL	-	-	-	-
Uncharted Haven	Land	NULL	NULL	-	-	-	-
Plains	Basic Land — Plains	NULL	NULL	W	-	-	-
Island	Basic Land — Island	NULL	NULL	U	-	-	-
Swamp	Basic Land — Swamp	NULL	NULL	B	-	-	-
Mountain	Basic Land — Mountain	NULL	NULL	R	-	-	-
Forest	Basic Land — Forest	NULL	NULL	G	-	-	-
Brix, Ripple Rogue	Legendary Creature — Otter Rogue	3	3	RU	-	-	-
Byrke, Long Ear of the L.	Legendary Creature — Rabbit Soldier	4	4	GW	-	-	-
Serra Redeemer	Creature — Angel Soldier	2	4	W	-	-	-
Charmed Sleep	Enchantment — Aura	NEUTRAL	NEUTRAL	U	-	-	-
Thieving Otter	Creature — Otter	2	2	U	-	-	-
Flame Lash	Instant	NEUTRAL	NEUTRAL	R	-	-	-
Colcocaification	Enchantment — Aura	NEUTRAL	NEUTRAL	G	-	-	-
Giant Growth	Instant	NEUTRAL	NEUTRAL	G	-	-	-
Rabid Bile	Sorcery	NEUTRAL	NEUTRAL	G	-	-	-
Sword of Vengeance	Artifact — Equipment	NULL	NULL	-	-	-	-
Blossoming Sands	Land	NULL	NULL	GW	-	-	-
Swiftwater Cliffs	Land	NULL	NULL	RU	-	-	-
Updated Test Card	Creature	3	3	W	White	3	WW

SQLite version 3.06.1 2024-08-13 09:16:08 (UTF-16 console I/O)

Connected to a transient in-memory database.

sqlite> open MTG.db to reopen on a persistent database.

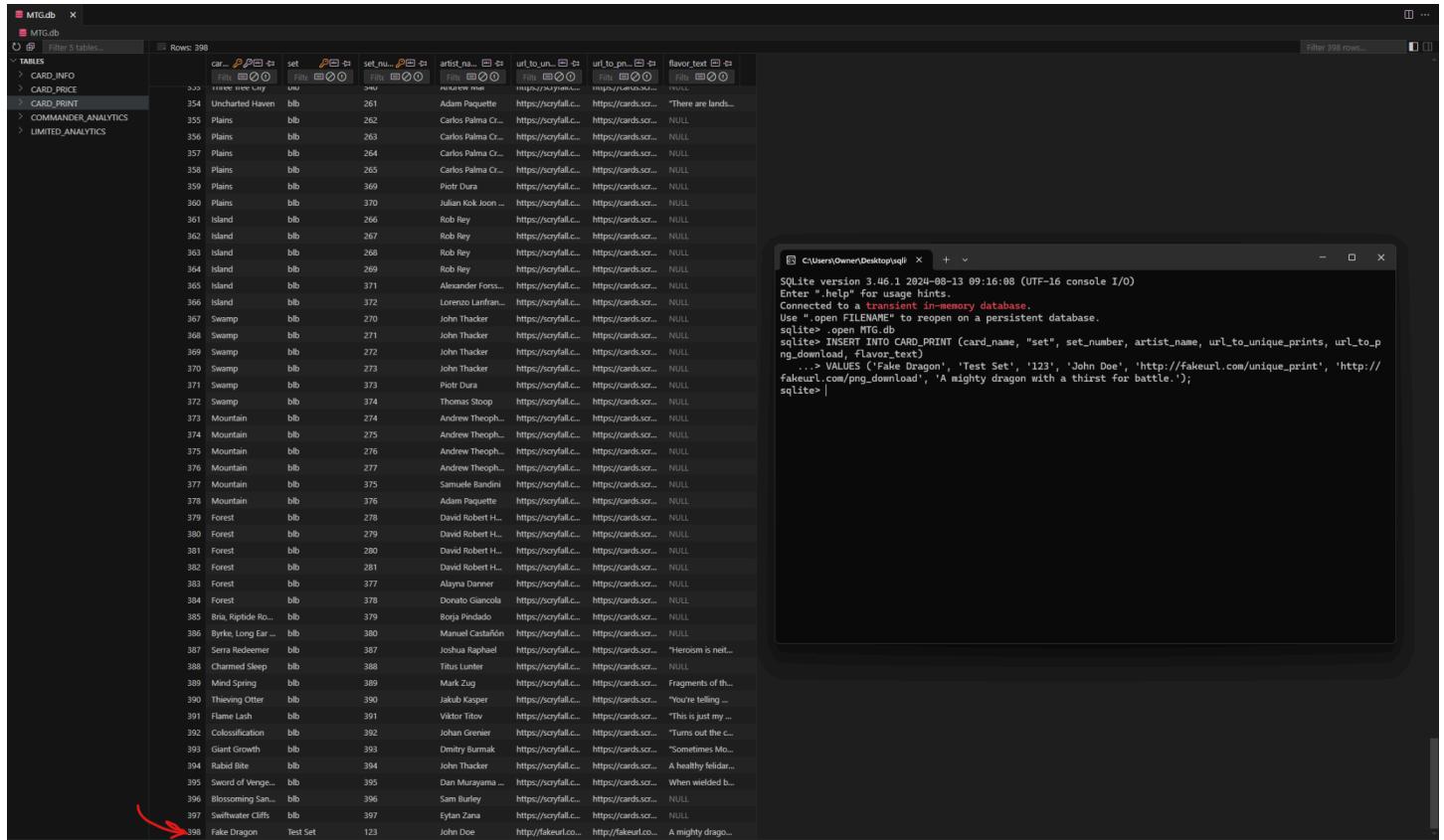
sqlite> UPDATE CARD\_INFO SET card\_name = 'Updated Test Card', rarity = 'Rare' WHERE card\_name = 'Test Card';

sqlite>

## CARD\_PRINT SELECT

```
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> SELECT * FROM CARD_PRINT WHERE artist_name = 'Zoltan Boros';
Banishing Light|blb|1|Zoltan Boros|https://scryfall.com/card/blb/1/banishing-light?utm_source=api|https://cards.scryfall.io/png/front/2/5/25a06f82-ebdb-4dd6-bfe8-958018ce557c.png?1721425761|"If you cannot find light in the darkness, create it."
-Aural, high cleric
Kitsa, Otterball Elite|blb|54|Zoltan Boros|https://scryfall.com/card/blb/54/kitsa-otterball-elite?utm_source=api|https://cards.scryfall.io/png/front/c/8/c8ff751a-ec64-41d5-b22c-2a483ad9a9b2.png?1721426117|
Hearthborn Battler|blb|139|Zoltan Boros|https://scryfall.com/card/blb/139/hearthborn-battler?utm_source=api|https://cards.scryfall.io/png/front/b/e/bef1cf5c-9738-4062-8c1b-87a372d36687.png?1721426641|
Hearthborn Battler|blb|361|Zoltan Boros|https://scryfall.com/card/blb/361/hearthborn-battler?utm_source=api|https://cards.scryfall.io/png/front/7/3/73a10a11-a21f-4e93-8771-8d971c158911.png?1721427931|
Playful Shove|blb|145|Zoltan Boros|https://scryfall.com/card/blb/145/playful-shove?utm_source=api|https://cards.scryfall.io/png/front/0/7/07956edf-34c1-4218-9784-ddbc133e380c.png?1721426672|The boisterous pat on the back was painful, but not nearly as painful as the joke that inspired it.
War Squeak|blb|160|Zoltan Boros|https://scryfall.com/card/blb/160/war-squeak?utm_source=api|https://cards.scryfall.io/png/front/1/0/105964a7-88b7-4340-aa66-e908189a3638.png?1721426742|Dangers sharper than thorns can hide among flowers.
Dreamdew Entrancer|blb|211|Zoltan Boros|https://scryfall.com/card/blb/211/dreamdew-entrancer?utm_source=api|https://cards.scryfall.io/png/front/2/6/26bd6b0d-8606-4a37-8be3-a852f1a8e99c.png?1721427040|"Your dreams are too precious to leave to chance."
Dreamdew Entrancer|blb|365|Zoltan Boros|https://scryfall.com/card/blb/365/dreamdew-entrancer?utm_source=api|https://cards.scryfall.io/png/front/1/f/1f2efb27-c181-43f7-93fe-a8c4d286f8ad.png?1721427958|"Your dreams are too precious to leave to chance."
sqlite> INSERT INTO CARD_PRINT (card_name, "set", set_number, artist_name, url_to_unique_prints, url_to_png_download, flavor_text)
...> VALUES ('New Fake Card', 'blb', '100', 'John Doe', 'https://example.com/print', 'https://example.com/image.png', 'This is a fake card for testing.');
sqlite> DELETE FROM CARD_PRINT WHERE card_name = 'New Fake Card' AND "set" = 'blb';
sqlite> UPDATE CARD_PRINT SET artist_name = 'New Artist' WHERE card_name = 'Banishing Light' AND "set" = 'blb';
sqlite> |
```

## CARD\_PRINT INSERT



The screenshot shows a PostgreSQL client interface with two panes. The left pane displays the 'CARD\_PRINT' table structure and data. The right pane shows a command-line window for SQLite version 3.46.1. The SQLite window contains the SQL command used to insert the new card, along with standard SQLite usage hints and information about the database.

card_name	set	set_number	artist_name	url_to_unique_prints	url_to_png_download	flavor_text
Uncharted Haven	blb	261	Adam Paquette	https://scryfall...	https://cards.s...	There are lands...
Plains	blb	262	Carlos Palma Cr...	https://scryfall...	https://cards.s...	NULL
Plains	blb	263	Carlos Palma Cr...	https://scryfall...	https://cards.s...	NULL
Plains	blb	264	Carlos Palma Cr...	https://scryfall...	https://cards.s...	NULL
Plains	blb	265	Carlos Palma Cr...	https://scryfall...	https://cards.s...	NULL
Plains	blb	369	Piotr Dura	https://scryfall...	https://cards.s...	NULL
Plains	blb	370	Julian Kok Joon ..	https://scryfall...	https://cards.s...	NULL
Island	blb	266	Rob Rey	https://scryfall...	https://cards.s...	NULL
Island	blb	267	Rob Rey	https://scryfall...	https://cards.s...	NULL
Island	blb	268	Rob Rey	https://scryfall...	https://cards.s...	NULL
Island	blb	269	Rob Rey	https://scryfall...	https://cards.s...	NULL
Island	blb	371	Alexander Fors...	https://scryfall...	https://cards.s...	NULL
Island	blb	372	Lorenzo Lanfran...	https://scryfall...	https://cards.s...	NULL
Swamp	blb	270	John Thacker	https://scryfall...	https://cards.s...	NULL
Swamp	blb	271	John Thacker	https://scryfall...	https://cards.s...	NULL
Swamp	blb	272	John Thacker	https://scryfall...	https://cards.s...	NULL
Swamp	blb	273	John Thacker	https://scryfall...	https://cards.s...	NULL
Swamp	blb	373	Piotr Dura	https://scryfall...	https://cards.s...	NULL
Swamp	blb	374	Thomas Stoop	https://scryfall...	https://cards.s...	NULL
Mountain	blb	274	Andrew Theoph...	https://scryfall...	https://cards.s...	NULL
Mountain	blb	275	Andrew Theoph...	https://scryfall...	https://cards.s...	NULL
Mountain	blb	276	Andrew Theoph...	https://scryfall...	https://cards.s...	NULL
Mountain	blb	277	Andrew Theoph...	https://scryfall...	https://cards.s...	NULL
Mountain	blb	375	Samuele Bandini	https://scryfall...	https://cards.s...	NULL
Mountain	blb	376	Adam Paquette	https://scryfall...	https://cards.s...	NULL
Forest	blb	278	David Robert H...	https://scryfall...	https://cards.s...	NULL
Forest	blb	279	David Robert H...	https://scryfall...	https://cards.s...	NULL
Forest	blb	280	David Robert H...	https://scryfall...	https://cards.s...	NULL
Forest	blb	281	David Robert H...	https://scryfall...	https://cards.s...	NULL
Forest	blb	377	Alayna Danner	https://scryfall...	https://cards.s...	NULL
Forest	blb	378	Dorato Gianco...	https://scryfall...	https://cards.s...	NULL
Bria, Riptide Ro...	blb	379	Boga Pandido	https://scryfall...	https://cards.s...	NULL
Byrke, Long Ear ...	blb	380	Manuel Castañón	https://scryfall...	https://cards.s...	NULL
Serra Redeemer	blb	387	Joshua Raphael	https://scryfall...	https://cards.s...	'Herosim is neit...
Charmed Sleep	blb	388	Titus Lunter	https://scryfall...	https://cards.s...	NULL
Mind Spring	blb	389	Mark Zug	https://scryfall...	https://cards.s...	Fragments of th...
Thieving Otter	blb	390	Jakub Kasper	https://scryfall...	https://cards.s...	"You're telling ...
Flame Lash	blb	391	Viktor Titov	https://scryfall...	https://cards.s...	"This is just my ...
Colorclassification	blb	392	Johan Grenier	https://scryfall...	https://cards.s...	"Turns out the c...
Giant Growth	blb	393	Dmitry Burnak	https://scryfall...	https://cards.s...	"Sometimes Mo...
Rabid Bite	blb	394	John Thacker	https://scryfall...	https://cards.s...	A healthy felida...
Sword of Venge...	blb	395	Dan Murayama ..	https://scryfall...	https://cards.s...	When wielded b...
Blossoming San...	blb	396	Sam Burley	https://scryfall...	https://cards.s...	NULL
Swiftwater Cliffs	blb	397	Eytan Zana	https://scryfall...	https://cards.s...	NULL
Fake Dragon	Test Set	123	John Doe	http://fakeurl.co...	http://fakeurl.co...	A mighty drago...

```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .mode column
sqlite> INSERT INTO CARD_PRINT (card_name, "set", set_number, artist_name, url_to_unique_prints, url_to_png_download, flavor_text)
...> VALUES ('Fake Dragon', 'Test Set', '123', 'John Doe', 'http://fakeurl.com/print', 'http://fakeurl.com/png_download', 'A mighty dragon with a thirst for battle.');
sqlite> |
```

## CARD\_PRINT DELETE

MTG.db

Filter 5 tables... Rows: 397

TABLES

- CARD\_INFO
- CARD\_PRICE
- CARD\_PRINT**
- COMMANDER\_ANALYTICS
- LIMITED\_ANALYTICS

car...	set...	artist_n...	url_to_u...	flavor_text
name	set	name	url	
353 Three Tree City	b1b	340 Andrew Mar...	https://scryfall...	https://cards.s...
354 Uncharted Haven	b1b	261 Adam Paquette	https://scryfall...	"There are lands...
355 Plains	b1b	262 Carlos Palma Cr...	https://scryfall...	NULL
356 Plains	b1b	263 Carlos Palma Cr...	https://scryfall...	NULL
357 Plains	b1b	264 Carlos Palma Cr...	https://scryfall...	NULL
358 Plains	b1b	265 Carlos Palma Cr...	https://scryfall...	NULL
359 Plains	b1b	369 Petr Dura	https://scryfall...	NULL
360 Plains	b1b	370 Julian Kok Joon ...	https://scryfall...	NULL
361 Island	b1b	266 Rob Rey	https://scryfall...	NULL
362 Island	b1b	267 Rob Rey	https://scryfall...	NULL
363 Island	b1b	268 Rob Rey	https://scryfall...	NULL
364 Island	b1b	269 Rob Rey	https://scryfall...	NULL
365 Island	b1b	371 Alexander Forst...	https://scryfall...	NULL
366 Island	b1b	372 Lorenzo Lanfran...	https://scryfall...	NULL
367 Swamp	b1b	270 John Thacker	https://scryfall...	NULL
368 Swamp	b1b	271 John Thacker	https://scryfall...	NULL
369 Swamp	b1b	272 John Thacker	https://scryfall...	NULL
370 Swamp	b1b	273 John Thacker	https://scryfall...	NULL
371 Swamp	b1b	373 Petr Dura	https://scryfall...	NULL
372 Swamp	b1b	374 Thomas Stoop	https://scryfall...	NULL
373 Mountain	b1b	274 Andrew Theophil...	https://scryfall...	NULL
374 Mountain	b1b	275 Andrew Theophil...	https://scryfall...	NULL
375 Mountain	b1b	276 Andrew Theophil...	https://scryfall...	NULL
376 Mountain	b1b	277 Andrew Theophil...	https://scryfall...	NULL
377 Mountain	b1b	375 Samuele Bandini	https://scryfall...	NULL
378 Mountain	b1b	376 Adam Paquette	https://scryfall...	NULL
379 Forest	b1b	278 David Robert H...	https://scryfall...	NULL
380 Forest	b1b	279 David Robert H...	https://scryfall...	NULL
381 Forest	b1b	280 David Robert H...	https://scryfall...	NULL
382 Forest	b1b	281 David Robert H...	https://scryfall...	NULL
383 Forest	b1b	377 Alyana Danner	https://scryfall...	NULL
384 Forest	b1b	378 Donato Giacomo	https://scryfall...	NULL
385 Bria, Riptide Ro...	b1b	379 Boja Pindado	https://scryfall...	NULL
386 Byrke, Long Ear ...	b1b	380 Manuel Castañón	https://scryfall...	NULL
387 Serra Redeemer	b1b	387 Joshua Raphael	https://scryfall...	"Heroism is nei...
388 Charmed Sleep	b1b	388 Titus Lunter	https://scryfall...	NULL
389 Mind Spring	b1b	389 Mark Zug	https://scryfall...	Fragments of th...
390 Thieving Otter	b1b	390 Jakub Kasper	https://scryfall...	"You're telling ...
391 Flame Lash	b1b	391 Viktor Titov	https://scryfall...	"This is just my ...
392 Colossalification	b1b	392 Johan Grenier	https://scryfall...	"Turns out the c...
393 Giant Growth	b1b	393 Dmitry Burnak	https://scryfall...	"Sometimes Mo...
394 Rabid Bite	b1b	394 John Thacker	https://scryfall...	A healthy feldar...
395 Sword of Venge...	b1b	395 Dan Murayama ...	https://scryfall...	When wielded b...
396 Blossoming San...	b1b	396 Sam Burley	https://scryfall...	NULL
397 Swiftwater Cliffs	b1b	397 Eytan Zana	https://scryfall...	NULL

sqlite> .version  
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)  
Enter ".help" for usage hints.  
Connected to a transient in-memory database.  
Use ".open FILENAME" to reopen on a persistent database.  
sqlite> open MTG.db  
sqlite> INSERT INTO CARD\_PRINT (card\_name, "set", set\_number, artist\_name, url\_to\_unique\_prints, url\_to\_p...  
ng\_download, flavor\_text)  
...> VALUES ('Fake Dragon', 'Test Set', '123', 'John Doe', 'http://fakeurl.com/unique\_print', 'http://f...  
akeurl.com/png\_download', 'A mighty dragon with a thirst for battle.');//  
sqlite> DELETE FROM CARD\_PRIN  
...> WHERE card\_name = 'Fake Dragon';  
sqlite>

## CARD\_PRINT UPDATE

MTG.db

Filter 5 tables... Rows: 398

TABLES

- CARD\_INFO
- CARD\_PRICE
- CARD\_PRINT**
- COMMANDER\_ANALYTICS
- LIMITED\_ANALYTICS

card_name	set	set_nm	artist_name	url_to_unique_prints	url_to_png_download	flavor_text
Uncharted Haven	b1b	261	Adam Paquette	<a href="https://scryfall.com/card/b1b/261/uncharted-haven?utm_source=api">https://scryfall.com/card/b1b/261/uncharted-haven?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/6/0/68b90f54-dc29-4...">https://cards.scryfall.io/png/front/6/0/68b90f54-dc29-4...</a>	"There are lands beyond Valley. Wild, calamity-scared, a...
Plains	b1b	262	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/262/plains?utm_source=api">https://scryfall.com/card/b1b/262/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...">https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...</a>	NULL
Plains	b1b	263	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/263/plains?utm_source=api">https://scryfall.com/card/b1b/263/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...">https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...</a>	NULL
Plains	b1b	264	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/264/plains?utm_source=api">https://scryfall.com/card/b1b/264/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/4/0/40418d8-9a76-4...">https://cards.scryfall.io/png/front/4/0/40418d8-9a76-4...</a>	NULL
Plains	b1b	265	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/265/plains?utm_source=api">https://scryfall.com/card/b1b/265/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/4/0/40418d8-9a76-4...">https://cards.scryfall.io/png/front/4/0/40418d8-9a76-4...</a>	NULL
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Plain	b1b	370	Julian Kok Joon Wen	<a href="https://scryfall.com/card/b1b/370/plains?utm_source=api">https://scryfall.com/card/b1b/370/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/3/01b151a1-db66-4...">https://cards.scryfall.io/png/front/0/3/01b151a1-db66-4...</a>	NULL
Island	b1b	266	Rob Rey	<a href="https://scryfall.com/card/b1b/266/island?utm_source=api">https://scryfall.com/card/b1b/266/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/06e5332-0104-4...">https://cards.scryfall.io/png/front/0/1/06e5332-0104-4...</a>	NULL
Island	b1b	267	Rob Rey	<a href="https://scryfall.com/card/b1b/267/island?utm_source=api">https://scryfall.com/card/b1b/267/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/7/fb2b5ad-b384-4...">https://cards.scryfall.io/png/front/0/7/fb2b5ad-b384-4...</a>	NULL
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Island	b1b	371	Alexander Forsberg	<a href="https://scryfall.com/card/b1b/371/island?utm_source=api">https://scryfall.com/card/b1b/371/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/4/6/46648fc2-ba58-4...">https://cards.scryfall.io/png/front/4/6/46648fc2-ba58-4...</a>	NULL
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Bria, Riptide Rogue	b1b	379	Borja Pindado	<a href="https://scryfall.com/card/b1b/379/bria-riptide-rogue?utm_source=api">https://scryfall.com/card/b1b/379/bria-riptide-rogue?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Byrke, Long Ear of the Law	b1b	380	Manuel Castañón	<a href="https://scryfall.com/card/b1b/380/byrke-long-ear-of-the-law?utm_source=api">https://scryfall.com/card/b1b/380/byrke-long-ear-of-the-law?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Serra Redeemer	b1b	387	Joshua Raphael	<a href="https://scryfall.com/card/b1b/387/serra-redeemer?utm_source=api">https://scryfall.com/card/b1b/387/serra-redeemer?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Charmed Sleep	b1b	388	Titus Lunter	<a href="https://scryfall.com/card/b1b/388/charmed-sleep?utm_source=api">https://scryfall.com/card/b1b/388/charmed-sleep?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Mind Spring	b1b	389	Mark Zug	<a href="https://scryfall.com/card/b1b/389/mind-spring?utm_source=api">https://scryfall.com/card/b1b/389/mind-spring?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
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Flame Lash	b1b	391	Viktor Titov	<a href="https://scryfall.com/card/b1b/391/flame-lash?utm_source=api">https://scryfall.com/card/b1b/391/flame-lash?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Giant Growth	b1b	392	Johan Grenier	<a href="https://scryfall.com/card/b1b/392/giant-growth?utm_source=api">https://scryfall.com/card/b1b/392/giant-growth?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Rabid Bite	b1b	394	Dmitry Burnak	<a href="https://scryfall.com/card/b1b/394/rabid-bite?utm_source=api">https://scryfall.com/card/b1b/394/rabid-bite?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Sword of Vengeance	b1b	395	Dan Murayama Scott	<a href="https://scryfall.com/card/b1b/395/sword-of-vengeance?utm_source=api">https://scryfall.com/card/b1b/395/sword-of-vengeance?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Blossoming Sands	b1b	396	Sam Burley	<a href="https://scryfall.com/card/b1b/396/blossoming-sands?utm_source=api">https://scryfall.com/card/b1b/396/blossoming-sands?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
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MTG.db

Filter 5 tables... Rows: 398

TABLES

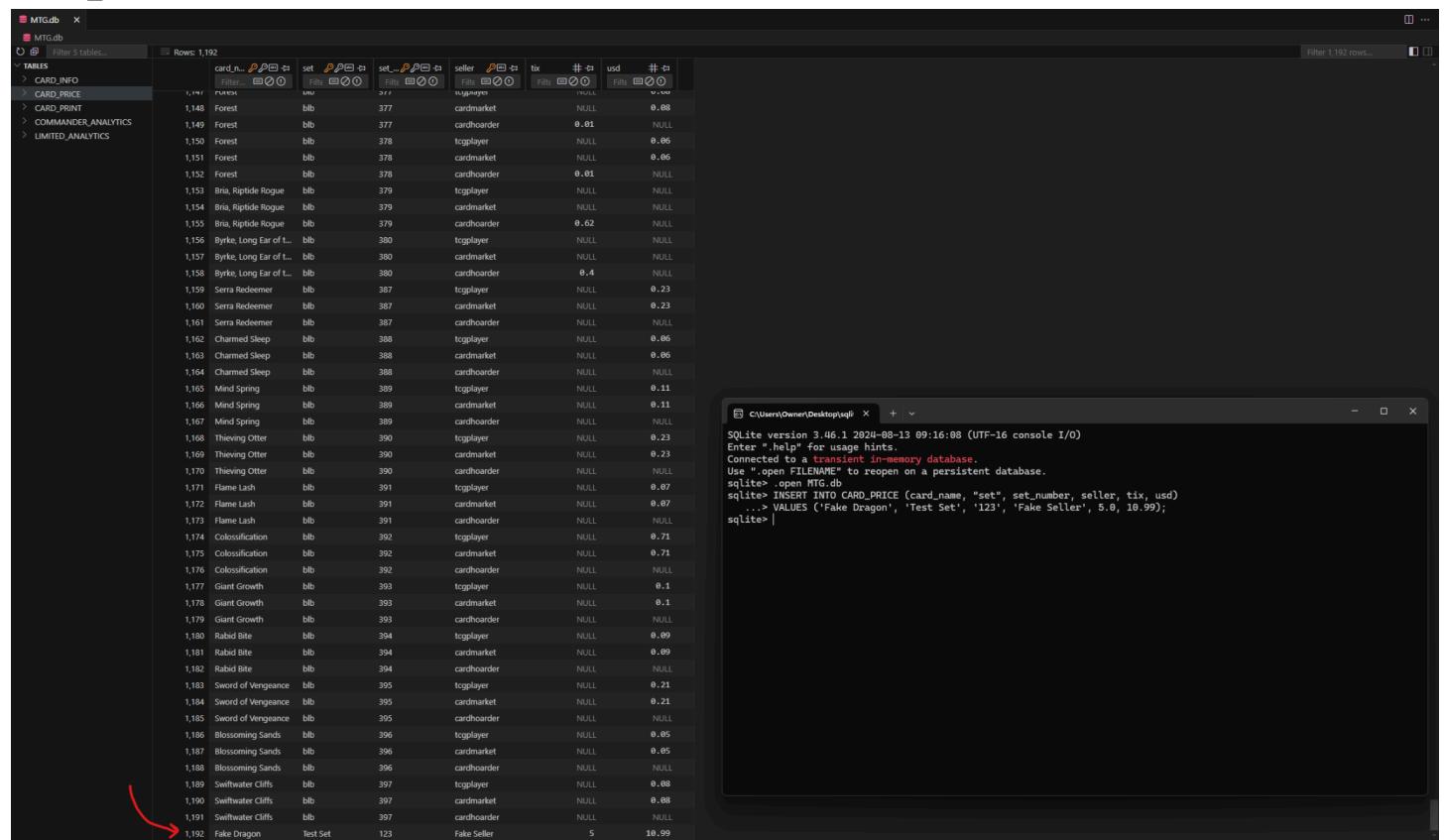
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- CARD\_PRICE
- CARD\_PRINT**
- COMMANDER\_ANALYTICS
- LIMITED\_ANALYTICS

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Plains	b1b	262	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/262/plains?utm_source=api">https://scryfall.com/card/b1b/262/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...">https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...</a>	NULL
Plains	b1b	263	Carlos Palma Cruchaga	<a href="https://scryfall.com/card/b1b/263/plains?utm_source=api">https://scryfall.com/card/b1b/263/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...">https://cards.scryfall.io/png/front/6/0/5663ffcc-d02f-4...</a>	NULL
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Plain	b1b	370	Julian Kok Joon Wen	<a href="https://scryfall.com/card/b1b/370/plains?utm_source=api">https://scryfall.com/card/b1b/370/plains?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/3/01b151a1-db66-4...">https://cards.scryfall.io/png/front/0/3/01b151a1-db66-4...</a>	NULL
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Island	b1b	269	Rob Rey	<a href="https://scryfall.com/card/b1b/269/island?utm_source=api">https://scryfall.com/card/b1b/269/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/2/0223cf74ce-4...">https://cards.scryfall.io/png/front/0/2/0223cf74ce-4..."&gt;https://cards.scryfall.io/png/front/0/2/0223cf74ce-4...</a>	NULL
Island	b1b	371	Alexander Forsberg	<a href="https://scryfall.com/card/b1b/371/island?utm_source=api">https://scryfall.com/card/b1b/371/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/4/6/46648fc2-ba58-4...">https://cards.scryfall.io/png/front/4/6/46648fc2-ba58-4...</a>	NULL
Island	b1b	372	Lorenzo Lanfranconi	<a href="https://scryfall.com/card/b1b/372/island?utm_source=api">https://scryfall.com/card/b1b/372/island?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Swamp	b1b	270	John Thacker	<a href="https://scryfall.com/card/b1b/270/swamp?utm_source=api">https://scryfall.com/card/b1b/270/swamp?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/7/fb2b5ad-b384-4...">https://cards.scryfall.io/png/front/0/7/fb2b5ad-b384-4...</a>	NULL
Swamp	b1b	271	John Thacker	<a href="https://scryfall.com/card/b1b/271/swamp?utm_source=api">https://scryfall.com/card/b1b/271/swamp?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/c02cb78a-7854-4...">https://cards.scryfall.io/png/front/0/c02cb78a-7854-4...</a>	NULL
Swamp	b1b	272	John Thacker	<a href="https://scryfall.com/card/b1b/272/swamp?utm_source=api">https://scryfall.com/card/b1b/272/swamp?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/2/0223cf74ce-4...">https://cards.scryfall.io/png/front/0/2/0223cf74ce-4...</a>	NULL
Swamp	b1b	373	Piotr Dura	<a href="https://scryfall.com/card/b1b/373/swamp?utm_source=api">https://scryfall.com/card/b1b/373/swamp?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Swamp	b1b	374	Thomas Stoop	<a href="https://scryfall.com/card/b1b/374/swamp?utm_source=api">https://scryfall.com/card/b1b/374/swamp?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/d4d9dbfd-6322-4...">https://cards.scryfall.io/png/front/0/d4d9dbfd-6322-4...</a>	NULL
Mountain	b1b	274	Andrew Theophilopoulos	<a href="https://scryfall.com/card/b1b/274/mountain?utm_source=api">https://scryfall.com/card/b1b/274/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/2/047a007e-7ec3-4...">https://cards.scryfall.io/png/front/0/2/047a007e-7ec3-4...</a>	NULL
Mountain	b1b	275	Andrew Theophilopoulos	<a href="https://scryfall.com/card/b1b/275/mountain?utm_source=api">https://scryfall.com/card/b1b/275/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Mountain	b1b	276	Andrew Theophilopoulos	<a href="https://scryfall.com/card/b1b/276/mountain?utm_source=api">https://scryfall.com/card/b1b/276/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Mountain	b1b	277	Andrew Theophilopoulos	<a href="https://scryfall.com/card/b1b/277/mountain?utm_source=api">https://scryfall.com/card/b1b/277/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Mountain	b1b	375	Samuele Bandini	<a href="https://scryfall.com/card/b1b/375/mountain?utm_source=api">https://scryfall.com/card/b1b/375/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...</a>	NULL
Mountain	b1b	376	Adam Paquette	<a href="https://scryfall.com/card/b1b/376/mountain?utm_source=api">https://scryfall.com/card/b1b/376/mountain?utm_source=api</a>	<a href="https://cards.scryfall.io/png/front/0/1/0125dd0-f682-4...">https://cards.scryfall.io/png</a>	

## CARD\_PRICE SELECT

```
sqlite> .open MTG.db
sqlite> SELECT * FROM CARD_PRICE WHERE usd > 15;
Lumra, Bellow of the Woods|blb|293|tcgplayer||15.03
Lumra, Bellow of the Woods|blb|293|cardmarket||15.03
Lumra, Bellow of the Woods|blb|342|tcgplayer||17.65
Lumra, Bellow of the Woods|blb|342|cardmarket||17.65
Ygra, Eater of All|blb|241|tcgplayer||18.08
Ygra, Eater of All|blb|241|cardmarket||18.08
Ygra, Eater of All|blb|294|tcgplayer||19.42
Ygra, Eater of All|blb|294|cardmarket||19.42
Three Tree City|blb|260|tcgplayer||19.75
Three Tree City|blb|260|cardmarket||19.75
Three Tree City|blb|337|tcgplayer||27.21
Three Tree City|blb|337|cardmarket||27.21
Three Tree City|blb|338|tcgplayer||28.65
Three Tree City|blb|338|cardmarket||28.65
Three Tree City|blb|339|tcgplayer||36.9
Three Tree City|blb|339|cardmarket||36.9
Three Tree City|blb|340|tcgplayer||36.31
Three Tree City|blb|340|cardmarket||36.31
sqlite> INSERT INTO CARD_PRICE (card_name, "set", set_number, seller, tix, usd)
...> VALUES ('New Fake Card', 'blb', '100', 'NewSeller', 0.5, 12.5);
sqlite> DELETE FROM CARD_PRICE WHERE card_name = 'New Fake Card' AND "set" = 'blb';
sqlite> UPDATE CARD_PRICE SET usd = 15.0 WHERE card_name = 'Banishing Light' AND seller = 'tcgplayer' AND "set" = 'blb';
sqlite> |
```

## CARD\_PRICE INSERT



The screenshot shows the MTG.db database interface with the CARD\_PRICE table selected. The table has 1,192 rows. The columns are: card\_name, set, set\_number, seller, tix, and usd. The 'usd' column contains values like 0.08, 0.01, 0.06, etc. A red arrow points from the bottom-left of the table towards the bottom-right of the image, indicating the path to the SQL command window.

card_name	set	set_number	seller	tix	usd
Lumra, Bellow of the Woods	blb	293	tcgplayer		15.03
Lumra, Bellow of the Woods	blb	293	cardmarket		15.03
Lumra, Bellow of the Woods	blb	342	tcgplayer		17.65
Lumra, Bellow of the Woods	blb	342	cardmarket		17.65
Ygra, Eater of All	blb	241	tcgplayer		18.08
Ygra, Eater of All	blb	241	cardmarket		18.08
Ygra, Eater of All	blb	294	tcgplayer		19.42
Ygra, Eater of All	blb	294	cardmarket		19.42
Three Tree City	blb	260	tcgplayer		19.75
Three Tree City	blb	260	cardmarket		19.75
Three Tree City	blb	337	tcgplayer		27.21
Three Tree City	blb	337	cardmarket		27.21
Three Tree City	blb	338	tcgplayer		28.65
Three Tree City	blb	338	cardmarket		28.65
Three Tree City	blb	339	tcgplayer		36.9
Three Tree City	blb	339	cardmarket		36.9
Three Tree City	blb	340	tcgplayer		36.31
Three Tree City	blb	340	cardmarket		36.31
New Fake Card	blb	100	NewSeller	0.5	12.5
Banishing Light	blb		tcgplayer		15.0
Fake Dragon	Test Set	123	Fake Seller	5	10.99

```
sqlite> .open MTG.db
sqlite> INSERT INTO CARD_PRICE (card_name, "set", set_number, seller, tix, usd)
...> VALUES ('Fake Dragon', 'Test Set', '123', 'Fake Seller', 5.0, 10.99);
sqlite> |
```

The screenshot shows a separate SQLite command window with the following content:

```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO CARD_PRICE (card_name, "set", set_number, seller, tix, usd)
...> VALUES ('Fake Dragon', 'Test Set', '123', 'Fake Seller', 5.0, 10.99);
sqlite> |
```

## CARD\_PRICE DELETE

MTG.db

Filter 5 tables... Rows: 1,191

TABLES

- CARD\_INFO
- CARD\_PRICE
- CARD\_PRINT
- COMMANDER\_ANALYTICS
- LIMITED\_ANALYTICS

	card_name	set	set_number	seller	tix	#	usd	#
1,147	Forest	bb	377	tcgplayer	NULL	0.08		
1,148	Forest	bb	377	cardmarket	NULL	0.08		
1,149	Forest	bb	377	cardhoarder	0.01	NULL		
1,150	Forest	bb	378	tcgplayer	NULL	0.06		
1,151	Forest	bb	378	cardmarket	NULL	0.06		
1,152	Forest	bb	378	cardhoarder	0.01	NULL		
1,153	Bria, Riptide Rogue	bb	379	tcgplayer	NULL	NULL		
1,154	Bria, Riptide Rogue	bb	379	cardmarket	NULL	NULL		
1,155	Bria, Riptide Rogue	bb	379	cardhoarder	0.62	NULL		
1,156	Byrke, Long Ear of t...	bb	380	tcgplayer	NULL	NULL		
1,157	Byrke, Long Ear of t...	bb	380	cardmarket	NULL	NULL		
1,158	Byrke, Long Ear of t...	bb	380	cardhoarder	0.4	NULL		
1,159	Serra Redeemer	bb	387	tcgplayer	NULL	0.23		
1,160	Serra Redeemer	bb	387	cardmarket	NULL	0.23		
1,161	Serra Redeemer	bb	387	cardhoarder	NULL	NULL		
1,162	Charmed Sleep	bb	388	tcgplayer	NULL	0.06		
1,163	Charmed Sleep	bb	388	cardmarket	NULL	0.06		
1,164	Charmed Sleep	bb	388	cardhoarder	NULL	NULL		
1,165	Mind Spring	bb	389	tcgplayer	NULL	0.11		
1,166	Mind Spring	bb	389	cardmarket	NULL	0.11		
1,167	Mind Spring	bb	389	cardhoarder	NULL	NULL		
1,168	Thieving Otter	bb	390	tcgplayer	NULL	0.23		
1,169	Thieving Otter	bb	390	cardmarket	NULL	0.23		
1,170	Thieving Otter	bb	390	cardhoarder	NULL	NULL		
1,171	Flame Lash	bb	391	tcgplayer	NULL	0.07		
1,172	Flame Lash	bb	391	cardmarket	NULL	0.07		
1,173	Flame Lash	bb	391	cardhoarder	NULL	NULL		
1,174	Colosification	bb	392	tcgplayer	NULL	0.71		
1,175	Colosification	bb	392	cardmarket	NULL	0.71		
1,176	Colosification	bb	392	cardhoarder	NULL	NULL		
1,177	Giant Growth	bb	393	tcgplayer	NULL	0.1		
1,178	Giant Growth	bb	393	cardmarket	NULL	0.1		
1,179	Giant Growth	bb	393	cardhoarder	NULL	NULL		
1,180	Rabid Bite	bb	394	tcgplayer	NULL	0.09		
1,181	Rabid Bite	bb	394	cardmarket	NULL	0.09		
1,182	Rabid Bite	bb	394	cardhoarder	NULL	NULL		
1,183	Sword of Vengeance	bb	395	tcgplayer	NULL	0.21		
1,184	Sword of Vengeance	bb	395	cardmarket	NULL	0.21		
1,185	Sword of Vengeance	bb	395	cardhoarder	NULL	NULL		
1,186	Blossoming Sands	bb	396	tcgplayer	NULL	0.05		
1,187	Blossoming Sands	bb	396	cardmarket	NULL	0.05		
1,188	Blossoming Sands	bb	396	cardhoarder	NULL	NULL		
1,189	Swiftwater Cliffs	bb	397	tcgplayer	NULL	0.08		
1,190	Swiftwater Cliffs	bb	397	cardmarket	NULL	0.08		
1,191	Swiftwater Cliffs	bb	397	cardhoarder	NULL	NULL		

SQLite version 3.36.1 2020-08-13 09:16:08 (UTF-16 console I/O)  
Enter ".help" for usage hints.  
Connected to a transient in-memory database.  
Use ".open FILENAME" to reopen on a persistent database.  
sqlite> .open MTG.db  
sqlite> INSERT INTO CARD\_PRICE (card\_name, "set", set\_number, seller, tix, usd)  
...> VALUES ('Fake Dragon', 'Test Set', 123, 'Fake Seller', 5.0, 10.99);  
sqlite> DELETE FROM CARD\_PRICE  
...> WHERE card\_name = 'Fake Dragon';  
sqlite>



## CARD\_PRICE UPDATE

MTG.db - MTG.db - Filter 5 tables... Rows: 1,192

Tables: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS

	card_name	set	set_number	seller	tix	#	usd	#
1,148	Forest	b1b	377	cardmarket	NULL	0.08		
1,149	Forest	b1b	377	cardhoarder	0.01	NULL		
1,150	Forest	b1b	378	tcgplayer	NULL	0.06		
1,151	Forest	b1b	378	cardmarket	NULL	0.06		
1,152	Forest	b1b	378	cardhoarder	0.01	NULL		
1,153	Bria, Riptide Rogue	b1b	379	tcgplayer	NULL	NULL		
1,154	Bria, Riptide Rogue	b1b	379	cardmarket	NULL	NULL		
1,155	Bria, Riptide Rogue	b1b	379	cardhoarder	0.62	NULL		
1,156	Byrke, Long Ear of ...	b1b	380	tcgplayer	NULL	NULL		
1,157	Byrke, Long Ear of ...	b1b	380	cardmarket	NULL	NULL		
1,158	Byrke, Long Ear of ...	b1b	380	cardhoarder	0.4	NULL		
1,159	Serra Redeemer	b1b	387	tcgplayer	NULL	0.23		
1,160	Serra Redeemer	b1b	387	cardmarket	NULL	0.23		
1,161	Serra Redeemer	b1b	387	cardhoarder	NULL	NULL		
1,162	Charmed Sleep	b1b	388	tcgplayer	NULL	0.06		
1,163	Charmed Sleep	b1b	388	cardmarket	NULL	0.06		
1,164	Charmed Sleep	b1b	388	cardhoarder	NULL	NULL		
1,165	Mind Spring	b1b	389	tcgplayer	NULL	0.11		
1,166	Mind Spring	b1b	389	cardmarket	NULL	0.11		
1,167	Mind Spring	b1b	389	cardhoarder	NULL	NULL		
1,168	Thieving Otter	b1b	390	tcgplayer	NULL	0.23		
1,169	Thieving Otter	b1b	390	cardmarket	NULL	0.23		
1,170	Thieving Otter	b1b	390	cardhoarder	NULL	NULL		
1,171	Flame Lash	b1b	391	tcgplayer	NULL	0.07		
1,172	Flame Lash	b1b	391	cardmarket	NULL	0.07		
1,173	Flame Lash	b1b	391	cardhoarder	NULL	NULL		
1,174	Colossalification	b1b	392	tcgplayer	NULL	0.71		
1,175	Colossalification	b1b	392	cardmarket	NULL	0.71		
1,176	Colossalification	b1b	392	cardhoarder	NULL	NULL		
1,177	Giant Growth	b1b	393	tcgplayer	NULL	0.1		
1,178	Giant Growth	b1b	393	cardmarket	NULL	0.1		
1,179	Giant Growth	b1b	393	cardhoarder	NULL	NULL		
1,180	Rabid Bite	b1b	394	tcgplayer	NULL	0.09		
1,181	Rabid Bite	b1b	394	cardmarket	NULL	0.09		
1,182	Rabid Bite	b1b	394	cardhoarder	NULL	NULL		
1,183	Sword of Vengeance	b1b	395	tcgplayer	NULL	0.21		
1,184	Sword of Vengeance	b1b	395	cardmarket	NULL	0.21		
1,185	Sword of Vengeance	b1b	395	cardhoarder	NULL	NULL		
1,186	Blossoming Sands	b1b	396	tcgplayer	NULL	0.05		
1,187	Blossoming Sands	b1b	396	cardmarket	NULL	0.05		
1,188	Blossoming Sands	b1b	396	cardhoarder	NULL	NULL		
1,189	Swiftwater Cliffs	b1b	397	tcgplayer	NULL	0.08		
1,190	Swiftwater Cliffs	b1b	397	cardmarket	NULL	0.08		
1,191	Swiftwater Cliffs	b1b	397	cardhoarder	NULL	NULL		
1,192	Test Card	TST	9999	Updated Seller	0.5	1.5		

Rows: 1,192

Tables: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS

```

C:\Users\Owner\Desktop\sql> + -
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO CARD_PRICE (card_name, "set", set_number, seller, usd, tix)
...> VALUES ('Test Card', 'TST', '9999', 'Test Seller', 1.00, 0.50);
sqlite> UPDATE CARD_PRICE
...> SET usd = 1.50, seller = 'Updated Seller'
...> WHERE card_name = 'Test Card';
sqlite> |

```

Rows: 1,192

Tables: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS

```

C:\Users\Owner\Desktop\sql> + -
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO CARD_PRICE (card_name, "set", set_number, seller, usd, tix)
...> VALUES ('Test Card', 'TST', '9999', 'Test Seller', 1.00, 0.50);
sqlite> |

```

## LIMITED\_ANALYTICS SELECT

```
sqlite> .open MTG.db
sqlite> SELECT * FROM LIMITED_ANALYTICS WHERE win_rate_in_main_deck > 0.65;
Season of Loss|Limited|0.656|129.8|0.619|0.681
Dreamdew Entrancer|Limited|0.652|266.77|0.628|0.665
Sword of Fire and Ice|Limited|0.652|23.88|0.646|0.656
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_drawn)
...> VALUES ('New Fake Card', 'Limited', 58.5, 10500, 56.2, 57.1);
sqlite> DELETE FROM LIMITED_ANALYTICS WHERE card_name = 'New Fake Card';
sqlite> UPDATE LIMITED_ANALYTICS SET play_rate = 12000 WHERE card_name = 'Banishing Light';
sqlite> |
```

## LIMITED\_ANALYTICS INSERT

The screenshot displays the MTG.db database interface. On the left, a sidebar lists tables: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, and LIMITED\_ANALYTICS. The LIMITED\_ANALYTICS table is selected, showing 272 rows. The table structure includes columns for card name, format, win rate in main deck, play rate, win rate opening hand, and win rate drawn. A second window shows a SQLite command-line interface where a new row is being inserted into the LIMITED\_ANALYTICS table for the card 'Fake Dragon'.

card_name	format	win_rate_in_main_deck	play_rate	win_rate_opening_hand	win_rate_drawn
Season of Loss	Limited	0.656	129.8	0.619	0.681
Dreamdew Entrancer	Limited	0.652	266.77	0.628	0.665
Sword of Fire and Ice	Limited	0.652	23.88	0.646	0.656
New Fake Card	Limited	58.5	10500	56.2	57.1
Banishing Light	Limited	12000			
Fake Dragon	Standard	55.5	68.2	57.1	56.8

```
C:\Users\Owner\Desktop\sqlite> + v
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
sqlite> open MTG.db
sqlite> .open MTG.db
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_drawn)
...> VALUES ('Fake Dragon', 'Standard', 55.5, 60.2, 57.1, 56.8);
sqlite> |
```

## LIMITED\_ANALYTICS DELETE

MTG.db

Filter 5 tables...

TABLES

- CARD\_INFO
- CARD\_PRICE
- CARD\_PRINT
- COMMANDER\_ANALYTICS
- LIMITED\_ANALYTICS

Rows: 271

	car...	format	win_rate_...	play_rate	win_rate_...	win_rate_...
227	Muerra, Trish Ta...	Limited	0.58	117.66	0.601	0.564
228	Plumeclad Me...	Limited	0.557	287.4	0.555	0.558999999...
229	Pond Prophet	Limited	0.579	1388.1	0.576000000...	0.581
230	Ral, Cracking Wi...	Limited	0.596	78.09	0.580	0.603
231	Seedglade Men...	Limited	0.532	298.23	0.542999999...	0.523
232	Seedpod Squire	Limited	0.526	518.71	0.512	0.535
233	Starveer Mentor	Limited	0.56	331.94	0.54	0.574
234	Stormcatch Me...	Limited	0.527	175.93	0.53	0.526
235	Tempest Angler	Limited	0.519	436.29	0.508	0.525
236	Tidecaller Mentor	Limited	0.563	276.91	0.524	0.586
237	Veteran Guard...	Limited	0.52	462.54	0.519	0.52
238	Vinebreap Mentor	Limited	0.616	589.63	0.628	0.608
239	Vren, the Relent...	Limited	0.602	228.94	0.595	0.606
240	Wanderdale Me...	Limited	0.584	274.74	0.629	0.547999999...
241	Ygra, Eater of All	Limited	0.627	122.5	0.613	0.637
242	Zoradine, Cosmo...	Limited	0.622	186.81	0.602	0.636
243	Barkform Harve...	Limited	0.521	277.11	0.496	0.545
244	Bumbleflower's ...	Limited	0.528	416.22	0.487000000...	0.555
245	Fountainport Bell	Limited	0.537999999...	860.49	0.527	0.547
246	Heirloom Epic	Limited	0.517999999...	111.36	0.528	0.545
247	Patchwork Banner	Limited	0.59	637.32	0.594	0.587000000...
248	Short Bow	Limited	0.526	251.3	0.522	0.528
249	Starforged Sword	Limited	0.487000000...	79.58	0.478	0.492000000...
250	Tangle Tumbler	Limited	0.517999999...	134.28	0.526	0.546
251	Three Tree Mist...	Limited	0.52	516.67	0.522	0.519
252	Fabled Passage	Limited	0.561	228.28	0.560000000...	0.557
253	Fountainport	Limited	0.563	180.24	0.547999999...	0.574
254	Hidden Grotto	Limited	0.545	1036	0.535	0.552999999...
255	Lilypad Village	Limited	0.534	228.11	0.522	0.542
256	Lupinflower Vill...	Limited	0.568	340.85	0.565	0.57
257	Mudflat Village	Limited	0.575	438.94	0.563	0.583
258	Oakhollow Villa...	Limited	0.539	424.55	0.542999999...	0.535
259	Rockface Village	Limited	0.542	296.53	0.552999999...	0.534
260	Three Tree City	Limited	0.517	32.95	0.498	0.531
261	Uncharted Haven	Limited	0.539	1338.29	0.555	0.526
262	Swords to Plow...	Limited	0.586	18.87	0.555	0.609
263	Ledger Shredder	Limited	0.578	19.08	0.599	0.564
264	Rat Colony	Limited	0	2.8	NULL	NULL
265	Relentless Rats	Limited	0	0.25	NULL	NULL
266	Kindred Charge	Limited	0	2.26	NULL	NULL
267	Sylvan Tutor	Limited	0	2.98	NULL	NULL
268	Toski, Bearer of ...	Limited	0.564	18.42	0.583	0.55
269	Frogmite	Limited	0	0.04	NULL	NULL
270	Sword of Fire an...	Limited	0.652	23.88	0.645999999...	0.655999999...
271	Seduced Court...	Limited	0	4.08	NULL	NULL

Filter 271 rows...

C:\Users\Owner\Desktop\sql> + -

```

SQLite version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_limited)
VALUES ('Fake Dragon', 'Standard', 55.5, 60.2, 57.1, 56.8);
sqlite> DELETE FROM LIMITED_ANALYTICS
...> WHERE card_name = 'Fake Dragon';
sqlite>

```

## LIMITED\_ANALYTICS UPDATE

MTG.db

Rows: 272

	card_name	format	win_rate_in_main_deck	play_rate	win_rate_opening_hand	win_rate_drawn
228	Plumecrae Mentor	Limited	0.557	207.4	0.555	0.5589999999999999
229	Pond Prophet	Limited	0.579	1388.1	0.5768000000000001	0.581
230	Ral, Crackling Wit	Limited	0.596	78.09	0.586	0.683
231	Seedglaive Mentor	Limited	0.532	298.23	0.5429999999999999	0.523
232	Seedpool Squire	Limited	0.526	510.71	0.512	0.535
233	Starseer Mentor	Limited	0.56	331.94	0.54	0.574
234	Stormwatch Mentor	Limited	0.527	175.93	0.53	0.526
235	Tempest Angler	Limited	0.519	436.29	0.508	0.525
236	Tidecaller Mentor	Limited	0.563	276.91	0.524	0.586
237	Veteran Guardhouse	Limited	0.52	462.54	0.519	0.52
238	Vinecap Mentor	Limited	0.616	589.63	0.628	0.608
239	Wren, the Relentless	Limited	0.682	228.94	0.595	0.606
240	Wanderdale Mentor	Limited	0.584	274.74	0.629	0.5479999999999999
241	Ygra, Eater of All	Limited	0.627	122.5	0.613	0.637
242	Zoradine, Cosmos Caller	Limited	0.622	186.81	0.602	0.636
243	Barkform Harvester	Limited	0.521	277.11	0.486	0.545
244	Bumbleflower's Sharpen	Limited	0.528	416.22	0.4870000000000000...	0.555
245	Fountainport Bell	Limited	0.5379999999999999	868.49	0.527	
246	Heirloom Epic	Limited	0.5379999999999999	111.36	0.528	
247	Patchwork Banner	Limited	0.59	637.32	0.594	0.51
248	Short Bow	Limited	0.526	251.3	0.522	
249	Starforged Sword	Limited	0.4870000000000000...	79.58	0.478	0.49
250	Tangle Tumbler	Limited	0.5379999999999999	134.28	0.526	
251	Three Tree Mascot	Limited	0.52	516.67	0.522	
252	Fabled Passage	Limited	0.561	228.28	0.5668000000000001	
253	Fountainport	Limited	0.563	188.24	0.5479999999999999	
254	Hidden Grotto	Limited	0.545	1836	0.535	0.51
255	Lilypad Village	Limited	0.534	220.11	0.522	
256	Lupinflower Village	Limited	0.568	348.85	0.565	
257	Mudflat Village	Limited	0.575	438.94	0.563	
258	Oakhollow Village	Limited	0.539	424.55	0.5429999999999999	
259	Rockface Village	Limited	0.542	296.53	0.5529999999999999	
260	Three Tree City	Limited	0.517	32.95	0.498	
261	Uncharted Haven	Limited	0.539	130.29	0.555	
262	Swords to Plowshares	Limited	0.586	18.07	0.555	
263	Ledger Shredder	Limited	0.578	19.08	0.599	
264	Rat Colony	Limited	0	2.8	NULL	
265	Relentless Rats	Limited	0	0.25	NULL	
266	Kindred Charge	Limited	0	2.26	NULL	
267	Sylvan Tutor	Limited	0	2.98	NULL	
268	Toski, Bearer of Secrets	Limited	0.564	18.42	0.583	
269	Frogmite	Limited	0	0.04	NULL	
270	Sword of Fire and Ice	Limited	0.652	23.88	0.6459999999999999	0.6559999999999999
271	Seduced Courtyard	Limited	0	4.08	NULL	
272	Test Card	Limited	0.6	0.05	0.5	0.45

C:\Users\Owner\Desktop\sql> + -

```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_drawn)
...> VALUES ('Test Card', 'Limited', 0.60, 0.05, 0.50, 0.45);
sqlite> |
```

MTG.db

Rows: 272

	card_name	format	win_rate_in_main_deck	play_rate	win_rate_opening_hand	win_rate_drawn
228	Plumecrae Mentor	Limited	0.557	207.4	0.555	0.5589999999999999
229	Pond Prophet	Limited	0.579	1388.1	0.5768000000000001	0.581
230	Ral, Crackling Wit	Limited	0.596	78.09	0.586	0.683
231	Seedglaive Mentor	Limited	0.532	298.23	0.5429999999999999	0.523
232	Seedpool Squire	Limited	0.526	510.71	0.512	0.535
233	Starseer Mentor	Limited	0.56	331.94	0.54	0.574
234	Stormwatch Mentor	Limited	0.527	175.93	0.53	0.526
235	Tempest Angler	Limited	0.519	436.29	0.508	0.525
236	Tidecaller Mentor	Limited	0.563	276.91	0.524	0.586
237	Veteran Guardhouse	Limited	0.52	462.54	0.519	0.52
238	Vinecap Mentor	Limited	0.616	589.63	0.628	0.608
239	Wren, the Relentless	Limited	0.682	228.94	0.595	0.606
240	Wanderdale Mentor	Limited	0.584	274.74	0.629	0.5479999999999999
241	Ygra, Eater of All	Limited	0.627	122.5	0.613	0.637
242	Zoradine, Cosmos Caller	Limited	0.622	186.81	0.602	0.636
243	Barkform Harvester	Limited	0.521	277.11	0.486	0.545
244	Bumbleflower's Sharpen	Limited	0.528	416.22	0.4870000000000000...	0.555
245	Fountainport Bell	Limited	0.5379999999999999	868.49	0.527	
246	Heirloom Epic	Limited	0.5379999999999999	111.36	0.528	
247	Patchwork Banner	Limited	0.59	637.32	0.594	0.51
248	Short Bow	Limited	0.526	251.3	0.522	
249	Starforged Sword	Limited	0.4870000000000000...	79.58	0.478	0.49
250	Tangle Tumbler	Limited	0.5379999999999999	134.28	0.526	
251	Three Tree Mascot	Limited	0.52	516.67	0.522	
252	Fabled Passage	Limited	0.561	228.28	0.5668000000000001	
253	Fountainport	Limited	0.563	188.24	0.5479999999999999	
254	Hidden Grotto	Limited	0.545	1836	0.535	0.51
255	Lilypad Village	Limited	0.534	220.11	0.522	
256	Lupinflower Village	Limited	0.568	348.85	0.565	
257	Mudflat Village	Limited	0.575	438.94	0.563	
258	Oakhollow Village	Limited	0.539	424.55	0.5429999999999999	
259	Rockface Village	Limited	0.542	296.53	0.5529999999999999	
260	Three Tree City	Limited	0.517	32.95	0.498	
261	Uncharted Haven	Limited	0.539	130.29	0.555	
262	Swords to Plowshares	Limited	0.586	18.07	0.555	
263	Ledger Shredder	Limited	0.578	19.08	0.599	
264	Rat Colony	Limited	0	2.8	NULL	
265	Relentless Rats	Limited	0	0.25	NULL	
266	Kindred Charge	Limited	0	2.26	NULL	
267	Sylvan Tutor	Limited	0	2.98	NULL	
268	Toski, Bearer of Secrets	Limited	0.564	18.42	0.583	
269	Frogmite	Limited	0	0.04	NULL	
270	Sword of Fire and Ice	Limited	0.652	23.88	0.6459999999999999	0.6559999999999999
271	Seduced Courtyard	Limited	0	4.08	NULL	
272	Test Card	Limited	0.6	0.05	0.5	0.45

C:\Users\Owner\Desktop\sql> + -

```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_drawn)
...> VALUES ('Test Card', 'Limited', 0.60, 0.05, 0.50, 0.45);
sqlite> |
```

MTG.db

Rows: 272

	card_name	format	win_rate_in_main_deck	play_rate	win_rate_opening_hand	win_rate_drawn
228	Plumecrae Mentor	Limited	0.557	207.4	0.555	0.5589999999999999
229	Pond Prophet	Limited	0.579	1388.1	0.5768000000000001	0.581
230	Ral, Crackling Wit	Limited	0.596	78.09	0.586	0.683
231	Seedglaive Mentor	Limited	0.532	298.23	0.5429999999999999	0.523
232	Seedpool Squire	Limited	0.526	510.71	0.512	0.535
233	Starseer Mentor	Limited	0.56	331.94	0.54	0.574
234	Stormwatch Mentor	Limited	0.527	175.93	0.53	0.526
235	Tempest Angler	Limited	0.519	436.29	0.508	0.525
236	Tidecaller Mentor	Limited	0.563	276.91	0.524	0.586
237	Veteran Guardhouse	Limited	0.52	462.54	0.519	0.52
238	Vinecap Mentor	Limited	0.616	589.63	0.628	0.608
239	Wren, the Relentless	Limited	0.682	228.94	0.595	0.606
240	Wanderdale Mentor	Limited	0.584	274.74	0.629	0.5479999999999999
241	Ygra, Eater of All	Limited	0.627	122.5	0.613	0.637
242	Zoradine, Cosmos Caller	Limited	0.622	186.81	0.602	0.636
243	Barkform Harvester	Limited	0.521	277.11	0.486	0.545
244	Bumbleflower's Sharpen	Limited	0.528	416.22	0.4870000000000000...	0.555
245	Fountainport Bell	Limited	0.5379999999999999	868.49	0.527	
246	Heirloom Epic	Limited	0.5379999999999999	111.36	0.528	
247	Patchwork Banner	Limited	0.59	637.32	0.594	0.51
248	Short Bow	Limited	0.526	251.3	0.522	
249	Starforged Sword	Limited	0.4870000000000000...	79.58	0.478	0.49
250	Tangle Tumbler	Limited	0.5379999999999999	134.28	0.526	
251	Three Tree Mascot	Limited	0.52	516.67	0.522	
252	Fabled Passage	Limited	0.561	228.28	0.5668000000000001	
253	Fountainport	Limited	0.563	188.24	0.5479999999999999	
254	Hidden Grotto	Limited	0.545	1836	0.535	0.51
255	Lilypad Village	Limited	0.534	220.11	0.522	
256	Lupinflower Village	Limited	0.568	348.85	0.565	
257	Mudflat Village	Limited	0.575	438.94	0.563	
258	Oakhollow Village	Limited	0.539	424.55	0.5429999999999999	
259	Rockface Village	Limited	0.542	296.53	0.5529999999999999	
260	Three Tree City	Limited	0.517	32.95	0.498	
261	Uncharted Haven	Limited	0.539	130.29	0.555	
262	Swords to Plowshares	Limited	0.586	18.07	0.555	
263	Ledger Shredder	Limited	0.578	19.08	0.599	
264	Rat Colony	Limited	0	2.8	NULL	
265	Relentless Rats	Limited	0	0.25	NULL	
266	Kindred Charge	Limited	0	2.26	NULL	
267	Sylvan Tutor	Limited	0	2.98	NULL	
268	Toski, Bearer of Secrets	Limited	0.564	18.42	0.583	
269	Frogmite	Limited	0	0.04	NULL	
270	Sword of Fire and Ice	Limited	0.652	23.88	0.6459999999999999	0.6559999999999999
271	Seduced Courtyard	Limited	0	4.08	NULL	
272	Test Card	Limited	0.6	0.05	0.5	0.45

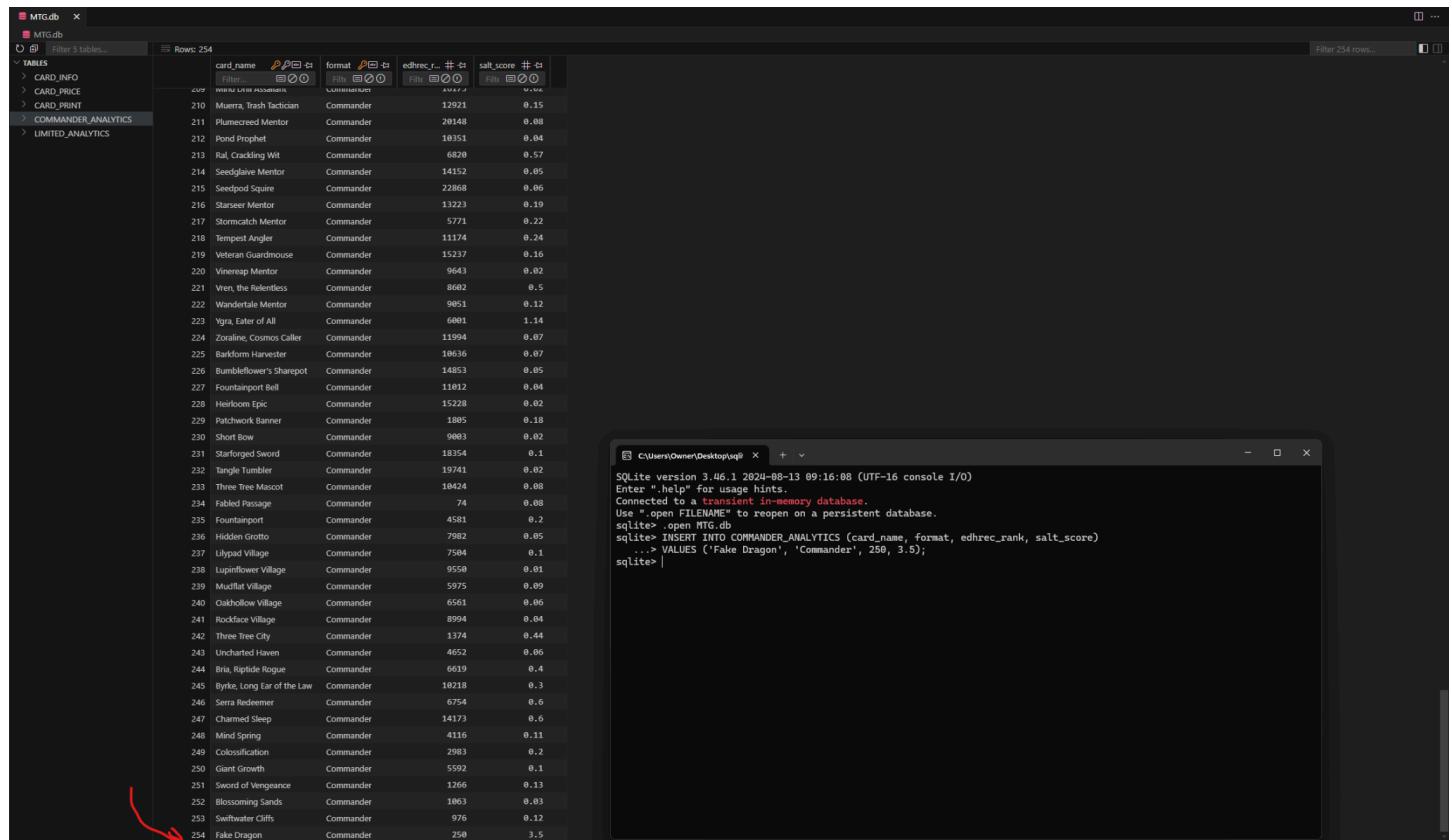
C:\Users\Owner\Desktop\sql> + -

```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTC-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO LIMITED_ANALYTICS (card_name, format, win_rate_in_main_deck, play_rate, win_rate_opening_hand, win_rate_drawn)
...> VALUES ('Test Card', 'Limited', 0.60, 0.05, 0.50, 0.45);
sqlite> |
```

## COMMANDER\_ANALYTICS SELECT

```
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> SELECT * FROM COMMANDER_ANALYTICS WHERE edhrec_rank < 5000;
Banishing Light|Commander|2326|0.32
Caretaker's Talent|Commander|3690|0.46
Dawn's Truce|Commander|2278|0.43
Mockingbird|Commander|4704|0.39
Run Away Together|Commander|2415|0.26
Shore Up|Commander|2781|0.16
Coruscation Mage|Commander|4737|0.19
Innkeeper's Talent|Commander|3803|0.59
Lumra, Bellows of the Woods|Commander|4616|0.46
Patchwork Banner|Commander|1805|0.18
Fabled Passage|Commander|74|0.08
Fountainport|Commander|4581|0.2
Three Tree City|Commander|1374|0.44
Uncharted Haven|Commander|4652|0.06
Mind Spring|Commander|4116|0.11
Colossalification|Commander|2983|0.2
Sword of Vengeance|Commander|1266|0.13
Blossoming Sands|Commander|1063|0.03
Swiftwater Cliffs|Commander|976|0.12
sqlite> INSERT INTO COMMANDER_ANALYTICS (card_name, format, edhrec_rank, salt_score)
...> VALUES ('New Fake Card', 'Commander', 2500, 0.5);
sqlite> DELETE FROM COMMANDER_ANALYTICS WHERE card_name = 'New Fake Card';
sqlite> UPDATE COMMANDER_ANALYTICS SET salt_score = 0.75 WHERE card_name = 'Beza, the Bounding Spring';
sqlite> |
```

## COMMANDER\_ANALYTICS INSERT



The screenshot shows a SQLite database window with the following details:

- Database:** MTG.db
- Tables:** COMMANDER\_ANALYTICS
- Rows:** 254
- Columns:** card\_name, format, edhrec\_rank, salt\_score

The table data includes the following columns:

row	card_name	format	edhrec_rank	salt_score
210	Mutter, Iashn's Victim	Commander	12921	0.15
211	Plumebeard Mentor	Commander	20448	0.08
212	Pond Prophet	Commander	10351	0.04
213	Ral, Cracking Wit	Commander	6820	0.57
214	Seedglade Mentor	Commander	14152	0.05
215	Seedpod Squire	Commander	22868	0.06
216	Starsee Mentor	Commander	13223	0.19
217	Stormcatch Mentor	Commander	5771	0.22
218	Tempest Angler	Commander	11174	0.24
219	Veteran Guardmouse	Commander	15237	0.16
220	Vinereap Mentor	Commander	9643	0.02
221	Wren, the Relentless	Commander	8602	0.5
222	Wanderdale Mentor	Commander	9851	0.12
223	Ygra, Eater of All	Commander	6801	1.14
224	Zoradine, Cosmos Caller	Commander	11994	0.07
225	Barkform Harvester	Commander	10636	0.07
226	Bumbleflower Sharepot	Commander	14853	0.05
227	Fountainport Bell	Commander	11012	0.04
228	Heirloom Epic	Commander	15228	0.02
229	Patchwork Banner	Commander	1805	0.18
230	Short Bow	Commander	9883	0.02
231	Starforged Sword	Commander	18354	0.1
232	Tangle Tumbler	Commander	19741	0.02
233	Three Tree Mascot	Commander	10424	0.08
234	Fabled Passage	Commander	74	0.08
235	Fountainport	Commander	4581	0.2
236	Hidden Grotto	Commander	7982	0.05
237	Lilypad Village	Commander	7594	0.1
238	Lupinflower Village	Commander	9558	0.01
239	Mudflat Village	Commander	5975	0.09
240	Oakhollow Village	Commander	6561	0.06
241	Rockface Village	Commander	8994	0.04
242	Three Tree City	Commander	1374	0.44
243	Uncharted Haven	Commander	4652	0.06
244	Ibra, Riptide Rogue	Commander	6619	0.4
245	Byrke, Long Ear of the Law	Commander	10218	0.3
246	Sierra Redeemer	Commander	6754	0.6
247	Charmed Sleep	Commander	14173	0.6
248	Mind Spring	Commander	4116	0.11
249	Colossalification	Commander	2983	0.2
250	Giant Growth	Commander	5592	0.1
251	Sword of Vengeance	Commander	1266	0.13
252	Blossoming Sands	Commander	1063	0.03
253	Swiftwater Cliffs	Commander	976	0.12
254	Fake Dragon	Commander	250	3.5

SQLite version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)  
Enter ".help" for usage hints.  
Connected to transient in-memory database.  
Use ".open FILENAME" to reopen on a persistent database.

```
sqlite> .open MTG.db
sqlite> INSERT INTO COMMANDER_ANALYTICS (card_name, format, edhrec_rank, salt_score)
...> VALUES ('Fake Dragon', 'Commander', 250, 3.5);
sqlite> |
```

## COMMANDER\_ANALYTICS DELETE

The screenshot shows a database interface with the following details:

- Database:** MTG.db
- Tables:** CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS.
- COMMANDER\_ANALYTICS Table Data:**

card_name	format	edhrec_ranks	salt_score
Mind Drill Assailant	Commander	16173	0.02
Muerra, Trash Tactician	Commander	12921	0.15
Plumeclered Mentor	Commander	20148	0.88
Pond Prophet	Commander	18351	0.04
Ral, Cracking Wit	Commander	6820	0.57
Seedglade Mentor	Commander	14152	0.05
Seedpod Squire	Commander	22868	0.06
Starseeker Mentor	Commander	13223	0.19
Stormcatch Mentor	Commander	5771	0.22
Tempest Angler	Commander	11174	0.24
Veteran Guardmouse	Commander	15237	0.16
Vinecreap Mentor	Commander	9643	0.02
Vren, the Relentless	Commander	8682	0.5
Wanderdale Mentor	Commander	9861	0.12
Ygra, Eater of All	Commander	6801	1.14
Zoradine, Cosmos Caller	Commander	11994	0.07
Barkform Harvester	Commander	10636	0.07
Bumbleflower's Sharepot	Commander	14853	0.05
Fountainport Bell	Commander	11012	0.04
Heirloom Epic	Commander	15228	0.02
Patchwork Banner	Commander	1085	0.18
Short Bow	Commander	9083	0.02
Starforged Sword	Commander	18354	0.1
Tangle Tumbler	Commander	19741	0.02
Three Tree Mascot	Commander	10424	0.88
Fabled Passage	Commander	74	0.08
Fountainport Commander	Commander	4581	0.2
Hidden Grotto	Commander	7982	0.05
Lilypad Village	Commander	7584	0.1
Lupinflower Village	Commander	9558	0.01
Mudflat Village	Commander	5975	0.09
Oakhollow Village	Commander	6561	0.06
Rockface Village	Commander	8994	0.04
Three Tree City	Commander	1374	0.44
Uncharted Haven	Commander	4652	0.06
Bria, Rightide Rogue	Commander	6619	0.4
Byrke, Long Ear of the Law	Commander	10218	0.3
Serra Reclaimer	Commander	6754	0.6
Charmed Sleep	Commander	14173	0.6
Mind Spring	Commander	4116	0.11
Colossalification	Commander	2983	0.2
Giant Growth	Commander	5592	0.1
Sword of Vengeance	Commander	1266	0.13
Blossoming Sands	Commander	1063	0.03
Swiftwater Cliffs	Commander	976	0.12
- SQLite Command Window:**

```
sqlite version 3.46.1 2020-08-13 09:16:08 (UTF-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> INSERT INTO COMMANDER_ANALYTICS (card_name, format, edhrec_rank, salt_score)
...> VALUES ('Fake Dragon', 'Commander', 250, 3.5);
sqlite> DELETE FROM COMMANDER_ANALYTICS
...> WHERE card_name = 'Fake Dragon';
sqlite>
```

## COMMANDER\_ANALYTICS UPDATE

MTG.db

Filter 5 tables... Rows: 254

TABLES: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS

	card_name	format	edhrec_r...	salt_score
210	Muerra, Trish Tactician	Commander	12921	0.15
211	Plumeclerd Mentor	Commander	28148	0.08
212	Pond Prophet	Commander	10351	0.04
213	Ral, Cracking Wit	Commander	6820	0.57
214	Seedglade Mentor	Commander	14152	0.05
215	Seedpod Squire	Commander	22868	0.06
216	Starseer Mentor	Commander	13223	0.19
217	Stormcatch Mentor	Commander	5771	0.22
218	Tempest Angler	Commander	11174	0.24
219	Veteran Guardmouse	Commander	15237	0.16
220	Vinecap Mentor	Commander	9643	0.02
221	Vren, the Relentless	Commander	8682	0.5
222	Wanderdale Mentor	Commander	9651	0.12
223	Ygra, Eater of All	Commander	6801	1.14
224	Zoradine, Cosmos Caller	Commander	11994	0.07
225	Barkform Harvester	Commander	10636	0.07
226	Bumbleflower's Sharpen	Commander	14853	0.05
227	Fountainport Bell	Commander	11012	0.04
228	Heirloom Epic	Commander	15228	0.02
229	Patchwork Banner	Commander	1885	0.18
230	Short Bow	Commander	9003	0.02
231	Starforged Sword	Commander	18354	0.1
232	Tangle Tumbler	Commander	19741	0.02
233	Three Tree Mascot	Commander	10424	0.08
234	Fabled Passage	Commander	74	0.08
235	Fountainport	Commander	4581	0.2
236	Hidden Grotto	Commander	7982	0.05
237	Lilypad Village	Commander	7594	0.1
238	Lupinflower Village	Commander	9550	0.01
239	Mudflat Village	Commander	5975	0.09
240	Oakhollow Village	Commander	6561	0.06
241	Rockface Village	Commander	8994	0.04
242	Three Tree City	Commander	1374	0.44
243	Uncharted Haven	Commander	4652	0.06
244	Bria, Riptide Rogue	Commander	6619	0.4
245	Byrke, Long Ear of the ...	Commander	10218	0.3
246	Serra Redeemer	Commander	6754	0.6
247	Charmed Sleep	Commander	14173	0.6
248	Mind Spring	Commander	4116	0.11
249	Colossalification	Commander	2983	0.2
250	Giant Growth	Commander	5592	0.1
251	Sword of Vengeance	Commander	1266	0.13
252	Blossoming Sands	Commander	1063	0.03
253	Swiftwater Cliffs	Commander	976	0.12
254	Test Card	Commander	1000	0.8

Filter 254 rows... Rows: 254

SQLITE version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)  
Enter ".help" for usage hints.  
Connected to a transient in-memory database.  
Use ".open FILENAME" to reopen on a persistent database.  
sqlite> .open MTG.sqlite  
sqlite> INSERT INTO COMMANDER\_ANALYTICS (card\_name, format, edhrec\_rank, salt\_score)  
...> VALUES ('Test Card', 'Commander', 999, 0.75);  
sqlite> UPDATE COMMANDER\_ANALYTICS  
...> SET edhrec\_rank = 1000, salt\_score = 0.80  
...> WHERE card\_name = 'Test Card';  
sqlite> |

MTG.db

Filter 5 tables... Rows: 254

TABLES: CARD\_INFO, CARD\_PRICE, CARD\_PRINT, COMMANDER\_ANALYTICS, LIMITED\_ANALYTICS

	card_name	format	edhrec_r...	salt_score
210	Muerra, Trish Tactician	Commander	12921	0.15
211	Plumeclerd Mentor	Commander	28148	0.08
212	Pond Prophet	Commander	10351	0.04
213	Ral, Cracking Wit	Commander	6820	0.57
214	Seedglade Mentor	Commander	14152	0.05
215	Seedpod Squire	Commander	22868	0.06
216	Starseer Mentor	Commander	13223	0.19
217	Stormcatch Mentor	Commander	5771	0.22
218	Tempest Angler	Commander	11174	0.24
219	Veteran Guardmouse	Commander	15237	0.16
220	Vinecap Mentor	Commander	9643	0.02
221	Vren, the Relentless	Commander	8682	0.5
222	Wanderdale Mentor	Commander	9651	0.12
223	Ygra, Eater of All	Commander	6801	1.14
224	Zoradine, Cosmos Caller	Commander	11994	0.07
225	Barkform Harvester	Commander	10636	0.07
226	Bumbleflower's Sharpen	Commander	14853	0.05
227	Fountainport Bell	Commander	11012	0.04
228	Heirloom Epic	Commander	15228	0.02
229	Patchwork Banner	Commander	1885	0.18
230	Short Bow	Commander	9003	0.02
231	Starforged Sword	Commander	18354	0.1
232	Tangle Tumbler	Commander	19741	0.02
233	Three Tree Mascot	Commander	10424	0.08
234	Fabled Passage	Commander	74	0.08
235	Fountainport	Commander	4581	0.2
236	Hidden Grotto	Commander	7982	0.05
237	Lilypad Village	Commander	7594	0.1
238	Lupinflower Village	Commander	9550	0.01
239	Mudflat Village	Commander	5975	0.09
240	Oakhollow Village	Commander	6561	0.06
241	Rockface Village	Commander	8994	0.04
242	Three Tree City	Commander	1374	0.44
243	Uncharted Haven	Commander	4652	0.06
244	Bria, Riptide Rogue	Commander	6619	0.4
245	Byrke, Long Ear of the ...	Commander	10218	0.3
246	Serra Redeemer	Commander	6754	0.6
247	Charmed Sleep	Commander	14173	0.6
248	Mind Spring	Commander	4116	0.11
249	Colossalification	Commander	2983	0.2
250	Giant Growth	Commander	5592	0.1
251	Sword of Vengeance	Commander	1266	0.13
252	Blossoming Sands	Commander	1063	0.03
253	Swiftwater Cliffs	Commander	976	0.12
254	Test Card	Commander	999	0.75

Filter 254 rows... Rows: 254

SQLITE version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)  
Enter ".help" for usage hints.  
Connected to a transient in-memory database.  
Use ".open FILENAME" to reopen on a persistent database.  
sqlite> .open MTG.sqlite  
sqlite> INSERT INTO COMMANDER\_ANALYTICS (card\_name, format, edhrec\_rank, salt\_score)  
...> VALUES ('Test Card', 'Commander', 999, 0.75);  
sqlite> UPDATE COMMANDER\_ANALYTICS  
...> SET edhrec\_rank = 1000, salt\_score = 0.80  
...> WHERE card\_name = 'Test Card';  
sqlite> |

## 4. References

- [1] Scryfall LLC, "Scryfall," *Scryfall.com*. [Online]. Available: <https://scryfall.com>. [Accessed: Oct. 16 2024].
- [2] MTGJSON, "MTGJSON: Portable formats for all Magic: The Gathering data," *mtgjson.com*, 2013. [Online]. Available: <https://mtgjson.com>. [Accessed: Oct. 16 2024].
- [3] Moxfield LLC, "Moxfield: A modern mtg deck builder," *moxfield.com*, 2019. [Online]. Available: <https://www.moxfield.com>. [Accessed: Oct. 16 2024].
- [4] CardTrader, "MTG Print: Proxy Magic The Gathering decks," *mtgprint.net*, [Online]. Available: <https://mtgprint.net>. Accessed: Oct. 16 2024].
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- [6] Scryfall, "API catalog & card names now available", Scryfall Blog, Mar. 30, 2017. [Online]. Available: <https://scryfall.com/blog/api-catalog-card-names-now-available-30>. [Accessed: Oct. 16 2024].
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## 2. 3NF Normalization (draft)

Below is the step-by-step normalization process for each relation. This is not the functional dependency diagram, though functional dependencies may be seen in the graphics.

## CARD INFO

## CARD PRINT

CARD_PRINT						
card_name	set	set#	artist_name	url_to_unique	url_to_png	flavor_text
		Λ	Λ	Λ	Λ	Λ
Λ	Λ	Λ	Λ		Λ	Λ
Λ	Λ	Λ	Λ	Λ		Λ

**STEP 1** Attribute 'card\_name' wasn't needed in primary key; therefore, removed it from the primary key.

CARD_PRINT						
set	set#	artist_name	url_to_unique	url_to_png	flavor_text	card_name
		Λ	Λ	Λ	Λ	Λ
Λ	Λ	Λ	Λ		Λ	Λ
Λ	Λ	Λ	Λ	Λ		Λ

**STEP 2** Removed 'url\_to\_unique\_prints' because it wasn't a real attribute

CARD_PRINT					
set	set#	artist_name	flavor_text	card_name	url_to_png
		Λ	Λ	Λ	Λ
Λ	Λ	Λ	Λ	Λ	

STEP 3 All attributes could also depend on non-key attribute 'url\_to\_png'; therefore, decomposed into 'PNG\_DOWNLOAD' relation

CARD_PRINT					PNG_DOWNLOAD		
set	set#	artist_name	flavor_text	card_name	set	set#	url_to_png
			^	^		^	^

## CARD\_PRICE

CARD_PRICE					
card_name	set	set#	seller	tix	usd
				A	A
A				A	A

STEP 1 Attribute 'card_name' wasn't needed in primary key; therefore, removed it from the primary key					
CARD_PRICE					
set	set#	seller	tix	usd	card_name
				A	A

## LIMITED\_ANALYTICS

ANALYTICS (SUPER CLASS)		LIMITED_ANALYTICS				
card_name	format	card_name	format	play_rate	win_rate_deck	win_rate_hand
				A	A	A

STEP 1 Super-class 'ANALYTICS' was redundant; therefore, removed it					
LIMITED_ANALYTICS					
card_name	format	play_rate	win_rate_deck	win_rate_hand	win_rate_drawn
		A	A	A	A

## COMMANDER\_ANALTRICS

ANALYTICS (SUPER CLASS)		COMMANDER_ANALYTICS		
card_name	format	card_name	format	edhrec_rank
				A
A	A	A		A

STEP 1 Super-class 'ANALYTICS' was redundant; therefore, removed it			
COMMANDER_ANALYTICS			
card_name	format	edhrec_rank	salt_score
A	A	A	A

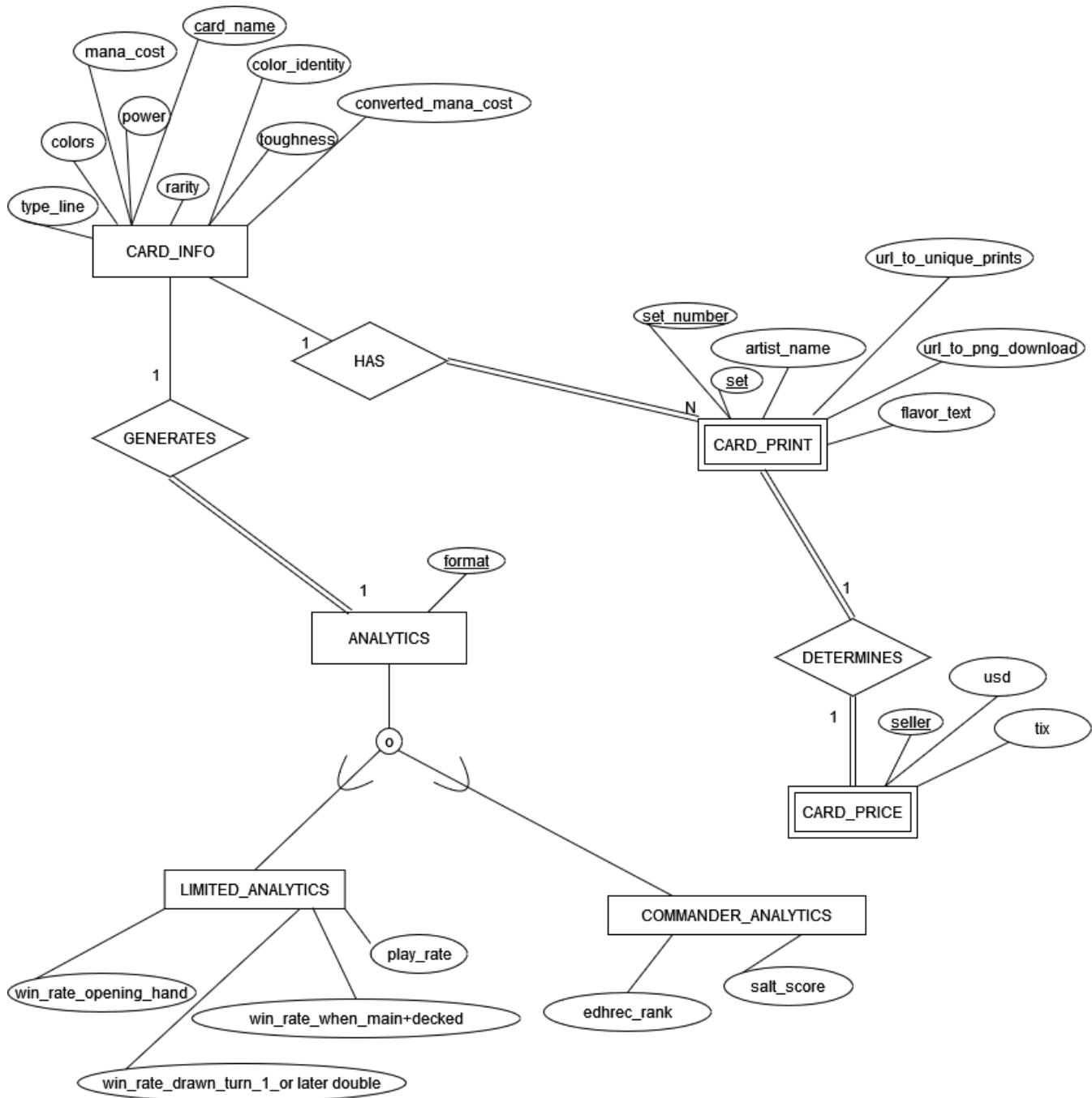
  

STEP 2 All attributes could also depend on non-key attribute 'edhrec_rank'; therefore, decomposed into 'EDHREC_RANK' relation			
COMMANDER_ANALYTICS		EDHREC_RANK	
card_name	format	card_name	format
	A		

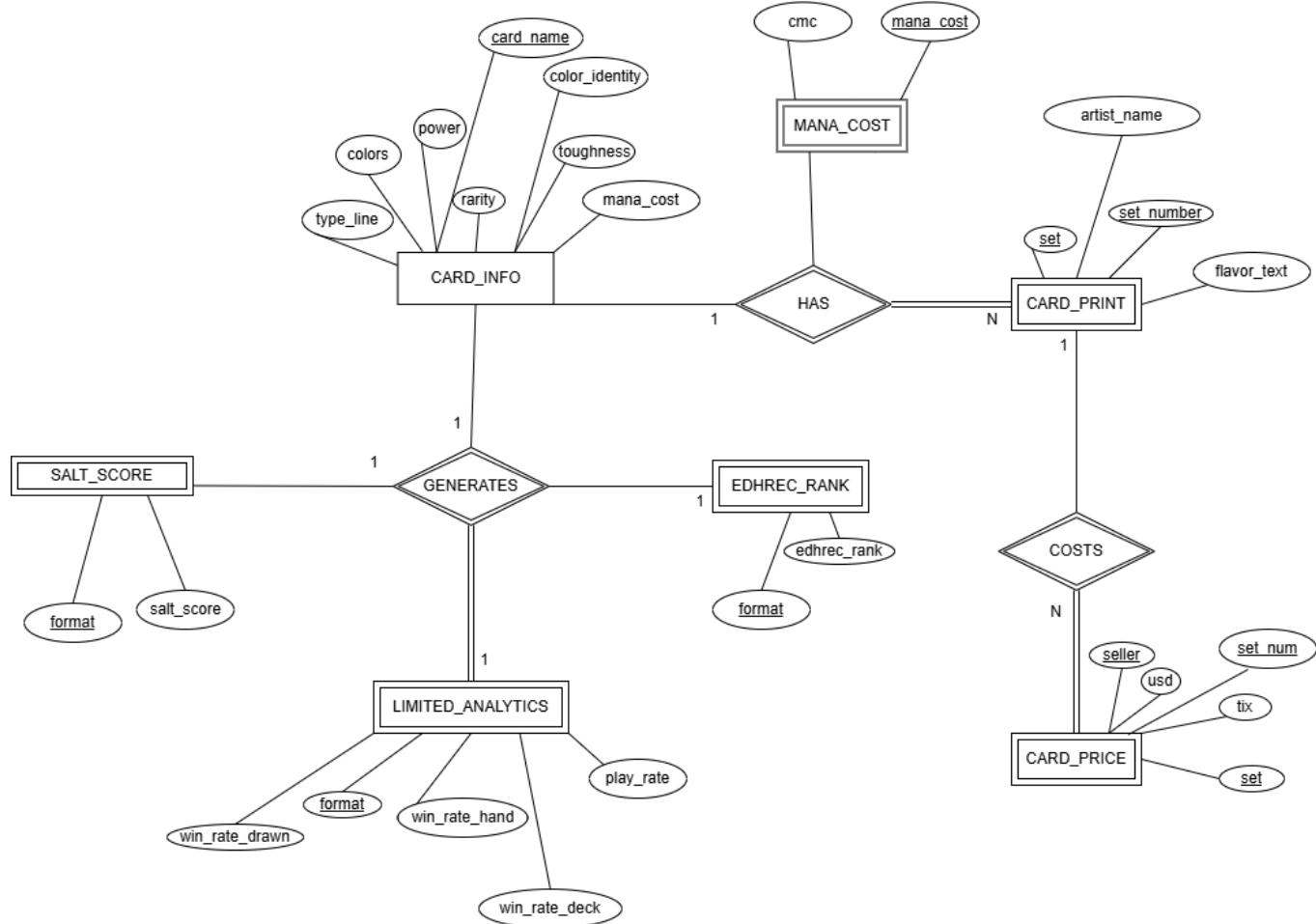
  

STEP 3 After decomposition, 'COMMANDER_ANALYTICS' relation only refers to attribute 'salt_score'; therefore, renamed relation to 'SALT_SCORE' for clarity			
SALT_SCORE		EDHREC_RANK	
card_name	format	card_name	format
	A		

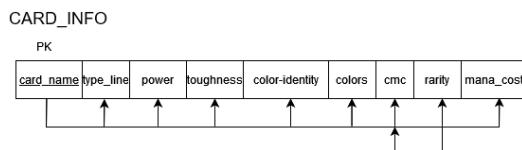
## ER Model (before normalization)



## ER Model (after normalization)

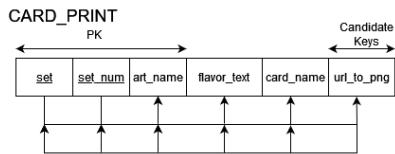


### 3. Dependency diagrams



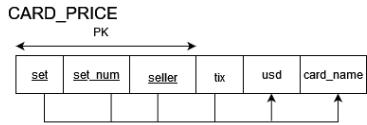
FD1

FD2

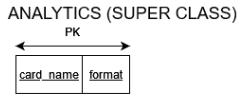


FD3

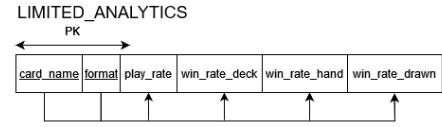
FD4



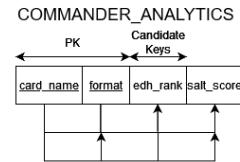
FD5



NO FD



FD6

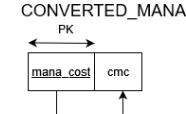


FD7

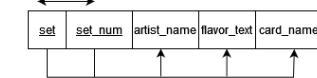
FD8



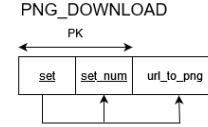
FD1



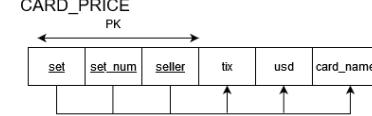
FD2



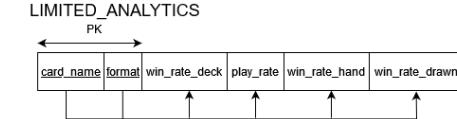
FD3



FD4



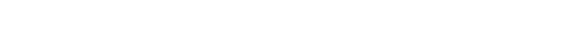
FD5



FD6

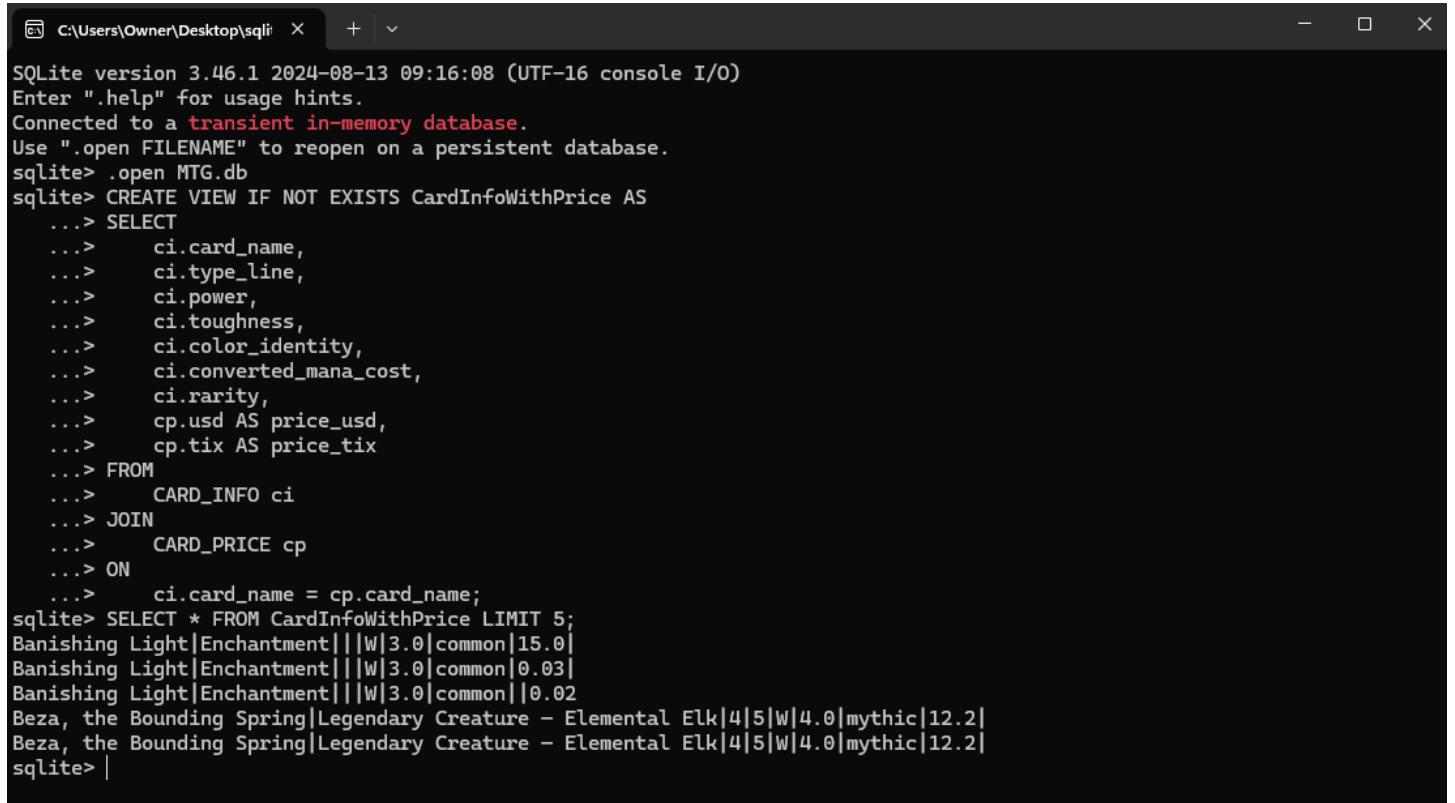


FD7



FD8

## 4. Create view



```
SQLite version 3.46.1 2024-08-13 09:16:08 (UTF-16 console I/O)
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> .open MTG.db
sqlite> CREATE VIEW IF NOT EXISTS CardInfoWithPrice AS
...> SELECT
...>     ci.card_name,
...>     ci.type_line,
...>     ci.power,
...>     ci.toughness,
...>     ci.color_identity,
...>     ci.converted_mana_cost,
...>     ci.rarity,
...>     cp.usd AS price_usd,
...>     cp.tix AS price_tix
...> FROM
...>     CARD_INFO ci
...> JOIN
...>     CARD_PRICE cp
...> ON
...>     ci.card_name = cp.card_name;
sqlite> SELECT * FROM CardInfoWithPrice LIMIT 5;
Banishing Light|Enchantment|||W|3.0|common|15.0|
Banishing Light|Enchantment|||W|3.0|common|0.03|
Banishing Light|Enchantment|||W|3.0|common||0.02|
Beza, the Bounding Spring|Legendary Creature - Elemental Elk|4|5|W|4.0|mythic|12.2|
Beza, the Bounding Spring|Legendary Creature - Elemental Elk|4|5|W|4.0|mythic|12.2|
sqlite> |
```

The purpose of the CardInfoWithPrice view is to provide a unified way to access essential details about Magic: The Gathering cards, such as their type, power, toughness, color identity, and converted mana cost, along with their corresponding price information in USD and TIX. This view simplifies querying by joining data from the CARD\_INFO and CARD\_PRICE tables, enabling users to quickly retrieve both card attributes and pricing data in a single query.

## 5. User interface

### INSERT OPERATION

The screenshot shows the MTG Database Manager application interface. At the top, there is a navigation bar with tabs: Card Info, Card Prices, Card Prints, Commander Analytics, and Limited Analytics. Below the navigation bar, there is a search bar with dropdown menus for 'card\_name' and 'Test Card'. A red arrow points to the search bar.

Below the search bar is a table header with columns: card\_name, type\_line, power, toughness, color\_identity, colors, converted\_mana\_cost, mana\_cost, and rarity. A red box highlights the first row of the table, which contains the text 'No matching records found.'

A second red arrow points to the 'Insert New CARD\_INFO' dialog box, which is also highlighted by a red box. This dialog box contains fields for card\_name (Test Card), type\_line (Creature), power (3), and toughness (3). The entire dialog box is enclosed in a red border.

At the bottom of the application window, there are buttons for 'Copy to Clipboard' and 'Export to File'.

In the bottom half of the screenshot, another instance of the MTG Database Manager is shown. It has a search bar with 'card\_name' set to 'Test Card'. A red arrow points to the search bar. Below it is a table of cards. A red box highlights the row for 'Test Card', which has a 'type\_line' of 'Creature', 'power' of 3, 'toughness' of 3, 'color\_identity' of 'W', and 'colors' of 'White'. The entire row is enclosed in a red border.

At the bottom of this second application window, there are input fields for 'colors', 'converted\_mana\_cost', 'mana\_cost', and 'rarity', along with a button labeled 'Insert CARD\_INFO'.

## DELETE OPERATION

MTG Database Manager

Card Info Card Prices Card Prints Commander Analytics Limited Analytics

card\_name Test Card

Add Condition Search Quit

card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
Colossalization	Enchantment — Aura	None	None	G	G	7.0	[5][G][G]	rare
Giant Growth	Instant	None	None	G	G	1.0	[G]	common
Rabid Bite	Sorcery	None	None	G	G	2.0	[1][G]	common
Sword of Vengeance	Artifact — Equipment	None	None			3.0	[3]	rare
Blossoming Sands	Land	None	None	G,W		0.0		common
Swiftwater Cliffs	Land	None	None	R,U		0.0		common
Test Card	Sorcery	5	5	G	B	9.0	[G][G]	Mythic

Copy to Clipboard Export to File

Update CARD\_INFO

Delete CARD\_INFO

card\_name to Delete Test Card

Delete CARD\_INFO

MTG Database Manager

Card Info Card Prices Card Prints Commander Analytics Limited Analytics

card\_name Test Card

Add Condition Search Quit

card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
Flame Lash	Instant	None	None	R	R	4.0	[3][R]	common
Colossalization	Enchantment — Aura	None	None	G	G	7.0	[5][G][G]	rare
Giant Growth	Instant	None	None	G	G	1.0	[G]	common
Rabid Bite	Sorcery	None	None	G	G	2.0	[1][G]	common
Sword of Vengeance	Artifact — Equipment	None	None			3.0	[3]	rare
Blossoming Sands	Land	None	None	G,W		0.0		common
Swiftwater Cliffs	Land	None	None	R,U		0.0		common

Copy to Clipboard Export to File

Update CARD\_INFO

Delete CARD\_INFO

card\_name to Delete

Delete CARD\_INFO

## UPDATE OPERATION

MTG Database Manager

Card Info Card Prices Card Prints Commander Analytics Limited Analytics

card\_name dropdown: Test Card

Add Condition Search Quit

card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
Colossalization	Enchantment — Aura	None	None	G	G	7.0	(S)(G)(G)	rare
Giant Growth	Instant	None	None	G	G	1.0	(G)	common
Rabid Bite	Sorcery	None	None	G	G	2.0	(1)(G)	common
Sword of Vengeance	Artifact — Equipment	None	None			3.0	(S)	rare
Blossoming Sands	Land	None	None	G,W		0.0		common
Swintwater Chills	Land	None	None	R,U		0.0		common
<b>Test Card</b>	Creature	5	5	G	W	9.0	(G)(G)	Mythic

Copy to Clipboard Export to File

Update CARD\_INFO

card\_name\_to\_Update: Test Card

type\_line: Sorcery

power: 5

toughness: 5

MTG Database Manager

Card Info Card Prices Card Prints Commander Analytics Limited Analytics

card\_name dropdown: Test Card

Add Condition Search Quit

card_name	type_line	power	toughness	color_identity	colors	converted_mana_cost	mana_cost	rarity
Colossalization	Enchantment — Aura	None	None	G	G	7.0	(S)(G)(G)	rare
Giant Growth	Instant	None	None	G	G	1.0	(G)	common
Rabid Bite	Sorcery	None	None	G	G	2.0	(1)(G)	common
Sword of Vengeance	Artifact — Equipment	None	None			3.0	(S)	rare
Blossoming Sands	Land	None	None	G,W		0.0		common
Swintwater Chills	Land	None	None	R,U		0.0		common
<b>Test Card</b>	Sorcery	5	5	G	W	9.0	(G)(G)	Mythic

Copy to Clipboard Export to File

converted\_mana\_cost:

mana\_cost:

rarity:

Update CARD\_INFO

## **6. Conclusion**

For the most part, everything went according to plan. However, during the middle of deliverable 1 we decided to scale back the scope of the project to only what was going to be graded. Instead of making a full stack application utilizing our database, we decided only to implement the database and a user interface to that database.

Just to recap the main things that served us well: we met weekly for about 15 minutes which proved to be valuable in making sure everyone wasn't waiting until the last minute to complete their work. Additionally, by assigning tasks so that all of the work was due a week before each deliverable due date, we were able to make up for a miscommunication about normalization during deliverable 2 which caused Tolu and John to need an additional week to redo their work. Lastly, by picking an interesting real-world subject, it was probably much easier to work on our project than had we gone with some hypothetical database listed in the project guidelines (e.g., "library" database).

## 7. References

- [1] Scryfall LLC, "Scryfall," *Scryfall.com*. [Online]. Available: <https://scryfall.com>. [Accessed: Oct. 16 2024].
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- [4] CardTrader, "MTG Print: Proxy Magic The Gathering decks," *mtgprint.net*, [Online]. Available: <https://mtgprint.net>. Accessed: Oct. 16 2024].
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- [7] viralmisomer, "17Lands project start date," Message in 17Lands Discord server, October, 2024. [Online]. Available: <https://discord.com/invite/W5ea17A>. [Accessed: Oct. 13 2024].