Mikaela Scheff

**Database of Magic: The Gathering Cards**

Magic: The Gathering is a trading card game that has been printed by Wizards of the Coast since 1993. There are currently over 13,000 unique cards and new sets of up to 400 cards (including reprinted cards) and released multiple times a year. The game is played between two or more people, each of whom has a deck of cards. There are two basic types of cards in Magic: land cards and spell cards. Land cards are free to play and are used to make resources. A player must spent resources to play spell cards. Every spell card has its cost written in symbols in the upper right hand corner.

The basic idea of the game is that each person is a wizard who battles their opponents by casting spells (playing spell cards).

Cards come in 6 colors: white, blue, black, red, green, and colorless (no color). A card can be colorless, one color, or multiple colors (a card cannot be both colorless and another color). There are 7 types of resources that are used to play spell cards: white, blue, black, red, green, generic, and colorless (a generic cost means that any resource type can be used while a colorless cost means that a colorless resource has to be used). The color of most cards is the same as the colors of resources needed to play the card. Land cards are always colorless.

Every card has at least one type: land, artifact, creature, instant, planeswalker, sorcery, or enchantment. A card can have multiple types. A card may also have a supertype and/or a subtype.

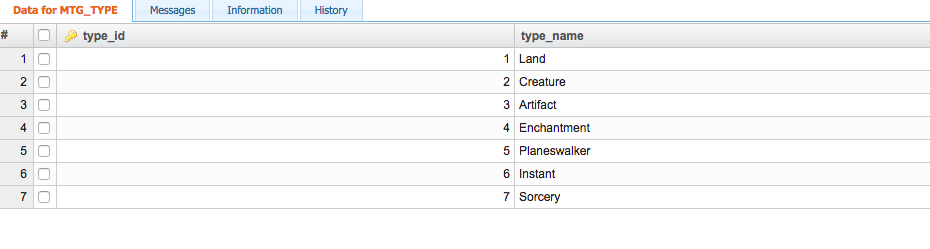
In my database, I included only attributes that every card has. Because of this, I did not include subtypes or supertypes and I did not include cards that have more than one type.

My idea for the database is that a player could use it to search for cards that would be good in their deck. I picked a limited selection of cards to include in my database.

I created three webpages to allow players to search for cards and one that they can use to add a land card. All four of these webpages can be accessed from the directory I put together: <http://web.simmons.edu/~scheffm/mtgLinks.html>. Since there are quite a lot of different ways a player may wish to search for cards, I decided to make forms (and stored procedures) for three that I thought would be most useful. Using my webpages, a player can find the names of all cards with a specific color and type combination, information about all cards containing a specific string of characters in their name, and information about all cards of a specific type.

**Creating and Populating Tables**

**“Fixed” Tables:**



create table MTG\_TYPE(type\_id Integer NOT NULL AUTO\_INCREMENT, type\_name char(100) NOT NULL, CONSTRAINT type\_pkPRIMARY KEY (type\_id))

insert into MTG\_TYPE

  values(1,"Land");

insert into MTG\_TYPE

  values(2,"Creature");

insert into MTG\_TYPE

  values(3,"Artifact");

insert into MTG\_TYPE

  values(4,"Enchantment");

insert into MTG\_TYPE

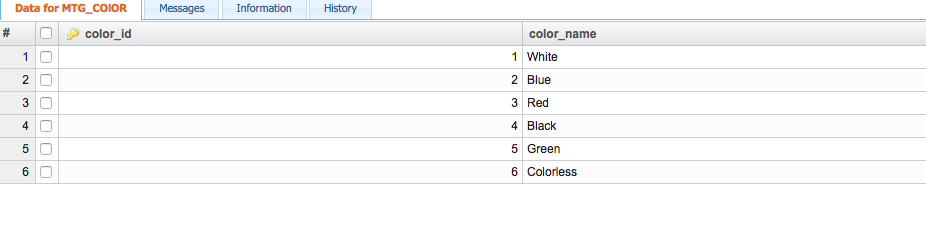
  values(5,"Planeswalker");

insert into MTG\_TYPE

  values(6,"Instant");

insert into MTG\_TYPE

  values(7,"Sorcery”);

create table MTG\_COlOR(color\_id Integer NOT NULL AUTO\_INCREMENT, color\_name char(100) NOT NULL, CONSTRAINTcolor\_pk PRIMARY KEY (color\_id))

insert into MTG\_COlOR

  values(2,"Blue");

insert into MTG\_COlOR

  values(3,"Red");

insert into MTG\_COlOR

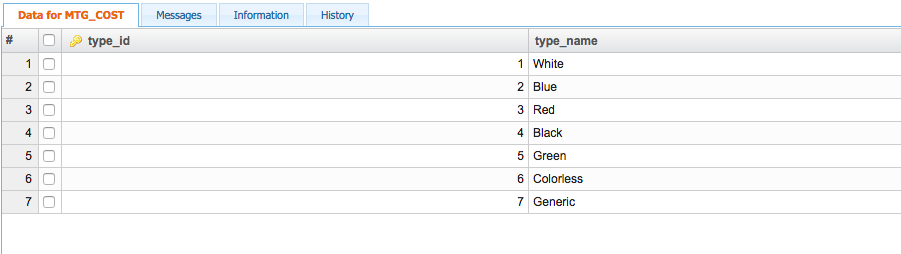
  values(4,"Black");

insert into MTG\_COlOR

  values(5,"Green");

insert into MTG\_COlOR

  values(6,"Colorless");



create table MTG\_COST(type\_id Integer NOT NULL AUTO\_INCREMENT, type\_name char(100) NOT NULL, CONSTRAINT type\_pkPRIMARY KEY (type\_id))

insert into MTG\_COST

  values(1,"White");

insert into MTG\_COST

  values(2,"Blue");

insert into MTG\_COST

  values(3,"Red");

insert into MTG\_COST

  values(4,"Black");

insert into MTG\_COST

  values(5,"Green");

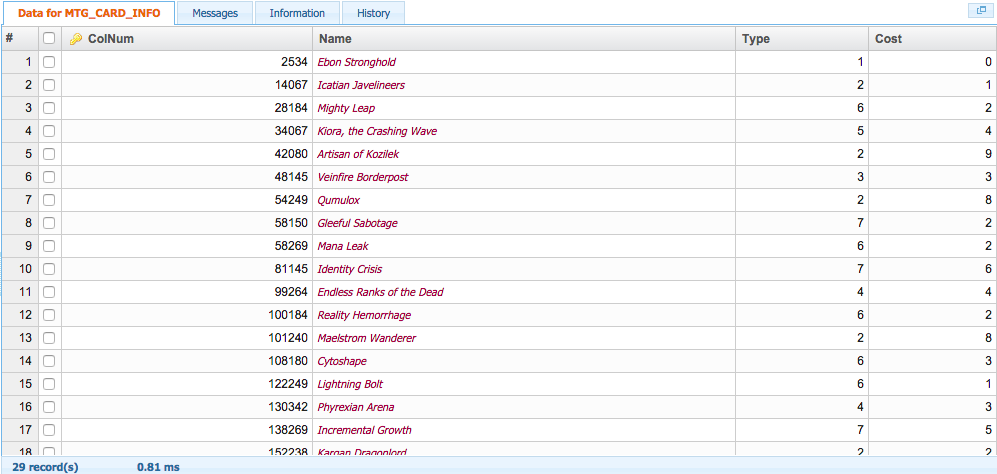
insert into MTG\_COST

  values(6,"Colorless");

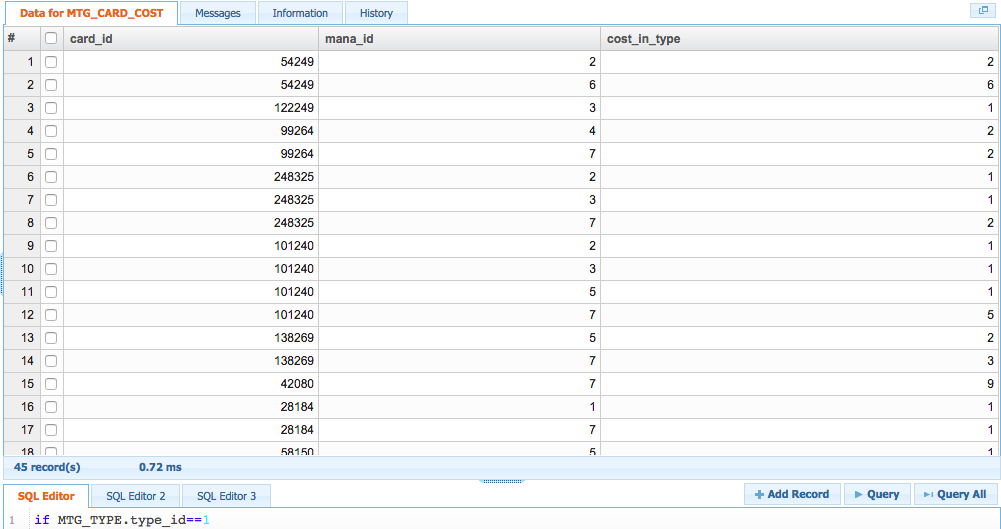
insert into MTG\_COST

  values(7,"Generic”);

**Tables for inserting cards:**



create table MTG\_CARD\_INFO(ColNum Integer NOT NULL, Name char(100) NOT NULL, Type Integer NOT NULL, Cost IntegerNOT NULL, CONSTRAINT info\_pk PRIMARY KEY (ColNum))



create table MTG\_CARD\_COST(card\_id Integer NOT NULL, mana\_id Integer NOT NULL, cost\_in\_type Integer NOT NULL,

  CONSTRAINT fk\_card\_combo2

  FOREIGN KEY (card\_id)

    REFERENCES MTG\_CARD\_INFO(ColNum)

    ON DELETE CASCADE,

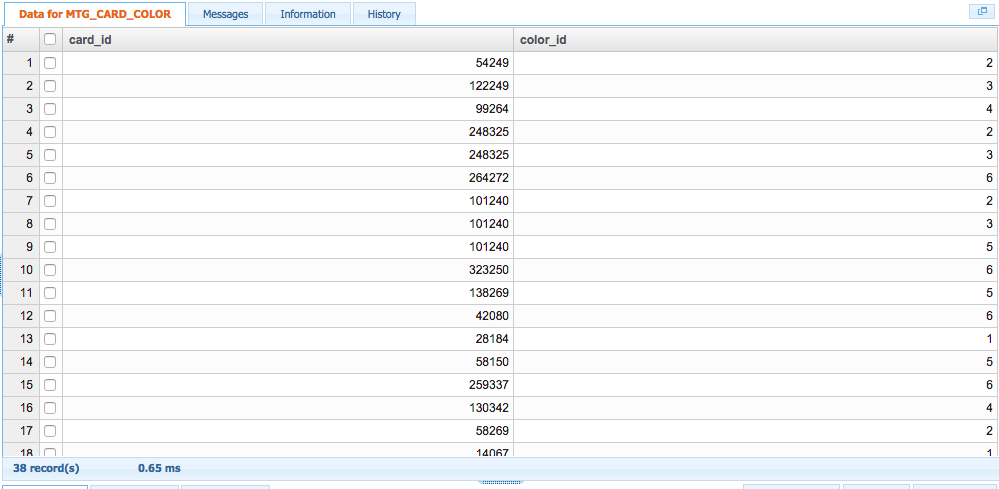
  CONSTRAINT fk\_cost\_combo

  FOREIGN KEY (mana\_id)

    REFERENCES MTG\_COST(type\_id)

    ON DELETE CASCADE

)



create table MTG\_CARD\_COLOR(card\_id Integer NOT NULL, color\_id Integer NOT NULL, CONSTRAINT fk\_card\_combo

  FOREIGN KEY (card\_id)

    REFERENCES MTG\_CARD\_INFO(ColNum)

    ON DELETE CASCADE,

  CONSTRAINT fk\_color\_combo

  FOREIGN KEY (color\_id)

    REFERENCES MTG\_COlOR(color\_id)

    ON DELETE CASCADE

)

**Populating the database with cards:**

insert into MTG\_CARD\_INFO

  values(054249,"Qumulox",2,8);

insert into MTG\_CARD\_COST

  values(054249,2,2);

insert into MTG\_CARD\_COST

  values(054249,6,6);

insert into MTG\_CARD\_COLOR

  values(054249,2);

insert into MTG\_CARD\_INFO

  values(122249,"Lightning Bolt",6,1);

insert into MTG\_CARD\_COST

  values(122249,3,1);

insert into MTG\_CARD\_COLOR

  values(122249,3);

insert into MTG\_CARD\_INFO

  values(099264,"Endless Ranks of the Dead",4,4);

insert into MTG\_CARD\_COST

  values(099264,4,2);

insert into MTG\_CARD\_COST

  values(099264,7,2);

insert into MTG\_CARD\_COLOR

  values(099264,4);

insert into MTG\_CARD\_INFO

  values(248325,"Dack's Duplicate",2,4);

insert into MTG\_CARD\_COST

  values(248325,2,1);

insert into MTG\_CARD\_COST

  values(248325,3,1);

insert into MTG\_CARD\_COST

  values(248325,7,2);

insert into MTG\_CARD\_COLOR

  values(248325,2);

insert into MTG\_CARD\_COLOR

  values(248325,3);

insert into MTG\_CARD\_INFO

  values(264272,"Swamp",1,0);

insert into MTG\_CARD\_COLOR

  values(264272,6);

insert into MTG\_CARD\_INFO

  values(101240,"Maelstrom Wanderer",2,8);

insert into MTG\_CARD\_COST

  values(101240,2,1);

insert into MTG\_CARD\_COST

  values(101240,3,1);

insert into MTG\_CARD\_COST

  values(101240,5,1);

insert into MTG\_CARD\_COST

  values(101240,7,5);

insert into MTG\_CARD\_COLOR

  values(101240,2);

insert into MTG\_CARD\_COLOR

  values(101240,3);

insert into MTG\_CARD\_COLOR

  values(101240,5);

insert into MTG\_CARD\_INFO

  values(323250,"Coastal Tower",1,0);

insert into MTG\_CARD\_COLOR

  values(323250,6);

insert into MTG\_CARD\_INFO

  values(138269,"Incremental Growth",7,5);

insert into MTG\_CARD\_COST

  values(138269,5,2);

insert into MTG\_CARD\_COST

  values(138269,7,3);

insert into MTG\_CARD\_COLOR

  values(138269,5);

insert into MTG\_CARD\_INFO

  values(042080,"Artisan of Kozilek",2,9);

insert into MTG\_CARD\_COST

  values(042080,7,9);

insert into MTG\_CARD\_COLOR

  values(042080,6);

insert into MTG\_CARD\_INFO

  values(028184,"Mighty Leap",6,2);

insert into MTG\_CARD\_COST

  values(028184,1,1);

insert into MTG\_CARD\_COST

  values(028184,7,1);

insert into MTG\_CARD\_COLOR

  values(028184,1);

insert into MTG\_CARD\_INFO

  values(058150,"Gleeful Sabotage",7,2);

insert into MTG\_CARD\_COST

  values(058150,5,1);

insert into MTG\_CARD\_COST

  values(058150,7,1);

insert into MTG\_CARD\_COLOR

  values(058150,5);

insert into MTG\_CARD\_INFO

  values(259337,"Panic Spellbomb",3,1);

insert into MTG\_CARD\_COST

  values(259337,7,1);

insert into MTG\_CARD\_COLOR

  values(259337,6);

insert into MTG\_CARD\_INFO

  values(130342,"Phyrexian Arena",4,3);

insert into MTG\_CARD\_COST

  values(130342,4,2);

insert into MTG\_CARD\_COST

  values(130342,7,1);

insert into MTG\_CARD\_COLOR

  values(130342,4);

insert into MTG\_CARD\_INFO

  values(058269,"Mana Leak",6,2);

insert into MTG\_CARD\_COST

  values(058269,2,2);

insert into MTG\_CARD\_COST

  values(058269,7,1);

insert into MTG\_CARD\_COLOR

  values(058269,2);

insert into MTG\_CARD\_INFO

  values(014067,"Icatian Javelineers",2,1);

insert into MTG\_CARD\_COST

  values(014067,1,1);

insert into MTG\_CARD\_COLOR

  values(014067,1);

insert into MTG\_CARD\_INFO

  values(081145,"Identity Crisis",7,6);

insert into MTG\_CARD\_COST

  values(081145,1,2);

insert into MTG\_CARD\_COST

  values(081145,4,2);

insert into MTG\_CARD\_COST

  values(081145,7,2);

insert into MTG\_CARD\_COLOR

  values(081145,1);

insert into MTG\_CARD\_COLOR

  values(081145,4);

insert into MTG\_CARD\_INFO

  values(174244,"Diregraf Escort",2,1);

insert into MTG\_CARD\_COST

  values(174244,5,1);

insert into MTG\_CARD\_COLOR

  values(174244,5);

insert into MTG\_CARD\_INFO

  values(108180,"Cytoshape",6,3);

insert into MTG\_CARD\_COST

  values(108180,2,1);

insert into MTG\_CARD\_COST

  values(108180,5,1);

insert into MTG\_CARD\_COST

  values(108180,7,1);

insert into MTG\_CARD\_COLOR

  values(108180,2);

insert into MTG\_CARD\_COLOR

  values(108180,5);

insert into MTG\_CARD\_INFO

  values(210272,"Blazing Hellhound",2,4);

insert into MTG\_CARD\_COST

  values(210272,3,1);

insert into MTG\_CARD\_COST

  values(210272,4,1);

insert into MTG\_CARD\_COST

  values(210272,7,2);

insert into MTG\_CARD\_COLOR

  values(210272,3);

insert into MTG\_CARD\_COLOR

  values(210272,4);

insert into MTG\_CARD\_INFO

  values(048145,"Veinfire Borderpost",3,3);

insert into MTG\_CARD\_COST

  values(048145,3,1);

insert into MTG\_CARD\_COST

  values(048145,4,1);

insert into MTG\_CARD\_COST

  values(048145,7,1);

insert into MTG\_CARD\_COLOR

  values(048145,3);

insert into MTG\_CARD\_COLOR

  values(048145,4);

insert into MTG\_CARD\_INFO

  values(100184,"Reality Hemorrhage",6,2);

insert into MTG\_CARD\_COST

  values(100184,3,1);

insert into MTG\_CARD\_COST

  values(100184,7,1);

insert into MTG\_CARD\_COLOR

  values(100184,6);

insert into MTG\_CARD\_INFO

  values(152238,"Kargan Dragonlord",2,2);

insert into MTG\_CARD\_COST

  values(152238,3,2);

insert into MTG\_CARD\_COLOR

  values(152238,3);

insert into MTG\_CARD\_INFO

  values(194337,"Essence Warden",2,1);

insert into MTG\_CARD\_COST

  values(194337,5,1);

insert into MTG\_CARD\_COLOR

  values(194337,5);

insert into MTG\_CARD\_INFO

  values(034067,"Kiora, the Crashing Wave",5,4);

insert into MTG\_CARD\_COST

  values(034067,2,1);

insert into MTG\_CARD\_COST

  values(034067,5,1);

insert into MTG\_CARD\_COST

  values(034067,7,2);

insert into MTG\_CARD\_COLOR

  values(034067,2);

insert into MTG\_CARD\_COLOR

  values(034067,5);

**Stored Procedures**

**Get all cards of a color+type combo:**

CREATE PROCEDURE CardFromColorType(IN color CHAR(100), IN type CHAR(100))

SELECT Name

  FROM MTG\_TYPE

  JOIN MTG\_CARD\_INFO

  ON type\_id = MTG\_CARD\_INFO.type

  JOIN MTG\_CARD\_COLOR as c

  ON ColNum = card\_id

  JOIN MTG\_COlOR as b

  ON c.color\_id = b.color\_id

  WHERE color\_name like color and type\_name like type

  ORDER BY Name

CALL CardFromColorType(color,type)

**Find card info by part or full card name:**

CREATE PROCEDURE CardFromName(IN name CHAR(100))

SELECT MTG\_CARD\_INFO.ColNum, MTG\_CARD\_INFO.Name, color\_name as color, MTG\_TYPE.type\_name as type, MTG\_CARD\_INFO.cost as CMC

  FROM MTG\_TYPE

  JOIN MTG\_CARD\_INFO

  ON type\_id = MTG\_CARD\_INFO.type

  JOIN MTG\_CARD\_COLOR as c

  ON ColNum = card\_id

  JOIN MTG\_COlOR as b

  ON c.color\_id = b.color\_id

  WHERE MTG\_CARD\_INFO.Name like CONCAT("%", name,"%")

  ORDER BY Name

CALL CardFromName(name)

**Find card info by card type:**

CREATE PROCEDURE CardFromType(IN type CHAR(100))

SELECT MTG\_CARD\_INFO.ColNum, MTG\_CARD\_INFO.Name, color\_name as color, MTG\_TYPE.type\_name, MTG\_CARD\_INFO.cost as CMC

  FROM MTG\_TYPE

  JOIN MTG\_CARD\_INFO

  ON type\_id = MTG\_CARD\_INFO.type

  JOIN MTG\_CARD\_COLOR as c

  ON ColNum = card\_id

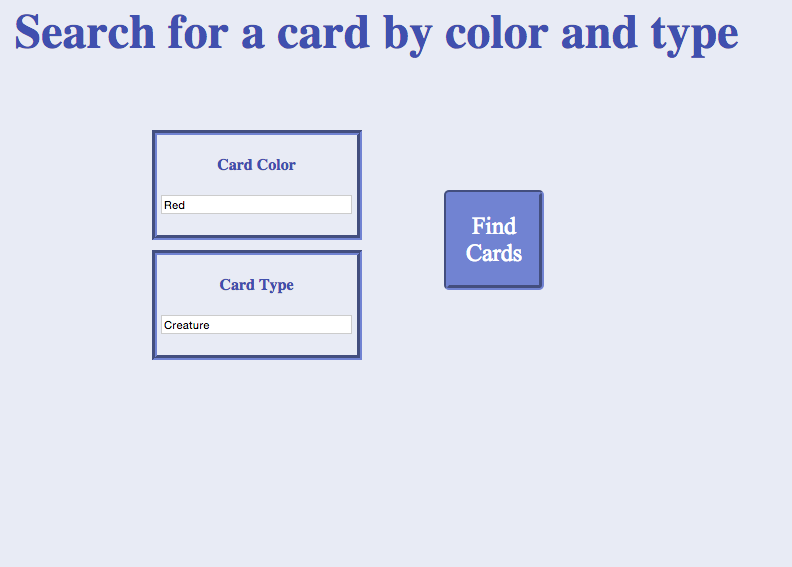
  JOIN MTG\_COlOR as b

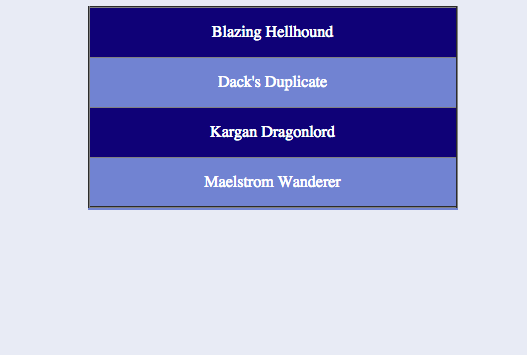
  ON c.color\_id = b.color\_id

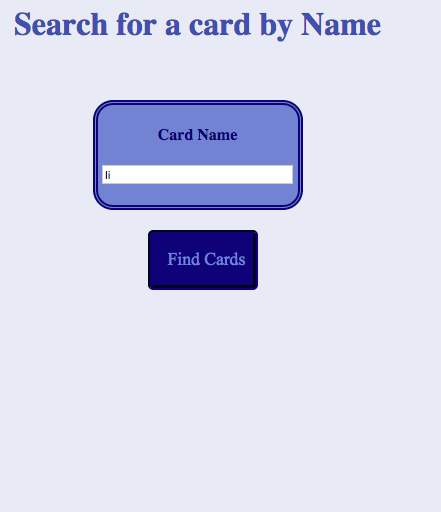
  WHERE MTG\_TYPE.type\_name like type

  ORDER BY Name

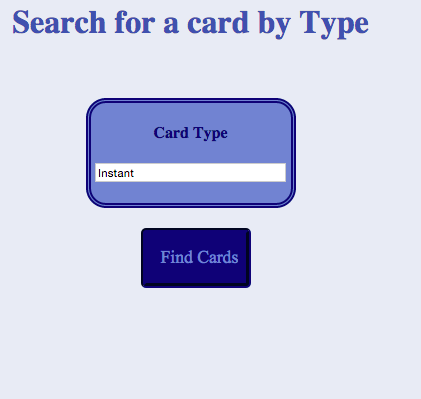
**Form Screenshots:**

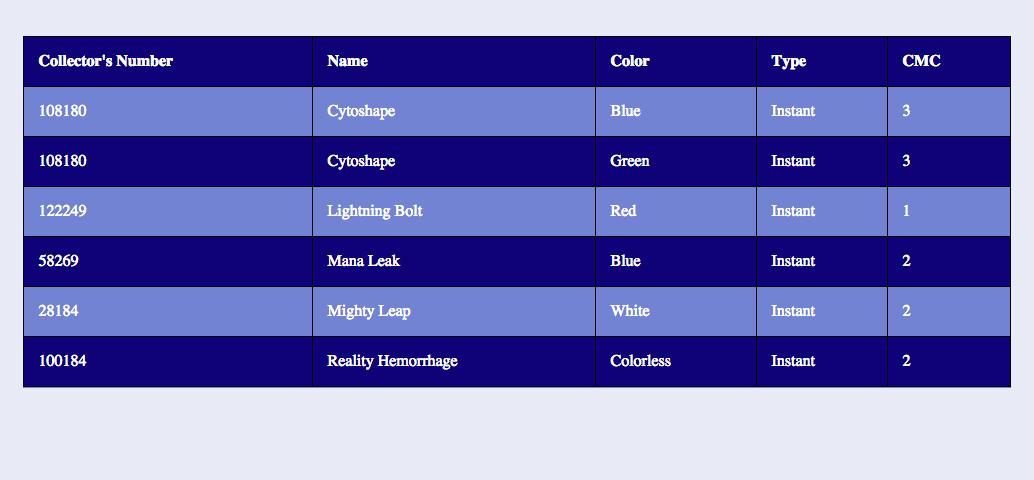
****

****

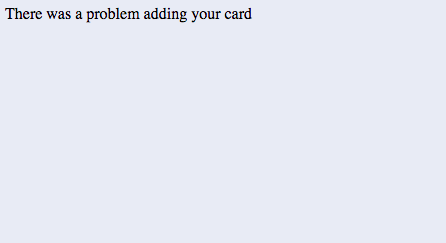
****

****

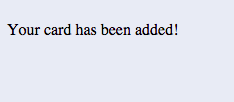
****

****

****

****

****

****