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Rogues Gallery of Villains

# Outline

# Our database project contains information about the Rogue’s Gallery of Villains from the *Batman* series of comic books. Ideally something that would be used by Arkham Asylum — the grim psychiatric facility where many of Batman’s greatest foes are imprisoned — this database links the villain’s notorious pseudonym (such as Catwoman or The Joker) with their true identity, if it is known. It also tracks what special abilities they have, if any, and their status: whether they are captured, deceased, or at large. Finally, the database stores the first and last name and date of birth of the artist who created the villain. We thought this would make a rich topic for our project because of *Batman*’s lengthy canon, which has led to many twisted relationships that a smart database would reasonably be able to track. Villains get captured and escape with frequency, are widely presumed dead and then reappear alive later. Sometimes many individuals have adopted the mantle of a single villainous moniker; sometimes one person has tried out several villainous pseudonyms for Gotham City to fear. As a result, we thought this project would present many opportunities to demonstrate efficient database techniques.

# Database Outline in Words

## Table Entities

The database tracks five entities: True Identity, Villain Identity, Status, Special Abilities, and Creator

True Identity: Holds a first and last name, if it is known. Also assigns an ID, which is the primary key. First and last name also form an aggregate key since the writers would not duplicate a character name.

Villain Identity: Has attributes of a Pseudonym and a Villain ID, which is the primary key. Pseudonym is also a unique key because writers will not duplicate a villain name.

Status: Has attributes of a Status Description (captured, dead, etc…) and a Status ID, which is the primary key.

Special Abilities: Has attributes of Special Ability name and description and a Special Ability ID, which is the primary key.

Creator: Has attributes of first name, last name, date of birth, and id, which is the primary key.

## Table Relationships

True Identity and Villain: Is a many to many relationship. A person can take various villain forms. Conversely, a villain role may be assumed by several people. Because this is a database only for villains, True Identity is in total participation with Villain, and vice versa.

Status and True Identity: One to many. A person has exactly one status (dead, imprisoned, etc.), but zero or more people can be imprisoned. True Identity has total participation with status.

True Id and Special Abilities: Many to many. A person can have zero or more special abilities. Special abilities can be used by zero or more people.

Villain and Creator: Many to Many. A villain must have at least one creator, and a creator must have created at least one villain. Thus Villain and Creator are in total participation with each other.

# ER Diagram Capture.PNG

# Schema

# FinalProjectSchema.png

# Table Creation Queries

SET foreign\_key\_checks = 0;

DROP TABLE IF EXISTS `true\_id`;

DROP TABLE IF EXISTS `villain`;

DROP TABLE IF EXISTS `special\_abilities`;

DROP TABLE IF EXISTS `true\_id\_villain`;

DROP TABLE IF EXISTS `true\_id\_abilities`;

DROP TABLE IF EXISTS `status`;

DROP TABLE IF EXISTS `creator`;

DROP TABLE IF EXISTS `creator\_villain`;

-- create table true\_identity

CREATE TABLE true\_id (

id INT(11) PRIMARY KEY AUTO\_INCREMENT,

first\_name VARCHAR(255) not null,

last\_name VARCHAR(255),

status\_id int(11) not null,

foreign key (status\_id) references `status` (id),

unique key(first\_name,last\_name)

)

ENGINE=InnoDB DEFAULT CHARSET=utf8;

-- create table villain

CREATE TABLE villain (

id INT(11) PRIMARY KEY AUTO\_INCREMENT,

pseudonym VARCHAR(255) NOT NULL,

creator\_id INT(11),

foreign key (creator\_id) REFERENCES `creator` (id),

unique key(pseudonym)

)ENGINE=InnoDB DEFAULT CHARSET=utf8;

-- create table abilities

CREATE TABLE special\_abilities (

id INT PRIMARY KEY auto\_increment,

name VARCHAR(255) NULL,

definition VARCHAR(255) NULL,

unique key(name, definition)

) ENGINE=InnoDB DEFAULT CHARSET=utf8;

-- create table true\_id\_villain

CREATE TABLE true\_id\_villain(

true\_id int(11) not null,

villain\_id int(11) not null,

primary key (villain\_id, true\_id),

foreign key (villain\_id) references `villain` (id) on delete cascade,

foreign key (true\_id) references `true\_id` (id) on delete cascade

)

Engine = innodb;

CREATE TABLE true\_id\_abilities (

ability\_id int(11) not null,

true\_id int(11) not null,

primary key (ability\_id, true\_id),

foreign key (ability\_id) references `special\_abilities` (id),

foreign key (true\_id) references `true\_id` (id) on delete cascade

) engine = innodb;

-- create table status

CREATE TABLE status (

id INT(11) NOT NULL AUTO\_INCREMENT,

description varchar(255),

PRIMARY KEY (id)

)ENGINE=InnoDB DEFAULT CHARSET=utf8;

CREATE TABLE creator\_villain(

creator\_id INT(11) NOT NULL,

villain\_id INT(11) NOT NULL,

primary key (creator\_id, villain\_id),

foreign key (creator\_id) references `creator` (id),

foreign key (villain\_id) references `villain` (id)

) ENGINE=INNODB;

CREATE TABLE creator (

id INT(11) NOT NULL AUTO\_INCREMENT,

first\_name varchar(255),

last\_name varchar(255),

dob date,

PRIMARY KEY (id)

)ENGINE=INNODB;

SET foreign\_key\_checks = 1;

# General Use Queries

## addVillain.php

//To add new character

INSERT INTO true\_id(first\_name, last\_name, status\_id) VALUES([firstName], [lastName], [id])

//Add character to true\_id\_villain for many-to-many relationship

INSERT INTO true\_id\_villain(true\_id,villain\_id) VALUES([trueID],[villainID])

//Add character to true\_id\_abilities for many-to-many relationship

INSERT INTO true\_id\_abilities(true\_id, ability\_id) VALUES([trueID, abilityID)

## deleteVillain.php

//Delete a true id from the database. Note other tables were updated via ON DELETE //CASCADE (see table creation queries section)

DELETE FROM true\_id WHERE id = [trueID]

## index.php

//Retrieve table names from database to populate a dropdown

SHOW TABLES

// Used to populate dropdown with current characters in database

SELECT id, first\_name, last\_name FROM true\_id

// Used to populate a dropdown for our search functionality

SELECT id, description FROM status

//Used in our add character functionality to populate a dropdown of villains from which the user //can choose to associate the character with

SELECT id, pseudonym FROM villain