



Doctor Who Database Design by: Jackie Trivino

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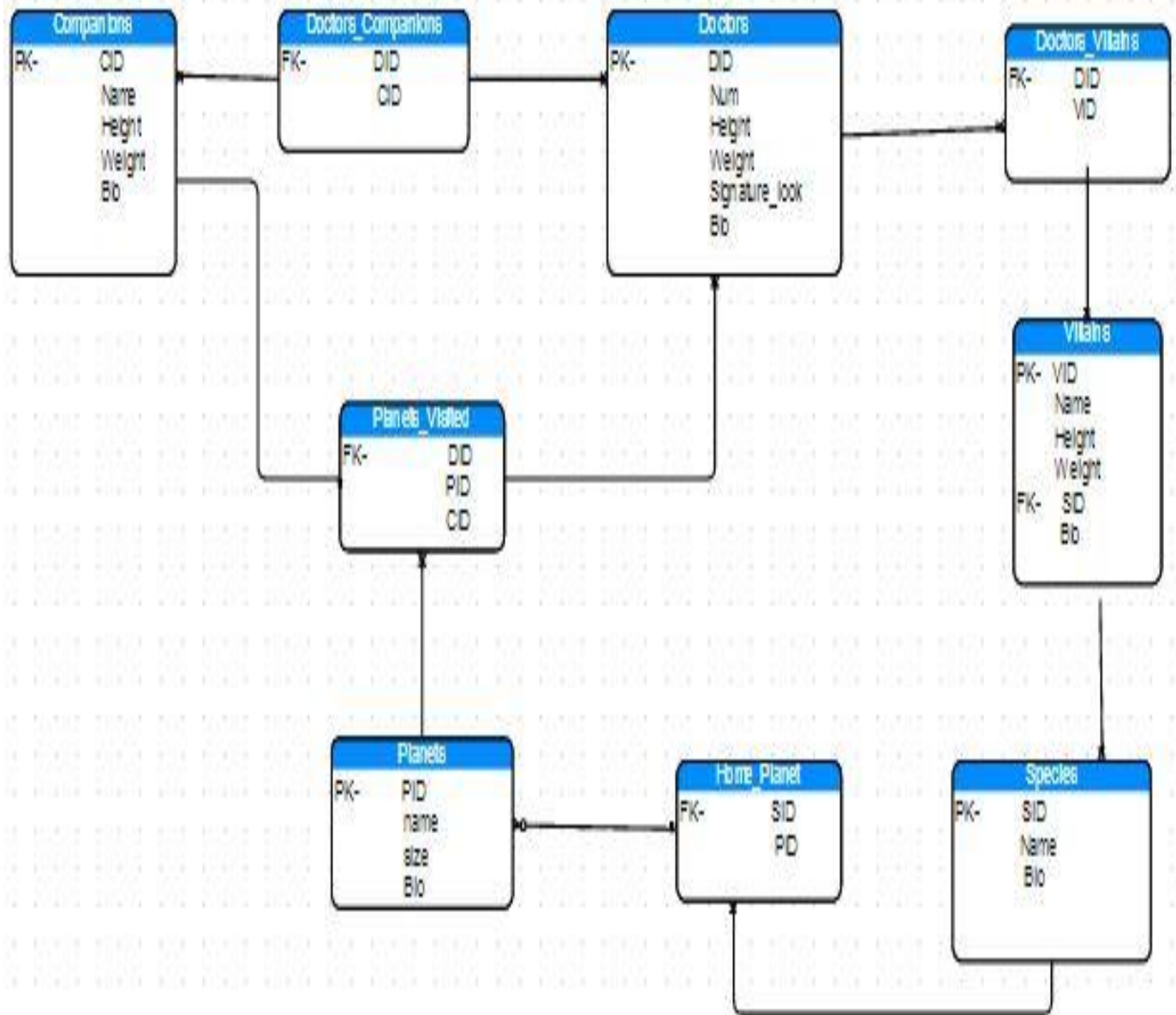
Executive Summary

- This document serves the purpose of revealing the implementation and design of a database made for the Doctor Who Universe, also known as the Whoniverse. This will be the central repository for all information relating to Doctor Who. Potential users include the BBC, Doctor Who Production Team, Viewers, and anyone interested in the Whoniverse. To start off the first section of this document, we will begin to present the database with an ER Diagram. This ER Diagram will allow readers to see a brief description of the proposed solution for the data collection that is needed from BBC. With the ER diagrams, we also included each and every entity included in the database with their purpose of the table and the reasoning behind its design. This document also provides the SQL statements that the entities in the database were created with along with a sample of the results. This was included to show the end results of the SQL that was written and to show the functionality of the database. Towards the end of the document, things called Views and Stored Procedures can be seen to allow readers and users to implement their own ideas in simple statement into the queries. In order for any users to implement their own ideas as simple statements, these functions can be implemented with the help of those in project development, application development, and/ or web design employed at BBC. Using the same idea with the ER diagrams for the Entities in the database, this document includes sample data and visual representation of Views and Stored Procedures. The document wraps up some finishing ideas such as Security, any Known Issues, and any ideas for Future Improvements.

Overview

- The client, BBC, has expressed needs for a database with requirements that are believed to have been fulfilled. The goal of this database included:
- Once the database is installed and made functional with the correct data having been inserted, the database will require minimal effort in maintenance and adding of new data to it while it is operational.
- Inserting new data to the database should occur when a new episode/movie is aired. The database will be read only for the most part since insertion into the database won't usually occur in frequent succession. This allowed us to make our design as easy as possible to use being only used to retrieve data in a majority of its uses.
- Based on these observations we are confident that our database will meet your business requirements by providing you with a system that is easy to use, accessible, and secure.

ER Diagram



Entities

Doctor

The Doctors Entity stores important data pertaining to all Doctors with each one having information on their specific Doctor. All Doctors included are Doctors 1-12 (excluding Doctor War X). This also serves as a log of the attributes that are with each Doctor including visual attributions. This was done to show the uniqueness of each Doctor and the history behind their tenor as the Doctor on Doctor Who. Each Doctor's uniqueness was shown in attributes such as their "Name", Height, Weight, and each Doctor's signature look. A Bio was included to show the history of each Doctor in the database as this is vital information for those interested in the history and the maintaining of such information. In this document, the Bio was left to a generic statement.

```
--This is the creation of the Doctors table
create table Doctors
(
  DiD          serial not null primary key,
  num          int    not null,
  height_in    int    not null default 0.0 check (height_in > 0),
  weight_lbs   int    not null default 0.0 check (weight_lbs > 0),
  Signature_look text  not null,
  bio          text
);
```

Functional Dependencies: DiD → num, height_in, weight_lbs, Signature_look, bio

	did integer	num integer	height_in integer	weight_lbs integer	signature_look text	bio text
1	1	1	68	140	Karakul	Information on Doctor here
2	2	2	67	168	Playing Recorder	Information on Doctor here
3	3	3	75	185	frilled shirt	Information on Doctor here
4	4	4	75	212	multi-coloured scarf	Information on Doctor here
5	5	5	72	155	Celery Stalk	Information on Doctor here
6	6	6	72	193	Patchwork frock coat	Information on Doctor here
7	7	7	66	213	Question Mark Umbrella	Information on Doctor here
8	8	8	68	194	Ascot tie	Information on Doctor here
9	9	9	72	198	Leather Jacket	Information on Doctor here
10	10	10	73	176	Pin Stripped Suit	Information on Doctor here
11	11	11	71	154	Bow-Tie	Information on Doctor here
12	12	12	161	1200	Red Lined Jacket	Information on Doctor here

Companions

This Companions entity is responsible for storing all of the data about the Companions that have long assisted the Doctor. The data stored here shows a different side of Doctor Who; Those that assisted in the intergalactic missions of the Doctor. Including fields such as Name, Height, Weight, and Bio helps users see each companion in the Whoniverse.

```
--This is the creation of the Companions table
create table Companions
(
  CiD          serial not null primary key,
  name         text   not null,
  height_in    int     not null default 0.0 check (height_in > 0),
  weight_lbs   int     not null default 0.0 check (weight_lbs > 0),
  bio          text
);
```

Functional Dependency: CiD → Name, Height_in, Weight_lbs, bio

	cid integer	name text	height_in integer	weight_lbs integer	bio text
1	1	Susan Foreman	65	145	Information on Person here
2	2	Polly	67	150	Information on Person here
3	3	Sarah Jane Smith	67	130	Information on Person here
4	4	K-9	47	50	Information on Person here
5	5	Romana	72	160	Information on Person here
6	6	Peri Brown	64	128	Information on Person here
7	7	Ace	62	120	Information on Person here
8	8	Grace Holloway	71	173	Information on Person here
9	9	Rose Tyler	63	119	Information on Person here
10	10	Captain Jack Harkness	72	217	Information on Person here
11	11	Martha Jones	65	120	Information on Person here
12	12	Donna Noble	66	180	Information on Person here
13	13	Wilfred	67	190	Information on Person here
14	14	Amy Pond	71	125	Information on Person here
15	15	Rory Williams	71	169	Information on Person here
16	16	River Song	67	156	Information on Person here
17	17	Clara Oswald	62	110	Information on Person here

Species

The species entity in the table allows us to see all of the type of life involved in the creation of the story in Doctor Who. To keep the design of this, it was kept simple with the number of attributes included. The attributes highlight the most important information one could need from Species; Name and Bio.

```
--This is the creation of the Species table
create table Species
(
  SiD          serial not null primary key,
  name         text   not null,
  bio          text
);
```

Functional Dependency: SiD → Name, bio

	sid integer	name text	bio text
1	1	Human	Information on Species here
2	2	Daleks	Information on Species heres
3	3	Timelords	Information on Species here
4	4	Cyberman	Information on Species here
5	5	Ood	Information on Species here
6	6	Adipose	Information on Species here
7	7	Sontaran	Information on Species here
8	8	Raxacoricofallapatorian	Information on Species here
9	9	Shadow	Information on Species here
10	10	The Silence	Information on Species here
11	11	Statues	Information on Species here
12	12	Judoon	Information on Species here

Planets

The Planets entity shows only the major locations in the Doctor Who universe. This entity includes: name of planet, size of planet, and bio of planet.

```
--This is the creation of the Planets table
create table Planets
(
  PiD      serial not null primary key,
  name     text   not null,
  size     text   not null check (size = 'small' or size = 'medium' or size = 'large' or size = 'super giant'),
  bio      text
);
```

Functional Dependency: PiD → Name, Size, Bio

	pid integer	name text	size text	bio text
1	1	Gallifrey	large	Information on Planet here
2	2	Apalapucia	super giant	Information on Planet here
3	3	Skaro	large	Information on Planet here
4	4	San Kaloon	medium	Information on Planet here
5	5	Earth	small	Information on Planet here
6	6	New Earth	small	Information on Planet here
7	7	Raxacoricofallapatorius	large	Information on Planet here
8	8	Utopia	small	Information on Planet here
9	9	Sontar	super giant	Information on Planet here
10	10	House	small	Information on Planet here
11	11	Adipose 3	medium	Information on Planet here
12	12	Metebelis Three	large	Information on Planet here
13	13	Ood Sphere	medium	Information on Planet here
14	14	Mondas	medium	Information on Planet here

Villains

This entity table was created to allow users to see all of the information that goes with all of the Villains that have made an appearance on Doctor Who throughout the years. This entity includes: Villain's Name, their height, weight, type of species they are, and Bio

```
--This is the creation of the Villains table
create table Villains
(
  ViD          serial    not null primary key,
  name         text      not null,
  height_in    int       not null default 0.0 check (height_in > 0),
  weight_lbs   int       not null default 0.0 check (weight_lbs > 0),
  SiD          int       not null references Species(SiD),
  bio          text
);
```

Functional Dependency: ViD → Name, Height_in, Weight_lbs, SiD, bio

	vid integer	name text	height_in integer	weight_lbs integer	sid integer	bio text
1	1	Daleks	63	350	2	Information on Person here
2	2	Cyberman	77	288	4	Information on Person here
3	3	Master	70	164	3	Information on Person here
4	4	Davros	68	197	2	Information on Person here
5	5	The Silence	80	113	10	Information on Person here
6	6	Weeping Angels	72	300	11	Information on Person here
7	7	Vashta Nerada	69	180	9	Information on Person here
8	8	Slitheen	84	389	8	Information on Person here

Home Planet

Home_Planet was created to serve as a connecting link between Planets and Species tables. With this table, this allows us to see where specifically each Character originates from in the Whoniverse. Having this also allows multiple characters originate from the same planet. This table is reliant on the planets and Species table for references to its data to reduce the risk of errors.

```
--This is the creation of the Home Planet table
create table Home_Planet
(
  SiD      serial  not null  references Species(SiD),
  PiD      serial  not null  references Planets(PiD)
);
```

	sid integer	pid integer
1	1	5
2	2	3
3	3	1
4	5	13
5	6	11
6	7	9
7	8	7
8	9	4
9	11	5

Doctor's Companions

Much like what was said before for Home Planet, this entity was created to allow users to see what Doctors had which companion(s) during their era by connecting the Doctor's Table with the Companion's Table. This entity just includes the information provided by the doctor's table and those provided by companion's table.

```
--This is the creation of the Doctor's Companion table
create table Doctors_Companions
(
DiD      serial  not null  references Doctors(DiD),
CiD      serial  not null  references Companions(CiD)
);
```

	did integer	cid integer
1	1	1
2	1	2
3	2	2
4	3	3
5	4	3
6	4	4
7	4	5
8	5	6
9	6	6
10	7	7
11	8	8
12	9	9
13	9	10
14	10	9
15	10	10
16	10	11
17	10	12
18	10	13
19	11	14
20	11	15
21	11	16
22	11	17
23	12	17

Doctor's Villains

This entity called Doctor's Villains serves to connect the doctor's table with the villain's table. This allows us to see what villains attacked which doctor in battle. This entity includes the information provided in the doctor's table as well as the villain's table.

```
--This is the creation of the Doctor's Villains table
create table Doctors_Villains
(
  DiD      serial  not null  references Doctors (DiD),
  ViD      serial  not null  references Villains (ViD)
);
```

	did integer	vid integer
1	1	1
2	1	2
3	2	1
4	2	2
5	3	1
6	3	3
7	4	1
8	4	2
9	4	3
10	4	4
11	5	1
12	5	2
13	5	3
14	5	4
15	6	1
16	6	2
17	6	3
18	6	4
19	7	1
20	7	2
21	7	3
22	7	4
23	8	3
24	9	1
25	9	8
26	10	1
27	10	2
28	10	3
29	10	4
30	10	6
31	10	7
32	11	1
33	11	2
34	11	5
35	11	6
36	12	3

Planets Visited

This entity was created to connect the tables doctor, planets, and companions. This is done to show what characters have been on certain planets and the combinations of their visitation. This entity includes information that is dependent of the information of the doctor's, planet's and companion's table.

```
--This is the creation of the Planet's Visited table
create table Planets_Visited
(
  DiD      serial not null references Doctors (DiD),
  PiD      serial not null references Planets (PiD),
  CiD      serial not null references Companions (CiD)
);
```

	did integer	pid integer	cid integer
1	1	1	2
2	1	5	1
3	2	1	2
4	2	5	2
5	2	14	2
6	3	1	3
7	3	5	3
8	3	4	3
9	4	2	5
10	4	5	3
11	4	9	4
12	5	4	6
13	5	5	6
14	5	12	6
15	6	3	6
16	6	5	6
17	6	12	6
18	7	1	7
19	7	5	7
20	7	13	7
21	8	5	8
22	8	6	8
23	8	11	8
24	9	1	9
25	9	5	10
26	9	7	9
27	10	1	11
28	10	5	13
29	10	6	9
30	10	8	12
31	11	2	15
32	11	5	16
33	11	10	14
34	12	5	17
35	12	13	17

Views

The following section demonstrates the creation and use of a few views.

The view names are presented first and are followed by a sample SQL statement used to query the view, sample data generated from the query, and the SQL statements used to define the view.

Select *
From Old_Who

	doctors_appeared integer	signature_look text	doctors_bio text	companions text	companions_bio text	villains text	villains_bio text
1	1	Karakul	Information on Doctor here	Susan Foreman	Information on Person here	Cyberman	Information on Person here
2	1	Karakul	Information on Doctor here	Susan Foreman	Information on Person here	Daleks	Information on Person here
3	1	Karakul	Information on Doctor here	Polly	Information on Person here	Cyberman	Information on Person here
4	1	Karakul	Information on Doctor here	Polly	Information on Person here	Daleks	Information on Person here
5	2	Playing Recorder	Information on Doctor here	Polly	Information on Person here	Cyberman	Information on Person here
6	2	Playing Recorder	Information on Doctor here	Polly	Information on Person here	Daleks	Information on Person here
7	3	frilled shirt	Information on Doctor here	Sarah Jane Smith	Information on Person here	Master	Information on Person here
8	3	frilled shirt	Information on Doctor here	Sarah Jane Smith	Information on Person here	Daleks	Information on Person here
9	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Davros	Information on Person here
10	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Master	Information on Person here
11	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Cyberman	Information on Person here
12	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Daleks	Information on Person here
13	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Davros	Information on Person here
14	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Master	Information on Person here
15	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Cyberman	Information on Person here
16	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Daleks	Information on Person here
17	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Davros	Information on Person here
18	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Master	Information on Person here
19	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Cyberman	Information on Person here
20	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Daleks	Information on Person here
21	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Davros	Information on Person here
22	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Master	Information on Person here
23	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Cyberman	Information on Person here
24	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Daleks	Information on Person here
25	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Davros	Information on Person here
26	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Master	Information on Person here
27	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Cyberman	Information on Person here
28	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Daleks	Information on Person here
29	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Davros	Information on Person here
30	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Master	Information on Person here
31	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Cyberman	Information on Person here
32	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Daleks	Information on Person here
33	8	Ascot tie	Information on Doctor here	Grace Holloway	Information on Person here	Master	Information on Person here

(Bigger Table available on the next page)

	doctors_appeared integer	signature_look text	doctors_bio text	companions text	companions_bio text	villains text	villains_bio text
1	1	Karakul	Information on Doctor here	Susan Foreman	Information on Person here	Cyberman	Information on Person here
2	1	Karakul	Information on Doctor here	Susan Foreman	Information on Person here	Daleks	Information on Person here
3	1	Karakul	Information on Doctor here	Polly	Information on Person here	Cyberman	Information on Person here
4	1	Karakul	Information on Doctor here	Polly	Information on Person here	Daleks	Information on Person here
5	2	Playing Recorder	Information on Doctor here	Polly	Information on Person here	Cyberman	Information on Person here
6	2	Playing Recorder	Information on Doctor here	Polly	Information on Person here	Daleks	Information on Person here
7	3	frilled shirt	Information on Doctor here	Sarah Jane Smith	Information on Person here	Master	Information on Person here
8	3	frilled shirt	Information on Doctor here	Sarah Jane Smith	Information on Person here	Daleks	Information on Person here
9	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Davros	Information on Person here
10	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Master	Information on Person here
11	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Cyberman	Information on Person here
12	4	multi-coloured scarf	Information on Doctor here	Sarah Jane Smith	Information on Person here	Daleks	Information on Person here
13	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Davros	Information on Person here
14	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Master	Information on Person here
15	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Cyberman	Information on Person here
16	4	multi-coloured scarf	Information on Doctor here	K-9	Information on Person here	Daleks	Information on Person here
17	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Davros	Information on Person here
18	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Master	Information on Person here
19	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Cyberman	Information on Person here
20	4	multi-coloured scarf	Information on Doctor here	Romana	Information on Person here	Daleks	Information on Person here
21	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Davros	Information on Person here
22	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Master	Information on Person here
23	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Cyberman	Information on Person here
24	5	Celery Stalk	Information on Doctor here	Peri Brown	Information on Person here	Daleks	Information on Person here
25	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Davros	Information on Person here
26	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Master	Information on Person here
27	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Cyberman	Information on Person here
28	6	Patchwork frock coat	Information on Doctor here	Peri Brown	Information on Person here	Daleks	Information on Person here
29	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Davros	Information on Person here
30	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Master	Information on Person here
31	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Cyberman	Information on Person here
32	7	Question Mark Umbrella	Information on Doctor here	Ace	Information on Person here	Daleks	Information on Person here
33	8	Ascot tie	Information on Doctor here	Grace Holloway	Information on Person here	Master	Information on Person here

```

Drop View if exists Old_Who;
create view Old_Who as
SELECT Doctors.num as Doctors_Appeared,
Doctors.signature_look as Signature_look,
Doctors.Bio as Doctors_Bio,
Companions.name as Companions,
Companions.bio as Companions_Bio,
Villains.name as Villains,
Villains.bio as Villains_Bio
FROM Doctors, Companions, Villains, Doctors_Villains, Doctors_Companions
WHERE Doctors.DiD <= 8
and Companions.CiD <= 8
and Doctors_Villains.DiD <= 8
and Companions.CiD = Doctors_Companions.CiD
and Doctors_Companions.DiD = Doctors.DiD
and Doctors.DiD = Doctors_Villains.DiD
and Doctors_Villains.ViD = Villains.ViD

```


Views

New Who:

Select *

From New_Who

	doctors_appeared integer	signature_look text	doctors_bio text	companions text	companions_bio text	villains text	villains_bio text
1	9	Leather Jacket	Information on Doctor here	Rose Tyler	Information on Person	Slitheen	Information on Person
2	9	Leather Jacket	Information on Doctor here	Rose Tyler	Information on Person	Daleks	Information on Person
3	9	Leather Jacket	Information on Doctor here	Captain Jack Harkness	Information on Person	Slitheen	Information on Person
4	9	Leather Jacket	Information on Doctor here	Captain Jack Harkness	Information on Person	Daleks	Information on Person
5	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Vashta Nerada	Information on Person
6	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Weeping Angels	Information on Person
7	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Davros	Information on Person
8	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Master	Information on Person
9	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Cyberman	Information on Person
10	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Daleks	Information on Person
11	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Vashta Nerada	Information on Person
12	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Weeping Angels	Information on Person
13	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Davros	Information on Person
14	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Master	Information on Person
15	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Cyberman	Information on Person
16	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Daleks	Information on Person
17	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Vashta Nerada	Information on Person
18	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Weeping Angels	Information on Person
19	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Davros	Information on Person
20	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Master	Information on Person
21	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Cyberman	Information on Person
22	10	Pin Stripped Suit	Information on Doctor here	Martha Jones	Information on Person	Daleks	Information on Person
23	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Vashta Nerada	Information on Person
24	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Weeping Angels	Information on Person
25	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Davros	Information on Person
26	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Master	Information on Person
27	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Cyberman	Information on Person
28	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Daleks	Information on Person
29	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Vashta Nerada	Information on Person
30	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Weeping Angels	Information on Person
31	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Davros	Information on Person
32	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Master	Information on Person
33	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Cyberman	Information on Person
34	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Daleks	Information on Person
35	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Weeping Angels	Information on Person
36	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	The Silence	Information on Person
37	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Cyberman	Information on Person
38	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Daleks	Information on Person
39	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Weeping Angels	Information on Person
40	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	The Silence	Information on Person
41	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Cyberman	Information on Person
42	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Daleks	Information on Person
43	11	Bow-Tie	Information on Doctor here	River Song	Information on Person	Weeping Angels	Information on Person
44	11	Bow-Tie	Information on Doctor here	River Song	Information on Person	The Silence	Information on Person
45	11	Bow-Tie	Information on Doctor here	River Song	Information on Person	Cyberman	Information on Person
46	11	Bow-Tie	Information on Doctor here	River Song	Information on Person	Daleks	Information on Person
47	11	Bow-Tie	Information on Doctor here	Clara Oswald	Information on Person	Weeping Angels	Information on Person
48	11	Bow-Tie	Information on Doctor here	Clara Oswald	Information on Person	The Silence	Information on Person
49	11	Bow-Tie	Information on Doctor here	Clara Oswald	Information on Person	Cyberman	Information on Person
50	11	Bow-Tie	Information on Doctor here	Clara Oswald	Information on Person	Daleks	Information on Person
51	12	Red Lined Jacket	Information on Doctor here	Clara Oswald	Information on Person	Master	Information on Person

(Bigger Table available on next page)

	doctors_appeared integer	signature_look text	doctors_bio text	companions text	companions_bio text	villains text	villains_bio text
1	3	Leather Jacket	Information on Doctor here	Rose Tyler	Information on Person	Sitcheen	Information on Person
2	9	Leather Jacket	Information on Doctor here	Rose Tyler	Information on Person	Daleks	Information on Person
3	9	Leather Jacket	Information on Doctor here	Captain Jack Harkness	Information on Person	Sitcheen	Information on Person
4	9	Leather Jacket	Information on Doctor here	Captain Jack Harkness	Information on Person	Daleks	Information on Person
5	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Vashta Nerada	Information on Person
6	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Weeping Angels	Information on Person
7	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Davros	Information on Person
8	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Master Cyberman	Information on Person
9	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Daleks	Information on Person
10	10	Pin Stripped Suit	Information on Doctor here	Rose Tyler	Information on Person	Daleks	Information on Person
11	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Vashta Nerada	Information on Person
12	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Weeping Angels	Information on Person
13	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Davros	Information on Person
14	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Master Cyberman	Information on Person
15	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Cyberman	Information on Person
16	10	Pin Stripped Suit	Information on Doctor here	Captain Jack Harkness	Information on Person	Daleks	Information on Person
17	10	Pin Stripped Suit	Information on Doctor here	Marcha Jones	Information on Person	Vashta Nerada	Information on Person
18	10	Pin Stripped Suit	Information on Doctor here	Marcha Jones	Information on Person	Weeping Angels	Information on Person
19	10	Pin Stripped Suit	Information on Doctor here	Marcha Jones	Information on Person	Davros	Information on Person
20	10	Pin Stripped Suit	Information on Doctor here	Marcha Jones	Information on Person	Master Cyberman	Information on Person
21	10	Pin Stripped Suit	Information on Doctor here	Marcha Jones	Information on Person	Daleks	Information on Person
22	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Vashta Nerada	Information on Person
23	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Weeping Angels	Information on Person
24	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Davros	Information on Person
25	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Master Cyberman	Information on Person
26	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Daleks	Information on Person
27	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Vashta Nerada	Information on Person
28	10	Pin Stripped Suit	Information on Doctor here	Donna Noble	Information on Person	Weeping Angels	Information on Person
29	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Davros	Information on Person
30	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Master Cyberman	Information on Person
31	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Daleks	Information on Person
32	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Vashta Nerada	Information on Person
33	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Weeping Angels	Information on Person
34	10	Pin Stripped Suit	Information on Doctor here	Wilfred	Information on Person	Davros	Information on Person
35	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Weeping Angels	Information on Person
36	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	The Silence	Information on Person
37	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Cyberman	Information on Person
38	11	Bow-Tie	Information on Doctor here	Amy Pond	Information on Person	Daleks	Information on Person
39	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Weeping Angels	Information on Person
40	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	The Silence	Information on Person
41	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Cyberman	Information on Person
42	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Daleks	Information on Person
43	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Weeping Angels	Information on Person
44	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	The Silence	Information on Person
45	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Cyberman	Information on Person
46	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Daleks	Information on Person
47	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Weeping Angels	Information on Person
48	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	The Silence	Information on Person
49	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Cyberman	Information on Person
50	11	Bow-Tie	Information on Doctor here	Rory Williams	Information on Person	Daleks	Information on Person
51	12	Red Lined Jacket	Information on Doctor here	Clara Oswald	Information on Person	Master	Information on Person

Queries

The following section demonstrates how the database can be queried to generate useful information

Finding out the Species of the Master:

```
select species.name  
from Species, Villains  
where species.SiD = Villains.ViD  
and Villains.name = 'Master'
```

Result:

	name text
1	Timelords

Finding out what planet the Slitheens are from:

```
select planets.name  
from planets, home_planet, species, Villains  
where planets.PiD = Home_Planet.PiD  
and Home_Planet.SiD = Species.SiD  
and species.SiD = Villains.SiD  
and Villains.name = 'Slitheen'
```

Result:

	name text
1	Raxacoricofallapatorius

Stored Procedures

The following section demonstrates the use of a stored procedure to query the database for information. These procedures can be called through a web-interface or application program and will return the information specified by the user input.

What is shown below is to find out the specific species a Villain is.

```
DROP FUNCTION IF EXISTS Specific_Species(Species_name text);
CREATE OR REPLACE FUNCTION Specific_Species(Species_name text)
RETURNS TABLE("Species Name" text, "Person Name" text) as $$
BEGIN
RETURN QUERY SELECT s.name AS "Species Name", v.name AS "Person Name"
FROM Species s, Villains v, Doctors d, Companions c, Doctors_Villains dv, Doctors_Companions dc
WHERE s.SiD = v.SiD
    AND v.ViD = dv.DiD
    AND dv.DiD = d.DiD
    AND d.DiD = dc.CiD
    AND dc.CiD = c.CiD
    AND s.name = Species_name;
END;
$$ LANGUAGE plpgsql;
```

To call this function, you would use (for example):

SELECT Specific_Species('Daleks');

	specific_species record
1	(Daleks, Daleks)
2	(Daleks, Daleks)
3	(Daleks, Davros)
4	(Daleks, Davros)
5	(Daleks, Davros)
6	(Daleks, Davros)

Triggers

Triggers are put in place so they are a sort of “buffer” in case something bad happens, they are there to prevent or help any damages an error could have made.

CheckSignatureLook:

When there is already information on particular doctor including his signature look, this checks to see if a user tries to create another signature look.

```
CREATE FUNCTION CheckSignatureLook() RETURNS TRIGGER AS
    $CheckSignatureLook$
BEGIN
IF EXIST (
SELECT DiD
FROM Doctors
WHERE Signature_Look is NOT NULL
) THEN
RAISE EXCEPTION 'This Doctor already has a signatre look!';
END IF;
RETURN NEW;
END;
$CheckSignatureLook$
LANGUAGE plpgsql
```

Security

- For the purpose of security, only 2 types of users are allowed interaction with the database.
- Those that are called Database Administrator or shorten as DBA. The DBA maintains the database including updating each episode and movie information, adding new information of new Doctors, Companions, Villains, etc., and correcting any error or conflicts in the database. Below you can see a SQL statement that explains how to create a Database Administrator role and enable access to those that need it.

```
CREATE ROLE dba  
GRANT SELECT, INSERT, UPDATE  
ON ALL TABLES IN SCHEMA PUBLIC  
TO dba
```

- Those that are called Public User. The public user is limited to the database as they can only view and not modify the database. The public user could represent an outside employee or a normal person who wants access to the Doctor Who data. This user should have minimal knowledge of the base tables. One of the main reasons these precautions are taken is because a malicious user could use the knowledge of our database structure to destroy the database and/ or portray an image that is disreputable. Below you can see the SQL statements that explains how to create a Public User.

```
CREATE ROLE public_user  
GRANT SELECT  
ON Doctors, Companions, Villains  
TO public_user
```

- Additional security measures will depend on the host system.

Known Problems

- Currently, the design that is in place, when trying to execute a view as seen above, the table is rather large and an “eye-full” to look at; This could be condensed down their the manipulation of the quiery retrieving it.
- Currently the trigger doesn’t allowing for a singular Doctor to have more than one signature look, when in actuality, a Doctor can possess many signature looks. This is not really an error, more of a future update.
- All of the Bio’s are the same generic statement.

Future Enhancements

- Allow for doctor to have multiple Signature looks
- Allow for Home Planets to not necessarily fit into the general standard of what a planet is.
- Have Table created to show what season each Doctor, Companion, and Villain appeared in.