

NARUTO NINJA DATABASE

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EXECUTIVE SUMMARY

This Database is designed to keep track of characters in the popular anime series, Naruto and Naruto Shippuden. The database allows for storing data such as a character's: name, sex, hair color, country, affiliation, rank, and clan. However it also allows for keeping track of each individual ninja's nature types and abilities for combat, or healing. The main goal of this database is to provide a place to store these fields, and then find out who shares common traits, such as affiliations, abilities, or nature types. The database is created in the idea that whenever a new ninja is implemented into the show, they can be added easily into the database, including not just their name and physical characteristics, but all the optional fields.

ER DIAGRAM FOR NARUTO NINJA DATABASE

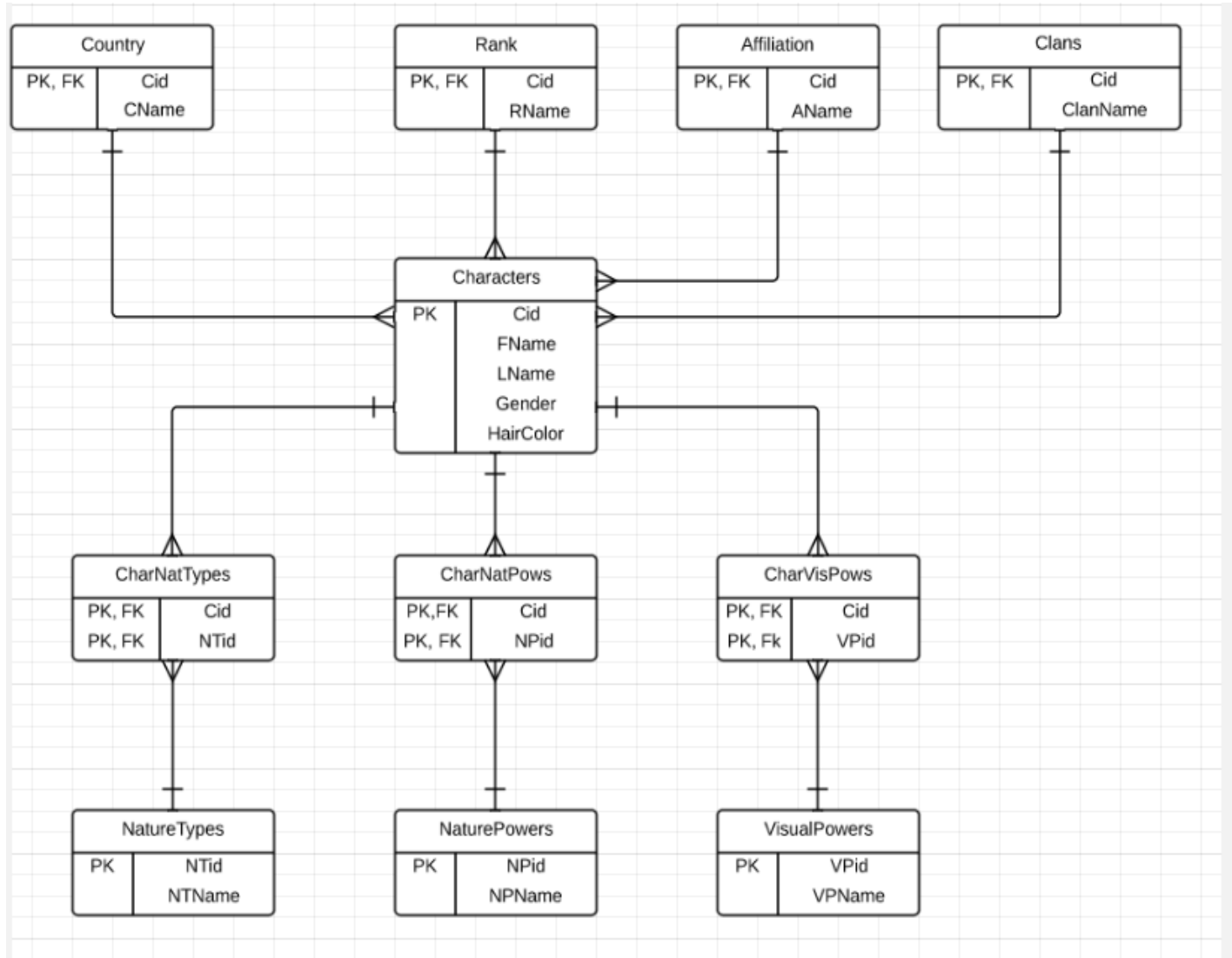


TABLE CREATE STATEMENTS

The following section's purpose is to show the Functional Dependencies of the tables, as well as the create statements, and sample data for each table.

Characters Table

The Character's Table has four unique fields, FName, LName, Gender, and HairColor. These attributes are used to keep track of the physical characteristics of each ninja.

Functional Dependencies

Characters: Cid \rightarrow FName, LName, Gender, HairColor

SQL Create Statement

```
drop table if exists Characters;  
  
Create table characters(  
  Cid          char (4) not null,  
  FName        text not null,  
  LName        text not null,  
  Gender       text not null,  
  HairColor    text not null,  
  Primary Key (Cid)  
);
```

Sample Data

Data Output	Explain	Messages	History
	fname text	lname text	cname text
1	Onoki	Ryotenbin	Land of Earth
2	Obito	Uchiha	Land of Fire
3	Naruto	Uzumaki	Land of Fire
4	Tsunade	Senju	Land of Fire
5	Killer	B	Land of Lightning
6	Mei	Terumi	Land of Water
7	Gaara	Sand	Land of Wind
8	Nagato	Uzumaki	Unnamed Country

Country Table

The Country Table has one unique field, CName. This attribute is used to keep track of the country that each ninja lives in.

Functional Dependencies

Country: Cid → CName

SQL Create Statement

```
drop table if exists Country;  
  
create table Country(  
    CName text not null,  
    Cid char (4) not null REFERENCES Characters (Cid),  
    primary key (Cid)  
);
```

Sample Data

Data Output	Explain	Messages	History
	fname text	lname text	cname text
1	Onoki	Ryotenbin	Land of Earth
2	Obito	Uchiha	Land of Fire
3	Naruto	Uzumaki	Land of Fire
4	Tsunade	Senju	Land of Fire
5	Killer	B	Land of Lightning
6	Mei	Terumi	Land of Water
7	Gaara	Sand	Land of Wind
8	Nagato	Uzumaki	Unnamed Country

Rank Table

The Rank Table has one unique field, RName. This attribute is used to keep track of the rank that each ninja has.

Functional Dependencies

Rank: Cid \rightarrow RName

SQL Create Statement

```
drop table if exists Rank;  
  
create table Rank(  
  RName text not null,  
  Cid char (4) not null REFERENCES Characters (cid),  
  primary key (Cid)  
);
```

Sample Data

Data Output	Explain	Messages	History	
	fname text	lname text	rname text	
1	Obito	Uchiha	Chunin	
2	Tsunade	Senju	Hokage	
3	Gaara	Sand	Kazekage	
4	Mei	Terumi	Mizukage	
5	Naruto	Uzumaki	Sage	
6	Onoki	Ryotenbin	Tsuchikage	
7	Nagato	Uzumaki	Unknown	
8	Killer	B	Unknown	

Affiliation Table

The Affiliation Table has one unique field, AName. This attribute is used to keep track of the Affiliation that each ninja has, these values would reference what village they live in, or what mercenary group they work for.

Functional Dependencies

Affiliation: Cid \rightarrow AName

SQL Create Statement

```
drop table if exists Affiliation
create table Affiliation(
  AName text not null,
  Cid char (4) not null REFERENCES Characters (cid),
  primary key (Cid)
);
```

Sample Data

	fname text	lname text	aname text
1	Obito	Uchiha	Akatsuki
2	Nagato	Uzumaki	Akatsuki
3	Killer	B	The Hidden Cloud Village
4	Naruto	Uzumaki	The Hidden Leaf Village
5	Tsunade	Senju	The Hidden Leaf Village
6	Mei	Terumi	The Hidden Mist Village
7	Gaara	Sand	The Hidden Sand Village
8	Onoki	Ryotenbin	The Hidden Stone Village

Clans Table

The clans Table has one unique field, ClanName. This attribute is used to keep track of the family clan that each ninja has, if they have one at all.

Functional Dependencies

Clans: Cid → ClanName

SQL Create Statement

```
drop table if exists Clans;  
  
create table Clans(  
  Cid    char (4) not null REFERENCES Characters (cid),  
  ClanName text not null,  
  primary key (Cid)  
);
```

Sample Data

	fname text	lname text	clanname text
1	Onoki	Ryotenbin	No Clan
2	Gaara	Sand	No Clan
3	Killer	B	No Clan
4	Mei	Terumi	No Clan
5	Tsunade	Senju	Senju Clan
6	Obito	Uchiha	Uchiha Clan
7	Nagato	Uzumaki	Uzumaki Clan
8	Naruto	Uzumaki	Uzumaki Clan

NatureTypes Table

The NatureTypes Table has one unique field, NTName. This attribute is used to keep track of the possible nature types that exist.

Functional Dependencies

NatureTypes: NTid \rightarrow NTName

SQL Create Statement

```
drop table if exists NatureTypes;

create table NatureTypes(
  NTid char (5),
  NTName text not null,
  primary key (NTid)
);
```

Sample Data

	ntid character(5)	ntname text
1	nt011	Boil Release
2	nt012	Dust Release
3	nt003	Earth Release
4	nt002	Fire Release
5	nt010	Lava Release
6	nt005	Lightning Release
7	nt004	Water Release
8	nt001	Wind Release
9	nt013	Wind Release
10	nt006	Wood Release
11	nt008	Yang Release
12	nt009	Yin-Yang Release
13	nt007	Yin Release

CharNatTypes Table

The CharNatTypes Table has no unique fields. This table is used to eliminate the many to many relationship between characters and the nature types that characters can have. This means there are no functional dependencies.

Functional Dependencies

NONE.

SQL Create Statement

```
drop table if exists CharNatTypes;  
create table CharNatTypes(  
  NTid char(5) not null REFERENCES NatureTypes (NTid),  
  Cid char (4) not null REFERENCES Characters (cid),  
  primary key (Cid, NTid)  
);
```

Sample Data

Data Output	Explain	Messages	History
	fname text	lname text	ntname text
1	Gaara	Sand	Wind Release
2	Killer	B	Lightning Release
3	Mei	Terumi	Fire Release
4	Mei	Terumi	Water Release
5	Mei	Terumi	Lava Release
6	Mei	Terumi	Boil Release
7	Mei	Terumi	Earth Release
8	Nagato	Uzumaki	Yin-Yang Release
9	Nagato	Uzumaki	Yang Release
10	Nagato	Uzumaki	Fire Release
11	Nagato	Uzumaki	Earth Release
12	Nagato	Uzumaki	Lightning Release
13	Nagato	Uzumaki	Wind Release
14	Nagato	Uzumaki	Water Release
15	Nagato	Uzumaki	Yin Release
16	Naruto	Uzumaki	Wind Release
17	Obito	Uchiha	Yin-Yang Release
18	Obito	Uchiha	Yang Release
19	Obito	Uchiha	Yin Release
20	Obito	Uchiha	Earth Release
21	Obito	Uchiha	Fire Release
22	Onoki	Ryotenbin	Wind Release
23	Onoki	Ryotenbin	Dust Release
24	Onoki	Ryotenbin	Fire Release
25	Onoki	Ryotenbin	Earth Release
26	Tsunade	Senju	Lightning Release

NaturePowers Table

The NaturePowers Table has one unique field. This table is used to keep track of all powers used with nature powers. These values are entered so that multiple people can use the same power if possible.

Functional Dependencies

NaturePowers: NPid \rightarrow NPName

SQL Create Statement

```
drop table if exists NaturePowers;  
  
create table NaturePowers(  
  NPid          char (5),  
  NPName        text not null,  
  primary key (NPid)  
);
```

Sample Data

Data Output			Explain	Messages	History
	npid character(5)	npname text			
1	np023	Added-Weight Rock Technique			
2	np016	Air Bullets			
3	np007	Blast Wave Wild Dance			
4	np030	Detachment of the Primitive World Technique			
5	np014	Earth-Style Wall			
6	np024	Fist Rock Technique			
7	np017	Gale Palm			
8	np025	Golem Technique			
9	np008	Great Fireball Technique			
10	np010	Hiding Like a Mole Technique			
11	np021	Lava Globs			
12	np026	Light-Weight Rock Technique			
13	np022	Melting Apparition Technique			
14	np027	Moving Earth Core			
15	np009	Phoenix Sage Fire Technique			
16	np020	Skilled Mist Technique			
17	np013	Supervibrato Swords			
18	np028	Ultra-Added-Weight Rock Technique			
19	np029	Ultralight-Weight Rock Technique			
20	np018	Water Dragon Bullet Technique			
21	np019	Water Formation Pillar			
22	np015	Wild Water Wave			
23	np011	Great Breakthrough			
24	np012	Infinite Sand Cloud			
25	np001	Rasengan			
26	np002	Rasenshuriken			
27	np003	Toad Gun			
28	np004	Toad Oil Bullet			
29	np005	Toad Oil Flame Bullet			
30	np006	Ultra-Big Ball Rasenshuriken			

CharNatPows Table

The CharNatPows Table has no unique fields. This table is used to eliminate the many to many relationship between characters and the nature powers that characters can have. This means there are no functional dependencies.

Functional Dependencies

NONE.

SQL Create Statement

```
drop table if exists CharNatPows;  
create table CharNatPows(  
    char (5)not null REFERENCES NaturePowers,  
    Cid char (4) not null REFERENCES Characters (cid),  
    primary key (Cid , NPid)  
);
```


Sample Data

Data Output	Explain	Messages	History
	fname text	lname text	npname text
1	Gaara	Sand	Infinite Sand Cloud
2	Gaara	Sand	Great Breakthrough
3	Killer	B	Supervibrato Swords
4	Mei	Terumi	Skilled Mist Technique
5	Mei	Terumi	Water Formation Pillar
6	Mei	Terumi	Water Dragon Bullet Technique
7	Mei	Terumi	Melting Apparition Technique
8	Mei	Terumi	Lava Globs
9	Nagato	Uzumaki	Earth-Style Wall
10	Nagato	Uzumaki	Gale Palm
11	Nagato	Uzumaki	Wild Water Wave
12	Nagato	Uzumaki	Air Bullets
13	Naruto	Uzumaki	Rasengan
14	Naruto	Uzumaki	Rasenshuriken
15	Naruto	Uzumaki	Toad Gun
16	Naruto	Uzumaki	Toad Oil Bullet
17	Naruto	Uzumaki	Toad Oil Flame Bullet
18	Naruto	Uzumaki	Ultra-Big Ball Rasenshuriken
19	Obito	Uchiha	Hiding Like a Mole Technique
20	Obito	Uchiha	Phoenix Sage Fire Technique
21	Obito	Uchiha	Great Fireball Technique
22	Obito	Uchiha	Blast Wave Wild Dance
23	Onoki	Ryotenbin	Added-Weight Rock Technique
24	Onoki	Ryotenbin	Fist Rock Technique
25	Onoki	Ryotenbin	Golem Technique
26	Onoki	Ryotenbin	Light-Weight Rock Technique
27	Onoki	Ryotenbin	Moving Earth Core
28	Onoki	Ryotenbin	Ultra-Added-Weight Rock Technique
29	Onoki	Ryotenbin	Ultralight-Weight Rock Technique
30	Onoki	Ryotenbin	Detachment of the Primitive World Technique

VisualPowers Table

The VisualPowers Table has one unique field. This table is used to keep track of all visual powers that a ninja could possibly have. These values are entered so that multiple people can use the same power if possible.

Functional Dependencies

VisualPowers: VPid → VPName

SQL Create Statement

```
drop table if exists VisualPowers;  
  
create table visualPowers(  
  VPid char (5),  
  VPName text,  
  primary key (VPid)  
);
```

Sample Data

	vpid character(5)	vpname text
1	vp001	Byakugan
2	vp003	Mangekyo Sharingan
3	vp006	No Visual Powers
4	vp004	Rinnegan
5	vp002	Sharingan
6	vp005	Third Eye

CharVisPows Table

The CharVistPows Table has no unique fields. This table is used to eliminate the many to many relationship between characters and the visual powers that characters can have. This means there are no functional dependencies.

Functional Dependencies

NONE.

SQL Create Statement

```
drop table if exists CharVisPows;

create table CharVisPows(
  VPid char(5) not null REFERENCES VisualPowers,
  Cid char (4) not null REFERENCES Characters (cid),
  primary key (Cid, VPid)
);
```

Sample Data

Data Output	Explain	Messages	History
	fname text	lname text	vpname text
1	Gaara	Sand	Third Eye
2	Killer	B	No Visual Powers
3	Mei	Terumi	No Visual Powers
4	Nagato	Uzumaki	Rinnegan
5	Nagato	Uzumaki	No Visual Powers
6	Naruto	Uzumaki	No Visual Powers
7	Obito	Uchiha	Sharingan
8	Obito	Uchiha	Mangekyo Sharingan
9	Obito	Uchiha	Rinnegan
10	Onoki	Ryotenbin	No Visual Powers
11	Tsunade	Senju	No Visual Powers

VIEWS

This view is based off of ninja's current first name, last name, country, affiliation, rank, and clan. The view `Current_Statistics_ofNinjas` is a good view to have because it shows any updates about the ninjas, for example if a ninja ranks up, or changes affiliation, the view will show those new changes because views show up to date data.

```
Create View Current_Statistics_of_Ninjas AS
```

```
Select Distinct
```

```
    fname, lname, cname, aname, rname, clanname
```

```
From
```

```
    characters, country, affiliation, rank, clans
```

```
where
```

```
    characters.cid = country.cid
```

```
and  characters.cid = affiliation.cid
```

```
and  characters.cid = rank.cid
```

```
and  characters.cid = clans.cid
```

```
Order By
```

```
    Fname ASC
```

REPORTS & QUERIES

These two reports could be useful to anyone curious about what types of nature releases exist, which ninjas use what nature releases, and what powers the ninjas can perform with their nature releases.

This Report shows all of the nature types that each individual ninja can use.

Select

fname, lname, ntname

From

naturetypes, characters, charnattypes

Where

naturetypes.ntid = charnattypes.ntid

and characters.cid = charnattypes.cid

Order by

fname ASC

This Report shows all of the powers each ninja can use with their specific nature types.

Select

fname, lname, npname

From

characters, charnatpows, naturepowers

Where

naturepowers.npid = charnatpows.npid

and characters.cid = charnatpows.cid

Order by

fname ASC

STORED PROCEDURES

This is a stored procedure to find out what ninjas live in what countries. It provides the Ninja's first and last name by referencing the characters table, as well as the country name, by referencing the Country table.

```
CREATE FUNCTION ninjasCountry (cname text)
returns table (fname text, lname text, cname text ) as $$
    select
        fname, lname, cname
    from
        country, characters
    where
        characters.cid = country.cid
$$ language 'sql';
select * from ninjasCountry ('cname');
```

This Stored Procedure is used as a reference to the Trigger that checks if a value of null was placed inside the cname field. If so, that value is changed to “Unknown Country”.

```
CREATE FUNCTION ValidNinjasCountry()
returns trigger as $$
    BEGIN
        IF (cname = null) THEN
            update country set cname = 'Unknown Country' where cname = null;
        END if;
    END
    $$LANGUAGE          plpgsql;
```

TRIGGERS

This Trigger is used to check the values entered in the Country Table. This trigger calls the stored procedure “ValidNinjasCountry” and runs that stored procedure to find out if any null values were entered in the cname field and if so, changes them to the specified value.

Create Trigger valid_country_trigger

After Insert or Update

On country

For Each row

Execute Procedure ValidNinjasCountry();

SECURITY

This Security creates two users. An Admin and a User. The Admin is allowed to do anything in the database, from deleting, updating, inserting, to selecting. The User on the other hand, is only allowed to view the tables. Nothing else.

CREATE USER NarutoAdmin WITH PASSWORD 'Alpaca';

Revoke all on Characters from NarutoAdmin;

Revoke all on Country from NarutoAdmin;

Revoke all on Rank from NarutoAdmin;

Revoke all on Affiliation from NarutoAdmin;

Revoke all on Clans from NarutoAdmin;

Revoke all on CharNatTypes from NarutoAdmin;

Revoke all on NatureTypes from NarutoAdmin;

Revoke all on CharNatPows from NarutoAdmin;

Revoke all on NaturePowers from NarutoAdmin;

Revoke all on CharVisPows from NarutoAdmin;

Revoke all on VisualPowers from NarutoAdmin;

Grant insert, update, delete, select on Characters to NarutoAdmin;

Grant insert, update, delete, select on Country to NarutoAdmin;

Grant insert, update, delete, select on Rank to NarutoAdmin;

Grant insert, update, delete, select on Affiliation to NarutoAdmin;

Grant insert, update, delete, select on Clans to NarutoAdmin;

Grant insert, update, delete, select on CharNatTypes to NarutoAdmin;

Grant insert, update, delete, select on NatureTypes to NarutoAdmin;

Grant insert, update, delete, select on CharNatPows to NarutoAdmin;

Grant insert, update, delete, select on NaturePowers to NarutoAdmin;

Grant insert, update, delete, select on CharVisPows to NarutoAdmin;

Grant insert, update, delete, select on VisualPowers to NarutoAdmin;

Create User NarutoUser with password 'Alpaca'

Revoke all on Characters from NarutoUser;

Revoke all on Country from NarutoUser;

Revoke all on Rank from NarutoUser;

Revoke all on Affiliation from NarutoUser;

Revoke all on Clans from NarutoUser;

Revoke all on CharNatTypes from NarutoUser;

Revoke all on NatureTypes from NarutoUser;

Revoke all on CharNatPows from NarutoUser;

Revoke all on NaturePowers from NarutoUser;

Revoke all on CharVisPows from NarutoUser;

Revoke all on VisualPowers from NarutoUser;

Grant select on Characters to NarutoUser;

Grant select on Country to NarutoUser;

Grant select on Rank to NarutoUser;

Grant select on Affiliation to NarutoUser;

Grant select on Clans to NarutoUser;

Grant select on CharNatTypes to NarutoUser;

Grant select on NatureTypes to NarutoUser;

Grant select on CharNatPows to NarutoUser;

Grant select on NaturePowers to NarutoUser;

Grant select on CharVisPows to NarutoUser;

Grant select on VisualPowers to NarutoUser;

IMPLEMENTATION / KNOWN PROBLEMS / FUTURE ENHANCEMENTS

- **Implementation**

- Should be easy to implement as long as you create the tables exactly as provided.
- More Views could be created to allow more interesting looks into the database.

- **Known Problems**

- As of right now the only known problem is that eventually there will not be enough space provided for User's Nature Powers. "NPid" is associated with "NP001" for the first power, and an increasing number each time a new power is discovered. However, NPid can only allow for 5 characters. Eventually 999 powers will be found, which will result in more space needing to be added. For the purpose of this database right now, 999 powers is plenty, but to grow, more space will be needed.

- **Future Enhancements**

- Right now this database takes into account many attributes related to ninjas in the Naruto show, however, there are more attributes that could be added in the future. This could include, different powers not related to nature types.