United Federation of Planets

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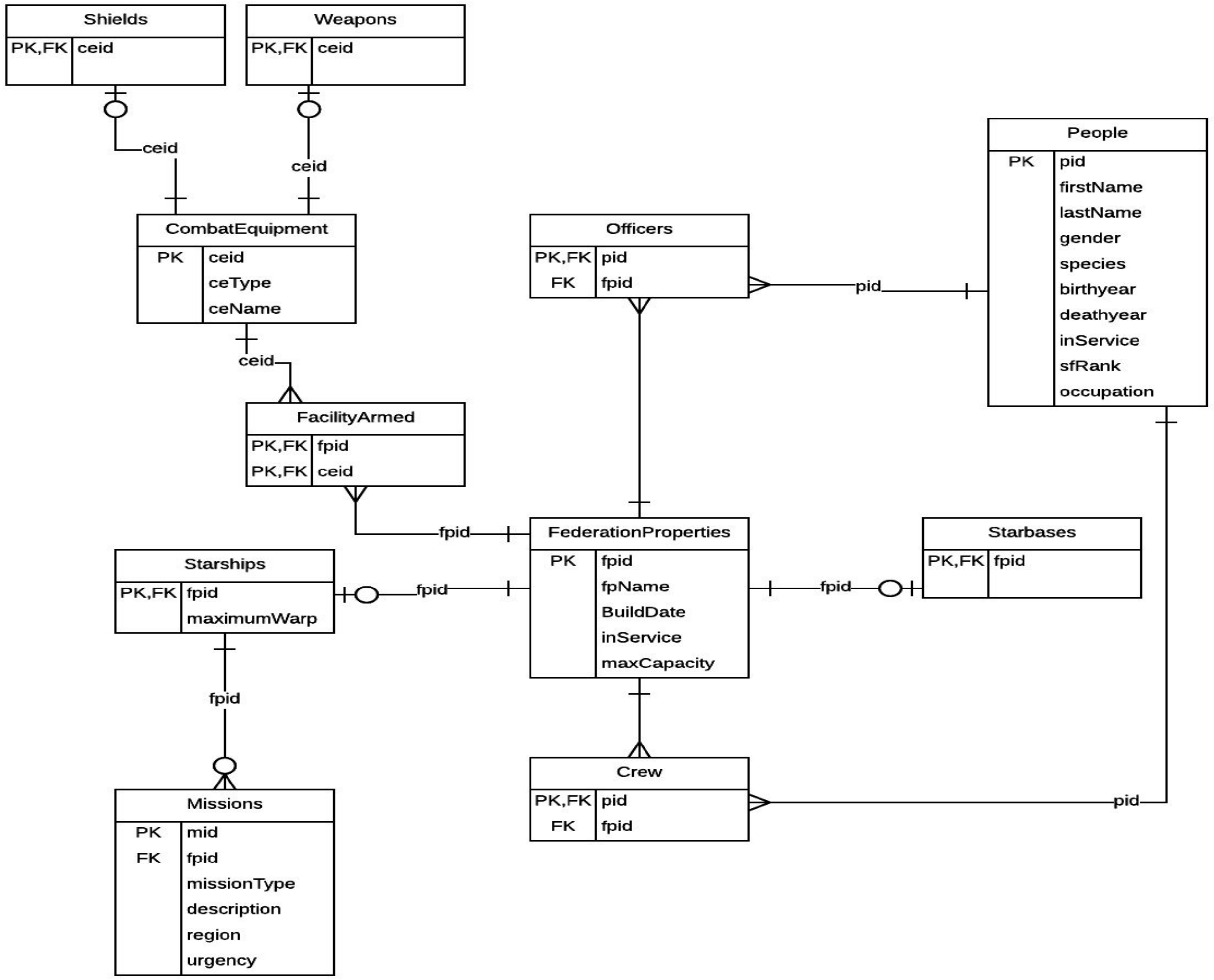
Executive Summary

The United Federation of Planets needs a way to keep tracks of their many ships, starbases, and people. This database keeps track of everyone working for the federation, as well as what ship or starbase they are assigned to. It also keeps track of what weaponry each ships is equipped with as well as what missions that have.


Shields
PK,FK ceid
Weapons
PK,FK ceid
ceid
ceid
CombatEquipment
PK ceid
ceType
ceName
ceid
FacilityArmed
PK,FK fpid
PK,FK ceid
fpid
Officers
PK,FK pid
FK fpid
pid
People
PK pid
firstName
lastName
gender
species
birthyear
deathyear
inService
sfRank
occupation
FederationProperties
PK fpid
fpName
BuildDate
inService
maxCapacity
Starships
PK,FK fpid
maximumWarp
fpid
fpid
Starbases
PK,FK fpid
fpid
Missions
PK mid
FK fpid
missionType
description
region
urgency
Crew
PK,FK pid
FK fpid
pid

People Table

```
CREATE TABLE People (
pid             char(5) NOT NULL,
firstName       TEXT NOT NULL,
lastName            TEXT,
gender          char(1),
species         TEXT NOT NULL,
birthyear       integer,
```

People Continued

```
deathyear     integer,
inService     boolean NOT NULL,
sfRank        TEXT NOT NULL,
occupation    TEXT,
PRIMARY KEY (pid)
);
```

Functional Dependencies: Every attribute besides pid is dependent on pid.

Federation Prop Table

```
CREATE TABLE FederationProperties (
fpid            char(4) NOT NULL,
fpName          TEXT NOT NULL,
buildDate       integer NOT NULL,
inService       boolean NOT NULL,
maxCapacity     integer NOT NULL,
PRIMARY KEY (fpid)
);
```

Functional Dependencies: fpName, buildDate, inService, maxCapacity all dependent on fpid

Starships Table

```
CREATE TABLE Starships (
fpid                char(4) NOT NULL REFERENCES FederationProperties(fpid),
maximumWarp         integer NOT NULL,
PRIMARY KEY (fpid)
);
```

Functional Dependencies: maximumWarp dependent on fpid.

Starbases Table

```
CREATE TABLE Starbases (
fpid            char(4) NOT NULL REFERENCES FederationProperties(fpid),
PRIMARY KEY     (fpid)
);
```

Functional Dependencies: none.

Officers Table

```
CREATE TABLE Officers (
pid                 char(5) NOT NULL REFERENCES People(pid),
fpid                char(4) NOT NULL REFERENCES FederationProperties(fpid),
PRIMARY KEY     (pid,fpid)
);
```

Functional Dependencies: none.

Create Views

```
-- View shows on which ship or starbase each officer is stationed

CREATE view
FPOfficers(fpid,fpName,pid,firstName,lastName,sfRank,occupation) as

    select  fp.fpid,fp.fpName,p.pid,p.firstName,p.lastName,p.sfRank,p.occupation

    from    officers o      inner join FederationProperties fp on o.fpid = fp.fpid

                            inner join People p on o.pid = p.pid

;
```

Create Views

```
-- View shows on which ship or starbase each (non-officer)crew member is stationed

CREATE view FPCrew(fpid,fpName,pid,firstName,lastName,sfRank,occupation) as

    select  fp.fpid,fp.fpName,p.pid,p.firstName,p.lastName,p.sfRank,p.occupation

    from    crew c  inner join FederationProperties fp on c.fpid = fp.fpid

                    inner join People p on c.pid = p.pid

;
```

Stored Procedure

```
-- stored procedure: if type w -> insert ceid into weapons | if type s-> insert into shields

CREATE OR REPLACE FUNCTION addCE()

RETURNS TRIGGER AS $$

BEGIN

        IF NEW.ceType = 'w' THEN

                INSERT INTO Weapons(ceid)

                values(NEW.ceid);

        END IF;

        IF NEW.ceType = 's' THEN
```

Stored Procedure Continued

```
INSERT INTO Shields(ceid)
        values(NEW.ceid);
        END IF;
        RETURN NEW;
END;
$$ language plpgsql;
```

Trigger

```
-- If something is inserted in combatEquipment, run addCE()

CREATE TRIGGER addCE

AFTER INSERT OR UPDATE ON combatEquipment

FOR EACH ROW

EXECUTE PROCEDURE addCE();
```

Future Enhancements

I would like to extend the database to include a Planets table for planets that are in the federation. I would like the planets to be a child of fpid just like starships and starbases so people could be stationed on planets.