



STEP A: BCNF Normalization

* = primary key

f* = foreign key

f** = both

Account(Password, *Email, FirstName, LastName)

Email -> FirstName, LastName, Password

Multiple passwords/first names/last names can exist with different emails so no other dependencies can hold.

Realm(*rID, Location, Difficulty, Language)

rID -> Location, Difficulty, Language

Certain difficulties and languages can exist for numerous realms, so no other dependencies can exist.

Character(*PlayerID, f*Email[Account.Email], CharacterName, Class, Level, f*ClanLeaderID[Clan.ClanLeaderID], f*Realm[Realm.RealmId])

PlayerID -> Email, CharacterName, Class, Level, ClanLeaderID, Realm

- Emails can be associated with multiple characters.
- Character names are not unique (There can be 2 players named Joe)

- Multiple characters can have the same class.
- Multiple characters can have the same level.
- Clans hold multiple characters.
- Realms hold multiple characters.

So, no other attributes can be combined to define each other, or define anything on their own.

Clan(*ClanLeaderID [Character.PlayerID], Name, MinLevel)

ClanLeaderID -> Name, MinLevel

Clans can have the same display names and multiple clans can have the same minimum level requirement. So, no attributes other than ClanLeaderID can define exactly one clan.

BankAccount(fOwnerID[Character.PlayerID], Balance)**

OwnerID -> Balance

Trivially, multiple players can have the same balance by chance, so you cannot define a bank account's owner by the amount in it. Therefore, no other dependencies can exist.