Dig Vargas - CS340 Sp18 - Project Step 2

As there was no feedback from the grader, there are no changes to the project outline in response to feedback. Upon review, I am satisfied with the outline as-is. It contains all relevant relationships, it correctly outlines which relationships require their own table, and it includes all attributes necessary to correctly associate the entities with one another.

Project Outline

My database will represent the characters, skills and places from Avatar: the Last Airbender. This is a world containing four nations, each with an associated element and places. The core entity is the Character representing the people who are from these nations and have various bending skills. Bending skills are associated with an element and can vary from the core element (i.e. metal bending instead of typical earth bending). The characters travel the world visiting these places during their adventures.
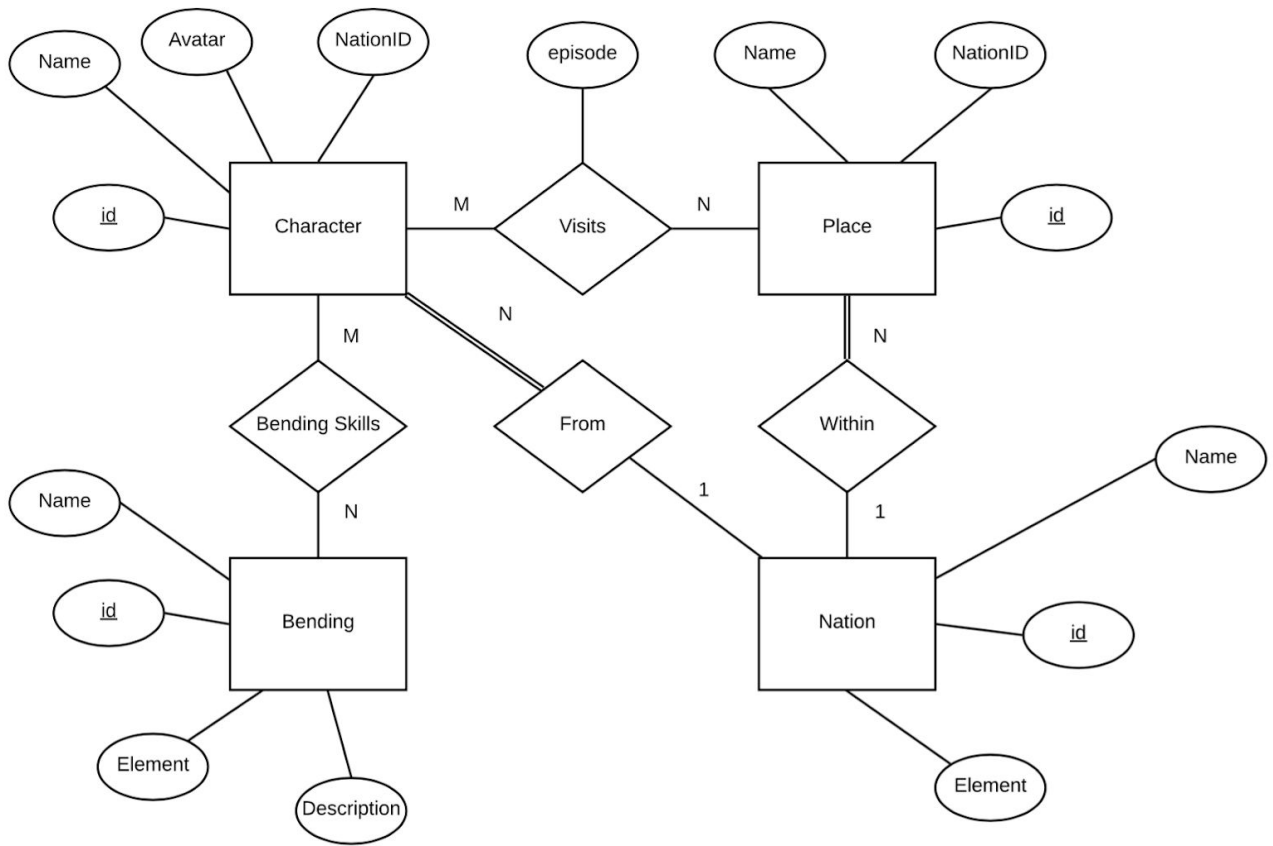
Data Outline, In words

Entities:
- **Character** - The people filling the Avatar world, the characters, are represented by the Character entity. A character is from a nation and goes on many visits to different places. Many characters have bender skills, sometimes more than one.
    - **id** - int - auto-incremented unique primary key - *unique, required/not null*
    - **Name** - varchar(255) name of the character - *required/not null*
    - **NationID** - int - id of the nation from which they hail - *can be null*
    - **Avatar** - boolean - are/were they the Avatar? - *required/not null*
- **Bending** - The different bender skills are stored as the Bending entity, which specify the associated element and specific skill description.
    - **id** - int - auto-incremented unique primary key - *unique, required/not null*
    - **Name** - varchar(255) name of the bending skill - *required/not null*
    - **Element** - varchar(10) - associated element: earth, air, fire, water, spirit - *required/not null*
    - **Description** - varchar(255) description of the bending skill - *can be null*
- **Place** - The various places, cities, forests and structures visited throughout the series are stored as a Place. Each Place is within a Nation.
    - **id** - int - auto-incremented unique primary key - *unique, required/not null*
    - **Name** - varchar(255) name of the character - *required/not null*
    - **NationID** - int - id of the nation where it's located - *can be null*
- **Nation** - The four nations (fire, water, earth, air) are specified under the Nation entity.
    - **id** - int - auto-incremented unique primary key - *unique, required/not null*
    - **Name** - varchar(255) name of the nation - *required/not null*
    - **Element** - varchar(5) - associated element: earth, air, fire, water - *required/not null*

Relationships:

- **Nations have many places**. A place is contained within one nation. (1:N cardinality)
    - Represented by **NationID** in **Place**
- **Characters are from a single nation**. (1:N cardinality)
    - Represented by **NationID** in **Character**
- **Characters visit many places**. Many characters go to many places. (M:N cardinality)
    - Described by a **Visits** table. Each visit contains:
        - **characterId** - int - for the visiting character - *required/not null*
        - **placeId** - int - for the place - *required/not null*
        - **episode** - varchar(255) - in which episode the character visited the place, *can be null*
- **Characters have bending skills** - some characters can have multiple bending skills besides the basic elemental bending skills (M:N). Some characters can have no bending skills at all.
    - Described by a **Bending Skills** relationship table:
        - **characterId** - int - for the character - *required/not null*
        - **bendingId** - int - for the type of bending - *required/not null*
        - **episode** - varchar(255) - episode where bending skill is first acquired (if applicable), *can be null*
    - Semantic constraint: only the Avatar (boolean true) can have Bending skills in multiple elements

ER Diagram:

Database Schema:

Table: nations

id	name	element

Table: places

id	name	nationID

Table: characters

id	name	nationID	avatar

Table: bending

id	name	element	description

Table: bending skills

characterId	bendingId

Table: visits

characterId	placeId	episode