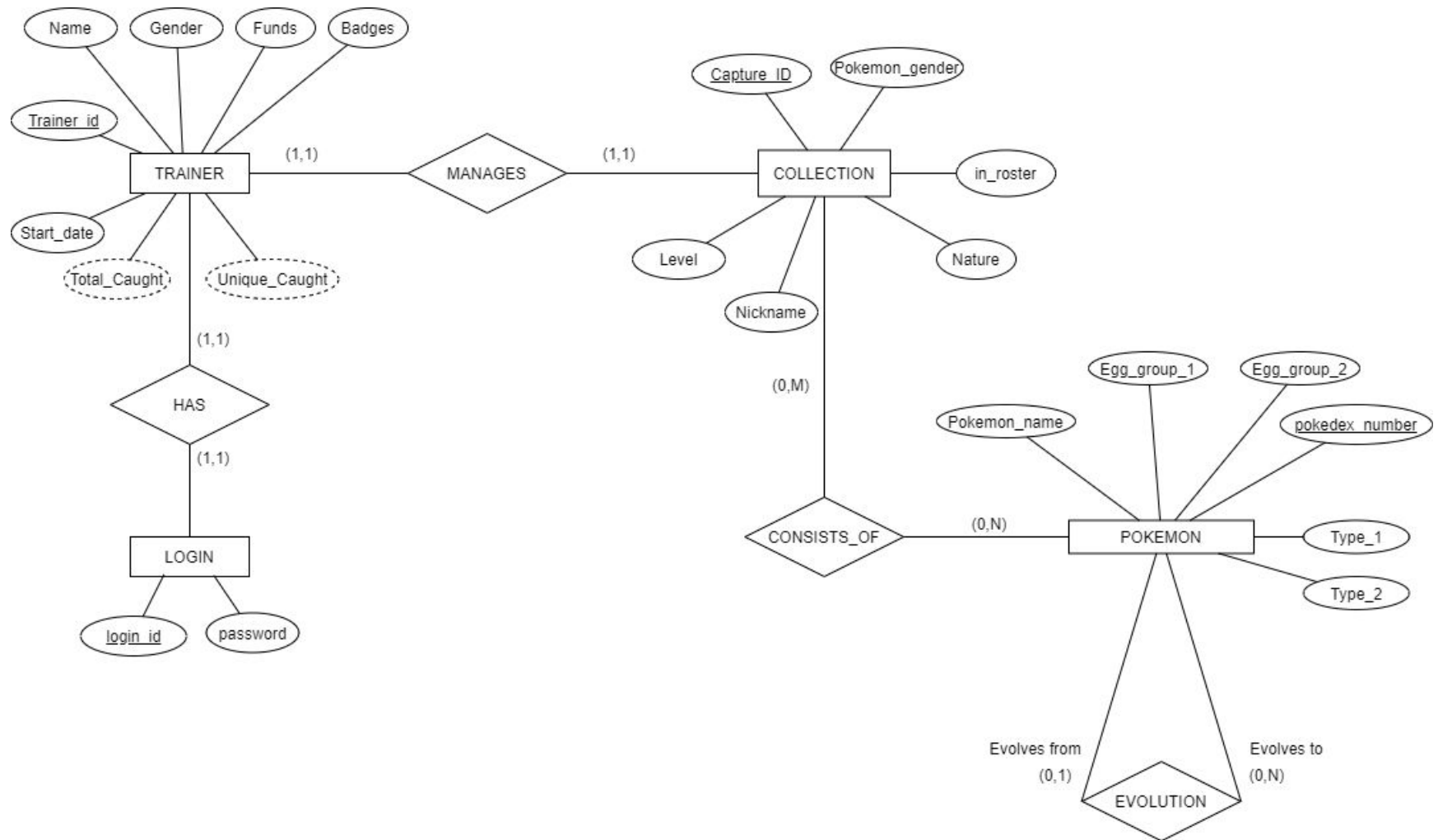
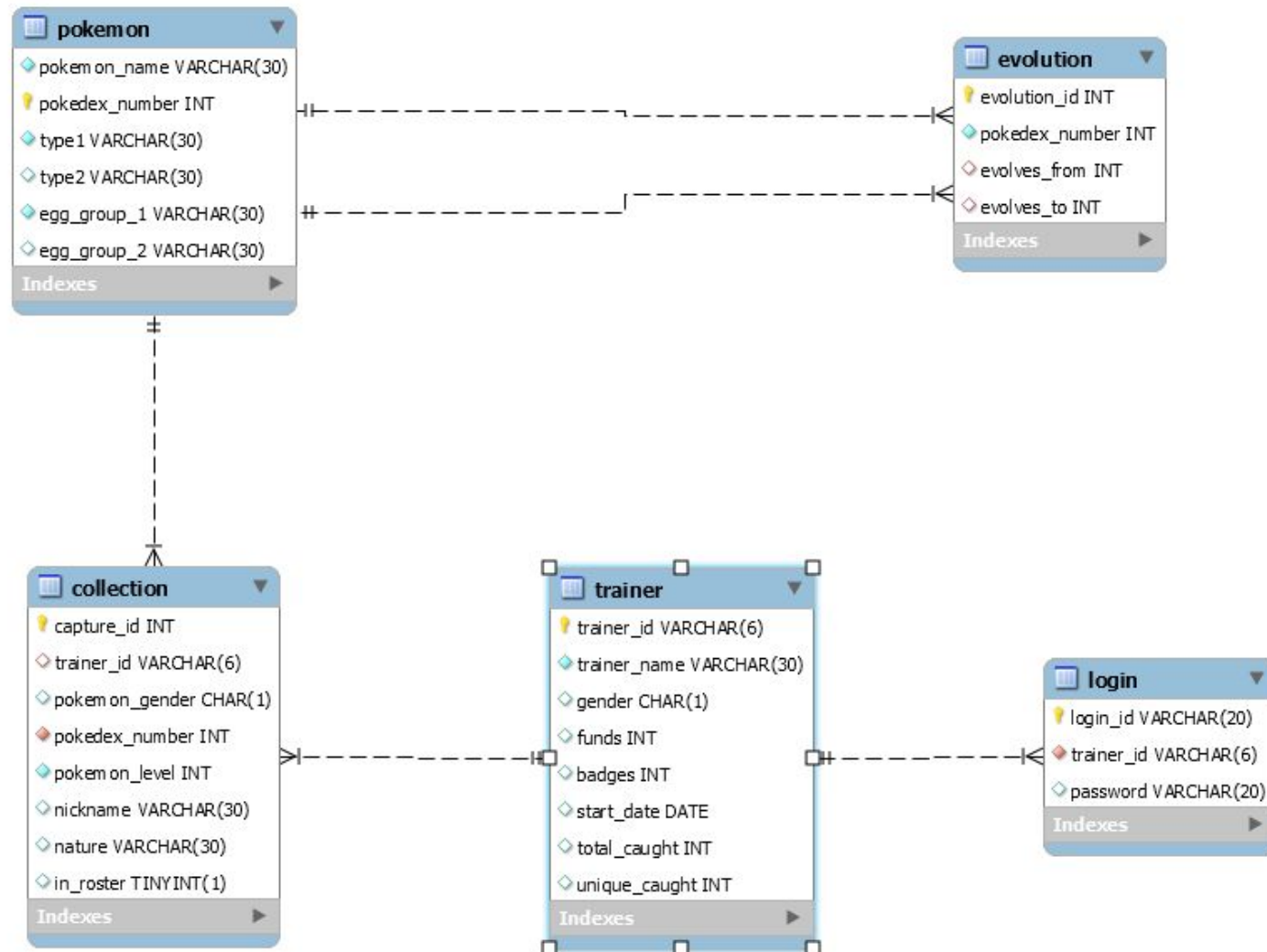


ER Diagram:



Relational Schema:



login.trainer_id is a FK to trainer.trainer_id
collection.trainer_id is a FK to trainer.trainer_id
collection.pokedex_number is a FK to pokemon.pokedex_number
evolution.evolved_from is a FK to pokemon.pokedex_number
evolution.evolved_to is a FK to pokemon.pokedex_number

Constraints (for each table in schema):

```
CREATE TABLE pokemon(  
    pokemon_name VARCHAR(30) NOT NULL,  
    pokedex_number INT NOT NULL,  
    type1 VARCHAR(30) NOT NULL,  
    type2 VARCHAR(30),  
    egg_group_1 VARCHAR(30) NOT NULL,  
    egg_group_2 VARCHAR(30),  
    PRIMARY KEY (pokedex_number),  
    UNIQUE KEY (pokemon_name)  
);
```

```
CREATE TABLE trainer(  
    trainer_id VARCHAR(6) NOT NULL,  
    trainer_name VARCHAR(30) NOT NULL,  
    gender CHAR(1),  
    funds INT,  
    badges INT,  
    start_date DATE,  
    total_caught INT,  
    unique_caught INT,  
    PRIMARY KEY (trainer_id),  
    CONSTRAINT CHK_Funds CHECK (funds >= 0),  
    CONSTRAINT CHK_Badges CHECK (badges >= 0 AND badges <= 8)  
);
```

```
CREATE TABLE collection(  
    capture_id INT NOT NULL,  
    trainer_id VARCHAR(6) NOT NULL,  
    pokemon_gender CHAR(1),  
    pokedex_number INT NOT NULL,  
    pokemon_level INT NOT NULL,  
    nickname VARCHAR(30),  
    nature VARCHAR(30),  
    in_roster BOOLEAN,  
    PRIMARY KEY (capture_id),  
    CONSTRAINT FK_collection_trainer_id FOREIGN KEY (trainer_id) REFERENCES trainer (trainer_id),  
    CONSTRAINT FK_collection_pokedex_number FOREIGN KEY (pokedex_number) REFERENCES pokemon (pokedex_number),  
    CONSTRAINT CHK_pokemon_level CHECK (pokemon_level > 0 AND pokemon_level <= 100)  
);
```

```
CREATE TABLE evolution(  
    evolution_id INT NOT NULL,  
    pokedex_number INT NOT NULL,  
    evolves_from INT,  
    evolves_to INT,  
    PRIMARY KEY (evolution_id),  
    CONSTRAINT FK_evolves_to_pokemon FOREIGN KEY (evolves_to) REFERENCES pokemon (pokedex_number),  
    CONSTRAINT FK_evolves_from_pokemon FOREIGN KEY (evolves_from) REFERENCES pokemon (pokedex_number)  
);
```

```
CREATE TABLE login(  
    login_id VARCHAR(20) NOT NULL,  
    trainer_id VARCHAR(6) NOT NULL,  
    password VARCHAR(20) NOT NULL,  
    PRIMARY KEY (login_id),  
    CONSTRAINT FK_login_id FOREIGN KEY (trainer_id) REFERENCES trainer(trainer_id)  
);
```

Other application based constraints/business rules:

- `pokemon.type1` and `pokemon.type2` can only be any of the following values:
 - Normal
 - Fire
 - Water
 - Electric
 - Grass
 - Ice
 - Fighting
 - Poison
 - Ground
 - Flying
 - Psychic
 - Bug
 - Rock
 - Ghost
 - Dragon
 - Dark
 - Steel
 - Fairy
- `pokemon.egg_group_1` and `pokemon.egg_group_2` can only be any of the following values:
 - Amorphous
 - Bug
 - Dragon
 - Fairy
 - Field
 - Flying
 - Grass
 - Human-Like
 - Mineral
 - Monster
 - Water_1
 - Water_2
 - Water_3
 - Ditto
 - Undiscovered

Relational Algebra Queries:

-- Query to find all pokemon and their trainers that are fairy type

```
SELECT trainer.trainer_name, trainer.trainer_id, pokemon_name from trainer
INNER JOIN collection
ON trainer.trainer_id = collection.trainer_id
INNER JOIN pokemon
ON pokemon.pokedex_number = collection.pokedex_number
WHERE type1 = 'Bug' OR type2 = 'Bug';
```

-- Query to find total number of pokemon caught by a trainer

```
SELECT trainer.trainer_id, trainer.trainer_name, COUNT(*) as total_caught
FROM trainer INNER JOIN collection ON trainer.trainer_id = collection.trainer_id
GROUP BY trainer.trainer_id;
```

-- Query to find total number of unique pokemon caught by a trainer

```
SELECT trainer.trainer_id, trainer.trainer_name, COUNT(DISTINCT pokedex_number) as unique_caught
FROM trainer
INNER JOIN collection ON trainer.trainer_id = collection.trainer_id
GROUP BY trainer.trainer_id;
```

-- Query to Find all pokemon with a grass typing (type 1 or type2)

```
SELECT pokemon_name, pokedex_number FROM pokemon
WHERE type1 = 'Grass' or type2 = 'Grass';
```

-- Query to find all pokemon name, pokedex number, that don't evolve at all. Sort by pokedex_number

```
SELECT p.pokemon_name, p.pokedex_number FROM pokemon AS p
INNER JOIN evolution
ON evolution.pokedex_number = p.pokedex_number
WHERE evolves_to is null AND evolves_from is null
ORDER BY p.pokedex_number;
```

```
-- Query to display the name and pokedex id of all pokemon caught by trainer with trainer_id = '123456'  
SELECT pokemon.pokemon_name, pokemon.pokedex_number FROM pokemon  
INNER JOIN collection  
ON pokemon.pokedex_number = collection.pokedex_number  
INNER JOIN trainer  
ON trainer.trainer_id = collection.trainer_id  
WHERE trainer.trainer_id = '123456'  
ORDER BY pokedex_number;
```

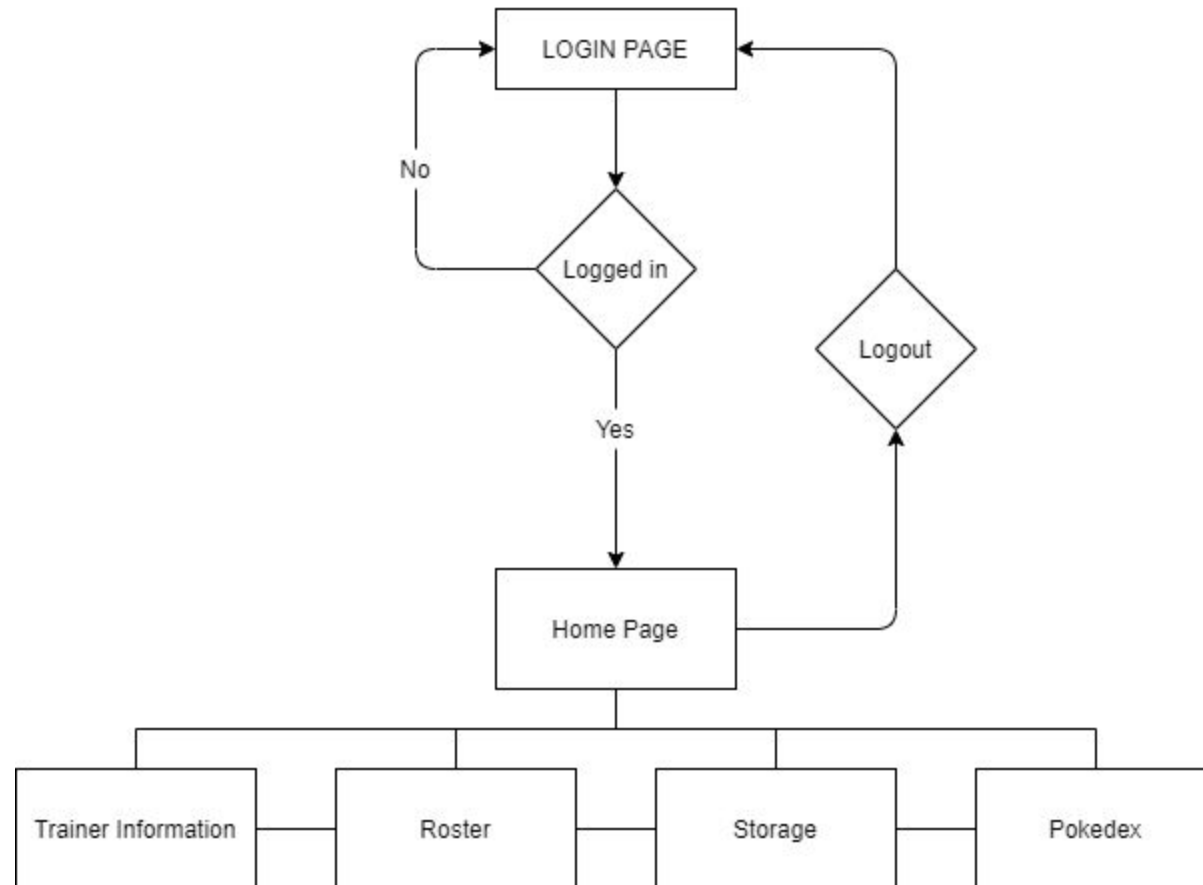
```
-- Query to find what pokemon trainer with trainer_id = '123456' owns will evolve to  
SELECT pokemon_name, pokedex_number  
FROM pokemon  
WHERE pokedex_number IN (  
    SELECT evolution.evokes_to  
    from pokemon INNER JOIN evolution ON pokemon.pokedex_number = evolution.evolution_id  
    WHERE evolution.evolution_id IN (  
        SELECT collection.pokedex_number  
        FROM trainer  
        INNER JOIN collection ON trainer.trainer_id = collection.trainer_id AND trainer.trainer_id = '123456'))  
ORDER BY pokedex_number;
```

```
SELECT pokemon_name, pokedex_number  
FROM pokemon  
WHERE pokedex_number IN (  
    SELECT evolution.evokes_to  
    from pokemon INNER JOIN evolution ON pokemon.pokedex_number = evolution.evolution_id  
    WHERE evolution.evolution_id IN (  
        SELECT collection.pokedex_number  
        FROM trainer  
        INNER JOIN collection ON trainer.trainer_id = collection.trainer_id));
```

Front End Design:

Site Map:

Navigation Diagram of Pokemon Database Website



Login Form:

×

LOGIN

Username

Password

Login

Cancel

Mock Website Design:

Home Page - Pokedex

localhost:44362

AppsJordan & Joanna Pr...Milestone 2 Submis...Bootswatch: LumenA walkthrough of t...Jordan's Task List [...Capstone GithubSlack | group-8 | U...B.A.S.I.C YAF Teachi...vladi7/ninemensmo...UMKC EMAILUMKC PathwayUMKC Canvas

Pokemon Storage DatabaseTrainer InformationRosterStoragePokedexLogout

Pokemon Database Management System

Use the search function below to filter Pokemon within the Pokedex.

Search Criteria

Enter Trainer ID

Type 1

Type 2

Gender

Nature

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