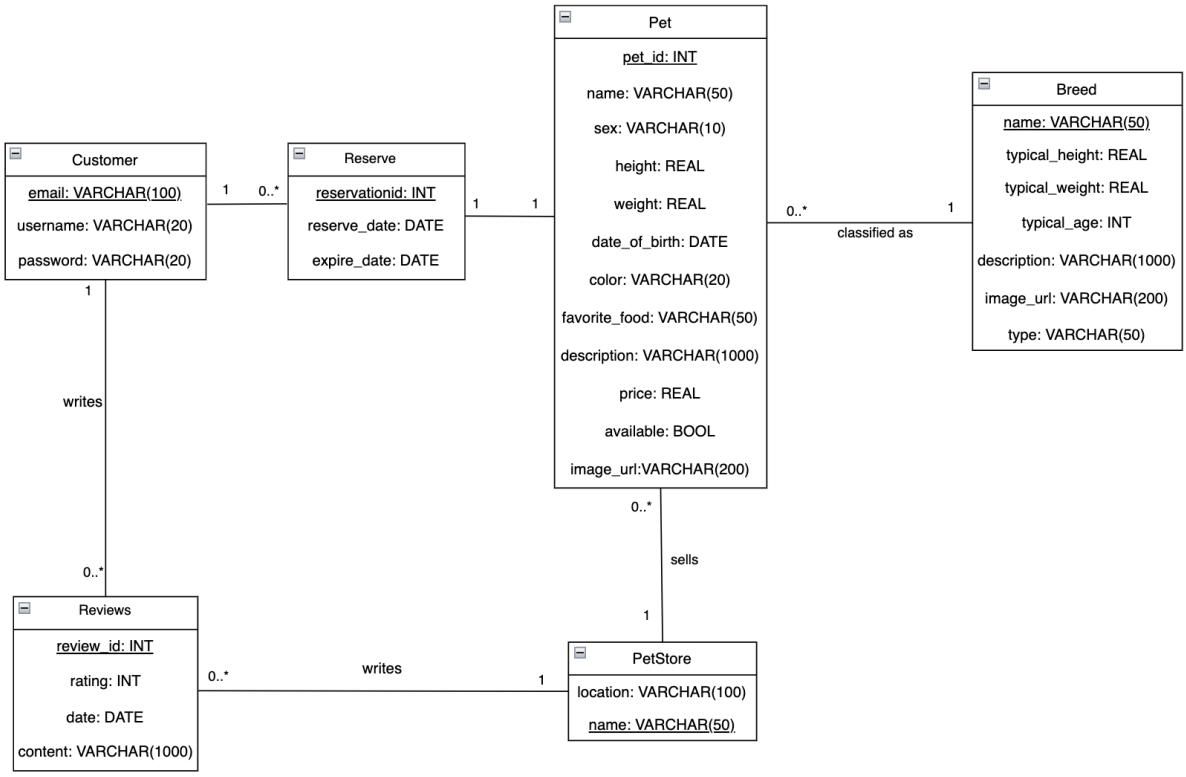
Stage 2: Conceptual and Logical Database Design

UML Diagram:



Assumptions of the UML diagram:

- All the lengths of VARCHARs are assumed not to exceed the given limit.
- Typical height of a certain breed is just a single value instead of a range. We also assume this for typical weight and typical age.
- The sex of a pet is either male or female, represented as a VARCHAR.

Description of each relationship and its cardinality:

Reserves:

- For customers, each customer can only reserve 0 to as many pets he wants and each pet can be reserved at most 1 customer.

Reviews:

- Customers can make 0 to many reviews to the pet store and each pet store can be reviewed by 0 to many customers.

Sells:

- Each pet must be sold in exactly one pet store but each pet store can have 0 to many pets for sale.

Classifies as:
- Each pet must be classified as a breed but each breed can have 0 to many pets.
- Each breed must be classified as a type but each type of pet can have 0 to many breeds.

Conversion From ER Design to Relational Schema

Customer(
    email: VARCHAR(100) PK,
    username: VARCHAR(20),
    password: VARCHAR(20)
)

Pet(
    pet_id: INT PK,
    name: VARCHAR(50),
    sex: VARCHAR(10),
    height: REAL,
    weight: REAL,
    date_of_birth: Date,
    color: VARCHAR(20),
    favourite_food: VARCHAR(50),
    description: CARCHAR(1000),
    price: REAL,
    available: BOOL,
    image_url: VARCHAR(200),
    sold_pet_store_name: VARCHAR(50) FK to PetStore.name,
    breed_name: VARCHAR(50) FK to Breed.name
)

Breed(
    name: VARCHAR(50) PK,
    typical_height: REAL,
    typical_weight: REAL,
    typical_age: INT,
    description: CARCHAR(1000),
    image_url: VARCHAR(200),
    type_name: VARCHAR(50) FK to Type.name
)

Type(
    name: VARCHAR(50) PK,

```
        image_url: VARCHAR(200)
)
PetStore(
        name: VARCHAR(50) PK,
        location: VARCHAR(100)
)
comments(
        comment_id INT PK
        date: Date,
        rating: INT,
        content: VARCHAR(1000)
)
reserves(
        pet_id: INT PK FK to Pet.pet_id,
        reserve_date: DATE,
        expire_date: DATE
)
```