

Requirements and Conceptual Document
CATabase: A Cat Adoption Database Management System

I. Requirements

a. Problem Description

There are approximately 50-70 million feral cats in the United States, with some figures estimating at least 100 million without a home. Cats are natural predators and thus pose a serious threat to the local wildlife while also being at risk of being attacked by other cats, aggressive animals, or seriously injured by fast-moving vehicles. And yet, there are only about 2 million cats being adopted each year in the US. As such, a comprehensive cat adoption database will help people more easily connect with owners and shelters to adopt and reduce the number of vulnerable cats out in the elements.

b. Summarized Nouns and Verbs

i. Nouns

1. Cats (*Note: cats available for adoption*)

- (1) cat_id: unsigned integer
- (2) cat_name: string
- (3) cat_dob: string(yyyy-mm-dd)
- (4) cat_weight_lb: float
 - (a) *Note: Weight in pounds*
- (5) cat_breed: string{"Siamese", "Bengal", "American Shorthair", "Russian Blue", ...}
- (6) cat_personality: string{"Friendly", "Shy", "Energetic", "Moody", ...}

(7) shelter: Object

(8) adoption_details: ObjectArray[]

- (a) *adoption_details.user_id*
- (b) *adoption_details.user_first_name*
- (c) *adoption_details.user_last_name*
- (d) *adoption_details.user_address*
- (e) *adoption_details.user_email*
- (f) *adoption_details.user_phone*
- (g) *adoption_details.adoption_approved*

2. Shelters

- (1) shelter_id: unsigned integer
- (2) shelter_name: string
- (3) shelter_location: string

- (4) shelter_email: string
- (5) shelter_phone: string
- (6) user_ratings: ObjectArray[]**
 - (a) *user_ratings.user_id*
 - (b) *user_ratings.user_first_name*
 - (c) *user_ratings.user_last_name*
 - (d) *user_ratings.user_address*
 - (e) *user_ratings.user_email*
 - (f) *user_ratings.user_phone*
 - (g) *user_ratings.rating_score*

3. Users:

- (1) user_id: unsigned integer
- (2) user_first_name: string
- (3) user_last_name: string
- (4) user_address: string
- (5) user_email: string
- (6) user_phone: string

ii. Verbs

- 1. House
- 2. Adopt
- 3. Rate

c. Narratives

i. Cats

- 1. Each cat is housed in one shelter only
- 2. Each cat can be applied for adoption by zero or more users

ii. Shelters

- 1. A shelter can house zero or more cats
- 2. A shelter can be rated by zero or more users

iii. Users

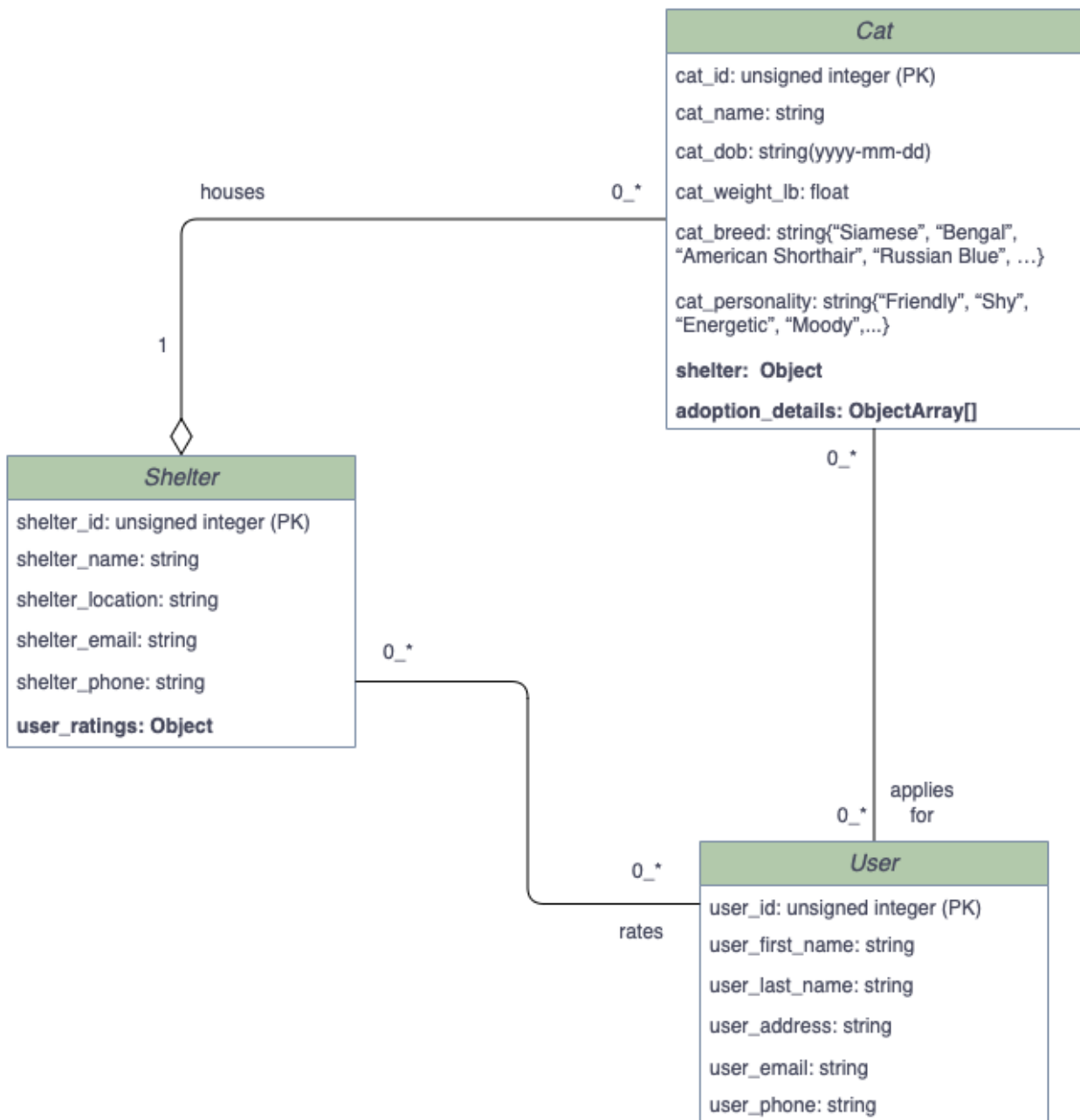
- 1. A user can apply to adopt one or more existing cats
- 2. A user can rate zero or more existing shelters on the scale of 1 to 5

d. Challenges

- i. Should a cat have multiple personalities?
- ii. Should there be a separate owner class?

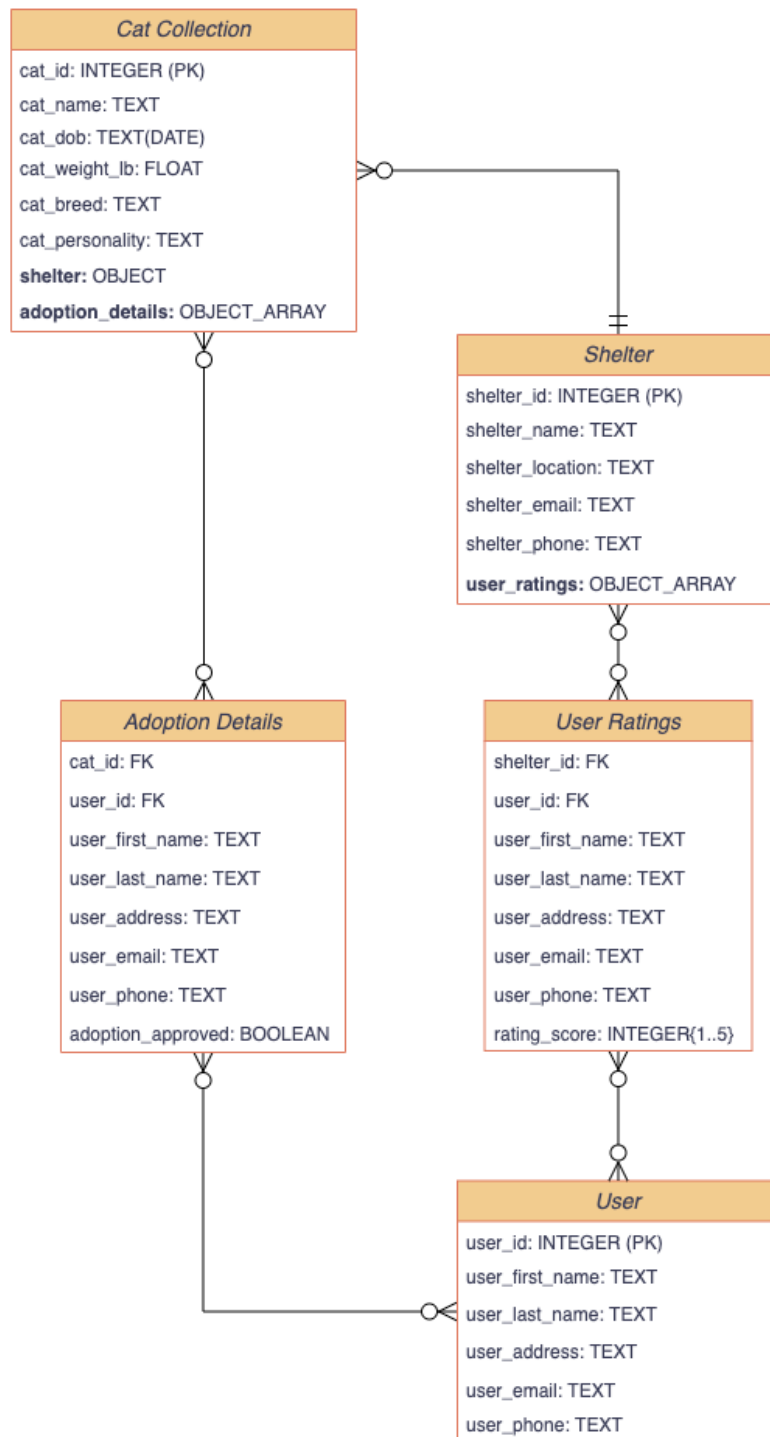
II. Conceptual Model (UML)

CATabase UML Class Diagram



III. Entity-Relationship Model (ERD) with Hierarchical Tables

CATabase Hierarchical Tables



IV. Document Schema

Main collections: Cats, Users, Shelters

1. Sample Cat document:

```
{
  "cat_id": 1,
  "cat_name": "Pannier",
  "cat_dob": "2014-07-24",
  "cat_weight_lb": 13.2,
  "cat_breed": "Ragdoll",
  "cat_personality": "Ambivert",
  "shelter": {
    "shelter_id": 28,
    "shelter_name": "Lind LLC",
    "shelter_location": "44567 Golden Leaf Court",
    "shelter_email": "mmccorrry@apache.org",
    "shelter_phone": "7628662930",
    "user_ratings": [
      {
        "user_id": 86,
        "user_first_name": "Jonathon",
        "user_last_name": "Patridge",
        "user_address": "150 Logan Circle",
        "user_email": "jpatridge2d@networkadvertising.org",
        "user_phone": "9797208606",
        "rating_score": 5
      },
      {
        "user_id": 53,
        "user_first_name": "Martina",
        "user_last_name": "Maldin",
        "user_address": "39856 Rutledge Hill",
        "user_email": "mmaldin1g@cargocollective.com",
        "user_phone": "4575231925",
        "rating_score": 5
      },
      {
        "user_id": 153,
        "user_first_name": "Ainslie",
        "user_last_name": "Westmarland",
        "user_address": "670 Eagle Crest Street",
        "user_email": "awestmarland48@zimbio.com",
        "user_phone": "3844110869",
        "rating_score": 4
      }
    ]
  },
  "adoption_details": [
    {
      "user_id": 118,
      "user_first_name": "Thelma",
      "user_last_name": "Ferrarello",
      "user_address": "15221 Goodland Center",
      "user_email": "tferrarello39@vinaora.com",
      "user_phone": "4084104091",
      "adoption_approved": true
    },
    {
      "user_id": 53,
      "user_first_name": "Martina",
      "user_last_name": "Maldin",
      "user_address": "39856 Rutledge Hill",
      "user_email": "mmaldin1g@cargocollective.com",
      "user_phone": "4575231925",
      "adoption_approved": false
    }
  ]
}
```

2. Sample Users Document

```
{
  "user_id": 2,
  "user_first_name": "Electra",
  "user_last_name": "Nibloe",
  "user_address": "192 Coolidge Avenue",
  "user_email": "enibloe1@accuweather.com",
  "user_phone": "9988777176"
}
```

3. Sample Shelters Document

```
{
  "shelter_id": 1,
  "shelter_name": "Herzog-Feil",
  "shelter_location": "5669 Clemons Parkway",
  "shelter_email": "dsiely0@spotify.com",
  "shelter_phone": "1498341711",
  "users_ratings": [
    {
      "user_id": 194,
      "user_first_name": "Warren",
      "user_last_name": "Clouston",
      "user_address": "27 Jackson Avenue",
      "user_email": "wclouston5d@opensource.org",
      "user_phone": "3499563839",
      "rating_score": 4
    },
    {
      "user_id": 188,
      "user_first_name": "Temple",
      "user_last_name": "Ericssen",
      "user_address": "833 Mockingbird Circle",
      "user_email": "tericssen57@google.nl",
      "user_phone": "9271525682",
      "rating_score": 2
    },
    {
      "user_id": 128,
      "user_first_name": "Shermie",
      "user_last_name": "Linbohm",
      "user_address": "52563 Bowman Circle",
      "user_email": "slinbohm3j@spotify.com",
      "user_phone": "8176104321",
      "rating_score": 3
    }
  ]
}
```