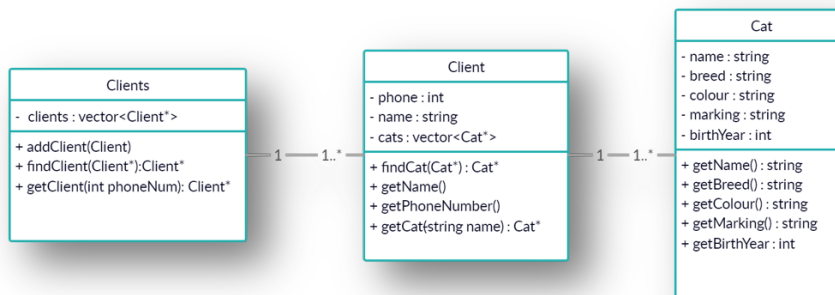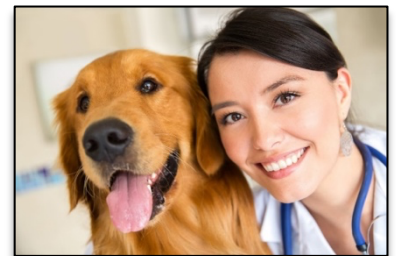# Northmere Veterinary Clinic

BACKGROUND

Dr. Brigoakes is the owner and operator of a local veterinary clinic. As she is a cat lover, she only treats animals of the feline persuasion. Recently, Dr. Brigoakes hired her neighbour's nephew, a student at the University of Lethbridge, to implement a simple client-management system for her veterinary clinic. Unfortunately, the nephew had only taken up to CPSC 2620, and had yet to learn effective software design. The current design of the client-management system is the following:

Clients
- clients : vector<Client*>
+ addClient(Client)
+ findClient(Client*):Client*
+ getClient(int phoneNum): Client*

1 — 1..*

Client
- phone : int
- name : string
- cats : vector<Cat*>
+ findCat(Cat*) : Cat*
+ getName()
+ getPhoneNumber()
+ getCat(string name) : Cat*

1 — 1..*

Cat
- name : string
- breed : string
- colour : string
- marking : string
- birthYear : int
+ getName() : string
+ getBreed() : string
+ getColour() : string
+ getMarking() : string
+ getBirthYear : int

YOUR TASK

Dr. Brigoakes has recently taken on a partner, Dr. Wisner, who treats dogs as well as cats. On the basis of a recommendation from a good friend (not her neighbour!), she has hired you to re-implement the system to manage dogs as well as cats. She tells you that in the past she has had problems with the existing system, such as not being able to find client records when a name is spelt wrong.

1. (70 points) Create a new UML class diagram that shows the design for your system which follows the design principles discussed in class such as:
   - Code to an interface, not an implementation.
   - Abstract what is common, encapsulate what varies.
   - Classes should have only one reason to change.
   - Delegate functionality to the class that has the information.

TEST YOUR DESIGN

2. (30 points) Once you have settled on a new design for the system, test it by showing what changes need to be made if the clinic starts treating a new type of animal, such as rabbits.

Appendix

Cat Colours

Black	Chocolate
Cream	Gray
Cinnamon	Red

Cat Markings

Spotted	Striped
Tortoise Shell	Tabby
Calico	Brindle

Dog Colours

Black	Chocolate
White	Yellow
Gold	Gray

Dog Markings

Two-colour	Tricolour
Merle	Tuxedo
Spotted	Brindle