**WIA 1002 Data Structure**

Lab Test 1

Time: 1 hour

## Scenario

The newly opened Happy Animal Clinic needs a customized system to support its daily operation. The customized system, which uses Java, should provide systematic access to the data of animals treated at the facility. As a fresh computer science graduate out of Universiti Malaya, you find this opportunity hard to miss. Upon requesting the system requirements from Happy Animal Clinic, you find the tasks you need to address as follows.

## List of Tasks

1. Create a class called `Pet` that should hold all critical information about pets getting treatment at the clinic. The class should contain the `breed`, `weight` and `sickness` of the pets.
   a. The class should implement the `Comparable` interface as it needs to compare the pets' weights.
   b. Generate the appropriate getter and setter methods in the class.
2. Create a `Cat` class that inherits from the `Pet`. The `Cat` class has an additional name variable in addition to those in `Pet`.
   a. Generate the appropriate getter and setter methods in the class.
3. Create a generic `Prescription` class that takes three parameters. The first parameter must be a subclass of `Pet`, while the remaining parameters should store the `medication` and `dosage`, respectively.
4. Create a `Vet` class that contains the `name` and `qualification` of the practitioner.
   a. Create a `giveTreatment` method that returns nothing. The method takes one parameter, which is an ArrayList of the `Prescription` object. In the method, loop through the ArrayList and print each object element.
5. Create a `Clinic` class that contains the `main` method. The class also contains the `name` of the clinic and a `Vet` object containing information about the practitioner.
   a. Create a getter method to retrieve the `Vet` object that contains the practitioner information.
   b. Within the `main` method, perform the following:
      i. Instantiate a `Clinic` object with the following information:
      Name: Happy Animal Clinic
      Vet's Name: Abu Bakar

Vet's Qualification: DVM(India)

ii. Instantiate two `Cat` objects with the following information:
Name: Dimmy
Breed: Siamese
Weight: 5
Sickness: Diarrhea

Name: Tabby
Breed: British Shorthair
Weight: 6
Sickness: Worms

iii. Instantiate an ArrayList of `Prescription`. Add the following entries into the ArrayList:
Pet: Cat Object 1
Medication: Tylosin
Dosage: 5

Pet: Cat Object 2
Medication: Pyrantel
Dosage: 3

To test the program:

1. Print all the information entered above, as demonstrated in the expected output below.
2. Determine which pet is the heaviest.

**Expected output**

Clinic: Happy Animal Clinic
Vet on Duty: Abu Bakar, DVM(India)

Prescription Note
Name: Tabby
Breed: British Shorthair
Weight (KG): 6
Sickness: Worms
Medication: Tylosin
Dosage (ml): 5

Prescription Note
Name: Dimmy
Breed: Siamese
Weight (KG): 5
Sickness: Diarrhea
Medication: Pyrantel
Dosage (ml): 3

Weight analysis: Tabby is heavier than Dimmy