You are required to create a Pet Shop system.

The Pet Shop can have many different kinds of pets: Cats, Dogs, Lions, Parrots, Elephants, Horses etc. All these animals have their specific sounds and specific food requirements. For example a lion roars and eats meat. A horse neighs and eats grass.

When a customer selects a pet, the pet makes its sound and tells the customer what it likes to eat.
After that, a customer can either buy the pet or reject it. And then he can move on to browse other animals or finish buying pets.

A customer can buy many different pets. But you need to take care: if the customer has a pet in his possession that is the predator or prey of the new pet, he should be warned about it. For example, if the customer owns a mouse and he wants to buy a cat, he should be warned that the cat can prey on his pet mouse and asked if he still wants to buy the cat or not.

After a customer is done buying all the pets he wants, he is showed a menu of food items that he can buy for his pets. Note that only the food items applicable to the kinds of pets bought should be displayed. i.e. if a person has bought parrots and horses then he should only be shown the food items that these animals eat, like nuts and grass and fruits. And if the person has bought lions and cats then he should be shown food items like meat and milk.

The customer can then play with the pet. He can ask it to make its sound or he can feed it. If the animal finds the food item edible, it will eat it. Otherwise it will reject it.
If the food ends, the customer can go back to the pet shop to buy more.

The customer might already have some pets when he comes to the Pet Shop so don't assume anything about him.
You can have as many animals in your Pet Shop as you like with a minimum of five. And you must have the following: Cat, Dog and Goldfish.

<u>Important Points:</u>

a) Make use of the coding etiquettes posted on the group or marks will be deducted.

b) Proper Exception Handling is to be implemented as I explained in the lab. There should be separate classes for all the different kinds of exceptions that can arise. Use of a generic catch block is not permitted.
   Some exception classes that MUST be implemented are:
   a. PetNotCompatibleException
   b. NoMoreFoodException
   c. InedibleFoodException

You are free to make more exception classes.

c) Along with the code, you are required to submit a document explaining your design. There should be a section detailing the relationship between classes i.e Association, Aggregation, Composition. Along with your reasoning.
And another section containing the class diagrams with proper symbols and labels. Inheritance relationship should be clearly visible from the diagram.

d) Your code must be in running condition and must NOT crash anywhere.

In case of any ambiguity, make reasonable assumptions.
Any kind of plagiarism will result in a direct, undisputed F. You've been warned.
Have fun! ☺