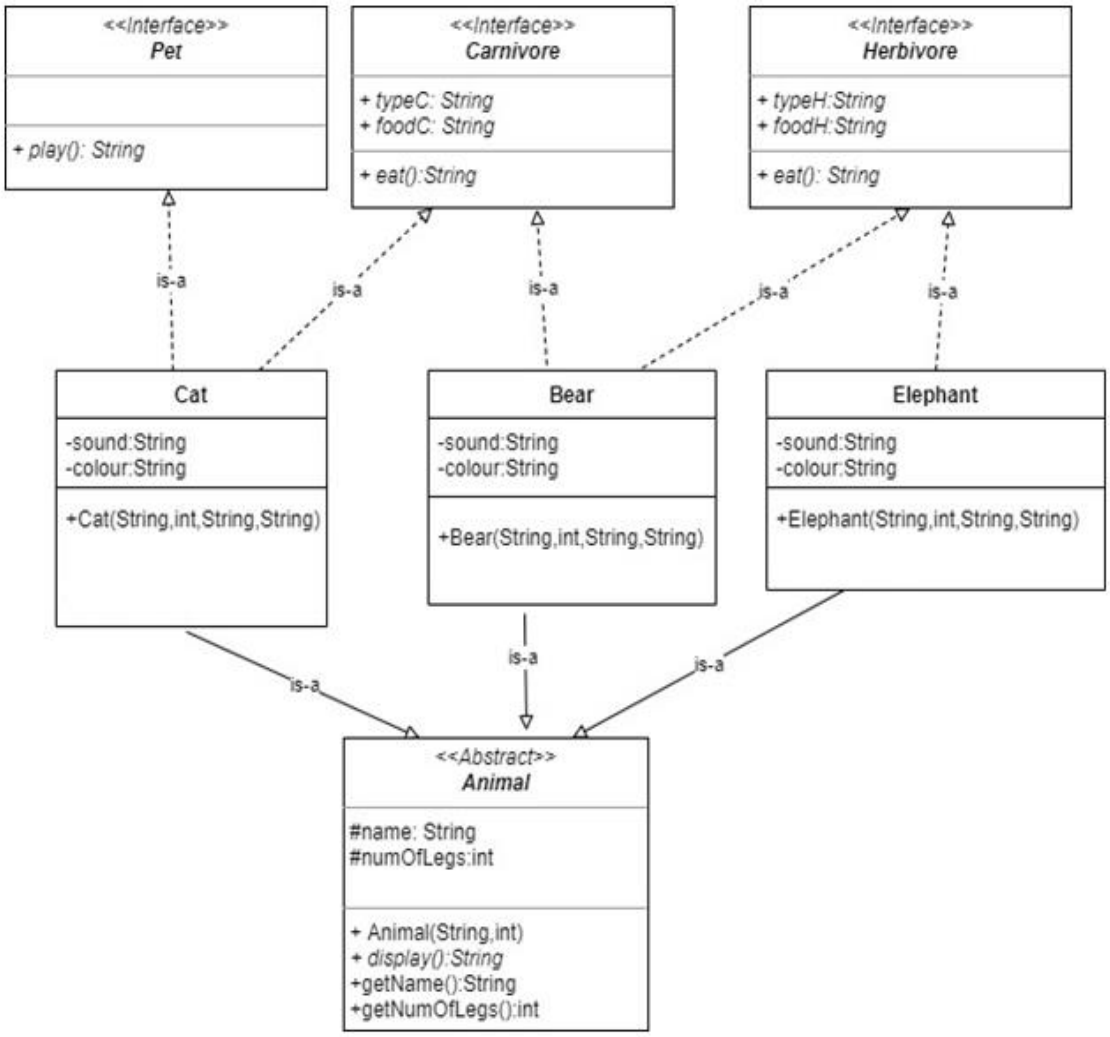
Pusat Pengajian Pengkomputeran
SCHOOL OF COMPUTING
Universiti Utara Malaysia

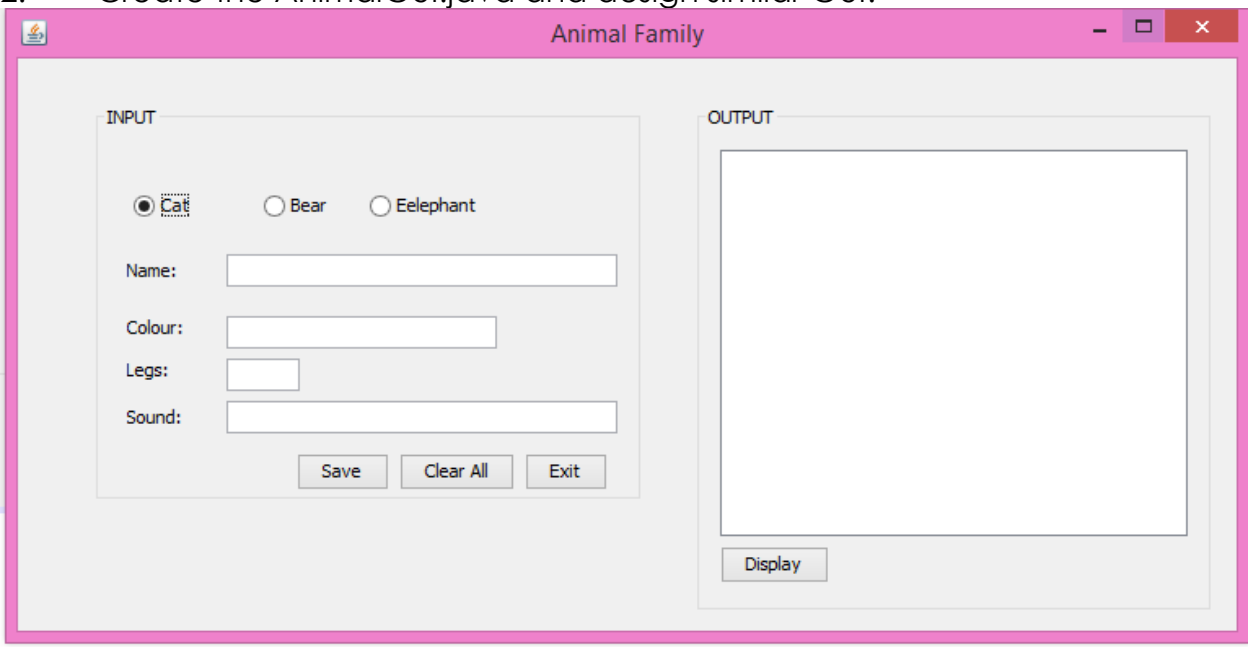
STIA1123 PROGRAMMING 2
INDIVIDUAL ASSIGNMENT 2
Topics: Inheritance, Polymorphism and GUI

Figure below shows a UML class diagram of the animal classes. It is a hierarchy of animals that is rooted in an abstract class Animal. Several of the animal classes implement interfaces called Herbivore, Carnivore, and Pet. However, Cat, Bear and Elephant classes given below are incomplete.



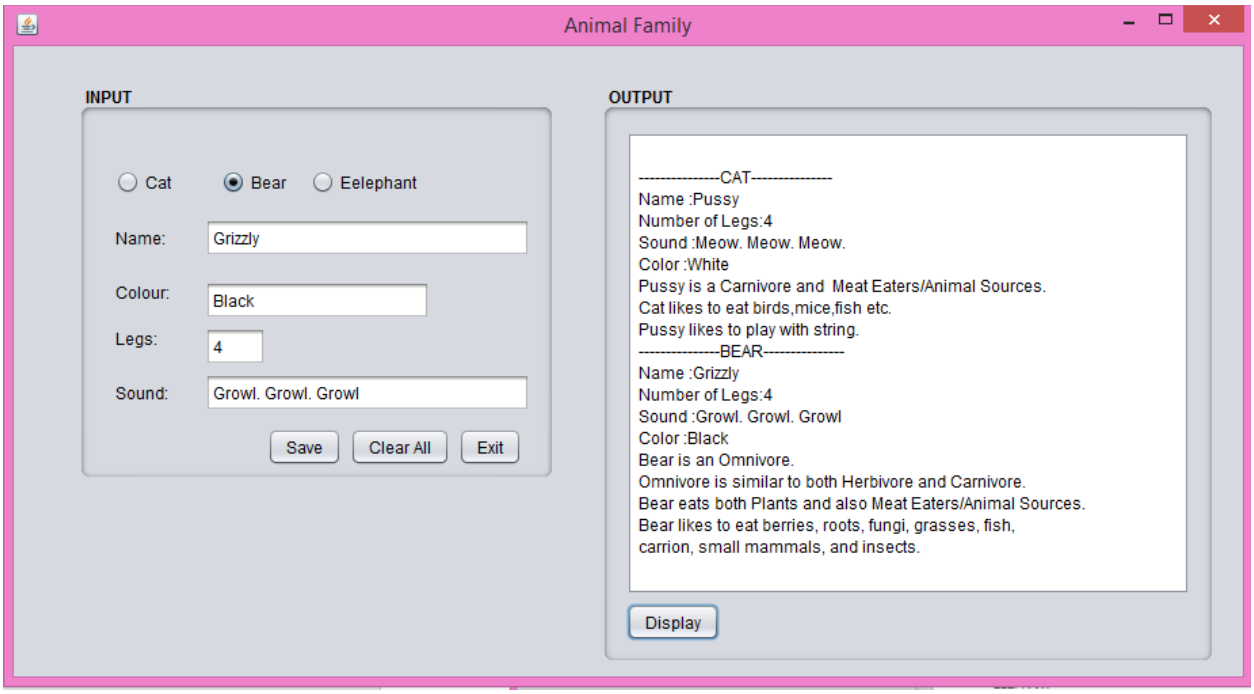
1. Write the definition for all classes and the interfaces.
   [**Hint:** Cat, Bear and Elephant classes need to implement all the abstract methods.]

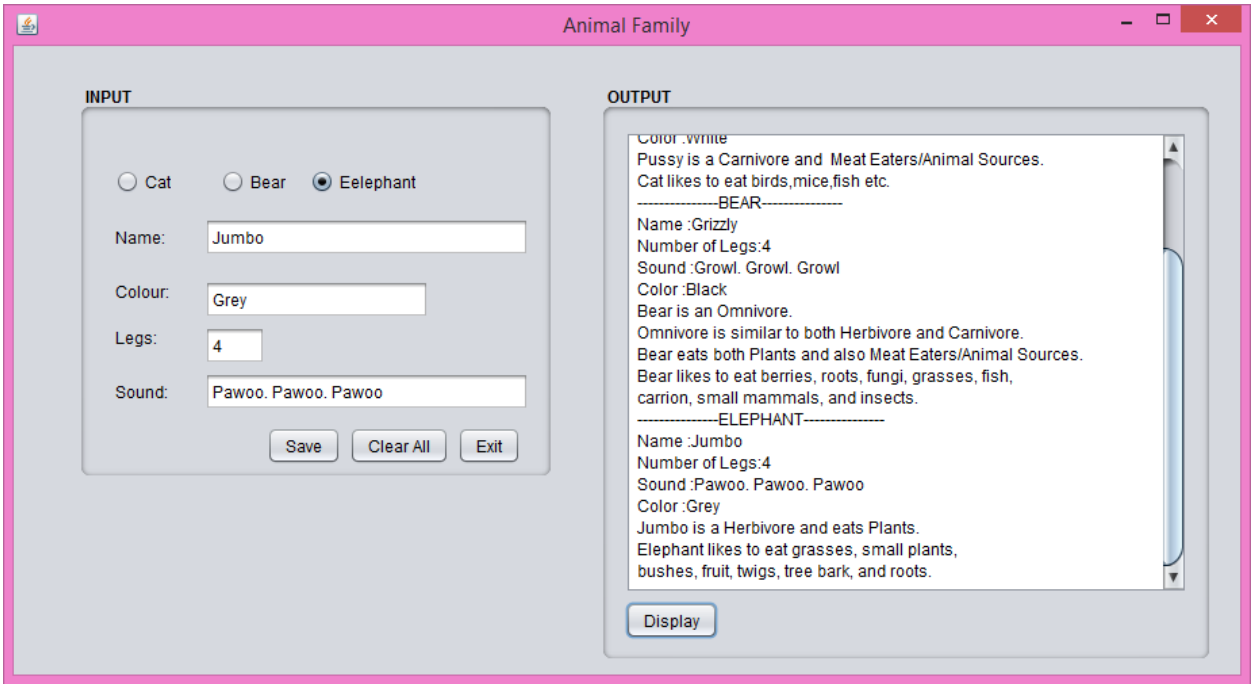
2. Create the AnimalGUI.java and design similar GUI.



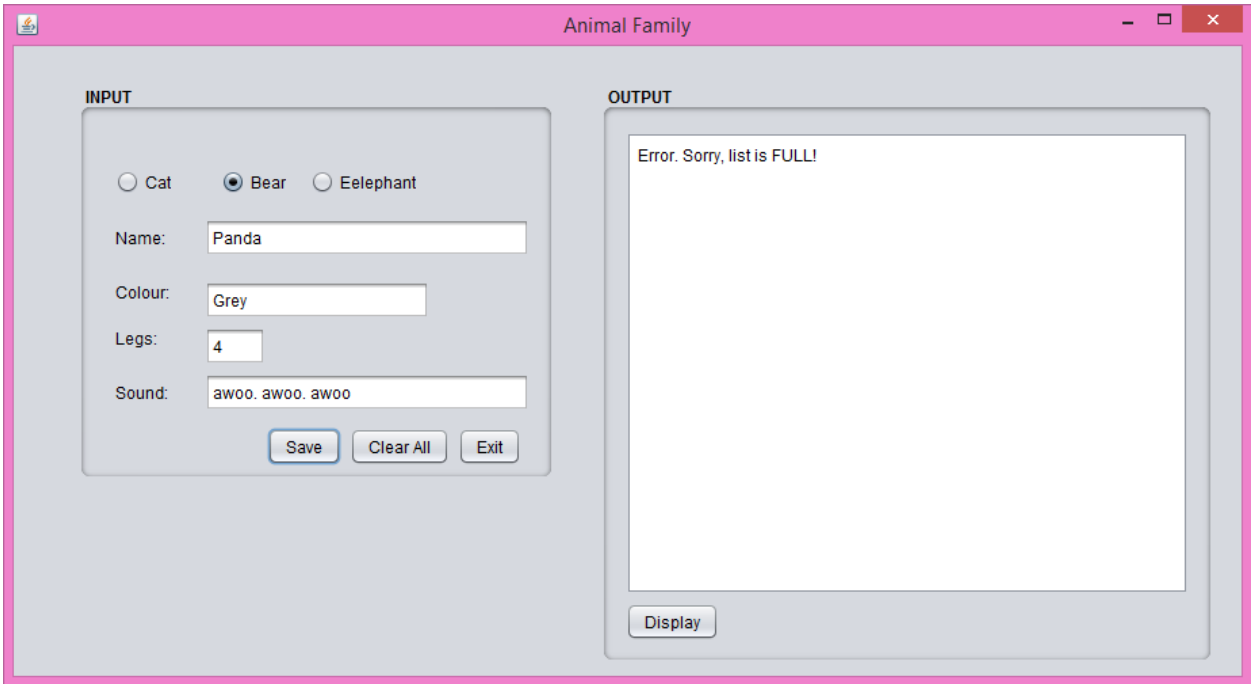
   a) Button "Save": to add selected animal object to an array type Animal.
   b) Button "Clear All": to clear all text fields and text area.
   c) Button "Display": to display details of all objects in the array.
   d) Button "Exit": to stop the program.

3. Your program must use a `for` loop to display the output. Invoke the correct methods to get the similar output as given below. [**Hint**: **MUST** use `instanceof` and casting]

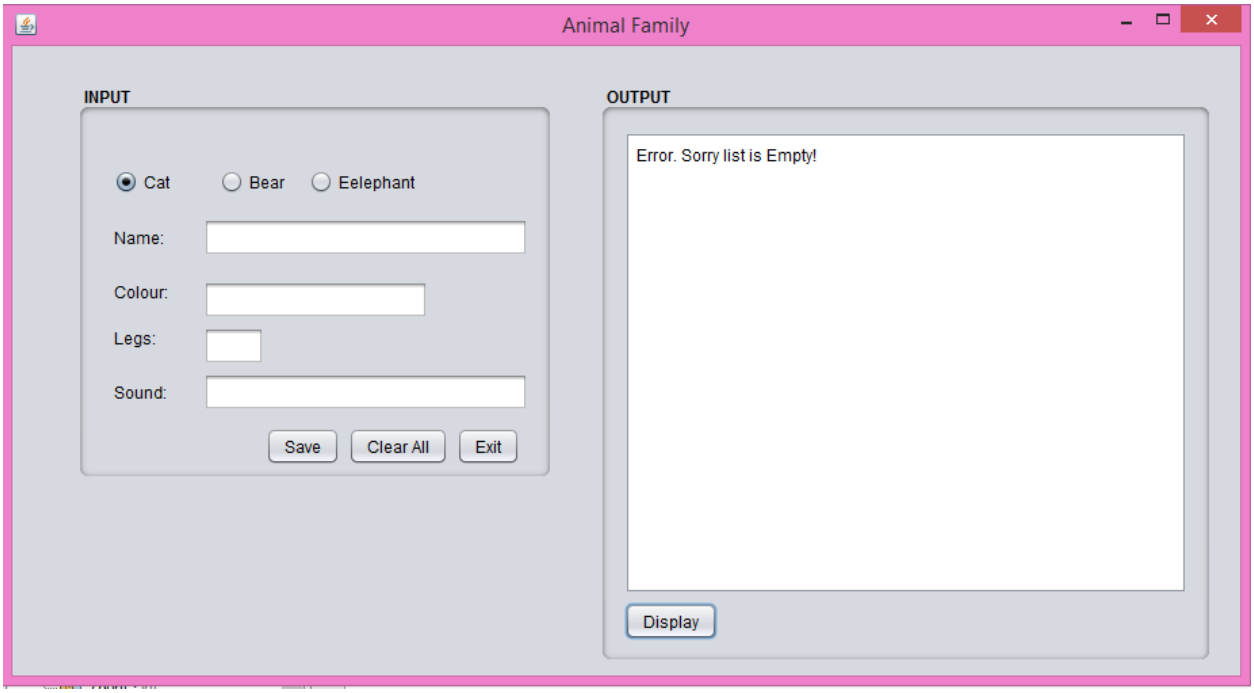




4. You program also need to handle **TWO (2)** cases:
    a) **List is full** (when user to try add new object into a full array).



b) **List is empty** (when user choose to display an empty array).



Assignment Policy:

- Due date: **29 December 2022**
- Submit: source code + sample outputs
- Assignments that are submitted late are penalized 10% for one day late, 30% for two days late, and will not be accepted thereafter.