

Object Oriented Programming Lab#6

Topics covered in this lab:

- 1. Static member variables
- 2. Static member functions
- 3. Friend functions and class

Section A

1. What are friend functions and where are they implemented?

Problem 1:

Animal - species: string - age: int - weight: double Zoologist - animalCount: static int + Animal() + Animal(string, int, double) + Animal(Animal&) + getSpecies(): string + setSpecies(string) + examineAnimal(a: Animal) + getAge(): int + setAge(int) + getWeight(): double + setWeight(double) + getAnimalCount(): int Friend Function: +displayAnimalInfo(a: Animal)

- Make a destructor function in the Animal class



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Zoologist Class:

Member Functions:

- examineAnimal(a: Animal) Accesses and possibly modifies the private members of an Animal object.
- Print a statement "Examining the animals' species, age, and weight" and access the attributes of the animal.
- Modify animal's weight by adding 5.

Friend Function:

 displayAnimalInfo(a: Animal) A friend function that can access the private member variables of Animal, Takes an Animal object as a parameter and prints out its private member variables.

Write a main () function to demonstrate:

- Creating Animal objects using different constructors.
- Using getters and setters to access and modify the attributes of Animal objects.
- Accessing private members via the friend function displayAnimalInfo(a: Animal).
- o Accessing private members via the friend class Zoologist.
- Calling the static member function getAnimalCount() and showing the effect of the static member variable animalCount.