

Zoo Database

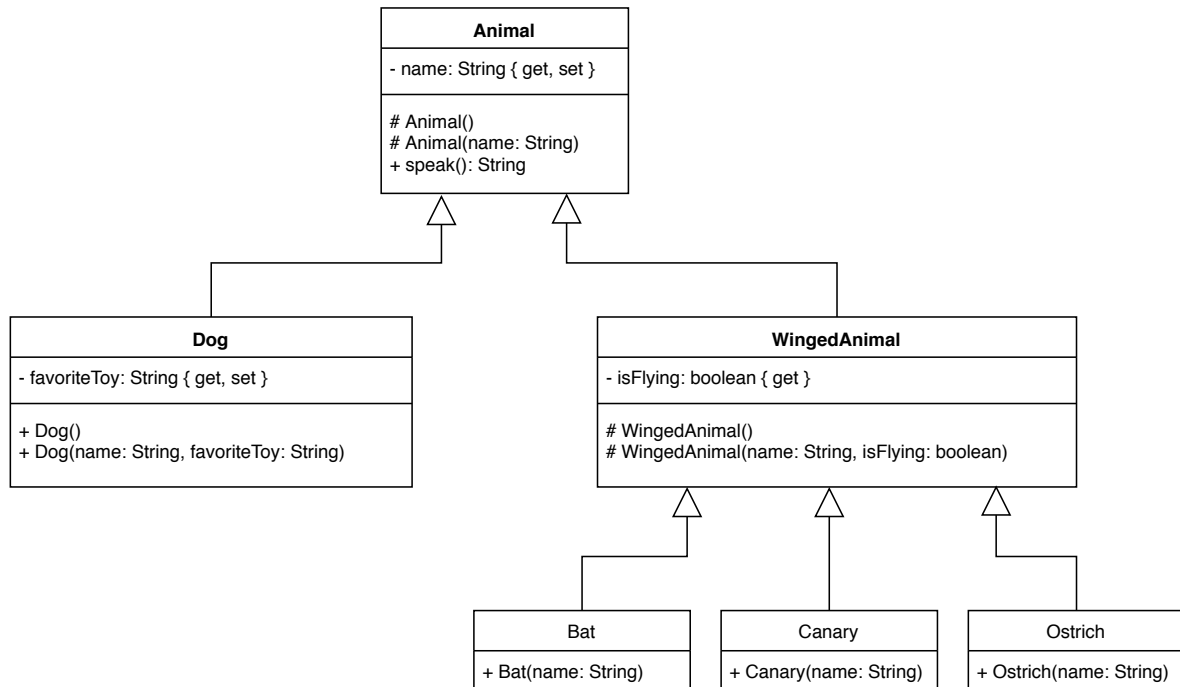
Functional Specification (Requirements)

Description

Our program is a database of animals for a small zoo. The zoo has only four types of animals: dogs, canaries, bats and ostriches.

The user will add and remove animals from the zoo database using a small system of menus presented in the console.

Data Model



Functionality

Program Start

Upon startup, the program will display the main menu to the user. The list of animals in the database is read from the file `Zoo.txt` in the current working directory of the program.

Main Menu

The main menu is the central point of activity for the program. The following options are presented to the user:

- Print the list of animals in the database
- Add an animal to the database
- Remove an animal from the database
- Quit the program

The menu will await the user's response and will invoke the functionality for each option. Once the functionality is complete, the menu options will be displayed again and the user will be expected to make another choice. In the case of the "Quit the program" the menu will exit and the program will end.

If the user enters an invalid choice, the program will print an error message and then display the menu again.

Quit the program

The main menu will exit, which ends the program. There is no user interaction after selecting this option.

Print the list of animals in the database

The program prints the list of animals in tabular format to the screen. The following fields are printed.

- Animal name
- Type of animal
- Can fly
- Speaks
- Notes (a Dog's favorite toy is printed in this section)

Once the list is printed, the program returns to the main menu. There is no user interaction in this function.

Add an animal to the database

The Add Animal menu is presented to the user.

Remove an animal from the database

The program prints the list of animals in the database with an index next to each animal.

The program then prompts the user to enter the index of the animal to be removed. If the user enters a valid index, the animal at that index is removed from the database, and the database is written back to the file.

If the user enters an invalid index, the program prints an error message and prompts and returns to the main menu.

Add Animal Menu

The program prints the following list of animal types and prompts the user to enter their selection.

- Dog
- Canary
- Ostrich
- Bat
- Return to main menu

The menu will await the user's input and will invoke the selected functionality.

Return to main menu

The program will return to the main menu.

Dog

The program will prompt the user to enter the dog's name and favorite toy. The program will then create a new Dog object, add it to the database and write the database back to its file on disk.

Canary, Ostrich, Bat

The program will prompt the user to enter the animal's name and will then create the animal of the specified type, add it to the database and write the database back to its file on disk.

Program End

Upon exiting the Main Menu, the program will print a "Thank you" message to the screen and will then exit.