Casper's Zoo

Animal Management System (70 Minutes)

Casper's Zoo has asked used to implement an animal management system to track total amount of food cost for the animals. We also need to track if animal enclosures need to be cleaned and the amount of tranquilizers need to be on hand for certain animals.

All animals know whether or not they need their cage cleaned and our system should track how many dirty and clean cages their currently are at the zoo.

Once an animal is entered into our system the amount of food it consumes cannot be changed whether it is in pounds, tons, or children.

Tranquilization service is provided to mammals but not to reptiles. We need the ability to report how many tranquilizers will be necessary for an animal in our zoo. Each mammal is allocated 3 tranquilizer darts per pound rounded up. If they weigh 2.5 pounds they should get 8 tranquilizer darts.

Casper has big plans for adding a new type of animal in the future that will also be able to be tranquilized but will calculate the number of darts needed differently from mammals.

Each animal at the zoo requires food – the standard food cost multiplier is 32.4, this will change in the future based off of weather. We have three types of animals (mammals, reptiles, and venomous).

Reptiles eat a certain amount of food in whole pounds (not decimals) and should be multiplied by the food cost multiplier to get cost.

Venomous animals consume children only and that is multiplied by the food cost multiplier to get the final price. They can eat any number of children. However, some venomous animals have fang problems and consume 34% less than they should.

Mammals consume the number of tons of food by the food cost multiplier to get the total cost. They must consume at least 14 tons but less than 256 tons. If they fail to meet this condition then an InvalidFoodException which is a **RuntimeException** should occur.

Casper's system should be able to return the total number of cages that are dirty and clean and the amount of tranquilizers that need to be on hand. The system should be able to add individual animals to the current inventory of animals. Finally, the system should be able to return the total cost of food for all animals in the zoo.

Casper would like us to demonstrate our animal management system with the following animals staying at the zoo:

- 3 venomous
    - 2 with fang issues – one consuming 12 children the other 18
    - 1 who is staying consuming 20 children with a dirty enclosure
- 2 Mammals
    - 1 who is consuming 25.35 tons of food with a dirty cage
    - 1 who is consuming 56.89 tons of food
- 1 reptile
    - 1 who is consuming 20 pounds with a dirty tank