Classes exercises

# ZooAnimal #1

**1. The ZooAnimal class definition below is missing a prototype for**

**the Create function. It should have parameters so that a character**

**string and three integer values (in that order) can be provided when**

**it is called for a ZooAnimal object. Like the Destroy function, it**

**should have return type void. Write an appropriate prototype for the**

**ZooAnimal Create function.**

**class ZooAnimal**

**{**

**private:**

**char \*name;**

**int cageNumber;**

**int weightDate;**

**int weight;**

**public:**

**void Destroy (); // destroy function**

**char\* reptName ();**

**int daysSinceLastWeighed (int today);**

**};**

**2. Write a function header for the ZooAnimal class member function**

**daysSinceLastWeighed. This function has a single integer parameter**

**today and returns an integer number of days since the animal was last**

**weighed.**

**void ZooAnimal::Destroy ()**

**{**

**delete [] name;**

**}**

**// -------- member function to return the animal's name**

**char\* ZooAnimal::reptName ()**

**{**

**return name;**

**}**

**// -------- member function to return the number of days**

**// -------- since the animal was last weighed**

**{**

**int startday, thisday;**

**thisday = today/100\*30 + today - today/100\*100;**

**startday = weightDate/100\*30 + weightDate - weightDate/100\*100;**

**if (thisday < startday)**

**thisday += 360;**

**return (thisday-startday);**

**}**

**3. In the main function there is a cout statement that attempts to**

**print the animal's name. However, it is not allowable because it**

**attempts to access the private data member called name. Modify that**

**statement so that it uses a public member function that returns the**

**ZooAnimal's name.**

**class ZooAnimal**

**{**

**private:**

**char \*name;**

**int cageNumber;**

**int weightDate;**

**int weight;**

**public:**

**void Create (char\*, int, int, int); // create function**

**void Destroy (); // destroy function**

**char\* reptName ();**

**int daysSinceLastWeighed (int today);**

**};**

**// -------- member function to return the animal's name**

**char\* ZooAnimal::reptName ()**

**{**

**return name;**

**}**

**// ========== an application to use the ZooAnimal class**

**void main ()**

**{**

**ZooAnimal bozo;**

**bozo.Create ("Bozo", 408, 1027, 400);**

**cout << "This animal's name is " << bozo.name << endl;**

**bozo.Destroy ();**

**}**

# ZooAnimal #2

**1. Write the ZooAnimal inline member function reptWeightDate. It**

**should simply return the weightDate data member.**

**enum scale {ounces, kilograms};**

**class ZooAnimal**

**{**

**private:**

**char \*name;**

**int cageNumber;**

**int weightDate;**

**int weight;**

**public:**

**void Create (char\*, int, int, int); // create function**

**void Destroy (); // destroy function**

**void changeWeight (int pounds);**

**void changeWeightDate (int today);**

**char\* reptName ();**

**int reptWeight ();**

**void reptWeight (scale which);**

**inline int reptWeightDate ();**

**int daysSinceLastWeighed (int today);**

**};**

**2. Modify the prototype for changeWeightDate below to make it the**

**appropriate single line inline member function changeWeightDate. The**

**single line needed should set the data member weightDate equal to the**

**parameter today.**

**enum scale {ounces, kilograms};**

**class ZooAnimal**

**{**

**private:**

**char \*name;**

**int cageNumber;**

**int weightDate;**

**int weight;**

**public:**

**void Create (char\*, int, int, int); // create function**

**void Destroy (); // destroy function**

**void changeWeight (int pounds);**

**inline void changeWeightDate (int today);**

**char\* reptName ();**

**int reptWeight ();**

**void reptWeight (scale which);**

**int reptWeightDate ();**

**int daysSinceLastWeighed (int today);**

**};**

**3. Write the ZooAnimal member function isMotherOf. It needs only a**

**single statement that makes the mother data member of the ZooAnimal**

**object parameter a pointer to the ZooAnimal object for which this**

**function is called.**

**class ZooAnimal**

**{**

**private:**

**char \*name;**

**int cageNumber;**

**int weightDate;**

**int weight;**

**ZooAnimal \*mother;**

**public:**

**void Create (char\*, int, int, int); // create function**

**void Destroy (); // destroy function**

**void isMotherOf (ZooAnimal&);**

**void changeWeight (int pounds);**

**void changeWeightDate (int today);**

**char\* reptName ();**

**int reptWeight ();**

**void reptWeight (scale which);**

**inline int reptWeightDate () {return weightDate;};**

**int daysSinceLastWeighed (int today);**

**};**