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| **Learning Activity**  **C++ Object Inheritance Programming Exercise** |

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| **Subject Code and Title** | SEP401 Software Engineering Principles |
| **Module Number** | Module 6 |

**There are 2 questions to complete for this Learning Activity**

**Question 1:** Access Levels

Fill in the blanks in the following table which describes the access levels in a derived class's members. i.e. State whether the member's access level is public, private, or protected - or, if it is not accessible!

|  |  |  |
| --- | --- | --- |
| **Class Access specifier** | **Base Class Member Access Level** | **Derived Class Member Access Level** |
| public | private  public  protected |  |
| protected | private  public  protected |  |
| private | private  public  protected |  |

**Question 2:** Programming Exercises

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);**

**};**

1. 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);**

**}**