CS 162, Lecture 25: Exam II Review

30 May 2018

True or False

- Pointers to a base class may be assigned the address of a derived class object.
- In C++ polymorphism is very difficult to achieve unless you also use inheritance.
- You can create a non-member function with one parameter that overloads the relational equal to (==) operator.
- The standard template library (STL) vector and list classes are examples of sequential containers.
- Nodes in a linked list are stored in contiguous memory.

True or False

- C++ enables you to use the friend keyword to declare friend functions and friend classes for a class so these functions and classes can access the class's private members.
- If a function is declared as returnType functionName(parameterList) throw (type), this function can only throw the exception of the specified type.
- A template class allows the class to be used with different data types.
- If an exception is not caught, it is stored for later use.
- The following code declares a vector of characters.

```
vector characters<char>;
```

True or False

- Destructors are not inherited into the derived class.
- The assignment operator is inherited from the base class.
- If a function throws an exception, it must be caught inside that function.
- In a try block, the throw statement is always executed.
- The catch block is the group of statements that handle an exception.

To add an int value 5 to a vector v of integers, use _____.

A. v.append(5);

B. v.insert(5);

C. v.add(5);

D. v.push_back(5);

Who can access private data in a class?

A. classes derived from the class

B. friends of the class

C. everyone

D. A and B

E. no one

Which of the following statements are true?

A. A custom exception class must always be derived from class exception.

B. A custom exception class must always be derived from a derived class of class exception.

C. A custom exception class is just like a regular class in C++.

D. A custom exception class must always be derived from class runtime_error.

Which of the following is a pure virtual function?

A. virtual double getArea();

B. double getArea() = 0;

C. virtual double getArea() = 0;

D. virtual double getArea() { };

Suppose Circle and Rectangle classes are derived from GeometricObject and you declared

```
void displayGeometricObject(GeometricObject shape) {
        cout << shape.toString() << endl;
}
```

Which of the following function call is incorrect?

A. displayGeometricObject(Rectangle(2, 3));

B. displayGeometricObject(GeometricObject("black", true));

C. displayGeometricObject(string());

D. displayGeometricObject(Circle(5));

Which is the correct way to tell the compiler that the class being declared (ChildClass) is derived from the base class (BaseClass)?

A. class ChildClass::public BaseClass

B. class ChildClass:public BaseClass

C. class ChildClass childOf public BaseClass

D. class ChildClass derived BaseClass

Give a base class with at least one public member function, how many child classes can redefine that member function?

A. 1

B. 0

C. all of them

D. none of the above

If the member variables in the base class are listed as protected, then who can access or modify those variables?

A. members of the base class

B. members of the derived class

C. outside the base or derived classes

D. A and B

E. All of the above

If a base class has public member functions that are not listed by a derived class, then these functions

A. are not available to the derived class

B. are inherited unchanged in the derived class

C. are private to the derived class

D. do not exist in the derived class

If you have a copy constructor in the base class, but do not have a copy constructor for the derived class, then

A. you will have a syntax error

B. a copy constructor for the derived class is automatically created for you

C. you cannot use pointer variables

D. the default constructor is used

Given a class A that derives from a class B that derives from a class C, when an object of class A goes out of scope, in which order are the destructors called?

A. C, B, then A

B. A, B, then C

C. unable to determine

D. depends on how the code is written for the destructors

If the Pet class had a non-virtual member function named print, and a pointer variable of that class is pointing to a Dog object, then the code pPtr->print( ); calls

A. the base class print function
B. the derived print function
C. both the derived and base print functions
D. it causes a run-time error

Polymorphism refers to

A. the ability to change the behavior of a function at runtime.

B. overriding base class functions.

C. overloading functions

D. none of the above

In order to tell the compiler to wait to decide which version of a function to use, you must precede the function declaration in the base class with the keyword

A. operator

B. friend

C. virtual

Which of the following operations do forward iterators have?

A. Overloaded operator+ to add an int value to the iterator to move the place the iterator points forward by the argument number of elements.

B. Overloaded operator* to multiply the iterator by an int value to move the place the iterator points by a number of elements equal to the argument.

C. Overloaded operator++ to move the place the iterator points forward by one element.

D. Overloaded operator-- to move the place the iterator points backward by one element.