

Lab 5

Course: CSE 165

All the exercises below are selected from the textbook: Thinking in C++ (volume 1).

An output example is attached to each problem, of which the main goal is to give you a better sense of what a typical output looks like. So, there is no need to exactly follow the provided output. Feel free to make an adjustment accordingly. I told the TAs that we're very flexible and fine with any reasonable output.

1. [Exercise 1 on Page 610] Create a class Counted that contains an int id and a static int count. The default constructor should begin: Counted() : id(count++). It should also print its id and that it's being created. The destructor should print that it's being destroyed and its id. Test your class. [35 pts]

Output example:

In the constructor, cout << "An object is being created is created, id: " << id << endl;

In the destructor, cout << " The created object is being destroyed, id: " << id << endl;

2. [Exercise 4 on Page 610] Create a vector< Counted*> and fill it with pointers to new Counted objects (from Exercise 1). Move through the vector and print the Counted objects, then move through again and delete each one. [30 pts]

Output example:

In the constructor, cout << "An object is being created is created, id: " << id << endl;

In the destructor, cout << " The created object is being destroyed, id: " << id << endl;

[Optional] In the main(), print each created object's id.

3. [Exercise-14 on Page 718] In AddingVirtuals.cpp, make all the member functions of Pet pure virtual, but provide a definition for name(). Fix Dog as necessary, using the base-class definition of name(). [35 points]

Output example:

```
int main() {
    Pet* p = new Dog("placeholder"); // replace the placeholder with any name you'd like
    cout << p->Speak();
    delete p;

    return 0;
}
```

Requirements:

- * Usage of spaces, blank lines, indentation, and comments for readability.
- * Descriptive names of variables, functions, structs, classes, and objects (if any).
- * Appropriate usage of structs, classes, and objects (if any).

Penalties:

- * Zero if you have possession of a copy of online solutions or work done by someone else.
- * 5-point deduction per day late