Corso di Laboratorio di Programmazione

Esercitazione 1 – Classi
6/11/2019

Nota: i quesiti e gli esercizi seguenti sono tratti (ma non tradotti) dal libro di testo.

Discussione

A coppie, rispondete alle seguenti domande (Review, cap. 17, p. 623 sgg.):

1. What is a dereference operator and why do we need one?
2. What is an address? How are memory addresses manipulated in C++?
3. What information about a pointed-to object does a pointer have? What useful information does it lack?
4. What can a pointer point to?
5. When do we need a pointer (instead of a reference or a named object)?
6. What is a destructor? When do we want one?

Drill

1. Allocate an array of ten ints on the free store using new.
2. Print the values of the ten ints to cout.
3. Deallocate the array (using delete[]).
4. Write a function print_array10(ostream& os, int* a) that prints out the values of a (assumed to have ten elements) to os.

5. Allocate an array of ten ints; initialize it to 1, 2, 4, 8, etc.; and assign its address to a variable p1.
6. Allocate an array of ten ints, and assign its address to a variable p2.
7. Copy the values from the array pointed to by p1 into the array pointed to by p2.
8. Repeat 5-7 using a vector rather than an array.

Esercizi (#2, 3, p. 339)

9. Implement the class vector already discussed in class, representing vectors of doubles with fixed length. The class should include:
    1. An int storing the length of the vector;
    2. A constructor accepting an int that represents the length of the vector;
    3. The get and set functions to operate on the vector elements (they should *not* check the boundaries of the vector);
    4. The safe_get and safe_set functions to operate on the vector elements, with boundary check;
    5. A destructor.

10. Consider the class developed in ex. 9 and substitute the get and set functions with the overloaded operator[]. What type should it return? Why? Discuss this point with your colleagues.