Corso di Laboratorio di Programmazione

Laboratorio 3 - Allocazione dinamica della memoria
08/11/2021

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

Drills

1. Create a program that:
   1. Allocates an array of 10 ints in the free store;
   2. Writes out of bound;
   3. Please check that the memory access out of bound causes the program to terminate. Does this always happen? Why?
2. Create a program that:
   1. Defines a `vector<int> my_vector` and uses it to store 10 ints;
   2. Defines a `vector<int>* my_pointer` and allocates such vector in the free store; then stores 10 ints in such vector;
   3. Why is my_vector more efficient than the vector pointed to by my_pointer?

Esercizi – allocazione dinamica (#2, 3, p. 339)

1. Implement the class vector already discussed in our lectures, 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.

2. Consider the class developed in ex. 1 and substitute the get and set functions with the overloaded `operator[]`. What type should it return? Why? Discuss this point with your colleagues.