OOP Homework #4: Exception Handling & Dynamic Memory Allocation

Introduction

In this homework, your goal is to design an auto pointer class that allows handling array structures. By using this auto pointer, programmers can dynamically allocate memory without worrying about the deletion. The array will be self-terminated whenever the procedure goes out of the scope. In addition, this auto pointer class can issue an out_of_range exception whenever programmers attempt to access the wrong element in the array.

Requirement

1. **Implement class auto_array with template**, with the following required features fulfilled.
2. Proper usage of template so that auto_array can handle any possible types.
3. Array size can be determined dynamically (e.g. at run-time).
4. Detecting out-of-scope errors using exception handling, and print appropriate warning messages.
5. Release dynamically allocated memory as soon as an auto_array object is destructed.

See the attached code base for more details.

Grading

We will use a series of test data to judge if you had all functions work correctly. Your score will base on the number of test data your program can process. We will also manually check your code to see whether your implementation is correct.

Submission

1. Upload “studentID_hw4.cpp” to E3.

Deadline

- Deadline: 2016/5/13 (Fri.) 23:59:59

Penalty

- Copy code from others/internet: you will get a 0 for this homework

If you have any problem about this homework, contact us through e3.