Problem C: Exception Handling for Arrays

(15% related to Lab 14)

Problem Description

Modify the code in Fig. 11.6 and 11.7 so that an exception is issued when there is an out-of-range access to an array.

Input format

The input to the program will be the data stored in some arrays. Provide the required number of integers based on the prompting message.

Output format

The output should generate the required exceptions and the final data in the array should be correct.

Requirements

The main() function in Fig. 11.8 has been modified and given to you below. You should not modify it further.

```
int main()
{
    Array integers2(7); // 10-element Array by default
    cout << "\nEnter 7 integers:" << endl;
    cin >>    integers2;
    const Array integers1(integers2);
    cout << "\nAfter input, the Arrays contain:\n"
         << "integers1:\n" << integers1 << "integers2:\n" << integers2;
    try{
      cout << "\nintegers1[2] is " << integers1[ 2] << endl;
      cout << "\nintegers1[25] is " << integers1[ 25 ] << endl;
      cout << "\nintegers1[0] is " << integers1[ 0] << endl;
    }
    catch (int &inx) {
          cout << "Array reading is not done due to bad index " << inx <<endl;
    }

    try {
    integers2[ 6 ] = 1000;
    integers2[ -1] = 1000; // ERROR: out of range
    integers2[ 4 ] = 5000;
    cout << "integers2:\n" << integers2;
    }
      catch (int &inx) {
            cout << "Array writing is not done due to bad index " << inx << endl << endl;
    }
        cout << "integers2:\n" << integers2;

      return 0;
} // end main
```

Example Input:
1 2 3 4 5 6 7

Example Output (containing input):

```
Enter 7 integers:
1 2 3 4 5 6 7

After input, the Arrays contain:
integers1:
          1          2          3          4
          5          6          7
integers2:
          1          2          3          4
          5          6          7

integers1[2] is 3
Bad array index (right value): 25
Array reading is not done due to bad index 25
Bad array index(left value): -1
Array writing is not done due to bad index -1

integers2:
          1          2          3          4
          5          6       1000
```