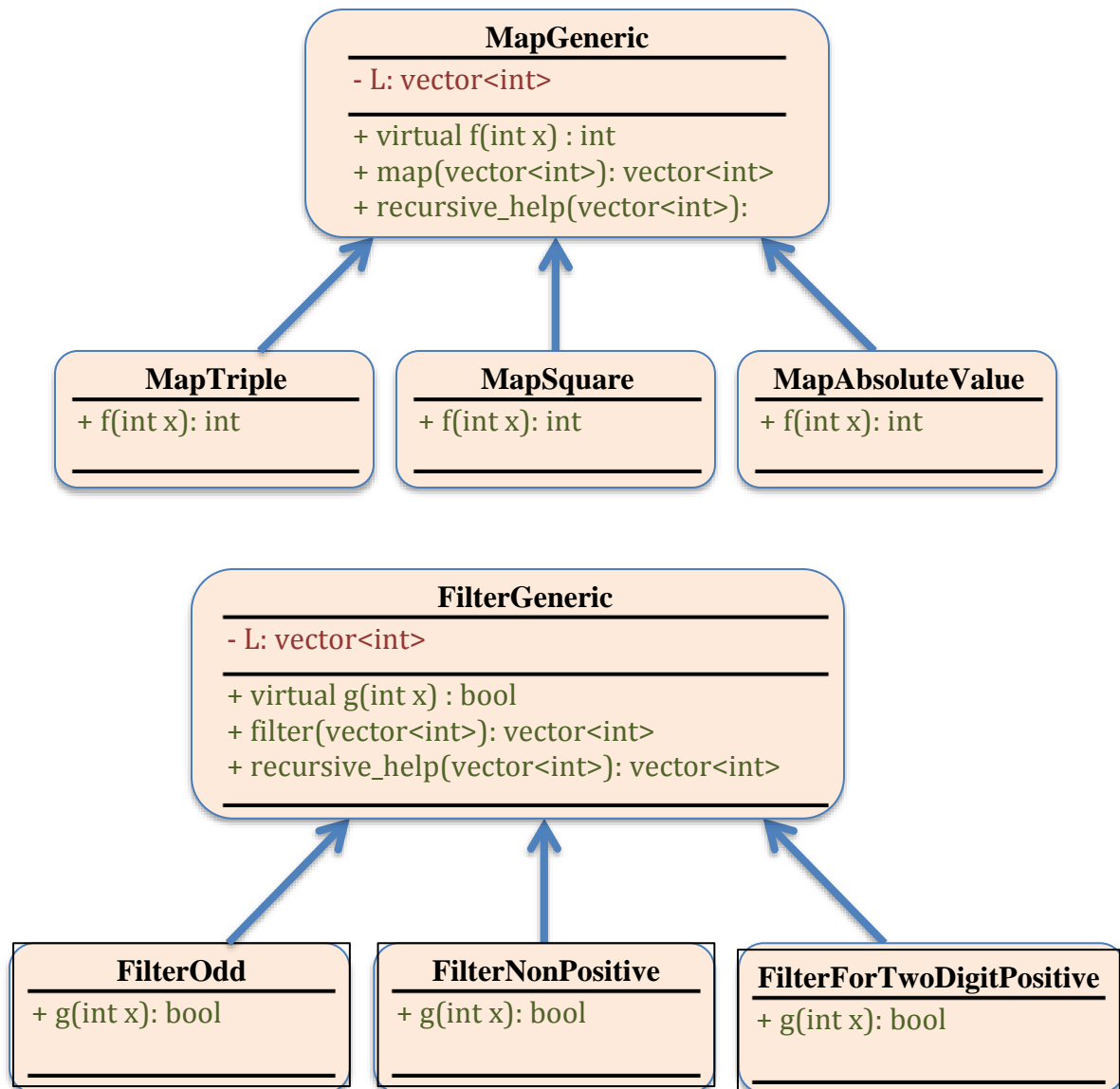
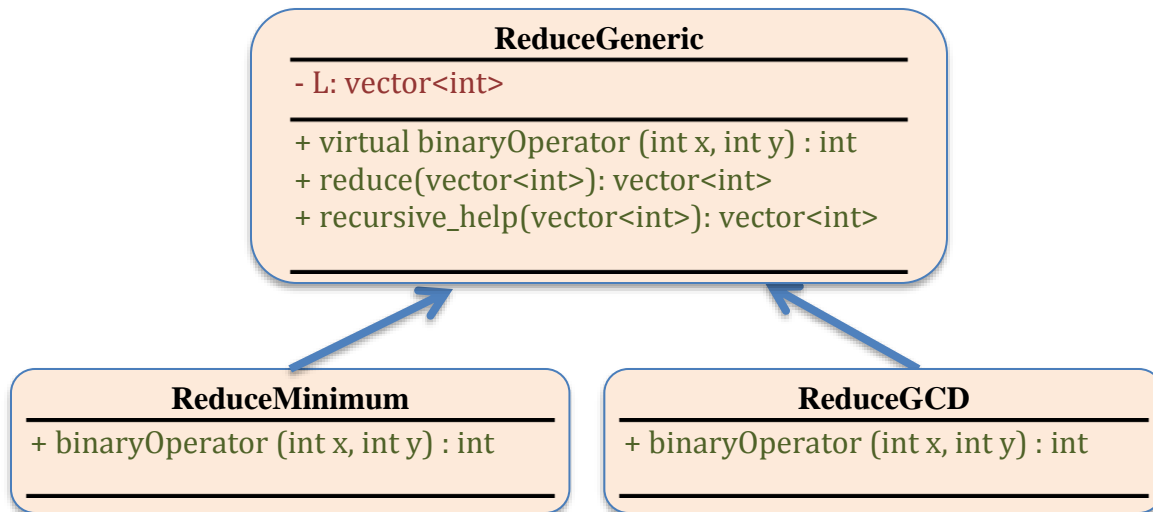


ADDS - Practical 5: Recursion and Inheritance

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1. DIAGRAM OF CENTRAL CLASSES:





2. EXPLANATION OF CORE FUNCTION:

MapGeneric:

vector<int> map(vector<int>):

Call the helping recursive function, who call f(int x) taking vector.at(x-1) as a parameter until x is = to 0. X will be the length of the vector, which mean that the f(x) will be called with every number of the vector and the result will be store in a second vector.

FilterGeneric:

vector<int> filter(vector<int>):

Call the helping recursive function, who call bool virtual g(int x) taking vector.at(x-1) as a parameter until x is = to 0. X will be the length of the vector, which mean that the g(x) will be called with every number of the vector and when the result is true the number will be store in a second vector.

ReduceGeneric:

vector<int> reduce(vector<int>):

Call the helping recursive function, who call binaryOperator(int x, int y) taking vector.at(x-2, x-1) as a parameter until x is = to 0. X will be the length of the vector, which mean that the binaryOperator(x,y) will be called with every couple of number of the vector and the result will be moved store in the L vector in the first position.

Main:

The main function for this program, created a MapGeneric, FilterGeneric and a ReduceGeneric object and call the getInput function of it (This function use Getline to ask for input, and store the number in a vector, ignoring the ',' and the '\n' characters).

Then it will call the MapTriple::map(), MapAbsoluteValue::map(), FilterForTwoDigitPositive::Filter(), and the FilterOdd::Filter(). Finally it will call ReduceMinimum::reduce() and cout the result, and call ReduceGCD::reduce() and cout the result.

3. TESTING: Following is a description of the test cases that will be used to test my program.

Given input	Rationale	I expect output
6, -11, 53, -16, 73, 128, 105, 104, -71, -179, 102, 12, 21, -145, -99, 199, -156, -186, 43, -189	Test the example input giving in the practical.	33 3
-5, -24, -123, -81, 200, 157, 84, 67, -83, -60, -72, 192, -25, -20, -50, -181, -70, -15, -108, -123	Test the second example input giving in the practical.	15 15
6, -15, 53, -16, 73, 128, 105, 104, -71, -179, 102, 12, 25, -145, -99, 199, -156, -186, 43, -18	Test that the map functions are working	45 15
157, -24, -123, -81, 200, 157, 84, 67, -83, -60, -72, 192, -25, -20, -50, -181, -70, -23, -108, -123	Test that the filter functions are working	69 3
-21, 91, 46, 74, -44, 149, -192, 41, -9, -32, -133, 137, 178, -4, 119, -9, -111, -144, -184, -33	Test that the reduce functions are working	27 9