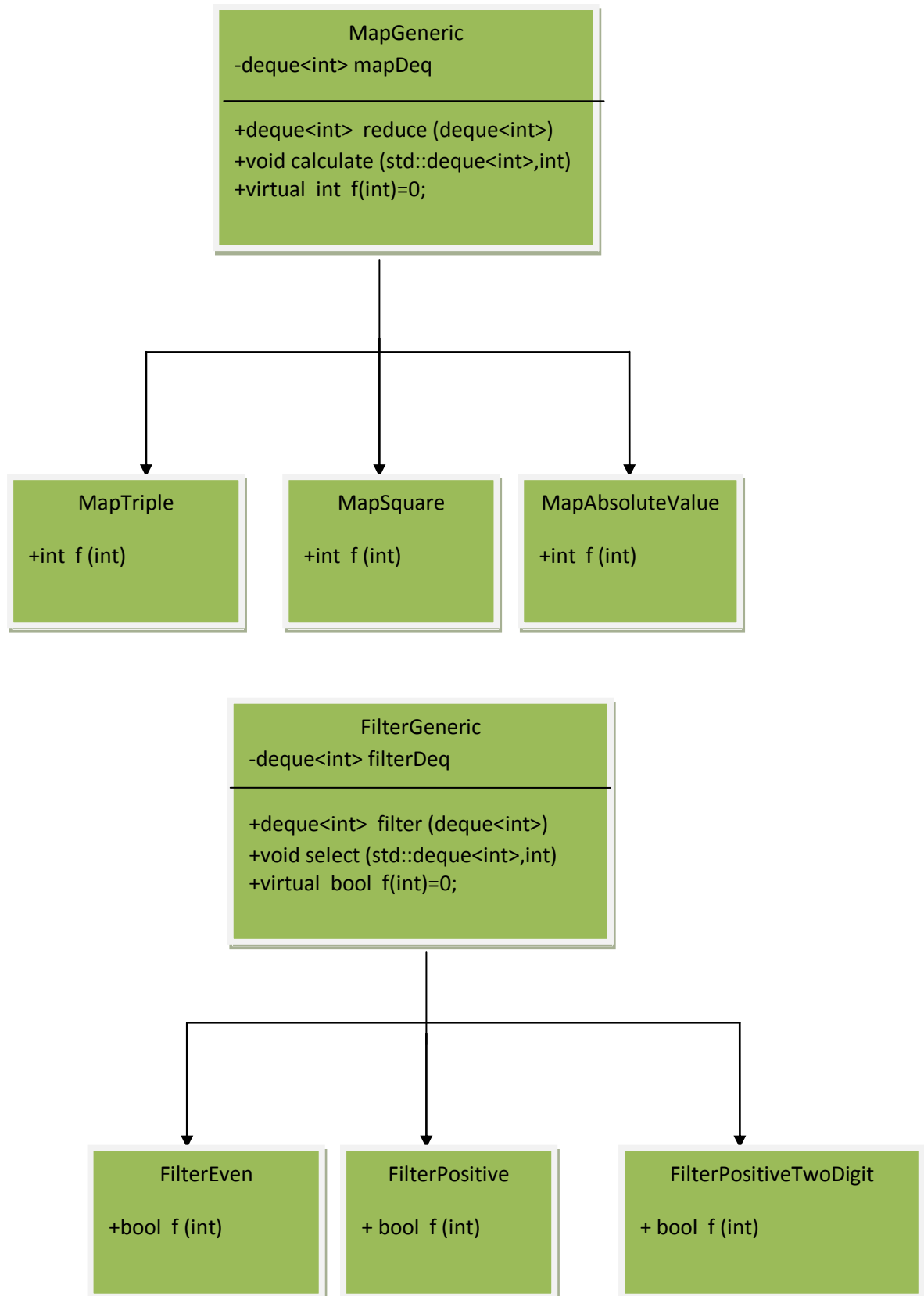
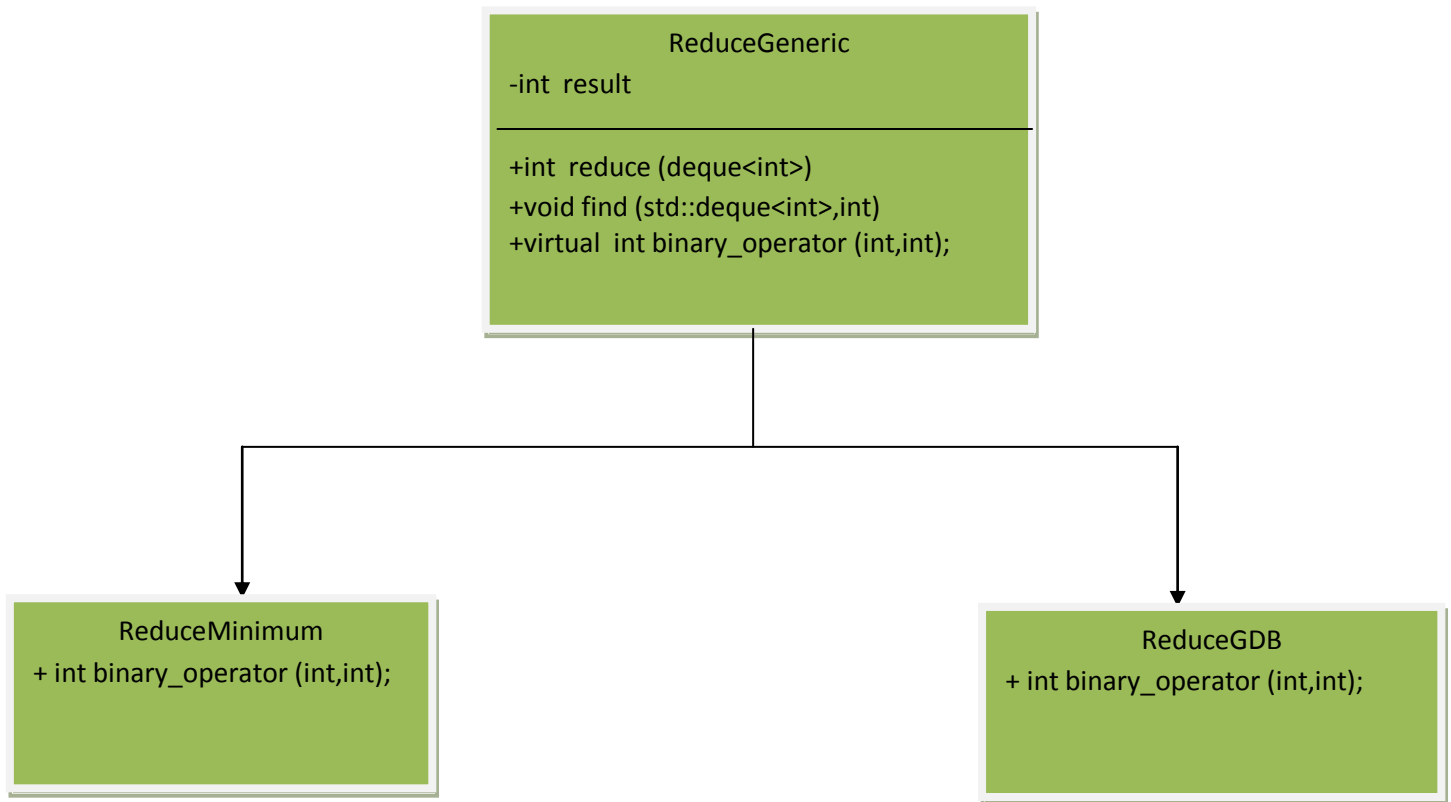


Assignemt5

UML





Description

Class MapGeneric:-

It provides an interface by which specific mapping functionalities can be implemented by the overwriting pure virtual function, `f(int)`.

Class MapTriple:-

This class inherits MapGeneric publicly. Any list of integers N , supplied to MapTriple's object will be returned as $3N$ by calling its map function. Function `f(int)` is modified to return an integer that which is 3 times the input integer.

Class MapSquare:-

This class inherits MapGeneric publicly. Any list of integers N , supplied to MapSquare's object will be returned as $N*N$ by calling its map function. Function `f(int)` is modified to return an integer that which is squares the input integer.

Class MapAbsoluteValue:-

This class inherits MapGeneric publicly. Any list of integers N , supplied to MapAbsoluteValue's object will be returned as $|N|$ by calling its map function. Function `f(int)` is modified to return an integer that is absolute.

Class FilterGeneric:-

It provides an interface by which specific filtering can be implemented by the overwriting pure virtual function, `f(int)`.

Class FilterEven:-

This class inherits FilterGeneric publicly. Any list of integers N, supplied to FilterEven's object will be returned as N that contains only even integers, by calling it's filter function. Function f(int) is modified to return a true if input is even or else return false.

Class FilterPositive:-

This class inherits FilterGeneric publicly. Any list of integers N, supplied to FilterPositive's object will be returned as N that contains only positive integers, by calling it's filter function. Function f(int) is modified to return a true if input is greater than 0 or else return false.

Class FilterPositiveTwoDigit:-

This class inherits FilterGeneric publicly. Any list of integers N, supplied to FilterPositiveTwoDigit's object will be returned as N that contains only positive integers of two digits only. This is done by calling it's filter function. Function f(int) is modified to return a true if input is greater than 0 and have 2 digit. Or else return false.

Class ReduceGeneric:-

It provides an interface by which specific reduction can be implemented by the overwriting pure virtual function, binary_operator(int,int).

Class ReduceMinimum:-

This class inherits ReduceGeneric publicly. Any list of integers N, supplied to ReduceMinimum 's object will return the minimum integer from N by calling it's reduce function. Function binary_operator(int,int) is modified to return the smaller of the two input integer.

Class ReduceGCD:-

This class inherits ReduceGeneric publicly. Any list of integers N, supplied to ReduceGCD 's object will return the greatest common divisor integer from N by calling it's reduce function. Function binary_operator(int,int) is modified to return the GCD of the two input integer.

Main Class:-

The main class takes in a string and removes comma from it, then stores each integer in a deque. The deque N, is first mapped to absolute values $|N|$ then mapped to $3*|N|$. This is done by calling MapAbsolute's and MapTriples's map function respectively.

The modified deque $3|N|$ is then filtered to first give all positive two digit values and then to give only even values. This is done by calling FilterEven's and FilterPositiveTwoDigit's filter function respectively.

Lastly, the filtered deque is pass through ReduceMinimum's and ReduceGCD's reduce function, each separately to give the minimum and GCD from the list respectively.

Key Assumptions made

As per uni project, the input are in the fashion of

N, N, N, N, N, N, N, N, N, N, N, N, N, N, N, N, N, N, N, N,

where N is an integer seperated by commas and space and must consist of 20 integers.

Knowledge learned

Private pure virtual functions can be overwritten by its inherited classes. Earlier I thought they must be public or protected.