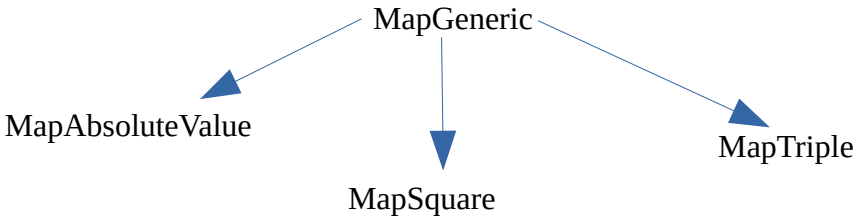
Design Prac 5

1686498

Map:



MapGeneric
Virtual int f(int) – takes in an integer and maps it based on what class is being called virtual vector<int> map(vector<int>) - takes in a vector and recusively maps it

- A pure virtual class storing common behaviours

MapTriple
mappedVec – stores the mapped vector
int f(int) – takes in an integer and triples it vector<int> map(vector<int>) - takes in a vector and recusively triples it

- A class that will take a vector and triple all of its values

MapSquare
mappedVec – stores the mapped vector
int f(int) – takes in an integer and squares it vector<int> map(vector<int>) - takes in a vector and recusively squares it

- A class that will take a vector and square all of its values

MapAbsoluteValue
mappedVec – stores the mapped vector
int f(int) – takes in an integer and makes it positive vector<int> map(vector<int>) - takes in a vector and recusively makes it positive

- A class that will take a vector and make all the values positive

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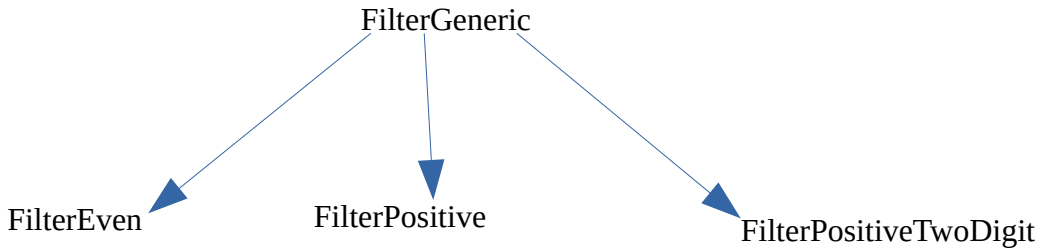
Filter:



FilterGeneric
Virtual bool f(int) – takes in an integer and filters it based on what class is being called virtual vector<int> filter(vector<int>) - takes in a vector and recusively filters it

- A class that is virtual and will define behaviours for polymorphism

FilterEven
filteredVec – stores the filtered vector
bool f(int) – takes in an integer and filters it if it is even vector<int> filter(vector<int>) - takes in a vector and recusively filters the even values

- A class that will filter all the even values

FilterPositive
filteredVec – stores the filtered vector
bool f(int) – takes in an integer and filters it if it is positive vector<int> filter(vector<int>) - takes in a vector and recusively filters the positive values

- A class that will filter all of the positive values

FilterPositiveTwoDigit
filteredVec – stores the filtered vector
bool f(int) – takes in an integer and filters it if it is positive and two digits vector<int> filter(vector<int>) - takes in a vector and recusively filters the positive two digit values

- A class that will filter all of the positive 2 digit values

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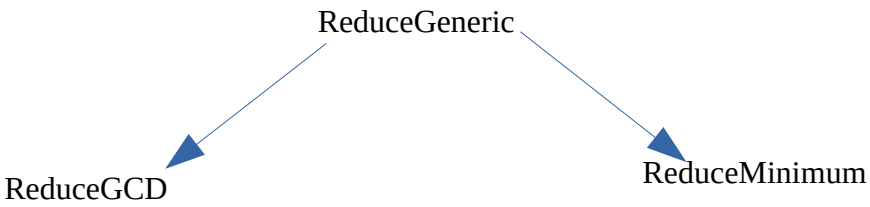
Reduce:



ReduceGeneric
Virtual int operator(int,int) – takes in two integers and reduces it based on what class is being called virtual int reduce(vector<int>) - takes in a vector and recusively reduces it

- A class that is virtual that contains behaviours to be redefined

ReduceMinimum
reducedInt – stores the reduced number
int operator(int,int) – takes in two integers and reduces it based on what the minimum number is int reduce(vector<int>) - takes in a vector and recusively reduces it to a minimum number

- A class that reduces a vector to it minimum value

ReduceGCD
reducedInt – stores the reduced number
int operator(int,int) – takes in two integers and reduces it based on what is the greatest common denominator int reduce(vector<int>) - takes in a vector and recusively reduces it to the greatest common denominator

- A class that reduces a vector to its greatest common denominator

Main:

- Takes in a vector of 20 integers
- triples and makes them positive
- filters evens that are positive 2 digit numbers
- finds the minimum and greatest common denominator

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Testing:

Input 1:

6, -11, 53, -16, 73, 128, 105, 104, -71, -179, 102, 12, 20, -145, -99, 199, -156, -188, 43, -189

Output 1:

18 6

Input 2:

157, -24, -123, -81, 200, 157, 84, 67, -83, -60, -72, 192, -25, -20, -50, -181, -70, -23, -108, -123

Output 2:

60 12

Input 3:

-8, -4, 8, -32

Output 3:

12 12

Input 4:

6, -16, 12, 20, 4

Output 4:

12 6

Input 5:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19

Output 5:

12 6