

Function convert() //convert each number inputted to the binary representation and return a string of that representation

Function reset()
 for loop
 set chosenCust values at the index to false
 end for loop
End function reset()

//start algorithm

int limit = the cardinality of the power set of all possible combinations
boolean isValid = have I found a set that works?

1st for loop //iterates from 0 to limit

 convert each iteration's index to the binary representation using convert()

 initialize totals for price and bandwidth and set them to 0

 2nd for loop //iterates from 0 to the end of the string that is the binary representation of the outer loop's index

 if the number at the index is 1

 add the bandwidth and price pair at the current index to the total
 set the chosenCust value at the index to true

 if total bandwidth is \leq max bandwidth and total price is \geq to maintenance cost

 set isValid to true
 break out of the loop 2nd loop

 end 2nd for loop

 if isValid is true

 break out of the 1st loop

 else

 reset all values in chosenCust to false using reset()

end 1st for loop

return isValid

worst-case complexity

$O(n^2)$