REPORT

CheckSumPossibility function inputs

num: This parameter is our target number which is subset of array elements can sum up to the this value.

arr[]: This parameter keeps the values that is token from user in main function.

size: This parameter is our array size that is token from user in main function.

CheckSumPossibility function outputs

This function returns 1 or 0.

Explanation of Main function

In main function, I took the arraySize and num values from user. After that in for loop, I took the numbers from user in order to fill arr which is integer array. I sent arraySize, num and arr as parameters to the CheckSumPossibility function. If return value from CheckSumPossibility function equals to 1, I printed "Possible". If return value from CheckSumPossibility function equals to 0, I printed "Not Possible".

Explanation of CheckSumPossibility function

 This function finds if a subset of array elements can sum up to the target num or not. My CheckSumPossibility function's base cases are controls num and size parameter. If num parameter equals to 0, it means that we can get the target value with combination of some numbers in arr parameter and in this situation, our function returns 1. If size parameter is less than 1 or num parameter is less than 0, our function returns 0. If the function does not provide base cases, it calls itself from within the function until it finds base cases.

2-Result of test cases with screenshots & basic explanation

TEST 1

```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
41 67 34 0 69 24 78 58
Not possible!
```

Mars Messages	Run I/O

```
Enter a array size
8
Enter a target num
129
Enter the current data of array
41
Enter the current data of array
67
Enter the current data of array
34
Enter the current data of array
0
Enter the current data of array
69
Enter the current data of array
24
Enter the current data of array
78
Enter the current data of array
58
```

Clear

TEST 2

```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
62 64 5 45 81 27 61 91
Not possible!
```

Mars Messages | **Run I/O**

```
Enter a array size
8
Enter a target num
129
Enter the current data of array
62
Enter the current data of array
64
Enter the current data of array
5
Enter the current data of array
45
Enter the current data of array
81
Enter the current data of array
27
Enter the current data of array
61
Enter the current data of array
91
Not Possible
```

Clear

TEST 3

```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
95 42 27 36 91 4 2 53
Possible!
```

Mars Messages | **Run I/O**

```
Enter a array size
8
Enter a target num
129
Enter the current data of array
95
Enter the current data of array
42
Enter the current data of array
27
Enter the current data of array
36
Enter the current data of array
91
Enter the current data of array
4
Enter the current data of array
2
Enter the current data of array
53
Not Possible
```

Clear

TEST 4


```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
92 82 21 16 18 95 47 26
Possible!
```



```
Mars Messages   Run I/O

Enter a array size
8
Enter a target num
129
Enter the current data of array
92
Enter the current data of array
82
Enter the current data of array
21
Enter the current data of array
16
Enter the current data of array
18
Enter the current data of array
95
Enter the current data of array
47
Enter the current data of array
26
Not Possible
```

Clear

TEST 5

```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
71 38 69 12 67 99 35 94
Possible!
```

Mars Messages	Run I/O

```
Enter a array size
8
Enter a target num
129
Enter the current data of array
71
Enter the current data of array
38
Enter the current data of array
69
Enter the current data of array
12
Enter the current data of array
67
Enter the current data of array
99
Enter the current data of array
35
Enter the current data of array
94
Possible
```

Clear

TEST 6

```
mehmet@mehmet-VirtualBox:~/Desktop$ g++ hw2.cpp
mehmet@mehmet-VirtualBox:~/Desktop$ ./a.out
8 129
3 11 22 33 73 64 41 11
Not possible!
```

Mars Messages | **Run I/O**

```
Enter a array size
8
Enter a target num
129
Enter the current data of array
3
Enter the current data of array
11
Enter the current data of array
22
Enter the current data of array
33
Enter the current data of array
73
Enter the current data of array
64
Enter the current data of array
41
Enter the current data of array
11
Not Possible
```

Clear

In Test1 case, function can not return any value and program can not print "Possible" or "Not Possible". This situation's reason is one of the numbers entered by the user is 0. In other test cases, this problem did not occur.

In Test3 and Test4 case, function returns wrong value. Therefore, program printed wrong possible condition. I think this problem's reason is in some cases, program can not switch to situations that call same function within the function.

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