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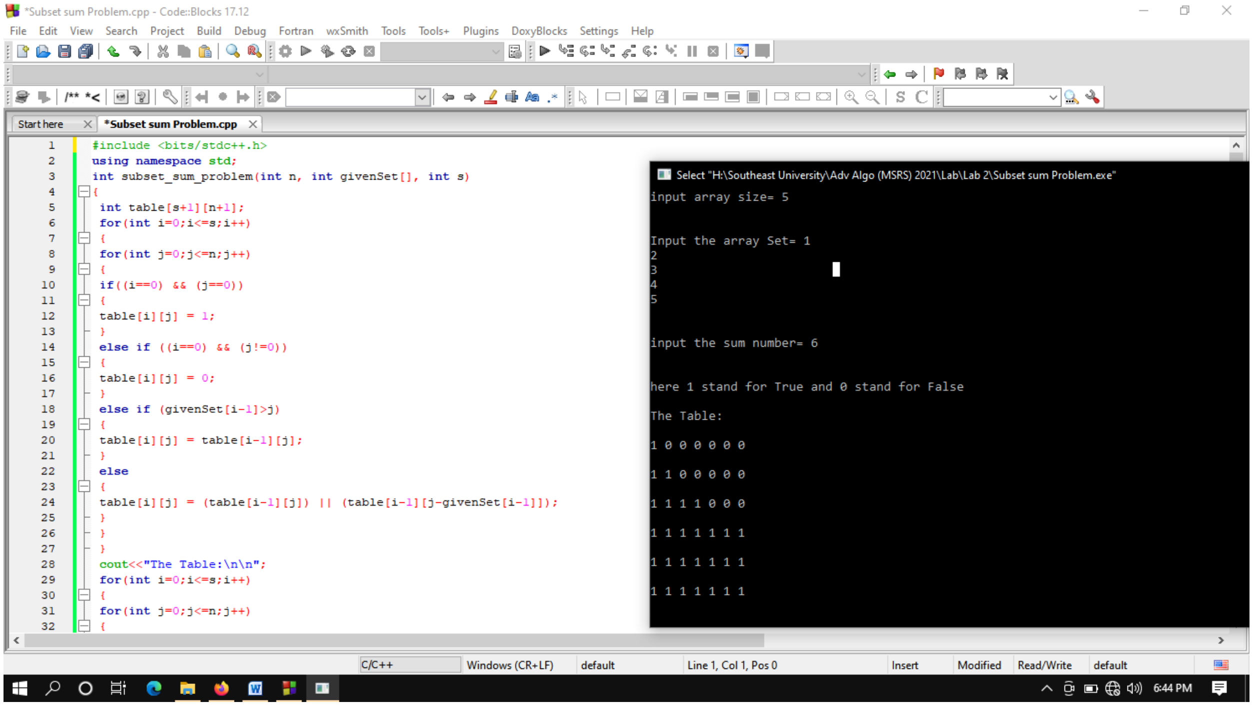
Assignment#3 - Subset Sum Problem Implementation using Dynamic Programming in any of your preferred Programming Language (C/C++/Java)

Code:

```
#include <bits/stdc++.h>
using namespace std;
int subset_sum_problem(int n, int givenSet[], int s)
{
 int table[s+1][n+1];
 for(int i=0;i<=s;i++)
 {
 for(int j=0;j<=n;j++)
 {
 if((i==0) && (j==0))
 {
 table[i][j] = 1;
 }
 else if ((i==0) && (j!=0))
 {
 table[i][j] = 0;
 }
 else if (givenSet[i-1]>j)
 {
 table[i][j] = table[i-1][j];
 }
 else
 {
 table[i][j] = (table[i-1][j]) || (table[i-1][j-givenSet[i-1]]);
 }
 }
 }
 cout<<"The Table:\n\n";
 for(int i=0;i<=s;i++)
 {
 for(int j=0;j<=n;j++)
 {
 cout<<table[i][j]<<" ";
 }
 cout<<endl<<endl;
 }
 if (table[s+1][n+1] == 1)
 cout<<"\nThere exists a subset of the given set.. whose sum number is "<<n;
 else
 cout<<"\nThere no subset exist of the given set.. whose sum number is "<<n;
}
```

```
int main()

{

 int x, sum;

 cout<<"input array size= ";

 cin>>x;

 int givenSet[x];

 cout<<"\n\nInput the array Set= ";

 for(int i=0;i<x;i++)

 {

 cin>>givenSet[i];

 }

 cout<<"\n\ninput the sum number= ";

 cin>>sum;

 cout<<"\n\nhere 1 stand for True and 0 stand for False\n\n";

 subset_sum_problem(sum, givenSet, x);

 return 0;

}
```

Output:


*Subset sum Problem.cpp - Code::Blocks 17.12
File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help
Start here
*Subset sum Problem.cpp
Select "H:\Southeast University\Adv Algo (MSRS) 2021\Lab\Lab 2\Subset sum Problem.exe"
C/C++
Windows (CR+LF)
default
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```cpp
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 else if ((i==0) && (j!=0))
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 table[i][j] = 0;
 }
 else if (givenSet[i-1]>j)
 {
 table[i][j] = table[i-1][j];
 }
 else
 {
 table[i][j] = (table[i-1][j]) || (table[i-1][j-givenSet[i-1]]);
 }
 }
 }
 cout<<"The Table:\n\n";
 for(int i=0;i<=s;i++)
 {
 for(int j=0;j<=n;j++)
 {
```

```
input array size= 5


Input the array Set= 1
2
3
4
5


input the sum number= 6


here 1 stand for True and 0 stand for False

The Table:

1 0 0 0 0 0 0

1 1 0 0 0 0 0

1 1 1 1 0 0 0

1 1 1 1 1 1 1

1 1 1 1 1 1 1

1 1 1 1 1 1 1
```