**CHANDIGARH UNIVERSITY**

**UNIVERSITY INSTITUTE OF ENGINEERING**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**



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| **Submitted By:** Sahil Kaundal  **Submitted To:** Neha Dutta | |
| **Subject Name** | Design and Analysis of Algorithm Lab |
| **Subject Code** | 20CSP-312 |
| **Branch** | Computer Science Engineering |
| **Semester** | 5th |

**Experiment 6**

**Student Name:** Sahil Kaundal **UID:** 21BCS8197

**Branch:** BE CSE (Lateral Entry) **Section/Group:** 616/A

**Semester:** 5th **Date of Performance:** 17/10/2022

**Subject Name:** DAA Lab **Subject Code:** 21-CSP-312

# Aim/Overview of the practical:

To implement a subset-sum problem using the dynamic programming.

# Task to be done/ Which logistics used:

Write a program to find the subset-sum problem using the dynamic programming.

# Requirements:

Laptop or PC.

Operation system (Mac, Windows, Linux, or any)

Vs-Code with MinGw or any C++ Compiler

1. **Algorithm/Flowchart (For programming-based labs):**

1.We create a boolean subset[][] and fill it in bottom up manner.  
2.The value of subset[i][j] will be true if there is a subset of set[0..j-1] with sum equal to i., otherwise false.  
3.Finally, we return subset[n][sum]

# Steps for experiment/practical/Code:

#include <iostream>

using namespace std;

int main()

{

int n, sum;

cin >> n >> sum;

int a[n];

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

cin >> a[i];

int table[n + 1][sum + 1];

for (int i = 0; i < sum + 1; i++)

table[0][i] = false;

for (int i = 0; i < n + 1; i++)

table[i][0] = true;

for (int i = 1; i < n + 1; i++)

{

for (int j = 1; j < sum + 1; j++)

{

if (j < a[i - 1])

table[i][j] = table[i - 1][j];

else

table[i][j] = table[i - 1][j] || table[i - 1][j - a[i - 1]];

}

}

if (table[n][sum])

cout << "Yes";

else

cout << "No";

}

# Result/Output/Writing Summary:

# 

**Learning outcomes (What I have learnt):**

* How to solve the sub-set sum problem using dynamic programming.

**Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):**

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| Sr. No. | Parameters | Marks Obtained | Maximum Marks |
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |