ALG - 18/10/23

$V = \{x_1, \dots, x_n\}$ $C \in \mathbb{N}$ $\exists S_{i,C} \subseteq V$ t.c. $\sum_{j=0}^{i} s_j = C$?

V NON ORDINATO

C.B.

$C = 0$ $\forall i$ T $S_{i,C} = \emptyset$

$\forall C$ $i = 1$ SE $C = x_i$ T $S_{i,C} = \{x_i\}$

SE $C \neq x_i$ F $S_{i,C} = \emptyset$

P.R.

$i > 1$ SE $C < x_i$ $F(i-1, C)$ $S_{i,C} = S_{i-1,C}$

$C > 0$

SE $C \geq x_i$ $F(i-1, C-x_i)$ $S_{i,C} = (S_{i-1,C-x_i} \cup \{x_i\})$

$\vee F(i-1, C)$ $\cap (S_{i-1,C})$

FOR $i = 1$ TO N

$M[i,0] = T$

FOR $C = 1$ TO C

$M[1,C] = (x_i = C)$

FOR $i = 2$ TO N

FOR $C = 1$ TO C

IF $C < x_i$

$M[i,C] = M[i-1,C]$

ELSE

$M[i,C] = M[i-1,C]$

$\vee M[i-1, C-x_i]$

```cpp
int main() {
    int n = 3;
    int v[] = {1,5,4};
    int C=6;
    bool M[n][C+1];

    for(int i=0; i<n; i++)
        M[i][0] = true;

    for(int c=1; c<C+1; c++)
        M[0][c] = (v[0]==c);

    for(int i=1; i<n; i++)
        for(int c=1; c<C+1; c++)
            if(c<v[i])
                M[i][c]=M[i-1][c];
            else
                M[i][c]=M[i-1][c-v[i]]
                        || M[i-1][c];

    cout << M[n-1][C];
    return 0;
}
```

$V = \{1, 5, 4\}$

$C = 6$

$M[3,6] = T$

$S_{3,6} = \{1, 5\}$