worst case complexity:-

w = maximum capacity

n = no of sequence

wt = set of weight

val = set of values/profit

$f(n) = w + n + 2 + nw$

also, $f(w) \leq c * g(n)$

$nw + n + w + 2 \leq n * nw$

$\therefore g = nw, \; c = 4$

$\therefore$ Time complexity $= O(nw)$

Algorithm: 0-1-Knapsack (v, w, n, W)

where

$v \rightarrow$ sequence
$w \rightarrow$ weight
$n \rightarrow$ number of items
$W \rightarrow$ maximum weight

Step1: start

Step 2: for $w = 0$ to W do

$c[0, w] = 0$

Step 3: for $i = 1$ to n do

$c[i = 0] = 0$

Step 4: for $w = 1$ to W do

if $w_i \leq w$ then

if $v_i + c[i-1, w-w_i]$ then,

$c[i, w] = v_i + c[i+1, w-w_i]$

Step 5: else: $c[i, w] = c[i-1, w]$

Step 6: else $c[i, w] = c[i-1, w]$

Step 7: END