

Practice Assignment 2

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1) a) We have a table represented by $T(i, k)$

where $i \in \{0, n\}$ and $k \in \{0, 1\}$ 1 for can exist
and 0 for cannot.

b) $T(i, 0) = 1 \quad \forall i$

$T(0, k) = 0 \quad \forall k$

$T(i, k) = \max\{T(i-1, k), T(i-1, k-a_i)\} \text{ if } a_i \leq k\}$

c) It fills out depending how you set up
the table, so it can fill row-wise or
column-wise.

d) int $T[n+1][K+1]$

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

$T(i, 0) = 1$

for ($k=0; k < K; k++$)

$T(0, k) = 0$

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

for ($k=1; k < K; k++$)

$T(i, k) = T(i-1, k)$

: if $a_i < k$

if $T(i-1, k-a_i) = 1$

$T(i, k) = 1$

Once its finished we look at $T(n, K)$

if its 1 there is a subset, if not then no
subset.

e) The last double for loop dictates the
running time. So its $O(nK)$