Ambitious DVD Dealer

Team ID: 5
Team Member: R05522508 R05522527 B02901156

1. Topic

Dynamic Programing

2. Description

Jimmy just inherited the rights to *N* songs recorded by the popular group Raucous Rockers. Jimmy plan to release a set of *M* compact disks with a selection of these songs. Each disk can hold a maximum capacity of *T* minutes, and a song cannot cross from one disk to another.

According to Jimmy's personal preference, the songs on the set of disks must appear in the order of the dates that they were written. For example, you can put song #1, #2, #3 in one disk, and put song #4, #6, #8 in another disk. But, you cannot put song #1, #6, #8 in the first disk, and put song #2, #3, #4 in the second disk. In the other words, every song, if recorded, must appear in the same order as the date of written.

Your work is to help Jimmy put as many songs as possible in those disks.

Hint: http://it.dgzx.net/drkt/oszt/zltk/yxlw/dongtai3.htm

3. Input and output format

Input:
X
N M T
n_1 n_2 n_3 n_4……
Output:
A
(all below parameters are integer)
X: the number of test data (1 <= *X* <= 5)
N: the number of the songs (1 <= *N* <= 1,000)
M: the number of disks (1 <= *M* <= 1,000)
T: the number of the maximum capacity of each disk (1 <= *T* <= 50)
n_i: the time of every song which is in the order of dates written (1 <= n_i <= (int)T*1.2)
A: the maximum songs you can put in those disks
(Please note that, if a song is longer than *T*, it must not be selected.)
Example:
Input:
1
4 2 5
4 3 4 2
Output:
3
(Remark that here we choose the first song, the second song and fourth song)

4. Sample input and output

Input:
3

8 6 18
12 5 11 17 14 14 17 21
7 8 9
11 7 5 1 7 1 10
47 12 12
1 8 6 14 6 6 12 9 7 5 4 4 2 8 1 4 10 4 2 5 1 10 9 8 2 1 14 5 7 6 8 6 6 12 13 9 3 14 8 10 9 6 14 8 8 6 11

Output:
7
5
27

5. Time and memory limit

Time: 2s
Memory: 256MB