5. The Thief's Dilemma

Program Name: Thief.java   Input File: thief.dat

Danny the thief has hit the jackpot. He has successfully broken into a museum filled with valuable items. The problem is there are more items he wants to take than he can possibly carry. Danny has an upper weight limit he can carry. Each item he wants to take has a weight and a value. Write a program that prints out the highest possible total value of items Danny can take, given various weight limits Danny can carry and various lists of items.

Consider this example. Danny's weight limit is 15. There are three items to choose from. Item 1 has a weight of 9 and a value of 12. Item 2 has a weight of 7 and a value of 7. Item 3 has a weight of 7 and a value of 6. The total weight of the items Danny selects must be less than or equal to the weight he can carry while maximizing the value of the items selected. The solution that provides the maximum value is to take item 2 and 3. The total weight is 14 and the total value is 13. If he had chosen item 1 with a weight of 9 he could not have carried either of the other items and the value would have only been 12.

Input
- The first line will contain a single integer n that indicates the number of data sets that follow.
- The first line in each data set will be an integer c that indicates the maximum weight Danny can carry for this data set. The maximum weight c will be greater than 0 and less than 100.
- The second line in each data set will be an integer m that indicates the number of items in this data set. The number of items m will be greater than 0 and less than 20.
- The third line in each data set will contain m pairs of the form [w,v].
  - o   w represents the weight of that item. All weights will be greater than 0 and less than 100.
  - o   v represents the value of that item. All values will be greater than 0 and less than 1000.
  - o   Each pair will be separated by a single space.

Output
For each data set print out DATA SET <#> where <#> is the number of the data set starting at 1, followed by the highest possible value of items Danny can take given the weight limit and the items in the data set. The sum of the weights of items chosen must be less than or equal to the maximum weight Danny can carry.

Example Input File
```
3
15
5
[12,4] [2,2] [2,1] [1,1] [4,10]
15
3
[9,12] [7,7] [7,6]
20
6
[5,5] [6,3] [12,4] [3,2] [10,12] [7,4]
```

Example Output To Screen
```
DATA SET 1 14
DATA SET 2 13
DATA SET 3 19
```