

**STA Online Computer Programming Contest (DWITE)  
December 2002**

**Problem 3**

**SANTA'S MAGIC SACK**

Santa's magic sack, for carrying gifts for children down the chimney, can hold up to 8000000 (that's eight million!!) cubic centimetres. The sack can wrap around any number of gifts of any shape or size as long as it does not exceed the 8000000 cm<sup>3</sup> limit.

Santa's problem is this. He needs to choose the gifts, that he puts in his sack, to use the most volume out of sack space and to have as little unused volume as possible.

Assumptions:

- \$ the number of gifts, N, that he can choose from does not exceed 15
- \$ no gift is larger than 8000000 cm<sup>3</sup>
- \$ volume of each gift is expressed as an integer

The input file (DATA3) will contain five lines of data, each line representing a situation where Santa needs to choose the gifts. Each line will begin with N, ( 1 <= N <= 15 ), the number of gifts he can choose from, and the volumes, V, ( 1 <= V <= 8000000 ), of the each of the N gifts, each separated by a single space.

The output file (OUT3) will contain five lines of data. Each line will contain the volume of the gifts that he chooses to maximize the volume used in his magic sack.

**Sample Input (Only three situations given)**

```
5 650001 5550002 2220004 1750008 800016
4 2000000 1500000 1000000 500000
6 1550001 2655002 4355004 125008 6543516 3555032
```

**Sample Output**

```
7950011
5000000
7910036
```