SuperCon2007

Sponsored by CMC, Osaka University

Co-Sponsored by GSIC, Tokyo Institute of Technology

Preliminaries Problem: "Minimizing the number of coins"

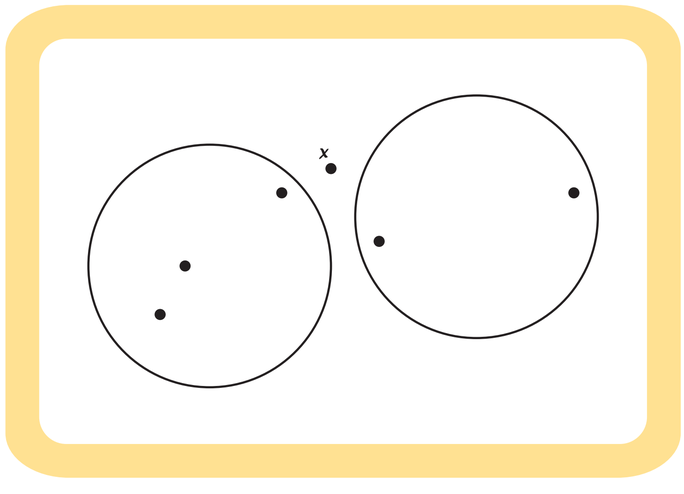
There are six kinds of conis:1, 5, 10, 50, 100, 500 yen. Given a price, choose the minimum number of coins to be paid for this price. For example, the price 480 yen will be paid with 8 coins (four 100 yens, one 50 yen and three 10 yens). Problem consists of three levels: the firs one is simply to choose the minimum combination of coins, the second one is to generalize this problem and the third one is to allow the change. In the third case, the price 480yen will need only three coins because one 500 yen - tow 10 yens.

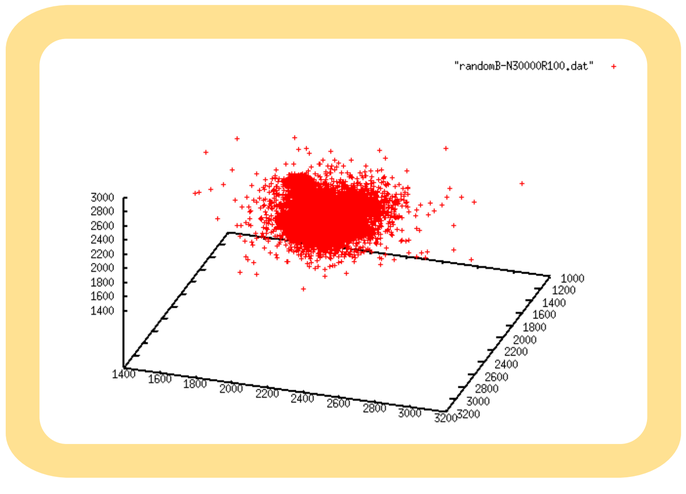
Finals Problem: "Covering Problem"

The Contest was performed with the following hardware/software conditions:

One system of twenty NEC SX-8Rs allocated in Osaka University, which peak performance is 256 GFLOPS and 128GB memory.
C programming language with vector processor.

There are many stars in space. Write a program which allocates space stations for each stations to cover as many stars as within the constant control distance.
The covering areas of each station should not be overlapped.





In the left diagram, the star X is not covered by the both stations, but any other stations also can not cover this star without overlapping each other.
The maximum number of stars is 30,000. The final data is illustrated in the right diagram.
The judge is according to the less the number of stars being covered the better.

Results:
the number of uncovered stars
by the winner is 3490 in 201 seconds.

Winner: team snowdrop
(OKUDA Ryousuke, SUGAWARA Takuya)