

Re: Interesting Programming Problem

Source:

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- *From:* "Al Marino" <almarino_AT_intelliform.net>
 - *Date:* Thu, 29 May 2008 08:06:23 -0400
-

for this particular case (searching for a specific total)
it is better to sort in ascending order, that way you stop
when sum > total
in your example, 10 checks vs 17 (depending how you count)

al

"Gene Wirchenko" <genew@xxxxxxxx> wrote in message
<news:mnjo34po7k8funr1esl5eldbhi6ni0b0k3@xxxxxxxx>

"Jeff Grippe" <jeff@xxxxxxxx> wrote:

Thanks in advance for the help.

This is more of a general programming problem rather than
a FoxPro problem
but since I work in FoxPro I thought I'd see if any of you
had any
interesting ideas. Brute force is probably going to be the
way to go,
however.

Yes, it is.

I have a data with amount fields. Lets say that they are
in an array because
you wouldn't want to do this against something disk based.

It looks as if you are doing invoice reconciliation or
something
similar.

What are the amounts' signs? If it is only one sign,

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then it is easier. If there are positive and negative amounts, it is messier.

If there is the possibility of incorrect amounts, it is even worse. Casting out nines may or may not help.

[snip]

Does anyone have any thoughts on the code for finding all combinations of one or more amounts that total to a specific value? I know that it is going to require nested loops but the fact that the solution(s) can be a variable number of amounts is a bit confusing to me.

For one sign, sort from highest to lowest. Then select the largest possible value that is not too big and keep doing that as long as possible. You may find a solution. If not, back off a step, and try the next possibility. Eventually, you will get through them all. It will work as in the example below:

Example:
5, 8, 16, 14, 7, 2 with a target of 20

Sorted:
16, 14, 8, 7, 5, 2

Run:
Pick 16. Reject 14, 8, 7, 5. Pick 2. No more data: back off 2. No more data: back off 16.

Pick 14. Reject 8, 7. Pick 5. Reject 2. No more data: back off 5.
Pick 2. No more data: back off 2. No more data: back off 14.

Pick 8, 7, 5. SOLUTION. If you want all solutions, continue. Back off 5. Pick 2. No more data: back off 2. No more data: back off 7.
Pick 5, 2. No more data: back off 2. No more data: back

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off 5. Pick

2. No more data: back off 2. No more data: back off 8.

Pick 7, 5, 2. No more data: back off 2. No more data:
back off 5. No
more data: back off 7.

Pick 5, 2. No more data: back off 2. No more data: back
off 5.

Pick 2. No more data: back off 2. No more data: end.

Sincerely,

Gene Wirchenko

Computerese Irregular Verb Conjugation:

I have preferences.

You have biases.

He/She has prejudices.