Subject: Re: bizarre number transformation
Posted by mperrin+news on Fri, 26 Jul 2002 17:14:32 GMT
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Paul van Delst <paul.vandelst@noaa.gov> wrote:
> James Kuyper wrote:
>> Precisely. I also do scientific programming, where such needs are pretty
>> common. But the vast bulk of the world's programming involves numbers
>> that can be represented with adequate accuracy using single precision
>> floating point. For instance, how many million-dollar quantities are
>> actually measured with a precision of +/-$1?
>
> I would hope the answer is not any at all. I would think that 10th's of a US dollar/Euro
> (or even 100th's) would be used. Exchange rates are usually quoted to 1000th's of a US
> Dollar. This is all a hopeful thought on my part since my past and forecast number of
> million dollar transactions is, unfortunately, zero.

Some brief experimentation with Microsoft Excel (I know, not the world's paragon of financial software, but it's what I have on hand.) seem to indicate that it uses doubles for storing constants entered into cells. It happily handles up to 15 decimal digits without trouble and truncates digits entered after that (not rounds). This allows you to handle up to ten trillion dollars retaining down to the penny - good enough for most purposes indeed.

Quicken on the other hand restricts amounts entered to
|n| < 9,999,999.99
and doesn't allow precision greater than 0.01 to be entered at all.
This is either a limitation imposed by the UI which doesn't reflect the limitations of their internal representation, or they're using fixed-width BCD in units of one cent - which would strike me as the Correct Thing to do in this case.

My gut instinct is that most financial software out there probably uses either doubles or BCD. Roundoff errors could easily become a major financial problem if you're Visa.

- Marshall