

Re: Adding floating point numbers

Source: <http://www.tech-archive.net/Archive/VC/microsoft.public.vc.mfc/2007-07/msg00159.html>

- *From:* Joseph M. Newcomer <newcomer@xxxxxxxxxxxxx>
 - *Date:* Mon, 02 Jul 2007 03:03:34 -0400
-

I do also. I use it when I'm feeling lazy, such as for computing the correct font height to allow a string to fit into a fixed-size box. And even then, the roundoff error is an absolute killer, to the point where I can only use it for a first-approximation and then have to do successive approximation to find the actual value.

joe

On Sun, 1 Jul 2007 16:41:16 -0700, "Tom Serface" <tom.nospam@xxxxxxxxxxxxx> wrote:

Most of the time my floating point stuff is for financial or percentage type calculations which can easily be done and retained using integers. I can certainly see floating point being handy for all kinds of graphical calculations, I just find it to be much easier to work around them whenever precision is necessary.

Tom

"Joseph M. Newcomer" <newcomer@xxxxxxxxxxxxx> wrote in message news:g95g8397hbt15tfbbi5itm6ahl58uo0pf2@xxxxxxxxxxx

John von Neumann thought floating point was a serious mistake, because anyone who had a clue as to what he was doing could do everything in integer mode keeping track of the decimal place (binary decimal place) in their head while writing the code. Besides, integer operations were easy to implement on contemporary computers, but floating point was going to be slow and expensive. (A Pentium-4 can do a 32-bit * 32-bit floating multiply in 1 CPU clock cycle, that is, 350ps on a 2.8 GHz machine). He also felt it would make programmers lazy because they would no longer keep track of the precision.

(He was right: back in the days of the Bush Guard memos, one analyst claimed that he could measure the precision of superscript alignment to something like 0.01%,

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even though he was
working on data with an inherent 3% error, proving that there are people
out there who
simply don't understand numbers. I ripped his analysis to little tiny
shreds and stomped
on them)

However, von did do a study of what made good floating point, which is why
we had a lot of
36-bit machines (7090, DEC-10, etc.), because with 9 bits of exponent and
27 bits of
mantissa, you had enough precision for any real physical problem.

One day back in 1982 I walked into my manager's office carrying a source
listing and said
"This job is doing bad things to my mind". When he asked why, I pointed
to a declaration
I had just written, which said
float n;
it was the first time I had used floating point numbers in well over a
decade.

I rarely use them, although I have a couple algorithms in which they
simplify coding.
joe

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