

Re: Double comparison problem

Source: http://coding.derkeiler.com/Archive/C_CPP/comp.lang.cpp/2005-01/2177.html

From: chris (caj_at_cs.york.ac.uk)

Date: 01/19/05

Date: Wed, 19 Jan 2005 14:48:13 +0000

Dietmar Kuehl wrote:

> *chris wrote:*

>

>> *There are two groups of people in this world.*

>>

>> *1) Those who don't fully understand all of the details about*

>

> *performing*

>

>> *== and != on floating points values. They should never use == or !=*

>

> *on*

>

>> *floating point values (not being mean or anything, they just*

>

> *shouldn't).*

>

>> *2) Those who do understand all the details about performing == and !=*

>

> *on*

>

>> *floating point values. They don't use == and !=, so don't have to be*

>> *told not to :)*

>

>

> *I'd say you fall into the first group! After all, comparing floating*

> *point values representing reasonably sized integers is perfectly*

> *valid even using '==' or '!=': you can use floating point values as a*

> *form of bigger integer. You just have to take care of the values*

> *staying in a certain range. Actually, you can also do exact*

> *computations*

> *for other values, i.e. those which can be represented exactly. The only*

> *thing to note is that the set of useful values is not closed over the*

> *operations and you need to realize when the result of the operation is*

> *of different kind (e.g. when addition or multiplication overflows,*

> *subtraction cancels leading bits, and division is only valid for*

> *certain value). Sure enough, for most of my uses I don't play tricks*

> *with floating point values but it is still possible and if you e.g.*

comp.lang.c++. Re: Double comparison problem

> *need a 64 bit integer on a platform not supporting some form of*
> *"long long" it can be an appropriate choice to use a 'long double'.*
OK, I apologise, I was perhaps a little too strong :) There are cases where == and != can be used safely as long as you stay within some reasonably tight bounds, as long as are careful :) But like you say you have to be careful, so I find it easier to scare people off using == and != altogether, because I've seen far, far more cases where they were being used incorrectly, and only a handful where they were being used correctly, and in those cases the people using them knew they were using them correctly :)

The idea of using a long double to replace a long long wasn't one I'd seen before, that's quite a neat idea (although once again requires being reasonably careful).

Chris