Subject: Re: round not behaving
Posted by Dick Jackson on Thu, 27 Oct 2005 21:09:05 GMT
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<psbeps@hotmail.com> wrote in message
 news:1130442231.788271.28210@f14g2000cwb.googlegroups.com...
> I am trying to round to the nearest tenth, and it works most of the
> time. It doesn't work if the value is 5.05 or 5.55, which get rounded
> to 5.0 and 5.5, respectively, instead of 5.1 and 5.6. When I type it
> into the command line, it works as expected, but not when I run the
> entire program.
>
> Here is the code (which I have divided into steps to see where it's
> going wrong--it still doesn't work if I do the same thing in one line
> of code):
>
> ;** Round off the value.
> help, value
> print, value
> temp = value * 10.0
> help, temp
> print, temp
> rounded_value = ROUND(temp)
> help, rounded_value
> print, rounded_value
> value = rounded_value/10.0
> help, value
> print, value
>
> Here is the output:
> VALUE   FLOAT   =   5.05000
> 5.05000
> TEMP   FLOAT   =   50.5000
> 50.5000
> ROUNDED_VALUE   LONG   =   50
> 50
> VALUE   FLOAT   =   5.00000
> 5.00000
>
> Why does it not round properly?
>
> Jill
>

Good question! And if I start with value of exactly 5.05, that's what I get:

IDL> value=5.05
IDL> help, value

```
VALUE          FLOAT    =      5.05000
IDL> print, value
     5.05000
IDL> temp = value * 10.0
IDL> help, temp
TEMP           FLOAT    =      50.5000
IDL> print, temp
     50.5000
IDL> rounded_value = ROUND(temp)
IDL> help, rounded_value
ROUNDED_VALUE  LONG     =          51
IDL> print, rounded_value
        51
IDL> value = rounded_value/10.0
IDL> help, value
VALUE          FLOAT    =      5.10000
IDL> print, value
     5.10000
```

But what if "value" only *looks* like 5.05, but only because of the display
precision... what if it is really 5.049999?

```
IDL> value=5.049999
IDL> help, value
VALUE          FLOAT    =      5.05000
IDL> print, value
     5.05000
IDL> temp = value * 10.0
IDL> help, temp
TEMP           FLOAT    =      50.5000
IDL> print, temp
     50.5000
IDL> rounded_value = ROUND(temp)
IDL> help, rounded_value
ROUNDED_VALUE  LONG     =          50
IDL> print, rounded_value
        50
IDL> value = rounded_value/10.0
IDL> help, value
VALUE          FLOAT    =      5.00000
IDL> print, value
     5.00000
```

That seems to be what was happening in your example. Can you check the value
in your program more closely?

```
IDL> value=5.049999
IDL> print,value
```

```
    5.05000
IDL> print,value,Format='(F19.15)'
  5.049999237060547
```

This is covered further at http://dfanning.com/math_tips/sky_is_falling.html

Cheers,
--
-Dick

Dick Jackson   /   dick@d-jackson.com
D-Jackson Software Consulting /   http://www.d-jackson.com
Calgary, Alberta, Canada   / +1-403-242-7398 / Fax: 241-7392

Subject: Re: round not behaving
Posted by Robert Moss on Thu, 27 Oct 2005 21:40:41 GMT
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psbeps@hotmail.com wrote:
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> print, value
> temp = value * 10.0
> help, temp
> print, temp
> rounded_value = ROUND(temp)
> help, rounded_value
> print, rounded_value
> value = rounded_value/10.0
> help, value
> print, value
>
> Here is the output:
> VALUE   FLOAT   =   5.05000
> 5.05000
> TEMP   FLOAT   =   50.5000
> 50.5000

> ROUNDED_VALUE   LONG   =   50
> 50
> VALUE   FLOAT   =   5.00000
> 5.00000
>
> Why does it not round properly?
>
> Jill
>

If it works at the command line (which this code does), but it does not
work in a program, you are probably looking in the wrong place for the
error. In other words, the error is not in the lines above, but probably
somewhere after that (assuming that the lines above tell the whole
story). Post the actual problem code and we can probably help you.

--
Robert Moss, PhD

Subject: Re: round not behaving
Posted by psbeps on Thu, 27 Oct 2005 21:54:38 GMT
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I suspected it might be something like that going on, and sure enough,
you were right. I printed it out how you suggested and got this:
 5.049999713897705

So I guess I just have to accept that it is rounding properly after all
(will go read the sky is falling link).

Thank you,

Jill