Regression Testing

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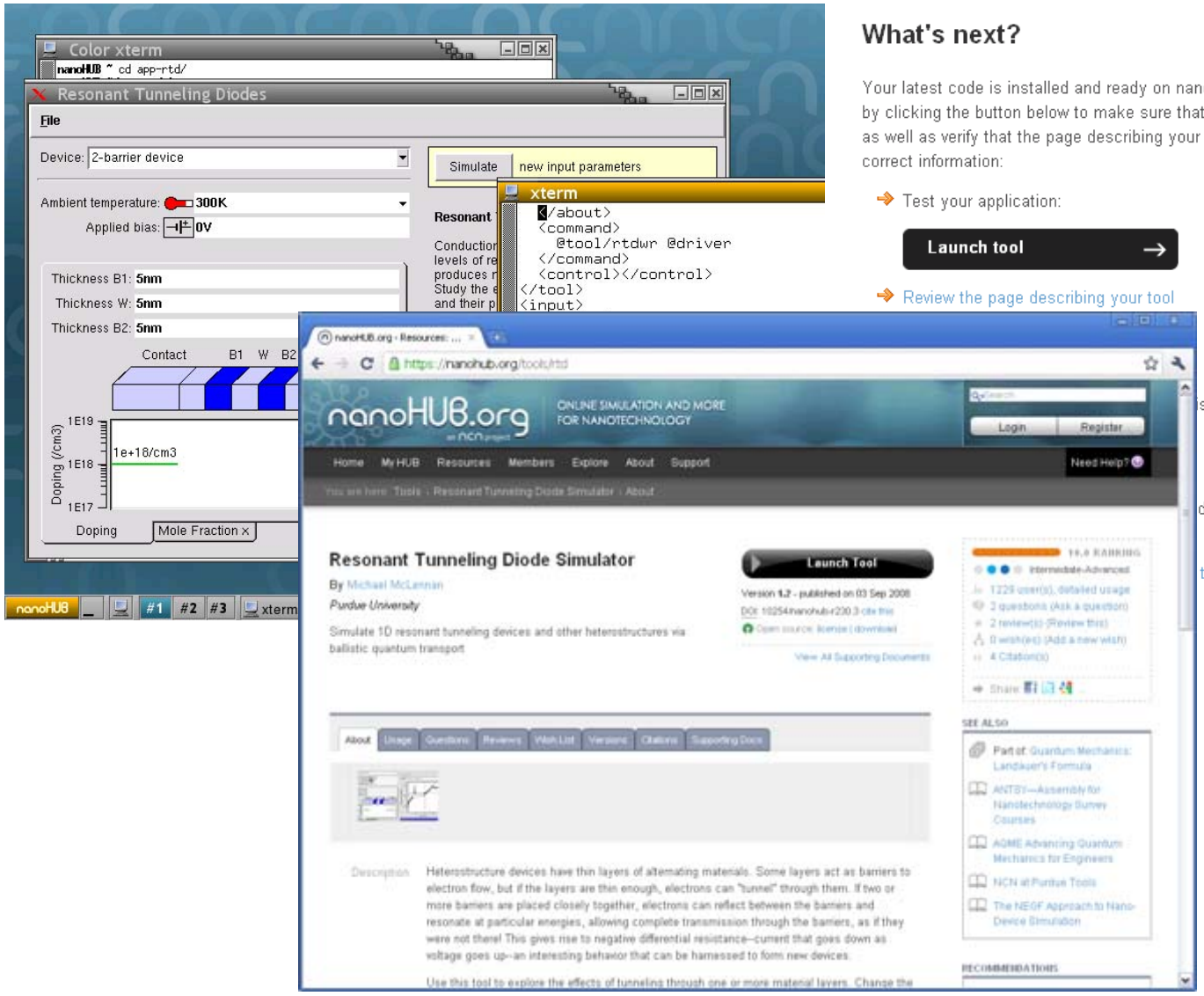
You've published it!

Build the tool…



Install, approve…

What's next?

Your latest code is installed and ready on nanoHUB.org. Please test your tool by clicking the button below to make sure that everything is working properly, as well as verify that the page describing your tool is created and displays correct information:

- Test your application:

  Launch tool →

- Review the page describing your tool

s working properly, click here to

d in your latest fixes, click here to

the latest version for testing and

Published!

Usually doesn't end there…

Allow download of 3d simulation data
+7 0 +5
Proposed by Golam Rabbani on 31 May 2009, 2 Comments

Wishes

257439 When I launch this tool, it crashes right away and collapses down to a... **open**
by Michael McLennan (mmc)

Bugs

$$\frac{m^* v_{emit}^2}{2} \approx \hbar\omega_{phonon(opt.)} \qquad \mu = m_{sat}^2 \frac{2L}{W} \frac{1}{C_i}$$

New physics

Color xterm

```
      real hbar, hbar2, Kb, m0, eVtoJ, pi, q
      real ks, mtocm
      parameter (  hbar=6.58216e-16,
     +            hbar2=hbar**2,
     +               Kb=8.61738e-5,
     +               m0=9.1095e-31,
     +            eVtoJ=1.60218e-19,
     +               pi=3.141592654,
     +                q=eVtoJ,
     +               ks=12.846,
     +            mtocm=100.0        )
c
c  DEFINITIONS --
c    ltor    ... electrons traveling left to right
c    rtol    ... electrons traveling right to left
```

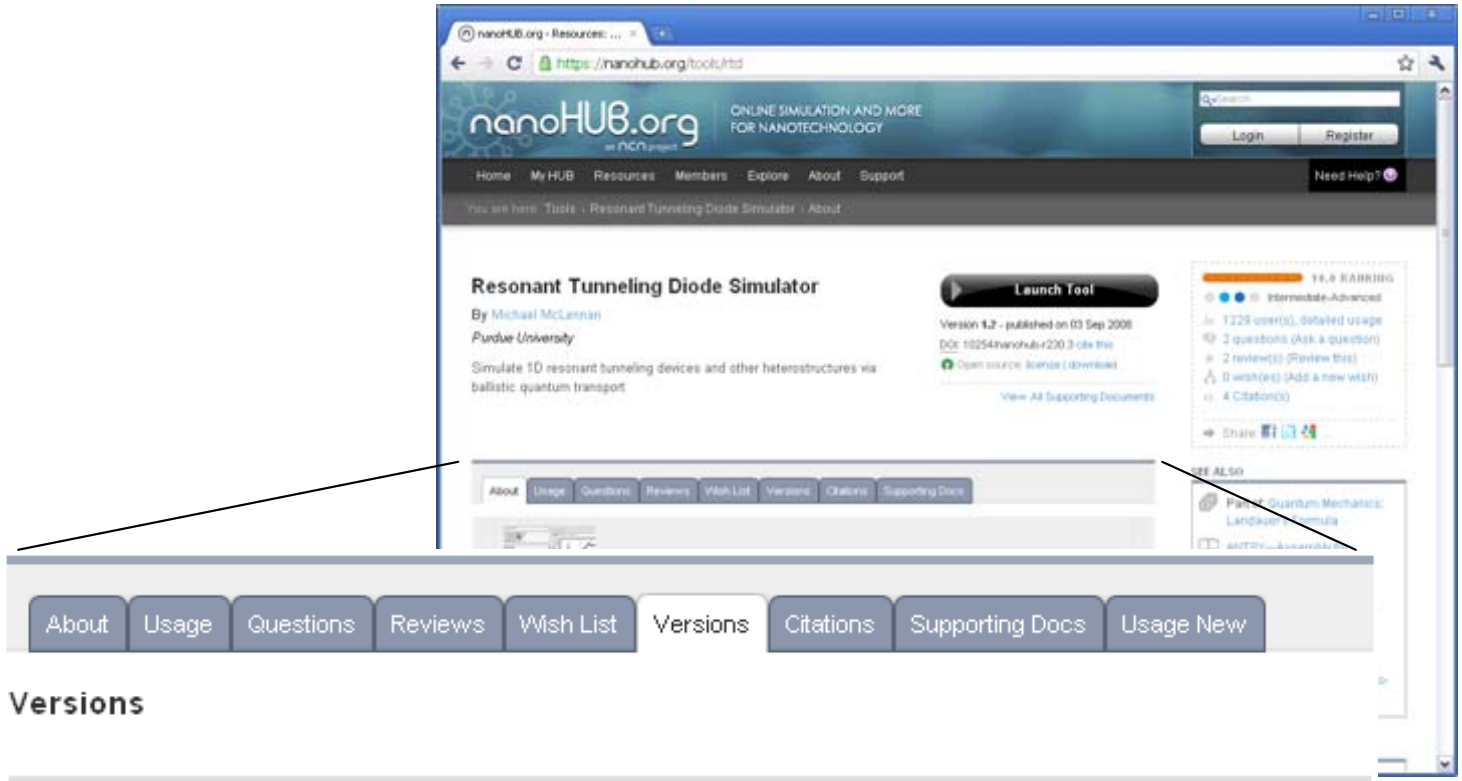
What's next?

Your tool has been published and is now open to the public. Users will find out about your tool by reading the following page. Be sure to keep this information up to date:
http://nanoHUB.org/tools/rtd

Your options:

- I've made changes Please install the latest code for testing and approval.

You've published it again!



Versions

Version	Released	DOI Handle	Published
3.01	03 Dec 2010	10254/nanohub-r1307.7	✓
3.0	03 Nov 2010	10254/nanohub-r1307.6	⊖
2.1	17 Jul 2009	10254/nanohub-r1307.5	✓
2.02	25 Sep 2008	10254/nanohub-r1307.4	⊖
2.0.1	08 May 2008	10254/nanohub-r1307.3	⊖

You can publish multiple versions and keep more than one active

Remember that program from 1985?

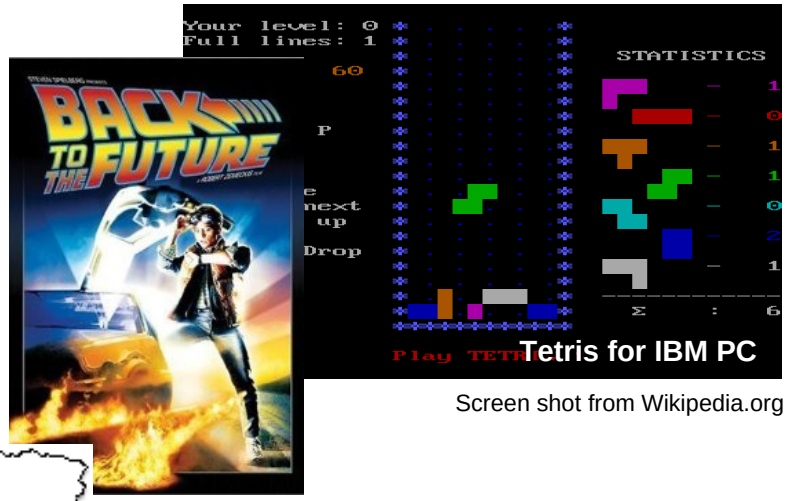
```
------- XXXX  XXXXX   XXXX   XX  XX   XXXX   XX -------------------------------
      XX     XX     XX  XX  XX  XX  XX  XX  XX                    SEQUAL 2.1
----- XXX   XXXX   XX  XX  XX  XX  XXXXXX  XX -------------- Purdue University
       XX  XX     XX  X   XX  XX  XX  XX  XX                      August 1988
-- XXXX   XXXXX   XXX X   XXXXX  XX  XX  XXXXXX -------------------------------


SEQUAL:  input deck
--------------------------------------------------------------------------------

title  sequal the hard way
# input file has units in angstroms
scale  cm=1.0e8
input  file=rtd.dat format=zevdmk
device temp=300.0 area=1.0 bias=0.0
```

```
      real temp, delel, deler, Et, vbias
      common /state/temp, delel, deler, Et, vbias
```

```
sequal the hard way
================================================================================
```

```
  5   if ((.not.done).and.(max.gt.1)) then
         done = .true.
         do 10 i=1,max-1
           if (list(i).gt.list(i+1)) then
             done      = .false.
             temp      = list(i)
             list(i)   = list(i+1)
             list(i+1) = temp
           endif
 10      continue
```

```
Nodes     ,+---
watched: +-----
         !/////
      0 > +-----
          !
          !
          !
          !
          !
          ! r->1
          ! ^^^^
          ! !!!!
     29 > +-----
         !/////
         +-----
```



ht Universal Pictures
rom imdb.com

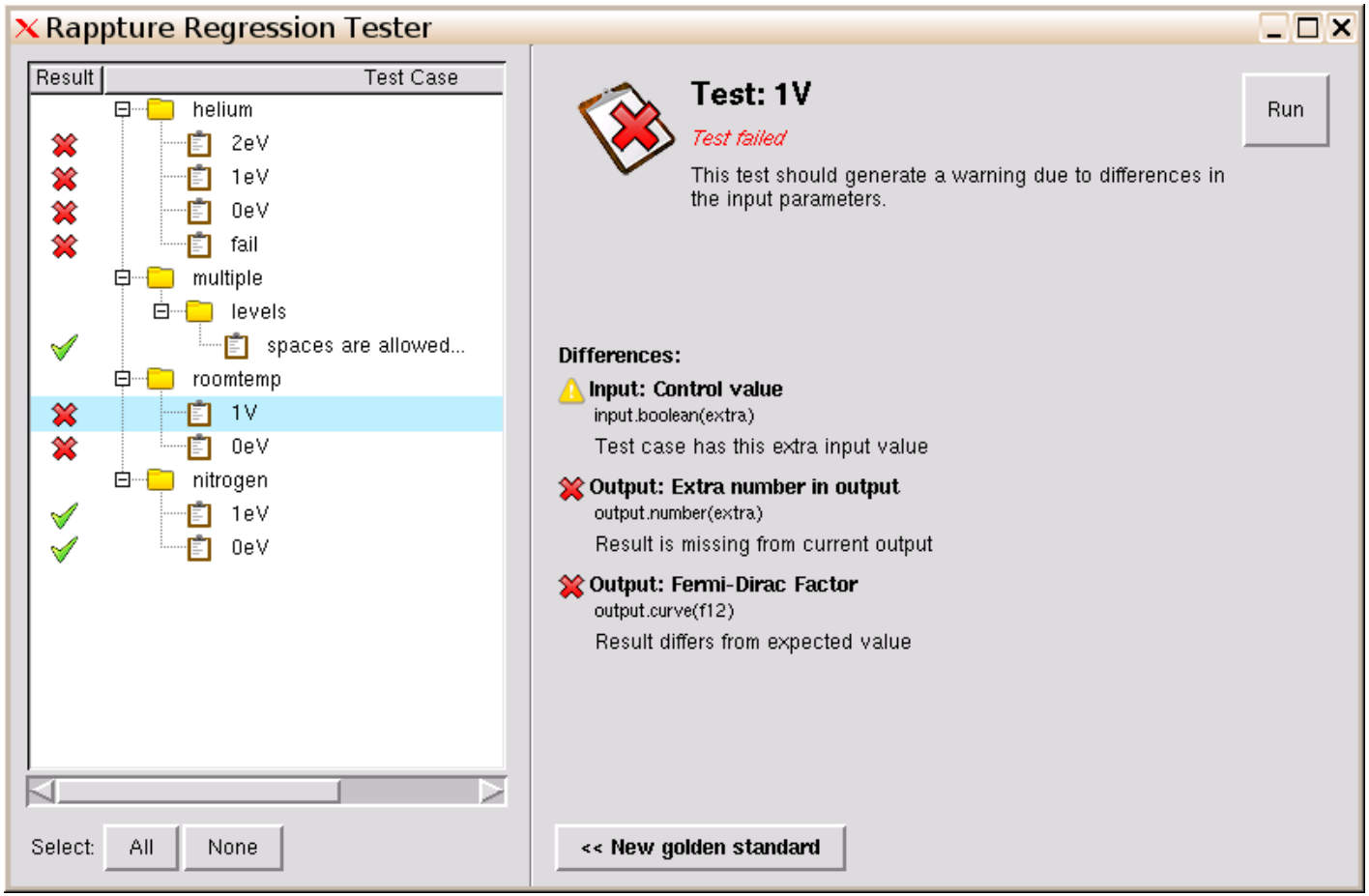
Screen shot from Wikipedia.org

A few months later,
I went back and added
a sorting routine.

My `temp` variable
accidentally changed
the ambient temperature!

Guard against those errors!

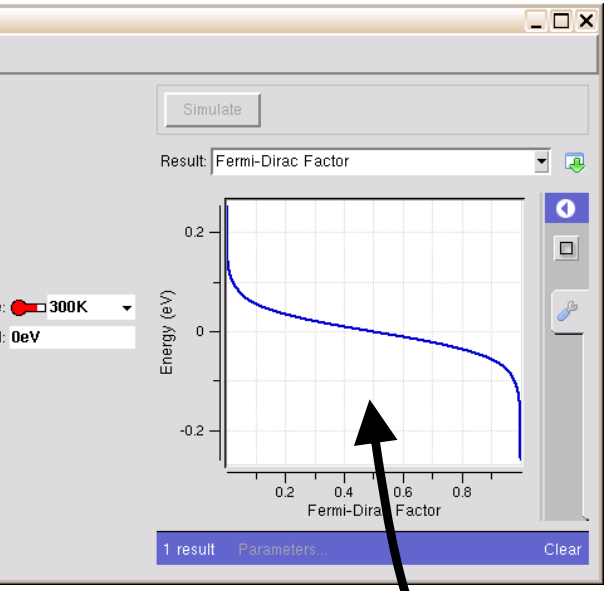
- Build up a suite of test cases
- Run them as you go along to make sure they still work
- Investigate failures and track down the problem



Create test cases

1 Run the desired test case…

Runner



<XML>

driver1

Your Program

<XML>

tool.xml

<XML>

run12703129102.xml

2 Move into tests directory

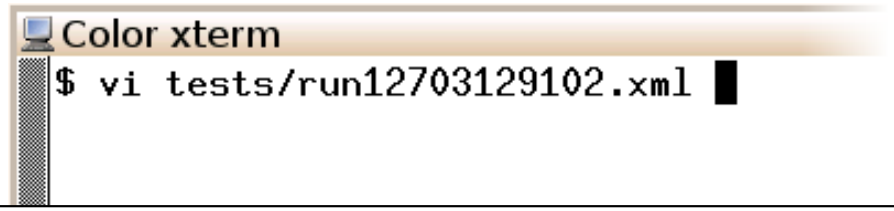
Color xterm

```
$ ls
docs  spiro.m  tool.xml
$ mkdir tests
$ unset SESSIONDIR
$ rappture
$ ls
docs  run12703129102.xml  spiro.m  tes
$ mv run12703129102.xml tests
$
```

Results are moved out of the current working directory to the “results” directory **unless you** `unset SESSIONDIR`

`~/data/results/$SESSION`

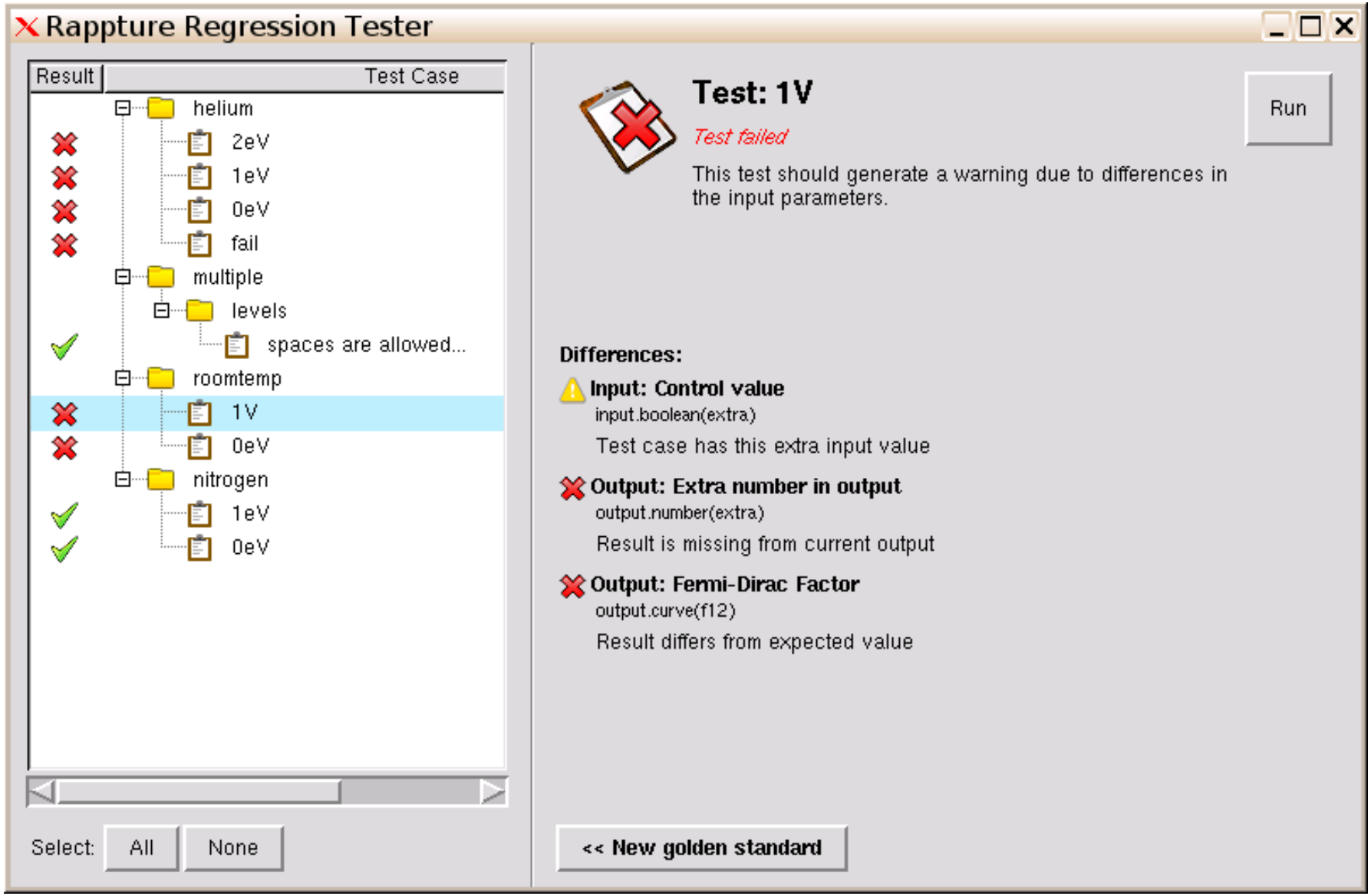
3 Add label/description to each test




```
<?xml version="1.0"?>
<run>
    <test>
        <label>roomtemp|0eV</label>
        <description>Should work at room temperature and 0eV.</description>
    </test>
    <tool>
        <about>Press Simulate to view results.</about>
        <command>tclsh @tool/fermi.tcl @driver</command>
    </tool>
    <input>
        <number id="temperature">
            <about>
                <label>Ambient temperature</label>
                <description>Temperature of the environment.</description>
            </about>
```

separator for test folders

Demo: app-fermi tests



Demo >>

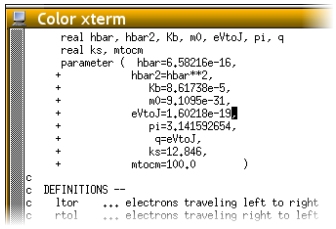
Output results:

- Output value has changed
- Output value is missing
- Output value is extra (not supposed to be there)

Input values:

- Input value has changed--label, units, etc.
- Input value is missing from test case
- Input value is extra (not supposed to be there)

Fix the tool

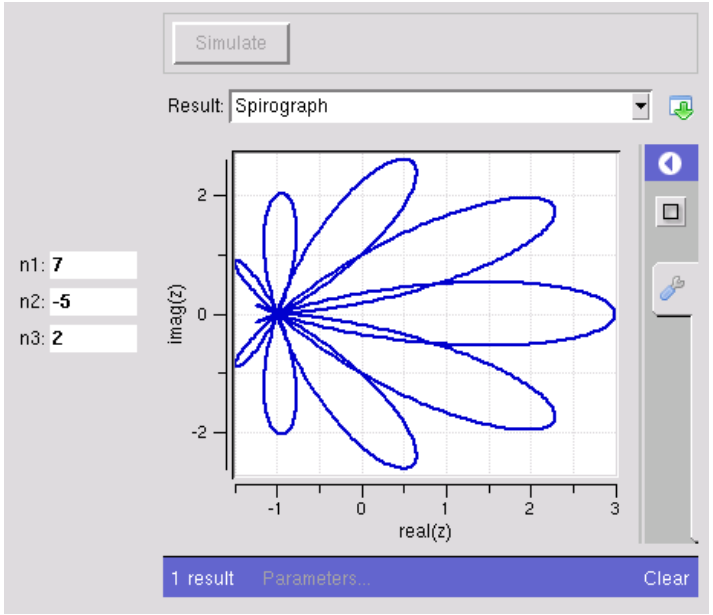


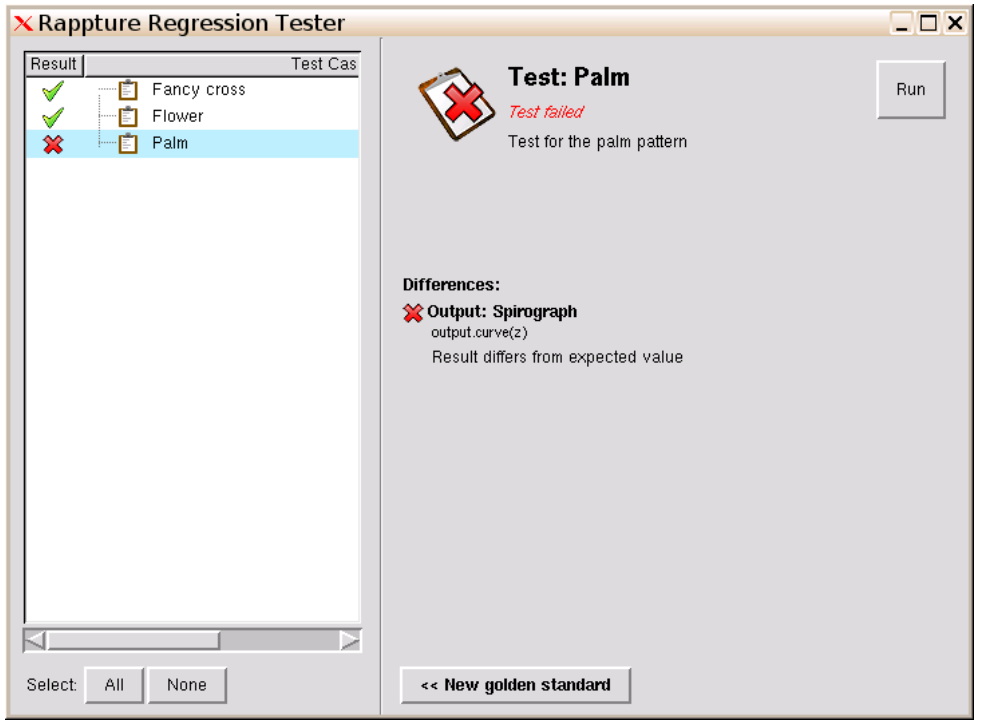
Fix the test

Assignment #10: Create tests for your tool

Create a test suite with these cases

Fancy cross	Flower	Palm Branch
$n_1 = 13$	$n_1 = 19$	$n_1 = 7$
$n_2 = -7$	$n_2 = -13$	$n_2 = -5$
$n_3 = -3$	$n_3 = 3$	$n_3 = 2$





- Run the regression tests (should run cleanly)
- Edit one of the tests and delete some numbers
- Run the tests, discover the error, then regoldenize