USEABILITY AND RELIABILITY

WHAT DO OUR USER INTERFACES SAY ABOUT MANTID?

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ABOUT THE MANTID PROJECT

- Sustained investment since 2007
- Unique example of cross-facility, international collaboration in science and engineering
- 62 Developers contributed over the last 12 months
- 1 Millon lines of code added since 2014
- Zero compiler warnings on all target platforms
- Over 9×10^3 unit tests
- Over 3×10^2 system tests
- Over 1×10^2 performance tests
- Many genuinely unique and cutting edge features
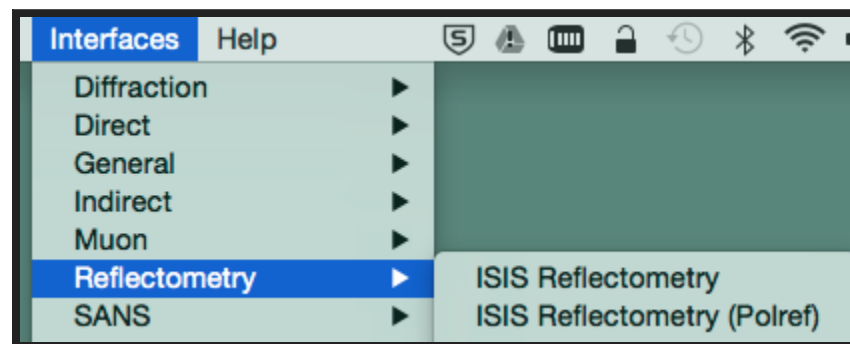- Highly Commended at UK IT Awards 2015

2015 UK IT INDUSTRY
AWARDS
bcs The Chartered Institute for IT   computing
HIGHLY COMMENDED

BUT TO MOST USERS

"Custom interface X IS the Mantid Project."

WE SHIPPED THIS IN VERSION 3.5

SaveWindow

Save path:

Prefix:

Filter: ☐ RegEx

List of logged parameters:

List of workspaces:

Custom format options

☐ Title
☐ Q resolution

Separator

◉ Comma ○ Space

Spectra list:

File format: **Custom format (*.dat)**

SAVE   Refresh

WE SHIPPED THIS IN VERSION 3.5

WE SHIPPED THIS IN VERSION 3.5

We have also shipped broken UIs in full releases of Mantid.

WE CAN FIX THINGS

Lets split the problems up

- Improving <u>reliability</u>
- Improving <u>useability</u>

IMPROVING RELIABILITY

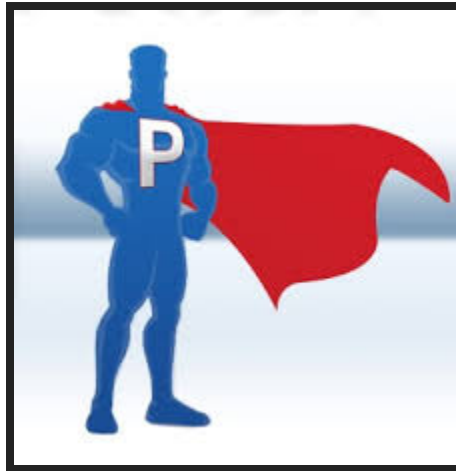*To improve the reliability we need feedback. These three approaches have been shown to work.*

IMPROVING RELIABILITY: POWER USER

Example: ISIS SANS

IMPROVING RELIABILITY: SQUISH

Squish report

19:05:37 refl_gui_tests - Test cases 1, Passes 25, Fails 0
19:05:54 refl_gui_tests - Test cases 1, Passes 25, Fails 0

Summary - refl_gui_tests

Test cases	1
Tests	25
Passes	25 (including 0 expected failures)
Fails	0 (including 0 unexpected passes)
Errors	0
Fatals	0

Results

tst_basic_operation

			Start 'tst_basic_operation'	Test 'tst_basic_operation' started
START	Fri Dec 18 19:05:37 UTC 2015			
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:89	Verified	True expression 13460_IvsQ should exist in output
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:90	Verified	True expression 13460_IvsLam should exist in output
PASS	Fri Dec 18 19:05:43 UTC 2015	/home/builder/Jenkins/workspace/squishtest/MantidPlot/test/squish_test_suites/refl_gui_tests/tst_basic_operation/test.py:91	Verified	True expression Should have a TOF group in the output

IMPROVING RELIABILITY: MODEL VIEW PRESENTER
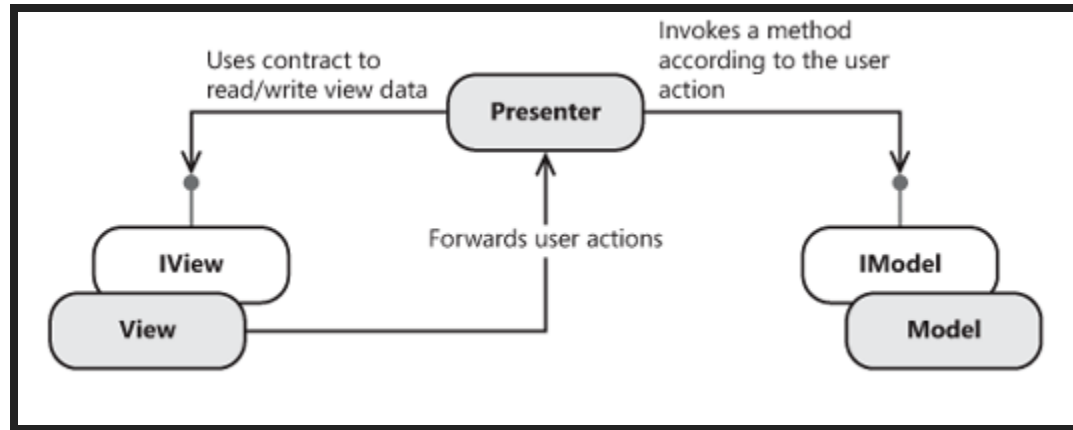
Test Result : CustomInterfacesTest

0 failures (±0)

221 tests (±0)
Took 5.9 sec.

All Tests

Class	Duration	Fail	(diff)	Skip	(diff)	Pass	(diff)	Total	(diff)
ALCBaselineModellingModelTest	1 ms	0		0		6		6	
ALCBaselineModellingPresenterTest	3 ms	0		0		17		17	
ALCDataLoadingPresenterTest	2.2 sec	0		0		16		16	
ALCPeakFittingModelTest	1 ms	0		0		3		3	
ALCPeakFittingPresenterTest	2 ms	0		0		14		14	
EnggDiffractionPresenterTest	1.3 sec	0		0		28		28	
IO_MuonGroupingTest	48 ms	0		0		3		3	
ImageROIPresenterTest	0 ms	0		0		13		13	
MeasurementItemTest	0 ms	0		0		6		6	
MuonAnalysisHelperTest	40 ms	0		0		6		6	
ParseKeyValueStringTest	0 ms	0		0		1		1	
ReflGenerateNotebookTest	1 ms	0		0		15		15	
ReflLegacyTransferStrategyTest	0 ms	0		0		6		6	
ReflMainViewPresenterTest	0.91 sec	0		0		36		36	
ReflMeasureTransferStrategyTest	0 ms	0		0		8		8	
ReflNexusMeasurementItemSourceTest	1.2 sec	0		0		2		2	
StackOfImagesDirsTest	0 ms	0		0		9		9	
TomographyIfacePresenterTest	31 ms	0		0		19		19	
UserInputValidatorTest	0 ms	0		0		13		13	

IMPROVING USEABILITY

To improve the usability we also need feedback
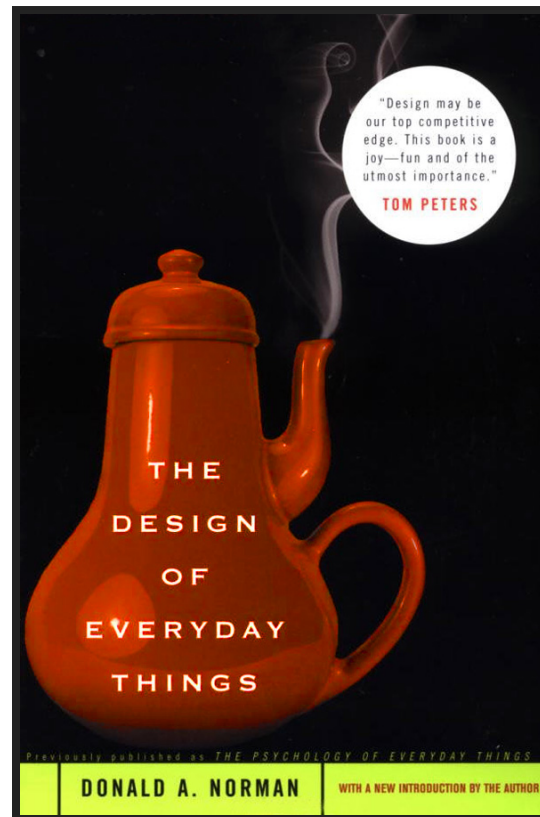
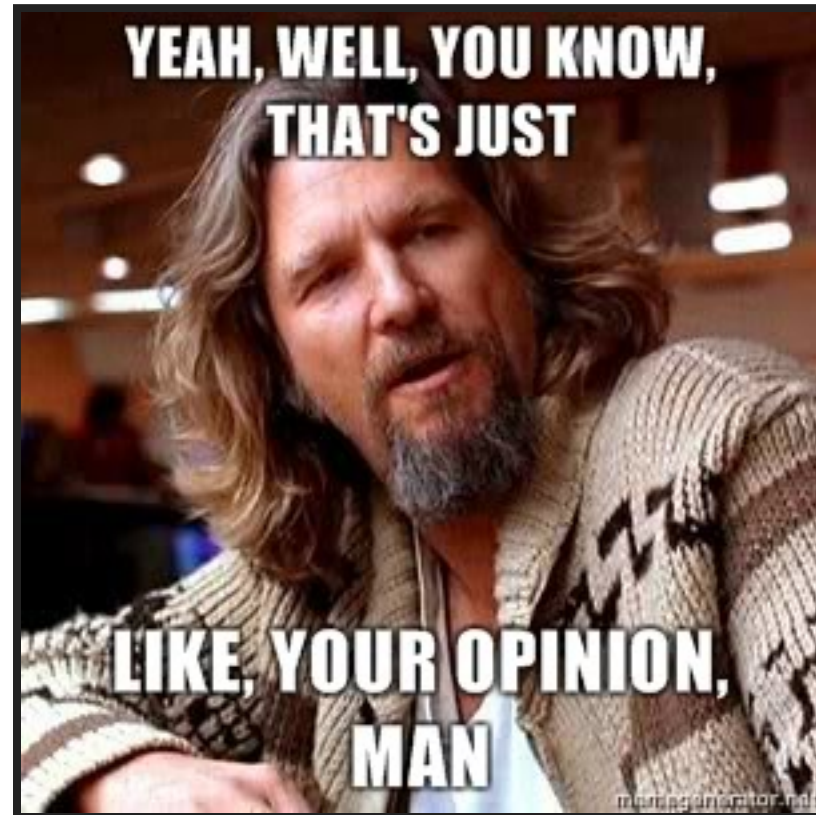Things we should do (and often do already)

- UI Mockups using tool like Basamiq
- Paper prototyping
- Software Prototypes
- Component based software engineering

THINGS WE SHOULD STOP DOING

- Say things like:

  "We'll quickly create a GUI as a first-cut."

- Have less new developer work on "less critical." things such as GUIs
- Lean on late unscripted testing to uncover bugs
- Assume that beta testers are all equally thorough

TO MOST USERS

*"Custom interface **X** <u>IS</u> the Mantid Project."*