

Visualizing Semantic Inline Query Results with SRF-Ploticus

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Feb 12, 2009

**Ontolog Mini-Series: Semantic Wikis: The Wiki Way to the Semantic Web
Session 5: Semantic Wiki Applications & Use Cases (2): horizontal applications**

Agenda

- Introduction
- Demo
- Future Plans
- More Info

Introduction

A little about me...

- Responsible for Knowledge/Project Management Best Practices
- Emphasis on Project Memory/Reusability
- Have tried just about every KM/PM system
- Have “successfully” implemented three SMW implementations behind the Corporate firewall
- Semantic Web “Practitioner”
- Semantic MediaWiki “Contributor”

View from the Corporate Trenches

- Knowledge Blackholes
 - ▶ Email
 - ▶ Shared Folders
 - ▶ PPTs, Excel, Word, etc.
- Information Glut
- Cope with Brute-Force solutions (Google Search Appliance, Reports)
- Do more with less

Critical Success Factors

- Familiarity
- Usability
- Self-service
- Low adoption barrier
- Seamlessly fits into existing workflows
- ...

CSF Je Ne Sais Quoi

- “Eye Candy”
- “Sexy”
- Visually Appealing
- Magnet Content...

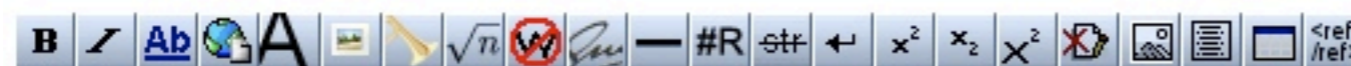
Content is King!

- Interesting Content is Hard to Create
- Automatic Content is often not Interesting
- You compete with ALL browser-based content
- SMW + SRF-Ploticus + more visualizations + inferred data + data-crunching = Interesting, semi-automatic content

Instead of Plain Vanilla Tables

	Has Complexity Quotient
Order Results By List Of Orders	74.25
Order Results	73
Account Management Report Internal	70.75
Order Results By Date Range By Service By User By Alerts	70.75
Order Results Report (Profile Suppressed)	69
Borders Daily Order Results	67.5
New Daily Order Results	67.25
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Executive Summary Usage Report	53.5
Summary New	53.5
Exec. Summary Report (with Charges)	50
Exec. Summary Report	42.75
Executive Summary Report By User	42.75
Queue Hourly Volume Report	39.75
Drug Testing Report Summary	39

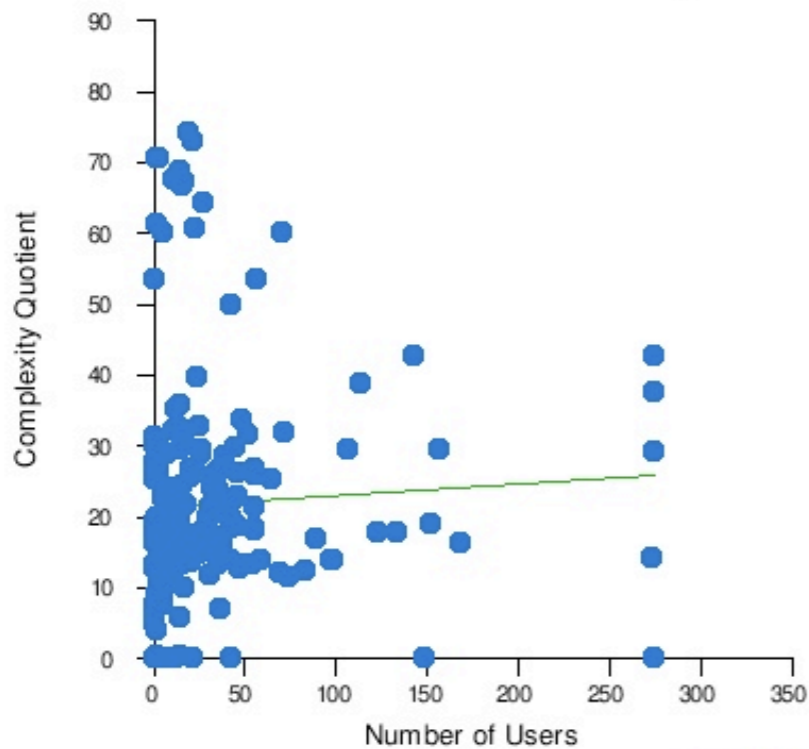
[... further results](#)



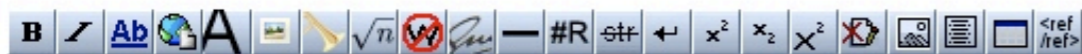
```
{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=all
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=table
|}}
```

Use Visualizations!!!

CQ vs Number of Users for 200 Most Complex RD Reports



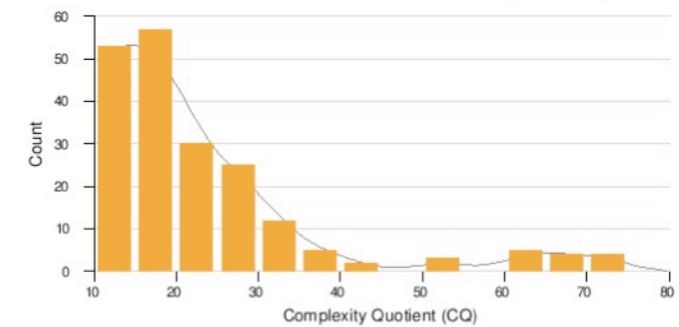
$r = 0.0553$
 $Y = 21.4 + 0.0168X$



```

{{#ask: [[Has Number of Users::+]]
[[Has Complexity Quotient::+]]
[[Has Complexity Quotient::>0.1]]
[[Has report type::+]]
[[Has report type::RD]]
| ?Has Number of Users
| ?Has Complexity Quotient
| ?Has report type
| link=None
| limit=300
| order=descending
| format=ploticus
| ploticusparams= -font FreeSans -prefab scat data=data1 x=2 y=3
| xlabel="Number of Users" ylabel="Complexity Quotient" corr=yes
| title="CQ vs No of Users for 200 Most Complex RD Reports" titledet="size=13"
| clickmapurl=[target=new]"http://localhost/smwbe/index.php/@1"
| clickmaplabel="@1 (@3/@2)" -csmap
}}
    
```

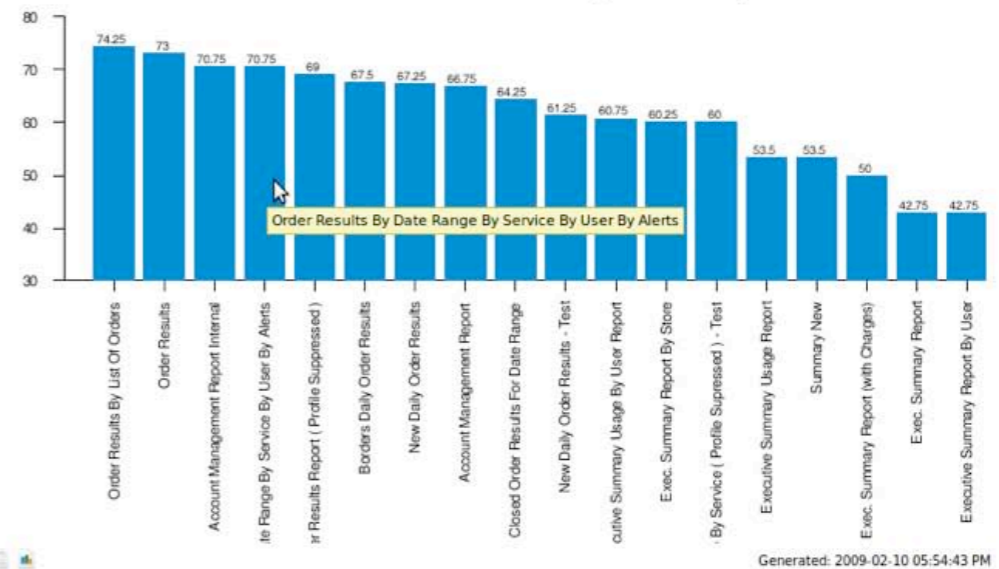
CQ Distribution for 200 Most Complex Reports



```

{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=None
| sort=Has Complexity Quotient
| limit=200
| order=descending
| format=ploticus
| ploticusparams= -font FreeSans -prefab dist x=2 curve=yes ygrid=yes
| barwidth=0.25 binsize=5 color=orange
| title="CQ Distribution for 200 Most Complex Reports" titledet="size=16"
| xlabel="Complexity Quotient (CQ)"
| ylabel="Count"
}}
    
```

20 Most Complex Reports



Generated: 2009-02-10 05:54:43 PM

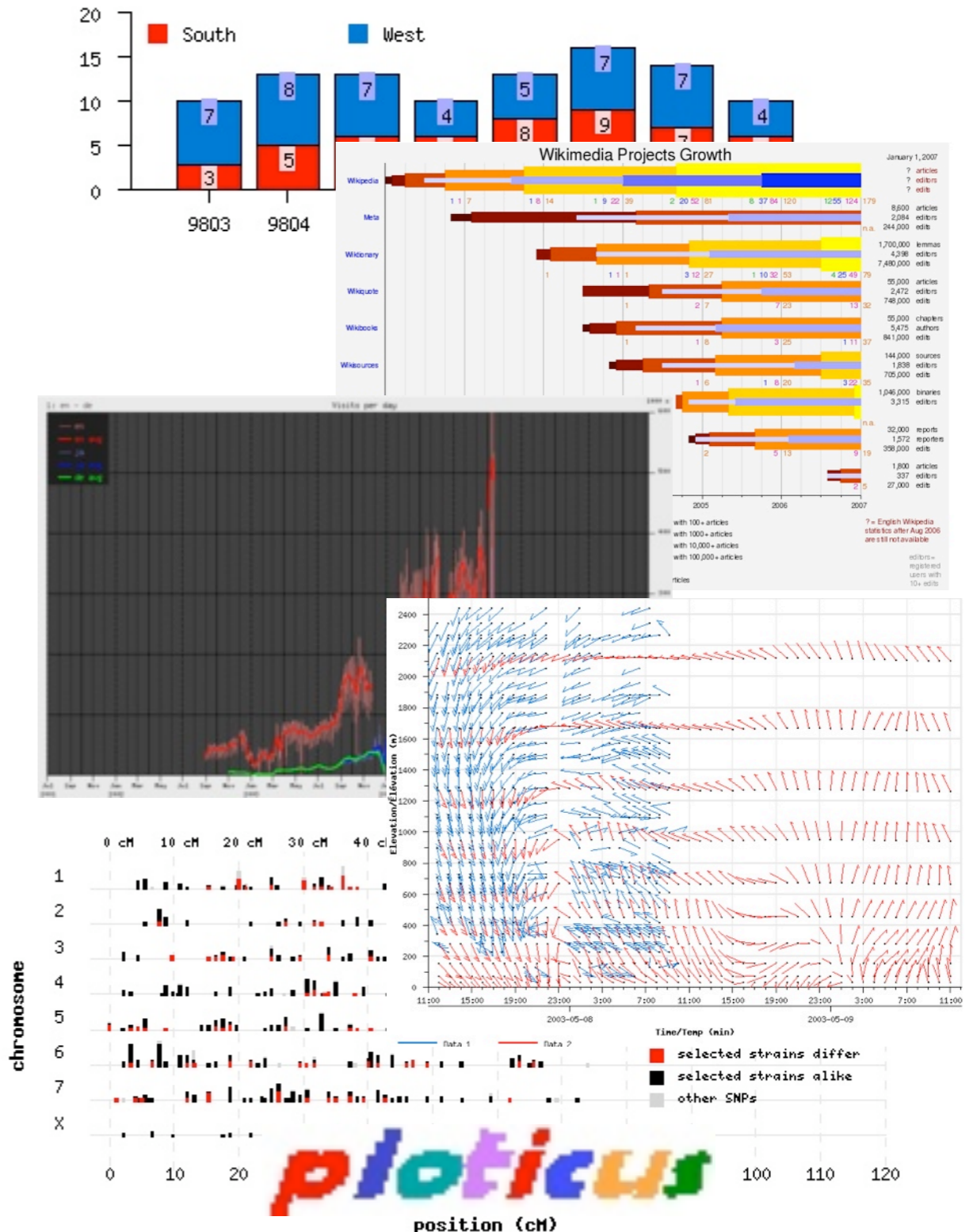


```

{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=all
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=ploticus
| ploticusparams= -font FreeSans -prefab vbars x=1 y=2 vals=yes labels=1 stubvert=yes autow=yes
| clickmapurl=[target=new]"http://localhost/smwbe/index.php/@1" clickmaplabel="@1" -csmap
| title="20 Most Complex Reports" titledet="size=24" color=oceanblue
| showcsv=true
| showimagelink=true
| showtimestamp=true
| imageformat=png
}}
    
```

Ploticus?

- Very mature Data Display Engine (30+ releases since Aug 99)
- Cross Platform (*Nix, OS X, Windows)
- Developed by Steve Grubb while working on NIH-funded research projects at the Johns Hopkins School of Medicine Wilmer Ophthalmological Institute, and at The Jackson Laboratory.
- “...is good for 2-D graphs that you would see in journals for medical and social sciences, newspapers and news magazines, business publications, and so on. Ploticus is good for automated or **just-in-time** graph generation, handles date and time data nicely, and has basic statistical capabilities.”




Demo

Main Page - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php/Main_Page

127.0.0.1 Talk for this IP Log in / create account



← ???

Dynamic SemReports > Testme2 > Closed Order Results For Date Range > Testme2 > Main Page >

page discussion annotate edit history wysiwyg

Main Page

This is the Semantic Report Catalog.

It uses [Semantic Web](#) (aka [Web 3.0](#)) techniques to expose and derive relationships within the Report Catalog without having to write additional reports or dive into SQL.

In addition, it allows users to add annotations (both unstructured and semantic) to the catalog to further promote understanding. Think of it as a "smart" online database that allows you to create your own reports on the fly using a point-and-click interface.

To appreciate the power of the Semantic Report Catalog, try clicking on:

- o [Browse data](#)
- o [Query Interface](#)
- o [Dynamic SemReports](#)
- o any of the Factboxes in each Report Catalog entry.

also, don't forget that you can always hit Ctrl+Alt+Spacebar (Ctrl+Spacebar on IE) to do Semantic Auto-Completion on the Search field.

To promote accelerated adoption, this site has been extended with [several usability features](#) (WYSIWYG, Upload Converter, Query Interface, Semantic Auto-Completion, Extendable Glossary, etc.). Most of these extensions were provided by the SemWeb/MediaWiki community, but some were specifically created/extended for this

Management
Executive Summary(24) Revenue(35) Sales(12) Turn-Around Time(3) Volume(4)
Sales
Commissions(1)
Operations
Turn-Around Time(33) Volume(1)
Client-Facing
Executive Summary(12) Open Orders(5) Turn-Around Time(1)
Not Specified
Service
-MULTI-(203) -N/A-(91) ALCOHOL(2) CHARGES(4) CRIMINAL(108) DMV(7) DOTREFERENCE(2) DRUG(38) DRUGCONFIRMATION(2) EDUCATION(1) EXITINTERVIEW(12) PHYSICALS(1) QWIZ(4) REFERENCE(9) S.OFFENDER(4) SSTRACE(9) SURVEY(5) THEFTDB(2) WORKCOMP(1)

Done

Query Interface - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php/Special:QueryInterface

127.0.0.1 Talk for this IP Log in / create account

ACME

Testme2 > Closed Order Results For Date Range > Testme2 > Main Page > QueryInterface >

special

Query Interface

[Add Category](#)
[Add Instance](#)
[Add Property](#)

Query Tree Navigation
[Main Query](#)
 Main Query
 Has Complexity Quotient
 Page = *

```

  {{#ask syntax <ask> syntax
  {{#ask: [[Has Complexity Quotient::+]]
  | ?Has Complexity Quotient
  | format=table
  | link=none
  | sort=Has Complexity Quotient
  | limit=20
  | order=descending
  |}}
  
```

Help
 How can I find close matches?
 How can I identify errors in the knowledge base?
 How do I ask for specific properties of an object in the wiki?
 What can I do with the query interface?
 (more)
[Ask your own question](#)

Query Layout Manager
 Format: table
 Sort by: Has Complexity Quotient
 Order: descending
 Link: none
 Limit: 20
 Headers: show
 Intro:
 Mainlabel:
 Default:

Done

Editing Ploticustest - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php?title=Ploticustest&action=edit&redlink=1

127.0.0.1 Talk for this IP Log in / create account

Navigation

- Main Page
- Browse data
- Query Interface
- Semantic Notifications
- Recent changes
- Random page
- Help

Tools

- What links here
- Upload file
- Special pages

Browser

Editing Ploticustest

You have followed a link to a page that does not exist yet.

To create the page, start typing in the box below (see the [help page](#) for more info).

If you are here by mistake, click your browser's **back** button.

Warning: You are not logged in. Your IP address will be recorded in this page's edit history.

Links to Other Pages

Tools

- Categories**
Annotate Create
- Properties**
Annotate Create Has part
- Ontology Browser**
Mark a word...
- Help**
- Annotation hints**

B / Ab

```
{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=all
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=table
|}}}}
```


Ploticustest - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php/Ploticustest

Most Visited Getting Started Latest Headlines Webmin SemWiki smwbe Installation - naut...

127.0.0.1 Talk for this IP Log in / create account



Go Search

Main Page > QueryInterface > Sandbox2 > Search > Ploticustest >

page discussion annotate edit history wysiwyg

Ploticustest

	Has Complexity Quotient
Order Results By List Of Orders	74.25
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Exec. Summary Report (with Charges)	50
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Executive Summary Report By User	42.75
Queue Hourly Volume Report	39.75
Drug Testing Report Summary	39

Done

Editing Ploticustest - Preview - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php?title=Ploticustest&action=submit

Most Visited Getting Started Latest Headlines Webmin SemWiki smwbe Installation - naut...

Toolbox

- What links here
- Related changes 2
- Upload file
- Special pages

Browser

Order Results By List Of Orders	74.25
Order Results	73
Account Management Report Internal	70.75
Order Results By Date Range By Service By User By Alerts	70.75
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Borders Daily Order Results	67.5
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Drug Testing Report Summary	39

... further results

B / Ab A #R str \leftarrow x^2 x_2 X^2

```

{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=all
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=ploticus
| ploticusparams= -prefab vbars x=1 y=2
|}}

```

Done




Editing Ploticustest - Preview - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php?title=Ploticustest&action=submit

127.0.0.1 Talk for this IP Log in / create account



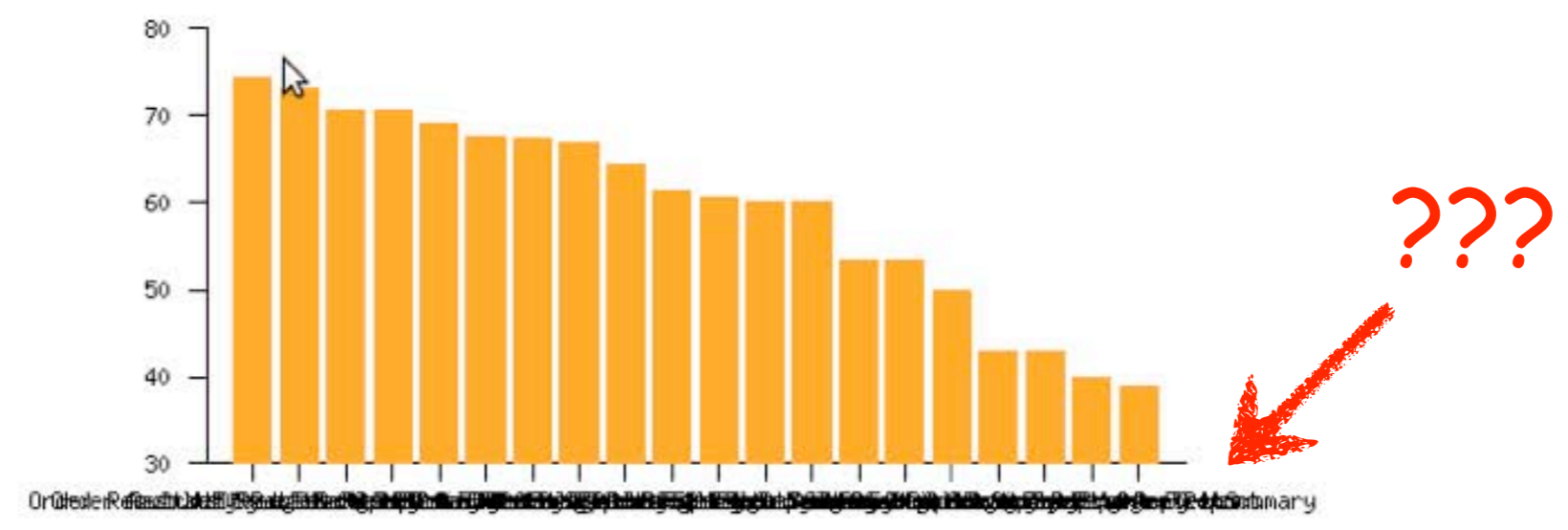
Main Page > QueryInterface > Sandbox2 > Search > Ploticustest >

page discussion annotate edit history wysiwyg

Editing Ploticustest

Preview

This is only a preview; changes have not yet been saved!



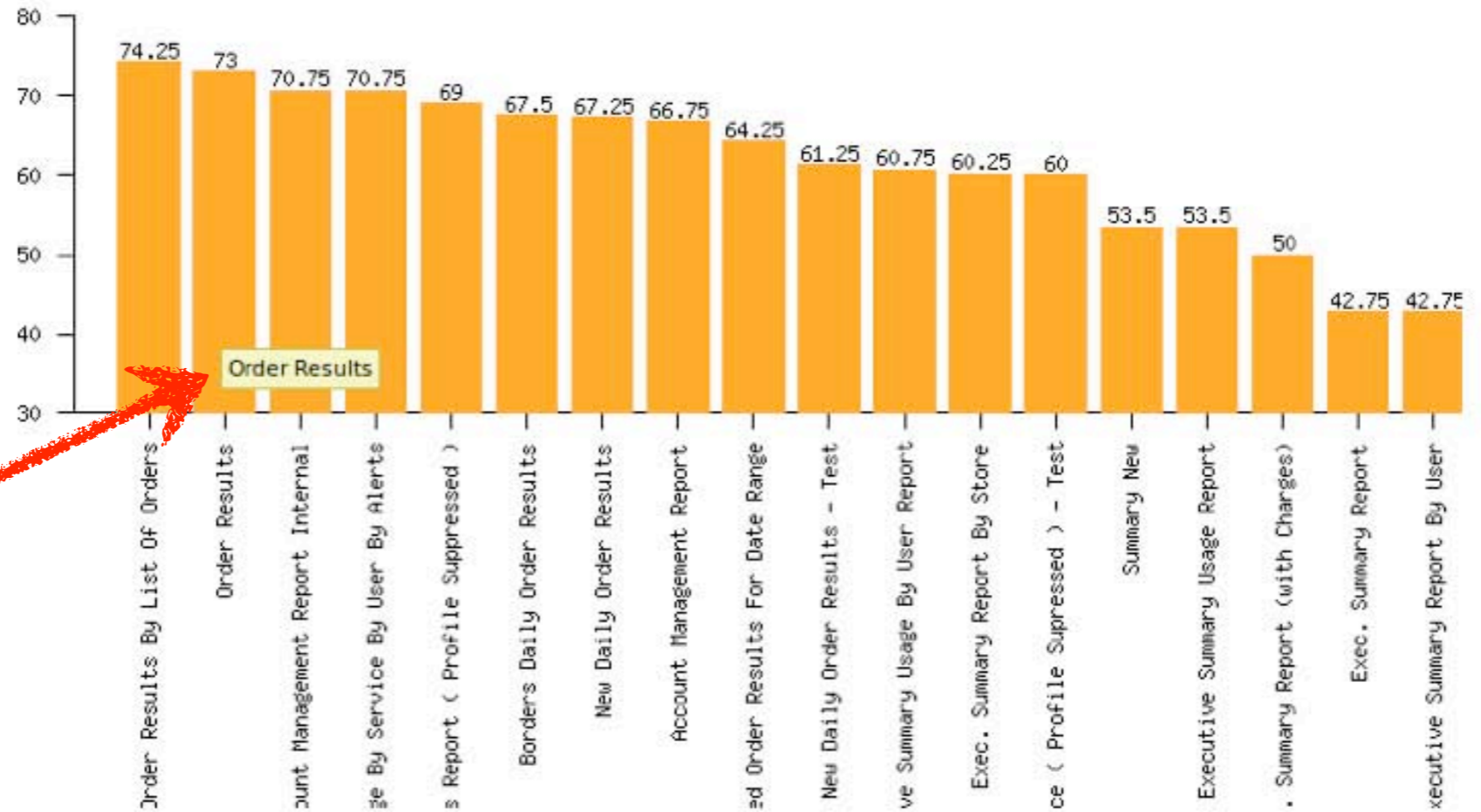
Order: Recent changes: ...

Done

```
{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=none
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=ploticus
| ploticusparams= -prefab vbars x=1 y=2 vals=yes labels=1 stubvert=yes autow=yes
                  clickmapurl=[target=new]"http://localhost/smwbe/index.php/@1" clickmaplabel="@1" -csmap
                  title="20 Most Complex Reports" titledet="size=24"
|}}}}
```

Random page
Help
Toolbox
What links here
Related changes 2
Upload file
Special pages
Browser

20 Most Complex Reports



Rich text editor toolbar with icons for Bold, Italic, Underline, Bulleted List, Numbered List, Indent, Undo, Redo, etc.

Order Results - Semantic RepCat - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php/Order_Results

127.0.0.1 Talk for this IP Log in / create account

ACME

QueryInterface > Sandbox2 > Search > Ploticustest > Order Results >

page discussion annotate edit history wysiwyg

Order Results

This report shows Order Results for a given Order No and Client name.

RD31

79.31%

Complexity Quotient: 73.0

Parms	3
Stored Procs	1
Tbls Views	4
Users	22
Add Categories	0
Functions	0
Invocation (Stats)	171
Fields	80
Attachments	1

It shows the Subject Profile:

- * Store No
- * SSN
- * Name
- * Current Address
- * Previous Address
- * Driver's License and State
- * DOB
- * Phone

It then shows the Results:

- * ?Trk_Typ1
 - Status
 - Open Date/Time
 - Close Date/Time
 - > COC No
 - > Laboratory
 - > ?Trk_Review
 - = Report
 - * County
 - * Zip
 - * State
 - * City
 - * ?Trk_User5
 - * Company
 - * Track Solution

Order Results

Report Type: RD

Is a variant of: None

Is a duplicate of: None

Obsolete: False

Inactive: False

Replaced By: None

Tracker Impacted: False

[edit]

Regression Test: None

Entry Last Modified By: jnatividad

Entry Last Modified: 12/24/2008 01:53 PM

Keywords: draft

Details

[edit]

parms Stored Procs Tbls Views Users Addl Categories Functions Performance Factbox

No	Parm Name	Data Type	Default Value	Nulls Allowed	Description	Last Update	Cataloger
1	GROUPID	String	GABRI			2008-12-01 11:25:06.000	jnatividad
2	ORDERNUM	String	397410			2008-12-01 11:24:56.000	jnatividad
3	WHEREADD	String				2008-12-01 11:24:46.000	jnatividad

```

{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=none
| sort=Has Complexity Quotient
| limit=20
| order=descending
| format=ploticus
| ploticusparams= -font FreeSans -prefab vbars x=1 y=2 vals=yes labels=1 stubvert=yes autow=yes
| clickmapurl="http://localhost/smwbe/index.php/@1" clickmaplabel="@1" -csmmap
| title="20 Most Complex Reports" titledet="size=24"
| color=oceanblue
| height=500
| width=700
| showcsv=true
| showimagelink=true
| imageformat=svg
|}}

```

Editing Ploticustest - Pre

File Edit View History Bookmarks Tools Help

http://localhost/smwbe/index.php?title=

laf1060d5351d1eeeb3284bd4d6f21b167153ff621a4c674d38d436e6

File Edit View Insert Format Tools Data Window Help

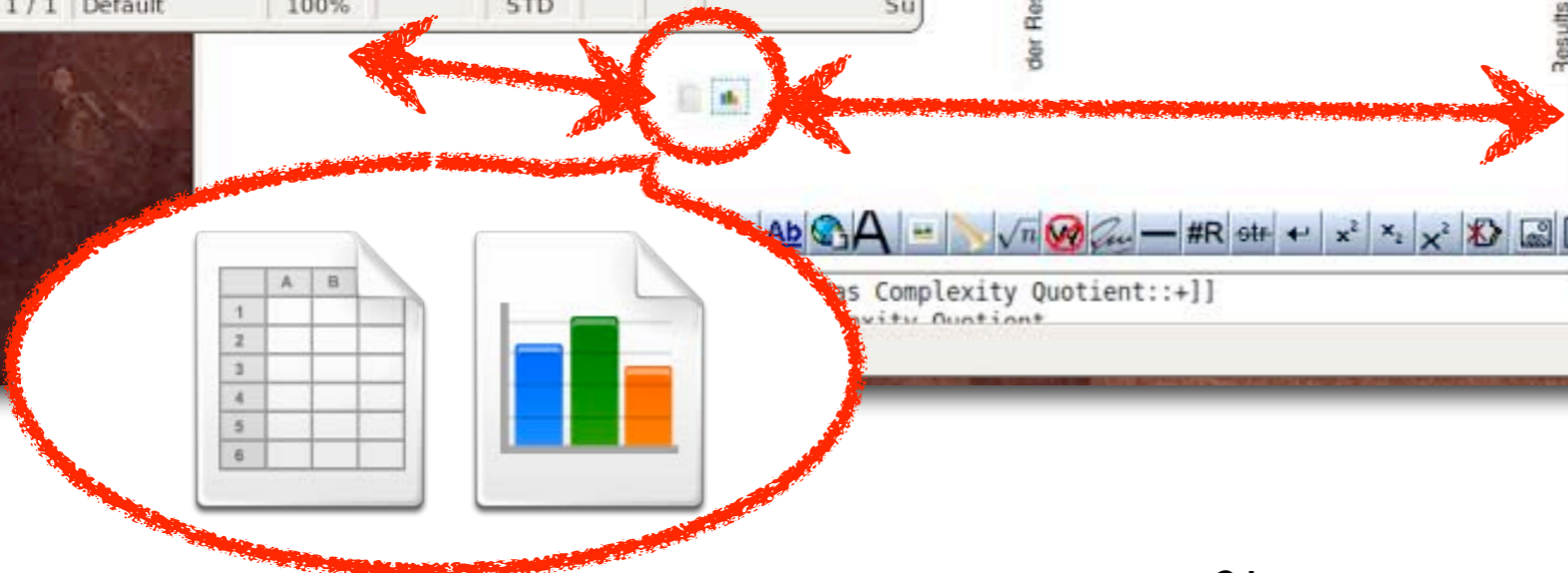
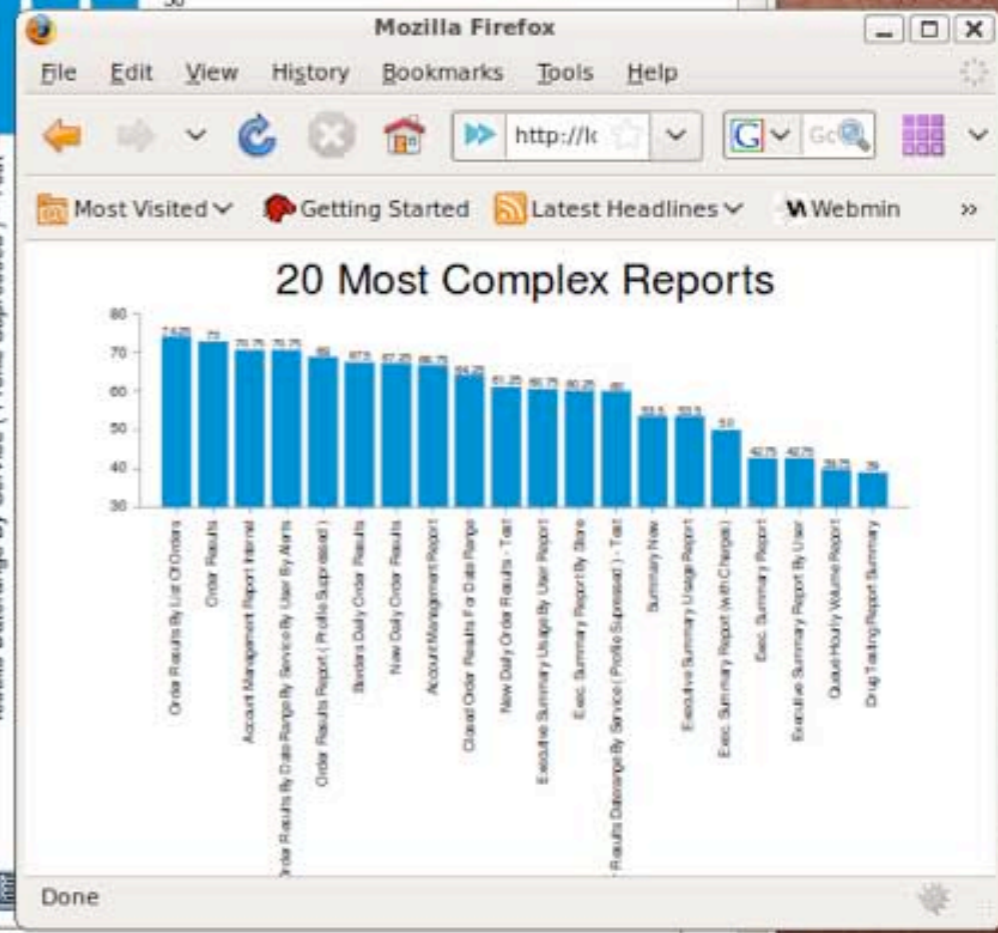
A1 f(x) Σ = Order Results By List Of Orders

	A	B
1	Order Results By List Of Orders	74.25
2	Order Results	73
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21		
22		

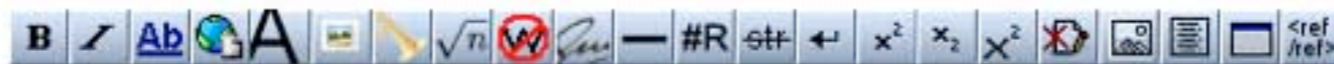
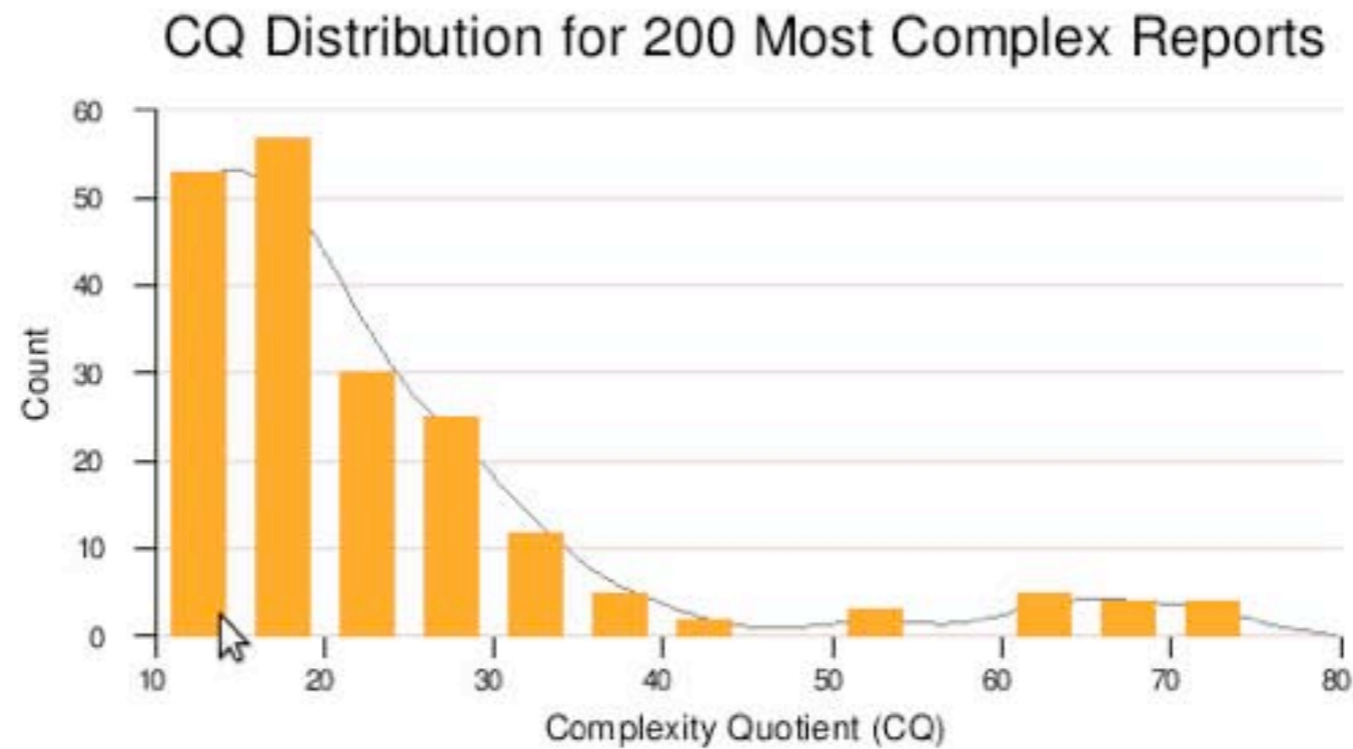
Sheet1

Sheet 1 / 1 Default 100% STD Su

20 Most Complex Reports



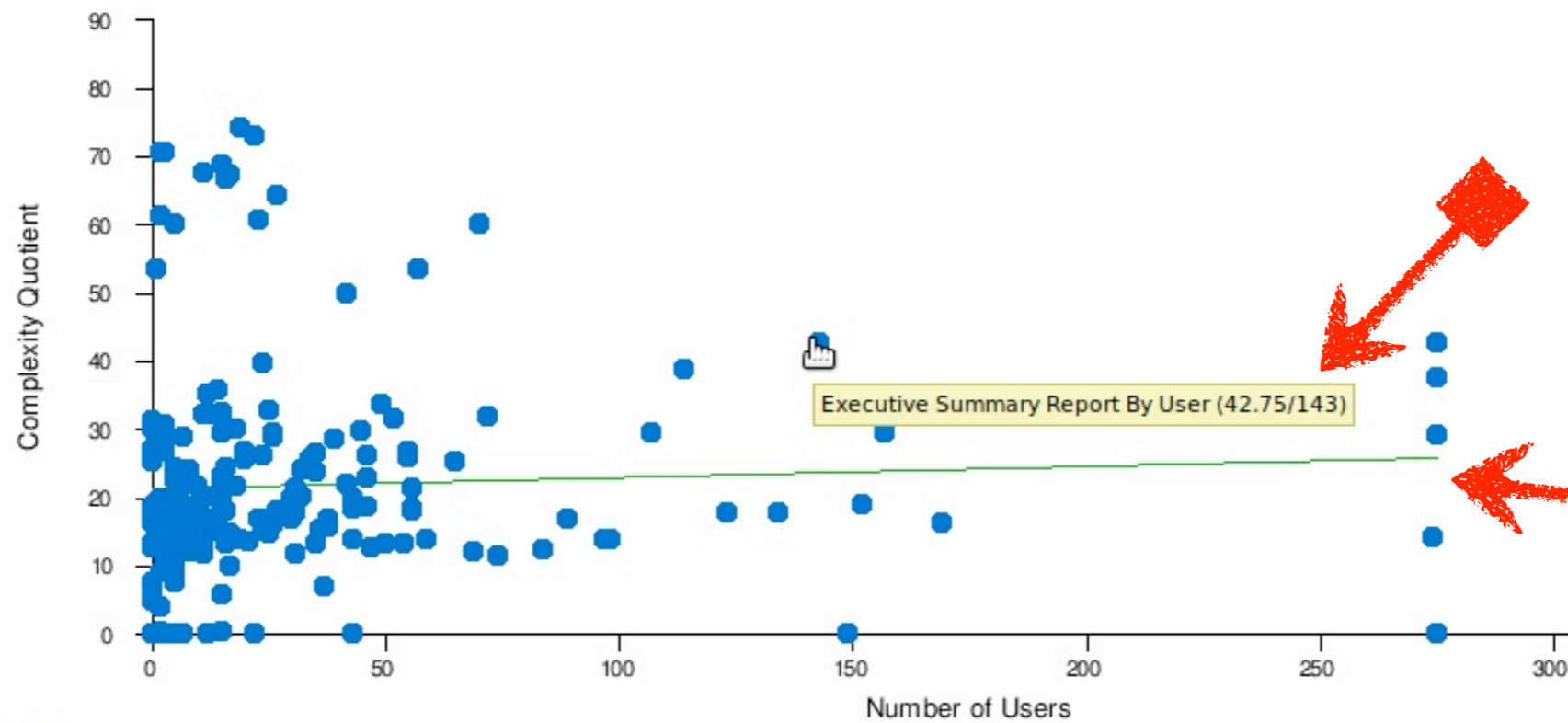
Distribution



```
{{#ask: [[Has Complexity Quotient::+]]
| ?Has Complexity Quotient
| link=none
| sort=Has Complexity Quotient
| limit=200
| order=descending
| format=ploticus
| ploticusparams= -font FreeSans -prefab dist x=2 curve=yes ygrid=yes barwidth=0.2 bin
  title="CQ Distribution for 200 Most Complex Reports" titledet="size=16"
  xlabel="Complexity Quotient (CQ)"
  ylabel="Count"
|}}
```

Scatter Plots

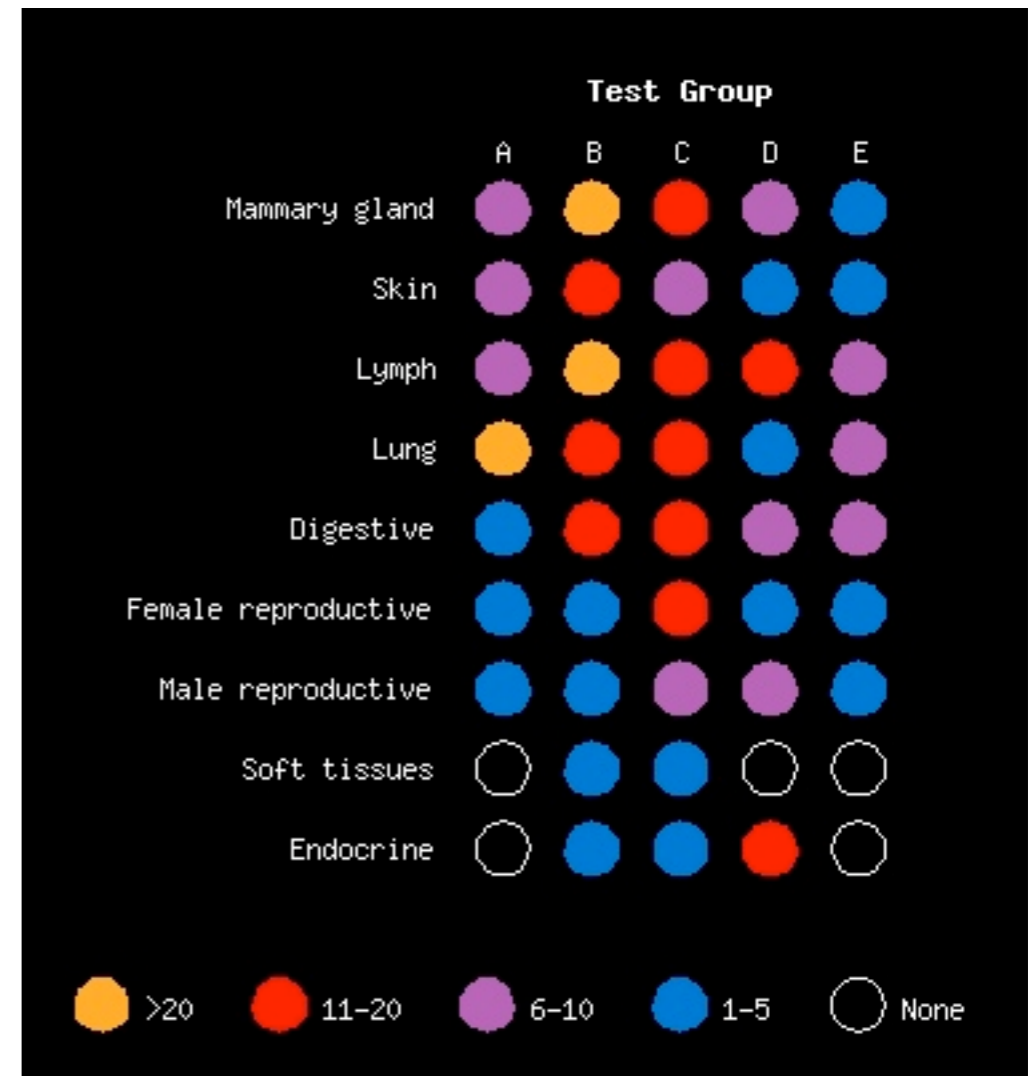
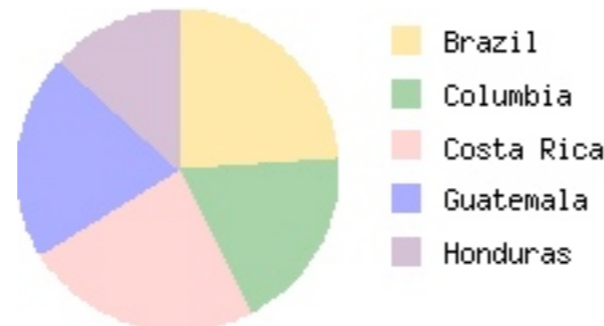
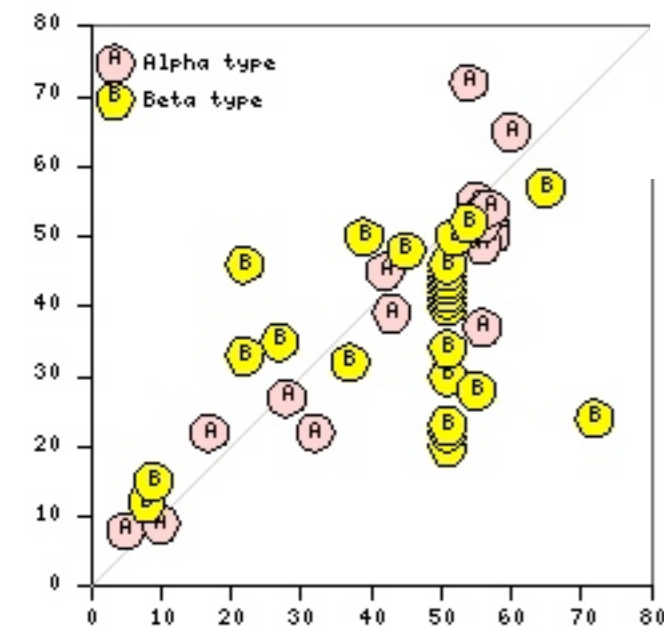
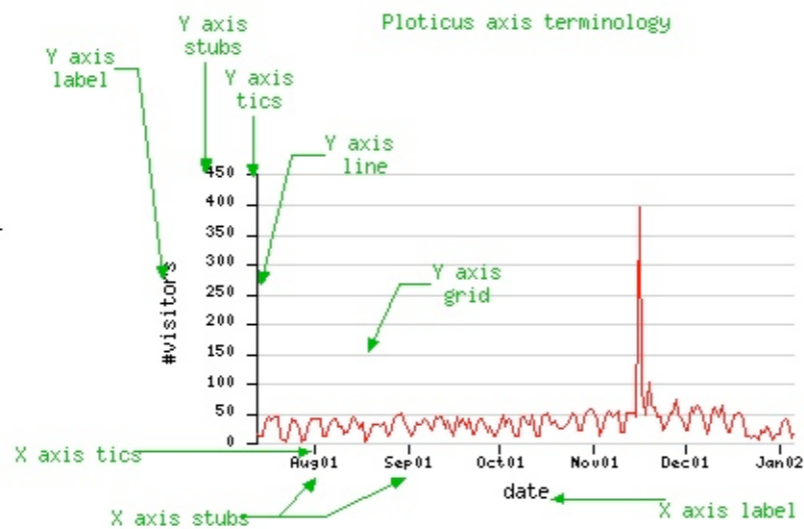
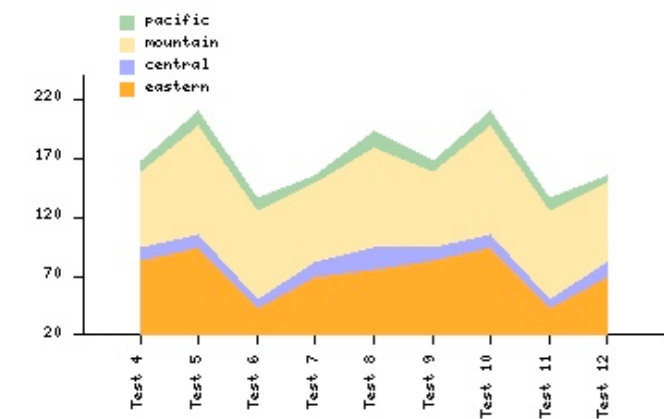
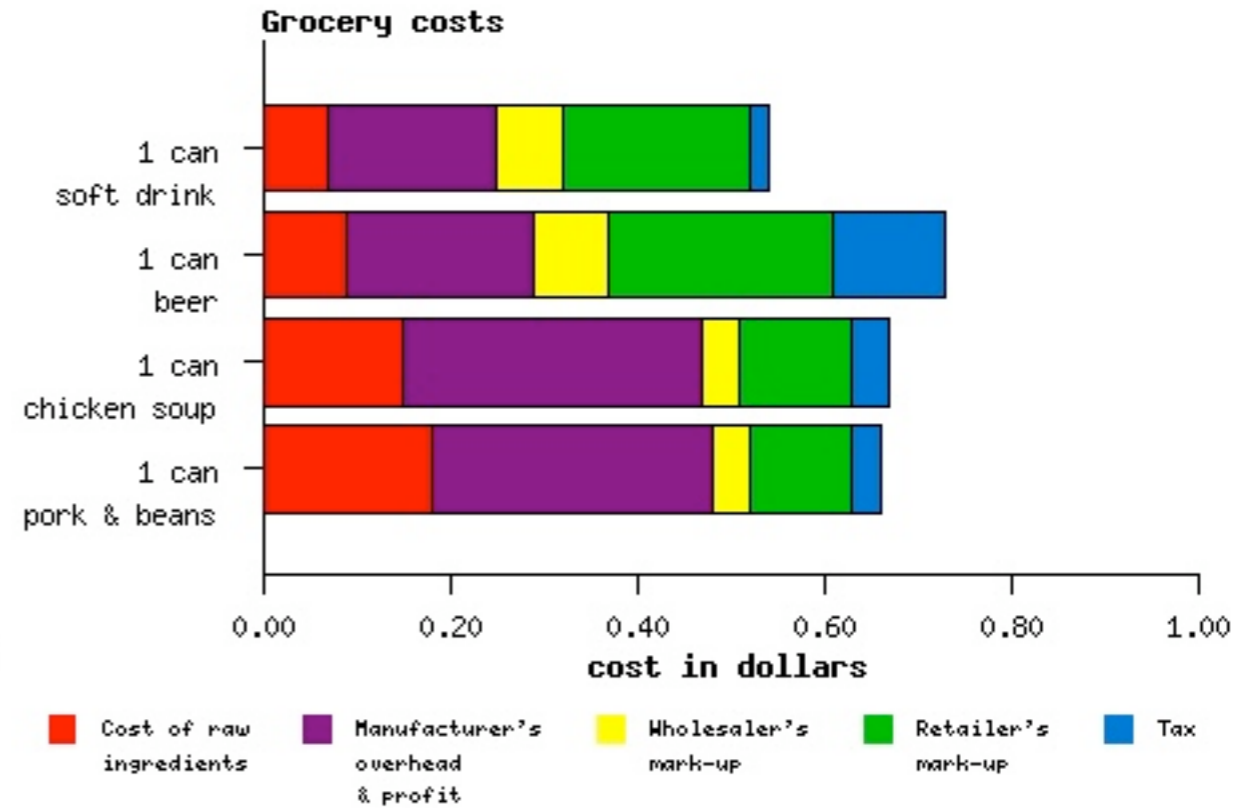
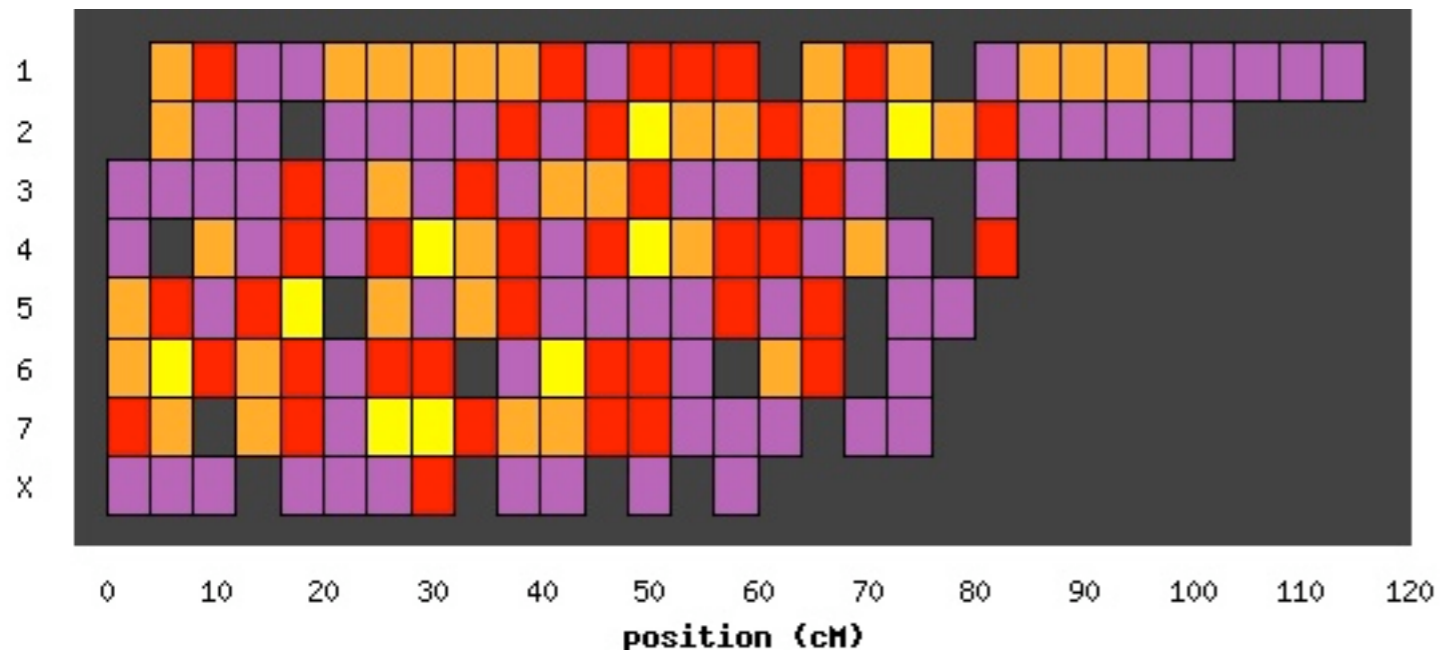
CQ vs No of Users for 300 Most Complex RD Reports



$r = 0.0553$
 $Y = 21.4 + 0.0168X$

```
{#ask: [[Has Number of Users::+]]  
[[Has Complexity Quotient::+]]  
[[Has Complexity Quotient::>0.1]]  
[[Has report type::+]]  
[[Has report type::RD]]  
| ?Has Number of Users  
| ?Has Complexity Quotient  
| ?Has report type  
| link=none  
| limit=300  
| sort=Has Complexity Quotient  
| order=descending  
| format=ploticus  
| ploticusparams= -font FreeSans -prefab scat data=data1 x=2 y=3 autow=yes  
  xlabel="Number of Users" ylabel="Complexity Quotient" corr=yes  
  title="CQ vs No of Users for 300 Most Complex RD Reports" titled="size=13"  
  clickmapurl="http://localhost/smwbe/index.php/@1"  
  clickmaplabel="@1 (@3/@2)" -csmmap  
}}
```

And a lot more...



Future Plans

SRF-Ploticus Roadmap

- CSS support (skinnable)
- Use MW API to store static copy of plots
- SRF-Ploticus “PDF bundles”
- Create SMW-specific Ploticus prefabs
- Time Series support
- Animated plots

Planned SMW Contributions

- SRF-Time Series
- SRF-R (<http://www.r-project.org/>)
- SemanTrac

Corporate Drivers

- Enterprise Data Management (EDM) Council -
Semantics Repository Initiative
(<http://www.edmcouncil.org/semantics.aspx>)
- Semantic Data Dictionary
- Semantic Report Catalog
- SemanTrac

More Info

- http://semantic-mediawiki.org/wiki/Help:Ploticus_format
- Ploticus Website - <http://ploticus.sourceforge.net>
- Demo/Sandbox site: <http://plotwiz.org>
(Under Construction)

Thanks heaps to Steve Grubb at !!!