



Statistical Insights: From One-Click Solutions to Advanced Calculations

Jānis Plūme



**Reporting is
engineering**



eaZyBI



Community Day
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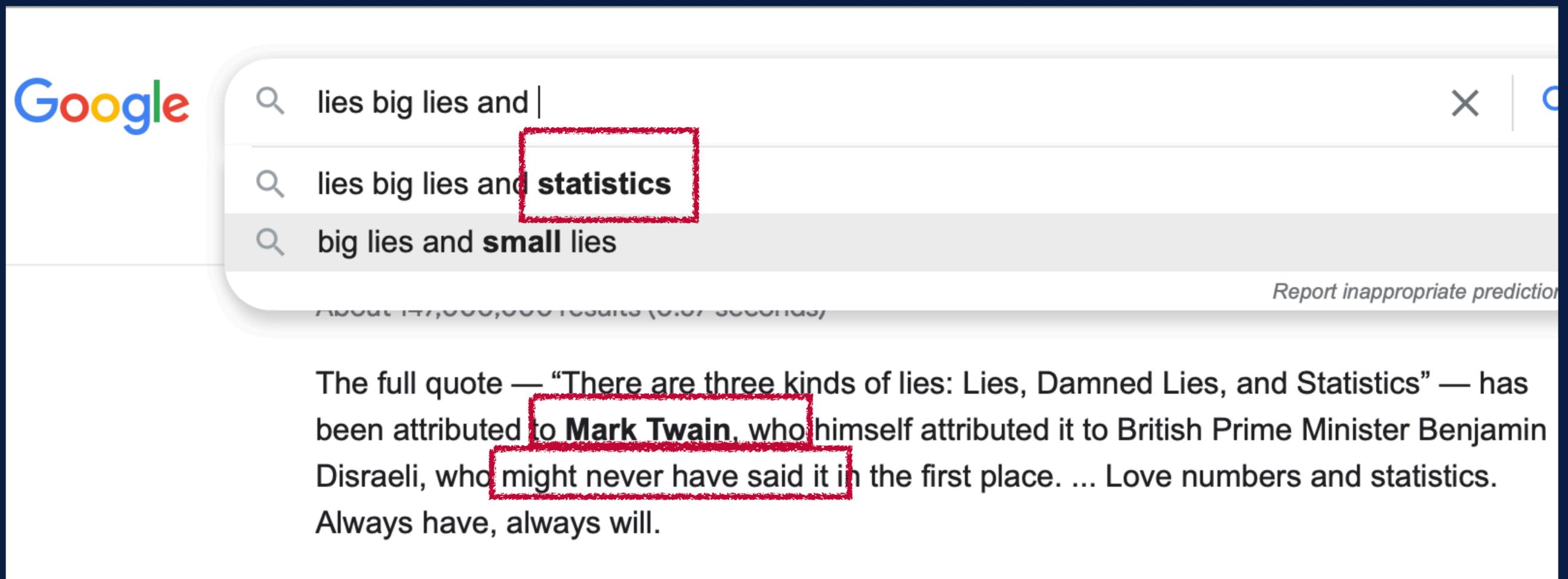
**Statistics out-of-
the-box**

**Interval dimensions,
scatter charts**

**Statistics with
MDX functions**

CONTEXT

Lies, big lies and ...



The image shows a Google search interface. The search bar contains the text "lies big lies and |". Below the search bar, three search suggestions are listed: "lies big lies and **statistics**", "big lies and **small** lies", and "big lies and **small** lies". The word "statistics" in the first suggestion is highlighted with a red dashed box. Below the suggestions, there is a link to "Report inappropriate prediction". The search results show "About 147,000,000 results (0.07 seconds)". The first result snippet reads: "The full quote — “There are three kinds of lies: Lies, Damned Lies, and Statistics” — has been attributed to **Mark Twain**, who himself attributed it to British Prime Minister Benjamin Disraeli, who **might never have said it** in the first place. ... Love numbers and statistics. Always have, always will." The words "Mark Twain" and "might never have said it" are highlighted with red dashed boxes.

Google

lies big lies and |

lies big lies and **statistics**

big lies and **small** lies

Report inappropriate prediction

About 147,000,000 results (0.07 seconds)

The full quote — “There are three kinds of lies: Lies, Damned Lies, and Statistics” — has been attributed to **Mark Twain**, who himself attributed it to British Prime Minister Benjamin Disraeli, who **might never have said it** in the first place. ... Love numbers and statistics. Always have, always will.

Averages

Standard measures and custom measures

Columns

Measures

average| xQ

Predefined

Average resolution days = show Average resolution workdays = show Average closing days = show

Average age days = show Average age workdays = show Average days in transition status = show

Average workdays in transition status = show

Calculated member formula

[Measures].[Average resolution days] =

```
1 CASE WHEN [Measures].[Issues resolved] > 0 THEN
2   [Measures].[Total resolution days] / [Measures].[Issues resolved]
3 END
```

Define report specific calculated member formula

[Measures].[Average resolution days V2] =

```
1 Avg(
2   Filter(Descendants([Issue].CurrentMember,[Issue].[Issue]),
3     [Measures].[Issues resolved]>0
4   ),
5   [Measures].[Total resolution days]
6 )
```

Add calculated

Standard calculations of basic statistical functions on **Visible rows**

The screenshot displays a data visualization tool interface. On the left, the 'Rows' pane shows a hierarchy under 'Time' with options for 'All hierarchy level members' and 'Weekly'. The main area shows a table with columns for quarters from 2017 to 2019. A context menu is open over the table, with 'Add calculated' selected. The 'Statistical' sub-menu is highlighted, showing options like 'Average', 'Median', 'Min', and 'Max'. The 'Columns' pane on the right shows 'Measures' and various chart types like 'Table', 'Bar', 'Line', etc.

Year	Quarter	Issue created
+ Q1 2017		
+ Q2 2017		
+ Q3 2017		
+ Q4 2017		
+ Q1 2018		
+ Q2 2018		
+ Q3 2018		
+ Q4 2018		
+ Q1 2019		

Standard calculation: average

Dimensions hide

> Project	> Reporter	> Assignee	> Issue Type	> Priority
> Status	> Resolution	> Affects Version	> Fix Version	> Security Level
> Issue	> Logged by	> Label	> Time	> Week Day
> Transition Status	> Transition	> Transition Author	> Age interval	> Resolution interval

Advanced Roadmaps show 6 dimensions Agile show 3 dimensions Custom fields show 15 dimensions Elements Connect show 1 dimension Insight show 2 dimensions Issue links show 1 dimension Tempo show 3 dimensions
User groups show 4 dimensions

Pages

Drag here if needed

Columns

> Measures

Rows

Drag dimensions here

Table Bar Line Pie Scatter Timeline Map Gantt Gauge

Drag at least one dimension to columns and one dimension to rows to query data.

Standard calculation: linear trend

Issues > Save Save as New Open ...

> Transition Author > Age interval > Resolution interval > Week Day

Custom fields show 6 dimensions

Pages
> Time

Columns
> Measures

Table Bar Line Pie Scatter Timeline Map Gantt Gauge

Nonempty

Time

All hierarchy level members

Select all members at level

Year 9 Quarter 34 Month 99

Day 2136

Weekly edit

Year 9 Week 425 Day 2136

Add custom hierarchy

Add members for date range

Delete members for date range

> Drill into or expand

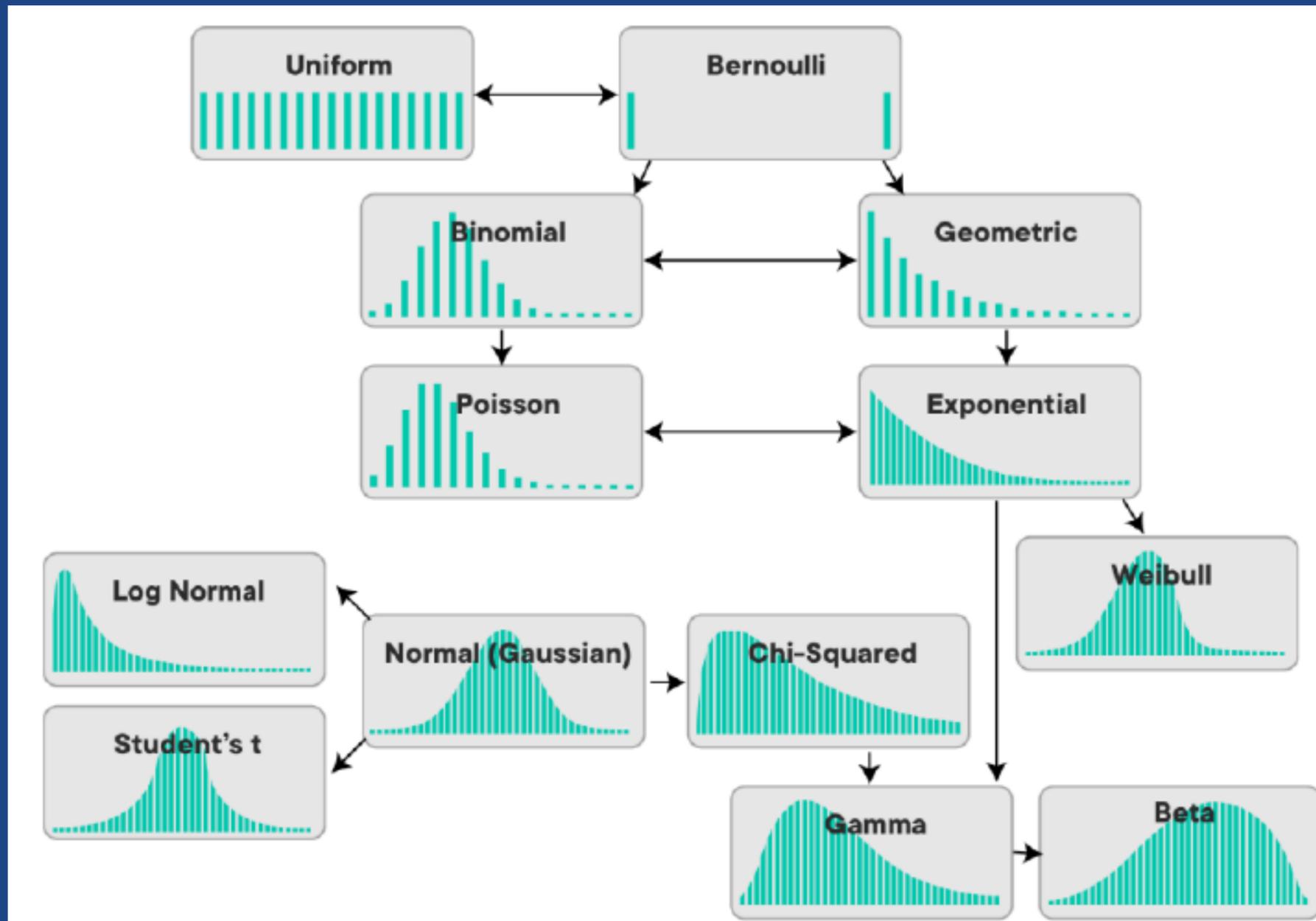
Pages

2021

	Issues created
+ Jan 2021	38
+ Feb 2021	77
+ Mar 2021	74
+ Apr 2021	48
+ May 2021	56
+ Jun 2021	34
+ Jul 2021	42
+ Aug 2021	31
+ Sep 2021	54
+ Oct 2021	60
+ Nov 2021	47
+ Dec 2021	46

Interval dimensions

Showing the statistical distribution



Issue age, resolution

Interval dimensions

- Import the **Age interval** and **Resolution interval** dimensions which can be used to analyze the age of unresolved issues and the resolution time of resolved issues by specified time intervals.

```
DateDiffDays (  
  [Measures].[Issue created date],  
  Now()  
)
```

Pages
Drag here if needed

Columns
> Measures

Rows
Nonempty
> Resolution interval

	Issues resolved	Issues created
- All Resolution intervals	536	733
(none)		197
0000 - 0009	43	43
0010 - 0019	83	83
0020 - 0029	99	99
0030 - 0039	86	86
0040 - 0049	66	66
0050 - 0059	53	53
0060 - 0069	30	30

```
DateDiffDays (  
  [Measures].[Issue created date],  
  [Measures].[Issue resolution date]  
)
```



Interval configuration

Agile show 2 dimensions Custom fields show 20 dimensions Insight show 1 dimension Issue links show 2 dimensions Linked issue dim

Projectrak show 2 dimensions Tempo show

Pages
Drag here if needed

Rows
Nonempty

Resolution interval

Select individual members

All hierarchy level members

Select all members at level

Resolution interval 33 edit

75

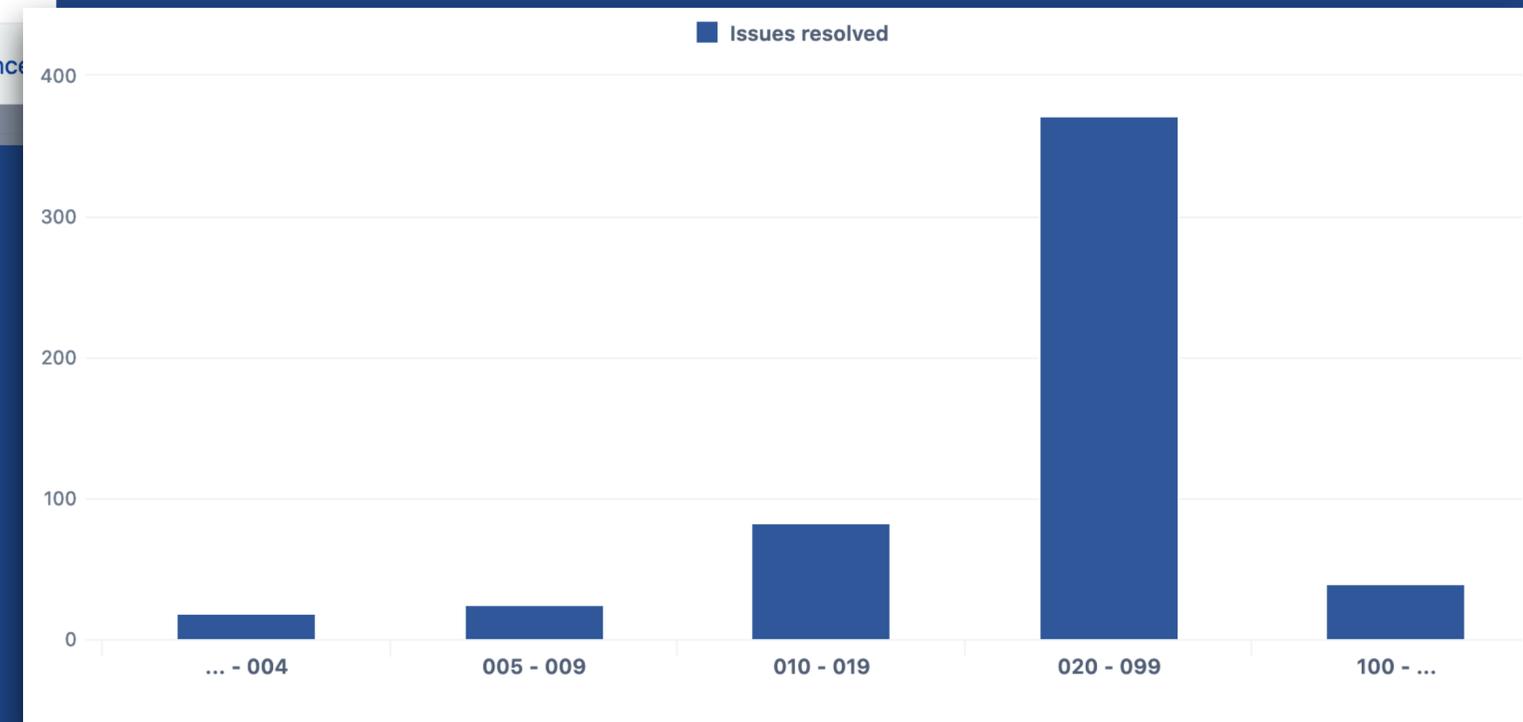
Edit Intervals

Enter comma separated list of intervals

Each interval can be either a single interval end point value (e.g. **10**), or **from-to** range (e.g. **10-100**) with an optional **/step** (e.g. **10-100/10**). Clear intervals to reset them back to the default value. Read more about [interval dimensions](#).

Interval unit

OK cancel



Report optimization use cases with interval dimensions

How many issues spent in a status more than 5 days?

```
1 NonZero(Count(  
2   Filter(Descendants([Issue].CurrentMember,[Issue].[Issue]),  
3     ([Measures].[Days in transition status],  
4     [Transition Status].[In Progress]))>5  
5 )  
6 ))|
```

```
1 ([Measures].[Issues created],  
2 [In Progress intervals].[5 - ...])
```

General License Additional Advanced settings

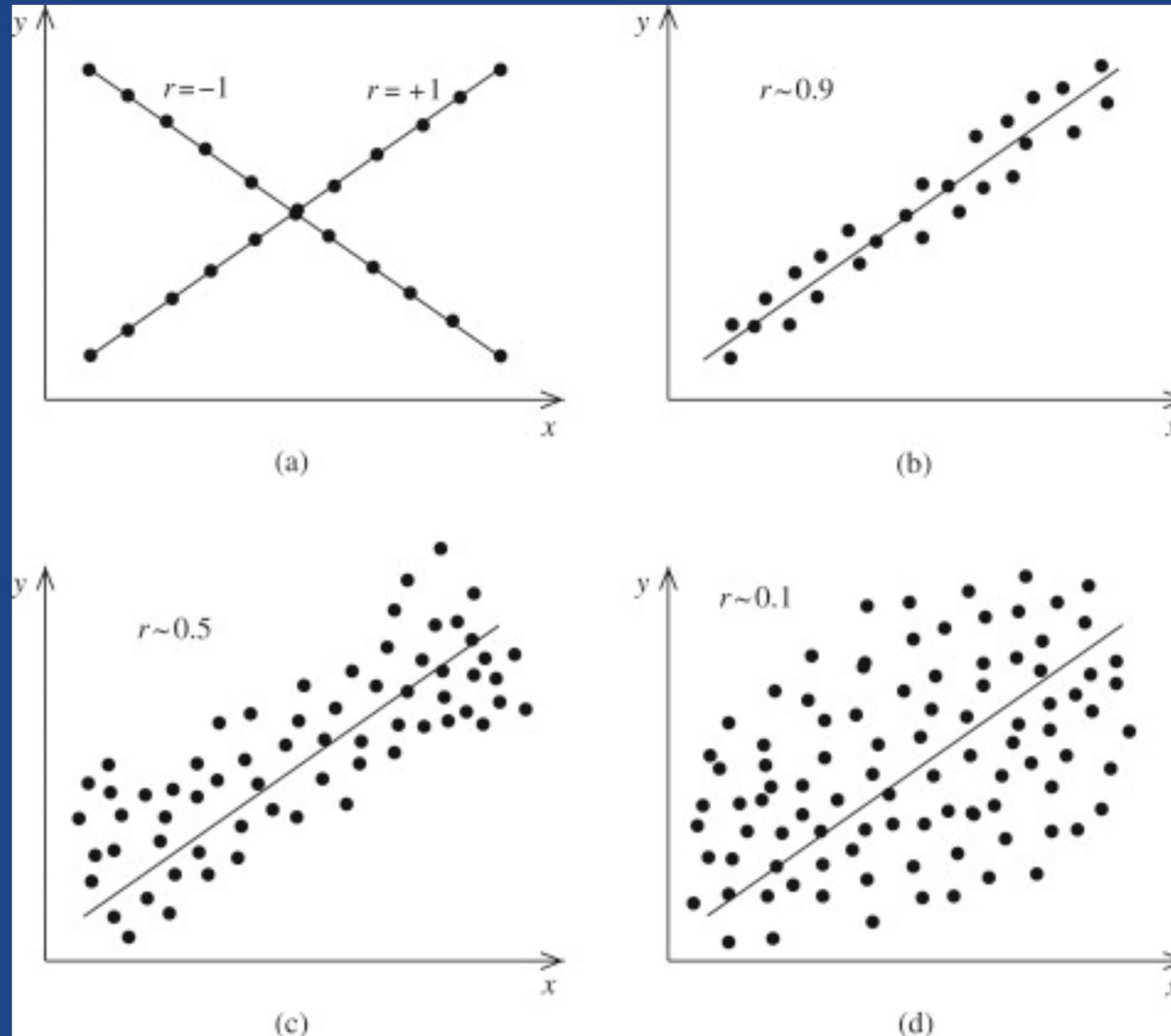
Advanced settings

Please see the advanced settings documentation page.

```
1 [jira.customfield_in_progress_intervals]  
2 name = "In Progress intervals"  
3 data_type = "decimal"  
4 time_unit = "seconds"  
5 time_interval = "duration"  
6 intervals = "/10"  
7 interval_unit = "days"  
8 measure = true  
9 dimension = true  
10 javascript_code = ''  
11 var transitto = Date.parse(issue.fields.created);  
12 var statuslist = ["In Progress"];  
13 var sec_in_statuses = null;  
14 var transitfrom = null;  
15 issue.changelog.histories.forEach(function(history){  
16   history.items.forEach(function(historyItem){  
17     if (historyItem.field == "status") {
```

Custom field	Import as dimension	Import as measure	Import as property	Import value changes
[jira.customfield_in_progress_intervals]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[jira.customfield_in_progress_intervals]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[jira.customfield_in_progress_intervals]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In Progress intervals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[jira.customfield_in_progress_intervals]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
[jira.customfield_in_progress_intervals]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Showing correlation with scatter chart

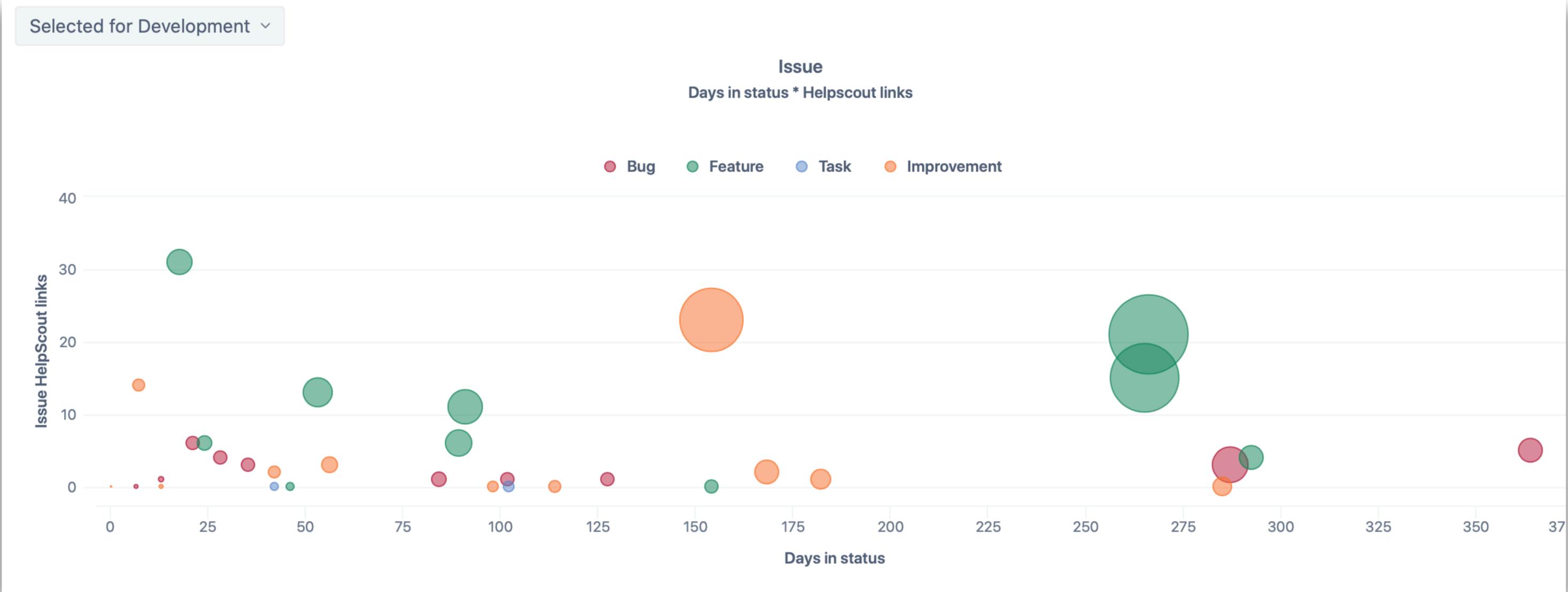


Scatter chart

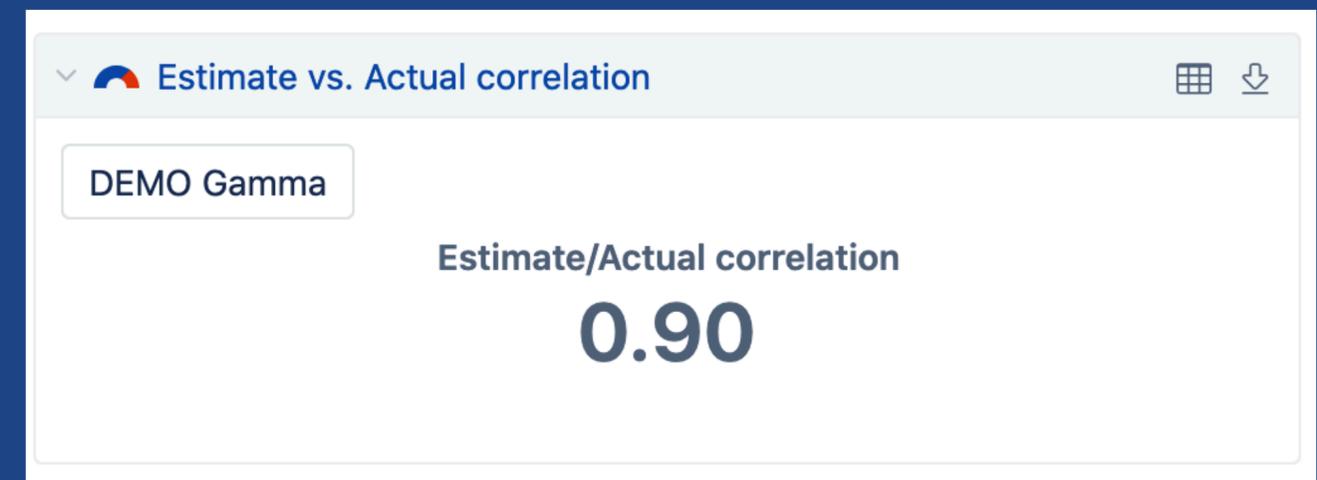
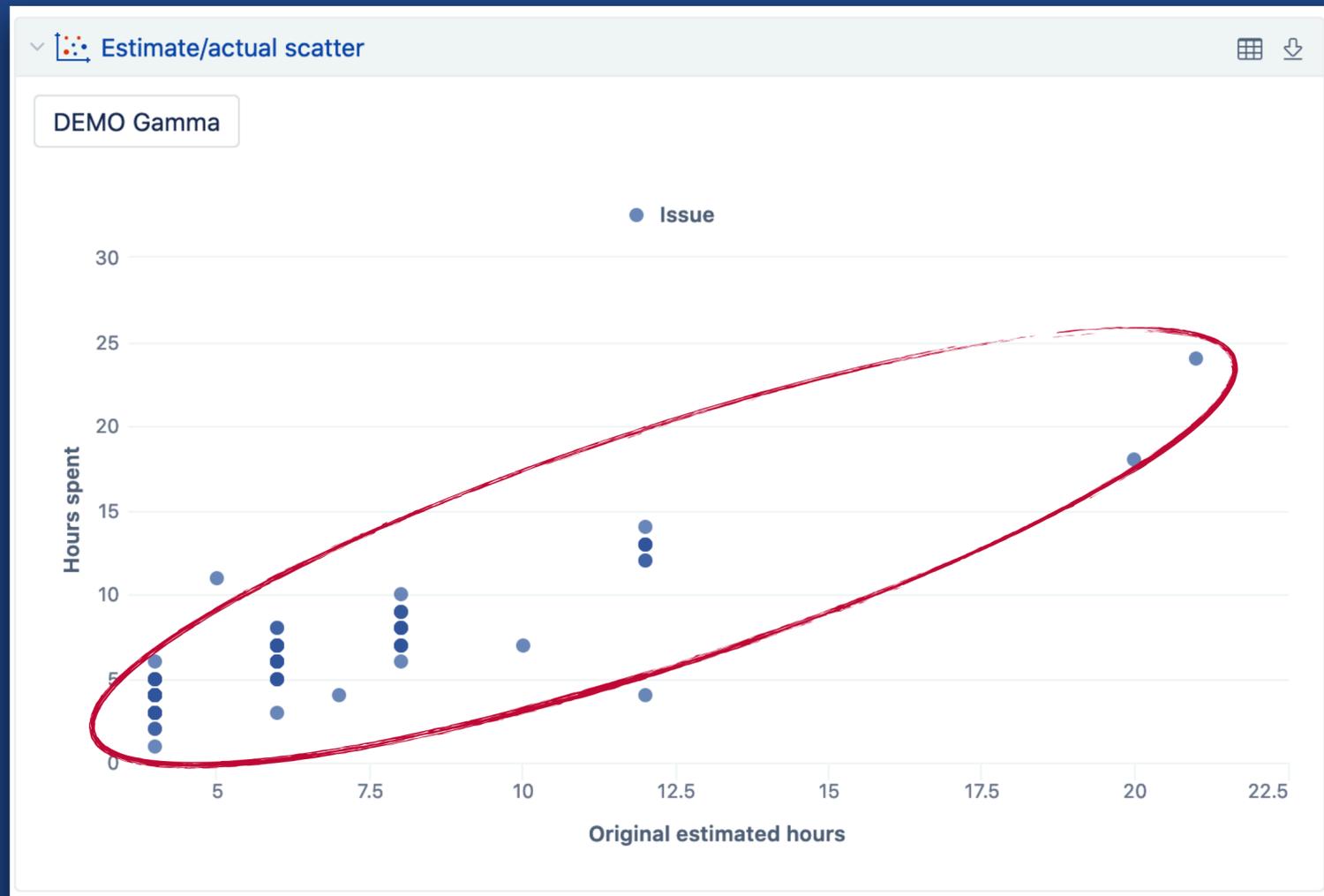
Table Bar Line Pie Scatter Timeline Map Gantt Gauge

Hide empty columns Issues history > 0 All others Total

Selected for Development



Use cases of correlation



```
1 Correlation(  
2   Filter(Descendants([Issue].CurrentMember,[Issue].[Issue]),  
3     [Measures].[Hours spent]>0  
4   AND  
5     [Measures].[Total resolution days]>0  
6   ),  
7   [Measures].[Hours spent],  
8   [Measures].[Total resolution days]  
9 )
```

Using MDX in the *statistical* calculations

More MDX statistical functions

Percentile

Quartile, Median

Deviation

StdDev, Variance

Linear regression

LinRegPoint, LinRegSlope,
LinRegVariance

<https://mondrian.pentaho.com/documentation/mdx.php>

Monte Carlo chart



<https://eazybi.com/accounts/1000/cubes/Issues/reports/559656-monte-carlo-chart-resolution-days>

```
[Measures].[ Within FirstQ and ThirdQ ] =  
1 CASE  
2 WHEN  
3 -- compare to FirstQ using the calculated measure FirstQ resolution da  
4 Val(ExtractString([Resolution interval].CurrentMember.Name,  
5 "(\d+) - (\d+)",1)) <=  
6 Cache((  
7 [Measures].[FirstQ resolution days],  
8 [Resolution interval].DefaultMember  
9 ))  
10 AND  
11 Val(ExtractString([Resolution interval].CurrentMember.NextMember.Name,  
12 "(\d+) - (\d+)",1))  
13 >  
14 Cache((  
15 [Measures].[FirstQ resolution days],  
16 [Resolution interval].DefaultMember  
17 ))  
18 THEN
```

Six sigma report

“Not too many cases deviate from the average for too much”

95% of cases should not deviate from the mean for more than three times the standard deviation

```
[Measures].[ Sigma ] =  
1 Stdev(  
2   Filter(Descendants([Issue].CurrentMember,[Issue].[Issue]),  
3     not IsEmpty([Measures].[Item value])  
4   ),  
5   [Measures].[Item value]  
6 )
```

```
[Measures].[ Six-sigma percentage ] =  
1 NonZero(Count(  
2   Filter(Descendants([Issue].CurrentMember,[Issue].[Issue]),  
3     Abs([Measures].[Item value]-  
4       ([Measures].[Average Item value],  
5         [Issue].CurrentHierarchy.DefaultMember)  
6     )  
7     <  
8     3*([Measures].[Sigma],  
9       [Issue].CurrentHierarchy.DefaultMember)  
10    AND  
11    [Measures].[Item count]>0  
12  )  
13 ))  
14 /  
15 [Measures].[Item count]
```

Pages: Drag here if needed

Columns: Measures

Rows: Nonempty

> Project

Table Bar Line Pie Scatter Timeline Map Gantt Gauge

✕ ↺ ↻ 🗨️ 📄 Total ▾ Freeze header

	Item count	Average Item value	Sigma	Six-sigma percentage
+ DEMO Alfa	179	79.94	191.69	96.65%
+ DEMO Beta	171	45.36	46.90	98.25%
+ DEMO Gamma	171	57.60	134.78	98.25%
+ Demo	15	57.42	87.68	93.33%

Things to remember

- **Add calculated feature for report level standard measures**
- **Interval dimensions and Scatter charts**
- **A lot of MDX functions for statistics**



Questions?

community.eazybi.com
support@eazybi.com

An aerial view of a city at night, with a gradient overlay transitioning from red on the left to blue on the right. The city lights are visible through the semi-transparent overlay.

Thank you!