

Polishing Your Analysis Tools Until They Are Shiny

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National Agricultural Statistics Service

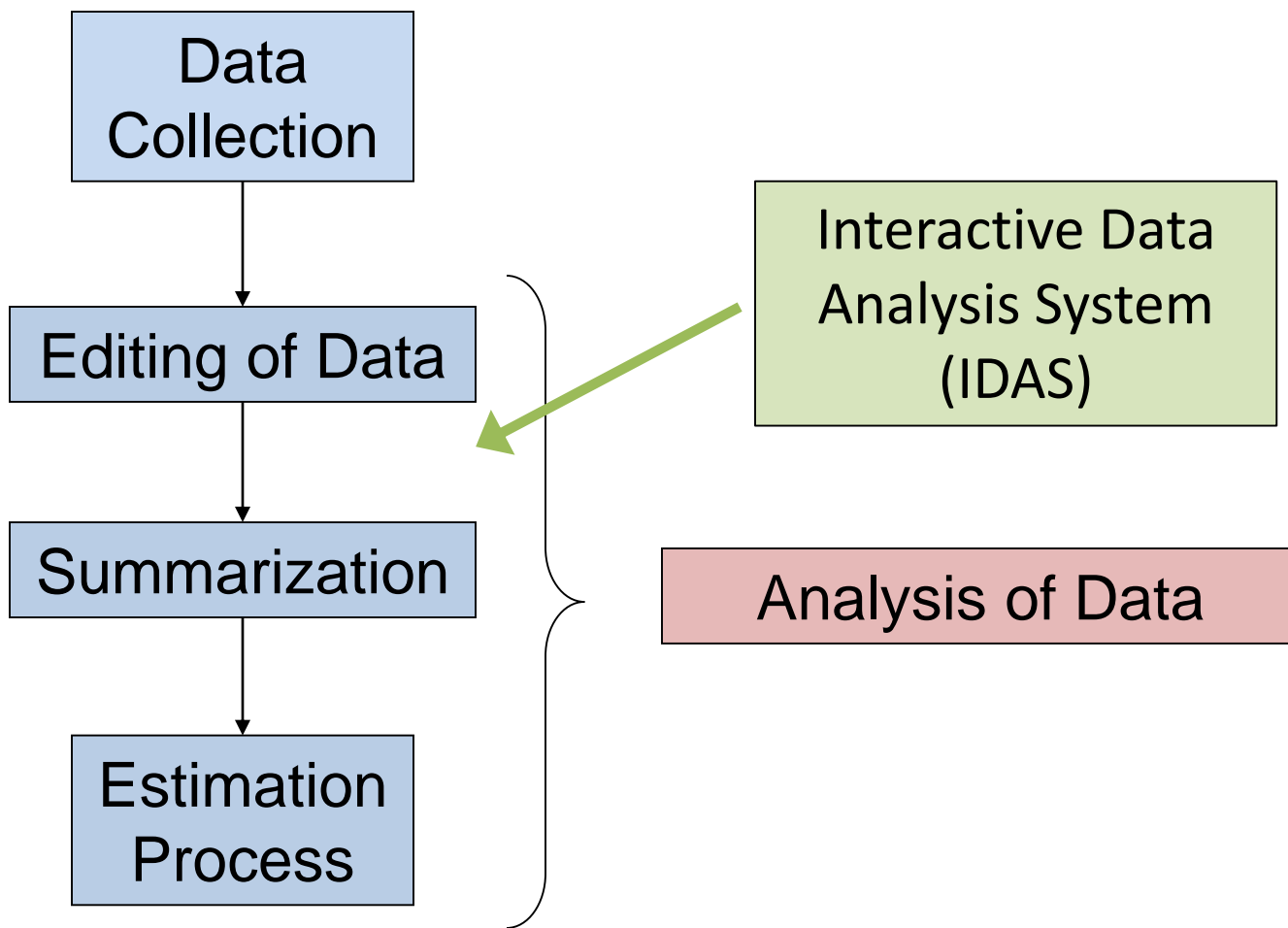


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National Agricultural Statistics Service (NASS)

- NASS is committed to providing timely, accurate, and useful statistics in service to U.S. agriculture.
- Over 400 reports annually.
 - Census of Agriculture every 5 years.
- Majority of reports driven by surveys

Traditional NASS Survey Process



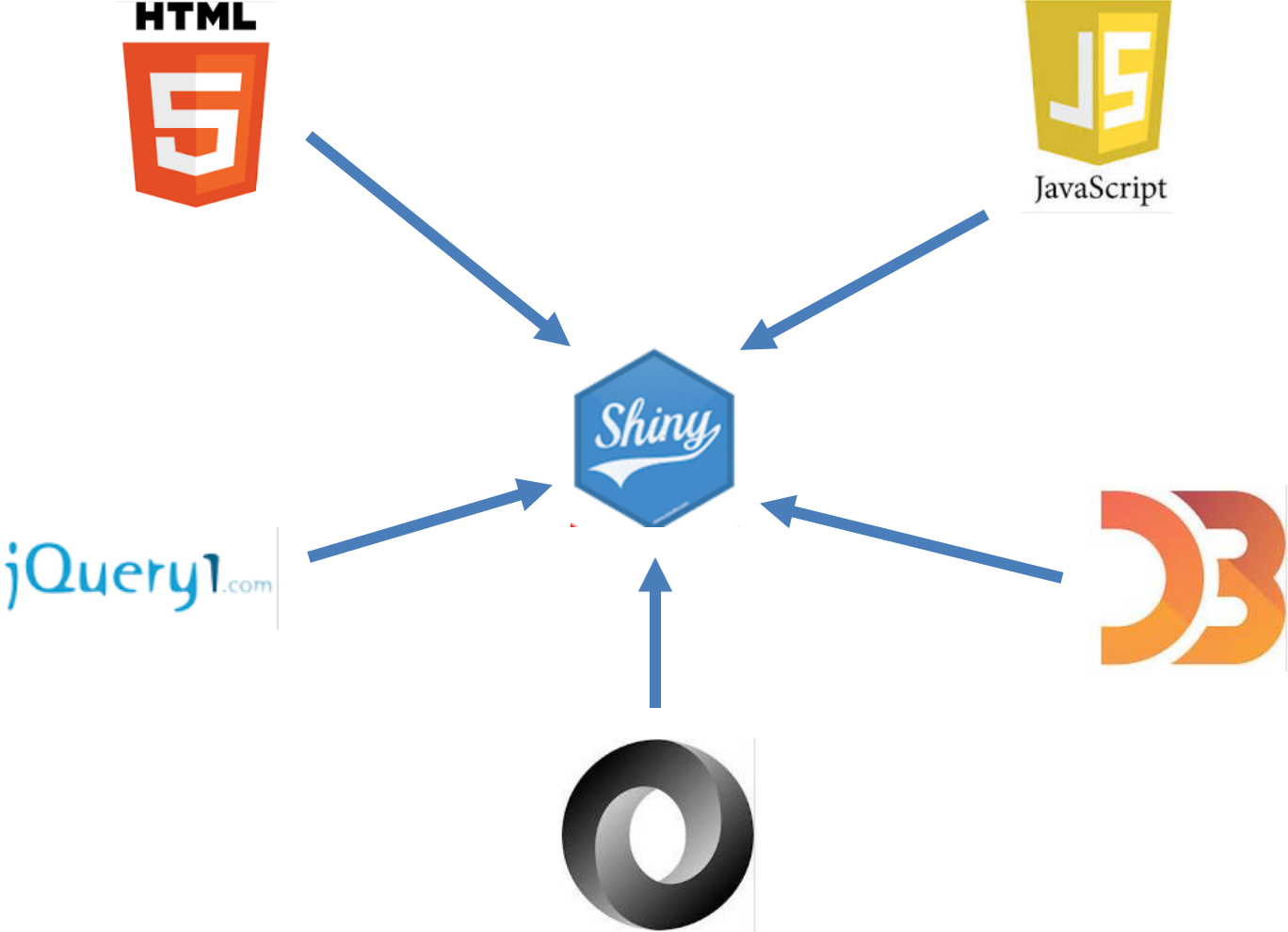
What is IDAS?

- Analysis tool built using SAS/AF
- First tool deployed in 1994
 - Used by analysts in headquarters and our twelve regional offices – guided analysis
 - Written and maintained by statisticians in Methodology Division
- Motivation to change...
 - SAS no longer releasing any AF updates or enhancements
 - Architecture updates
 - Enhance our analysis capabilities

What is R Shiny?

- Shiny helps you make interactive web applications for visualizing data. Bring R data analysis to life.
- Shiny combines the computational power of R with the interactivity of the modern web.

R Shiny



R Shiny App Basics

server.R

- Defines functionality of app

ui.R

- Defines app layout

Why R Shiny?

- Shiny [User Showcase](#) looks promising
- Some familiarity with R
 - More familiarity coming?

Use	Java	JMP	Python	R	SAS	Tableau
Rarely	122	128	90	74	101	103
Monthly	6	4	21	22	12	8
Weekly	2	4	10	14	9	9
Daily	6	0	27	29	16	14

(2018, Pierson - ASA Survey of Recent Graduates)

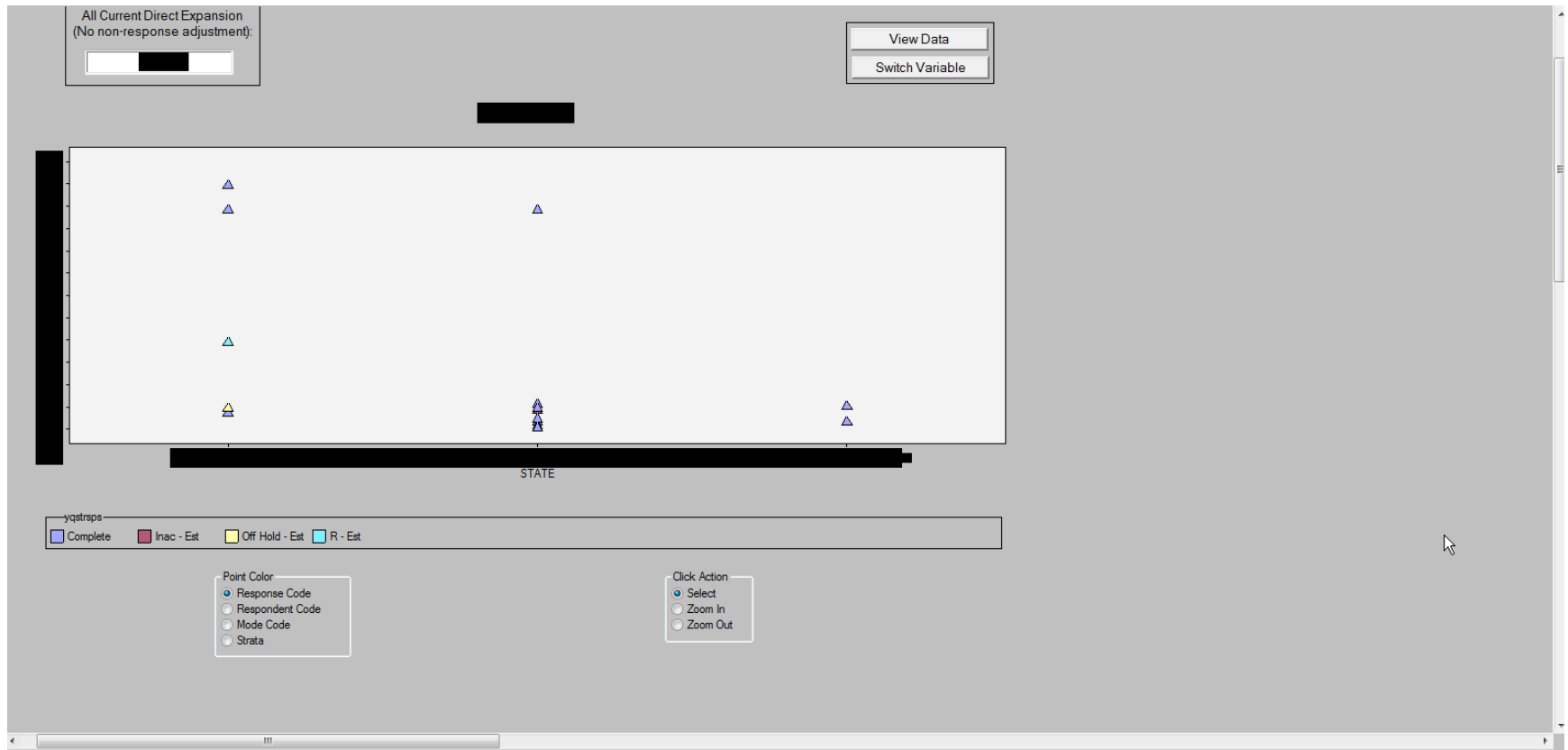
Where should you start?

Proof of Concept

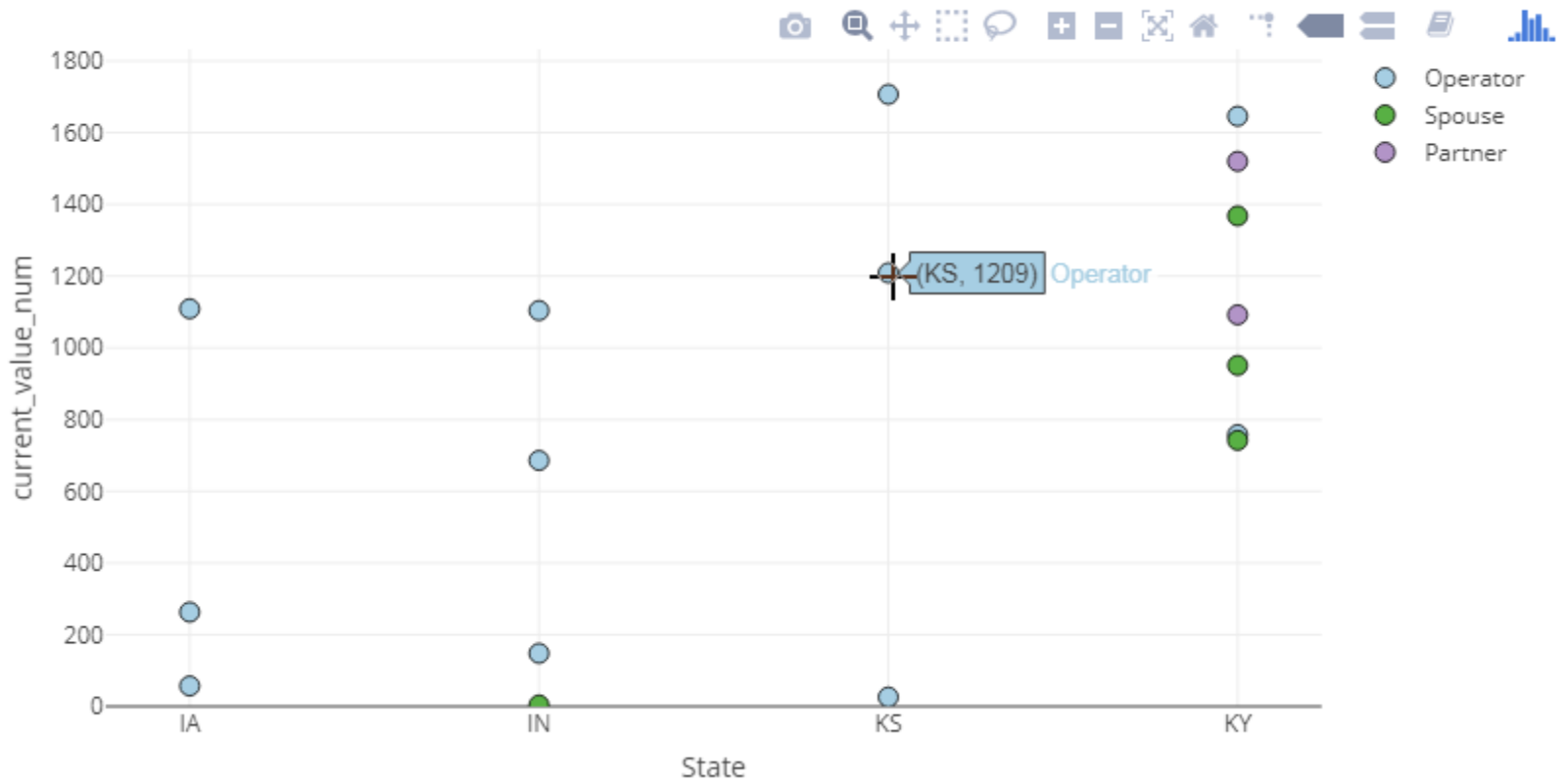
- Assess the viability of a software product solving a business need
 - Does it have functionality to replace old application?
 - Is it secure?
 - Is it scalable?
 - etc.

Proof of Concept Part 1

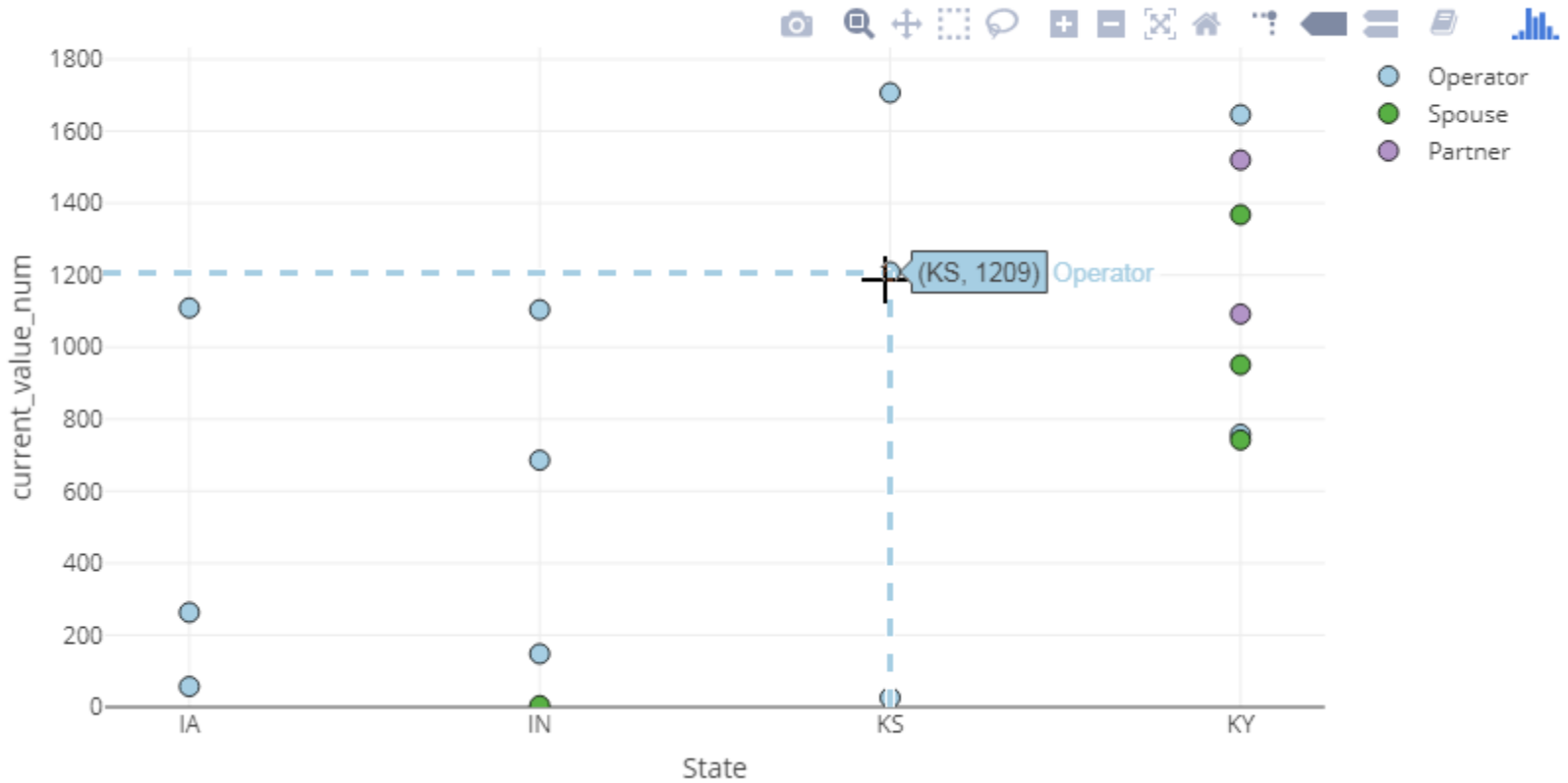
Scatter Plots



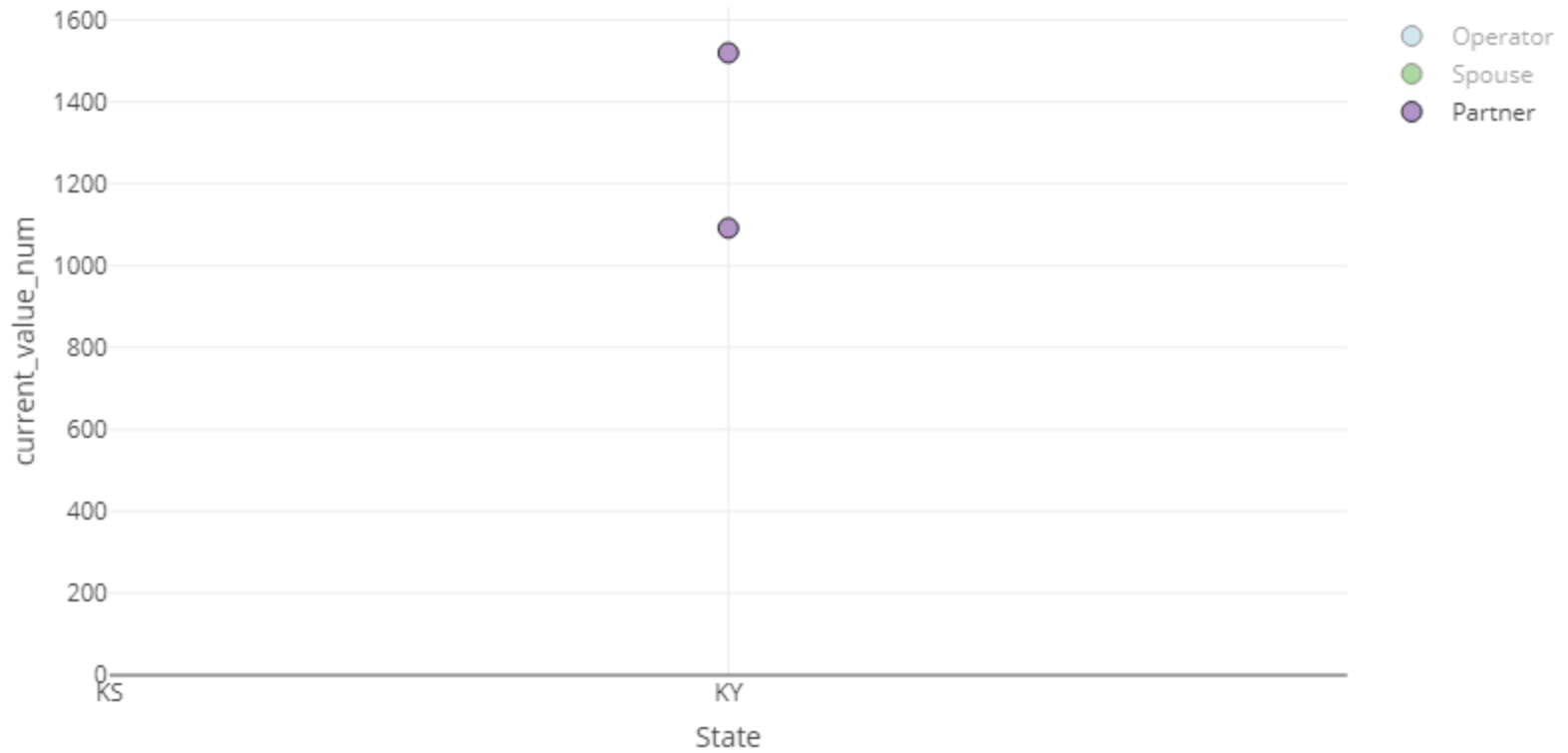
DemoScatterPlot



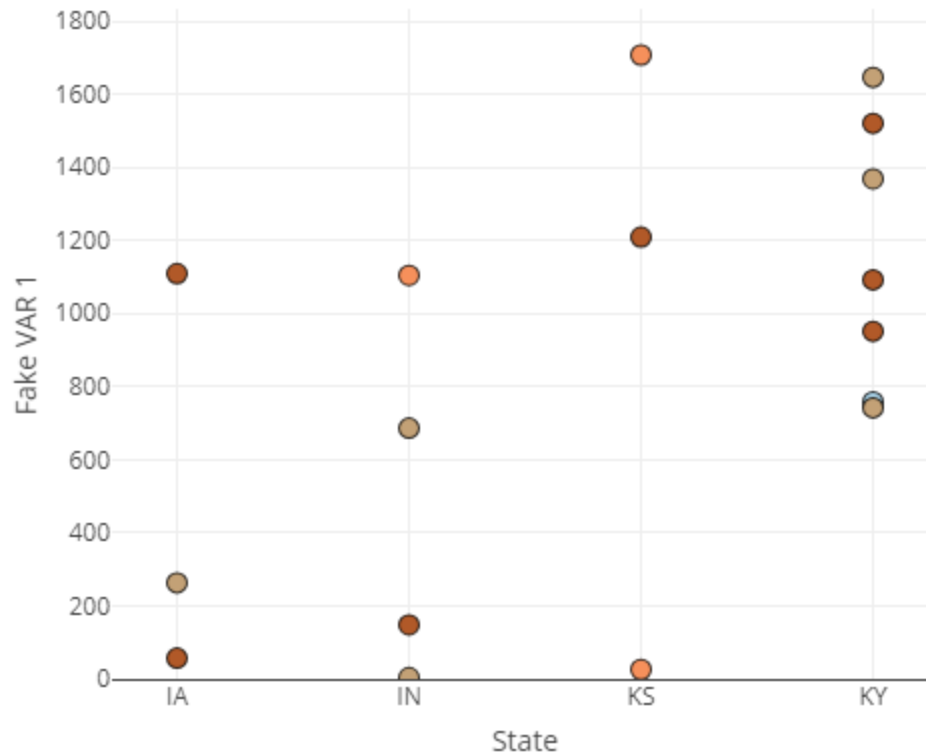
DemoScatterPlot



DemoScatterPlot



DemoScatterPlot



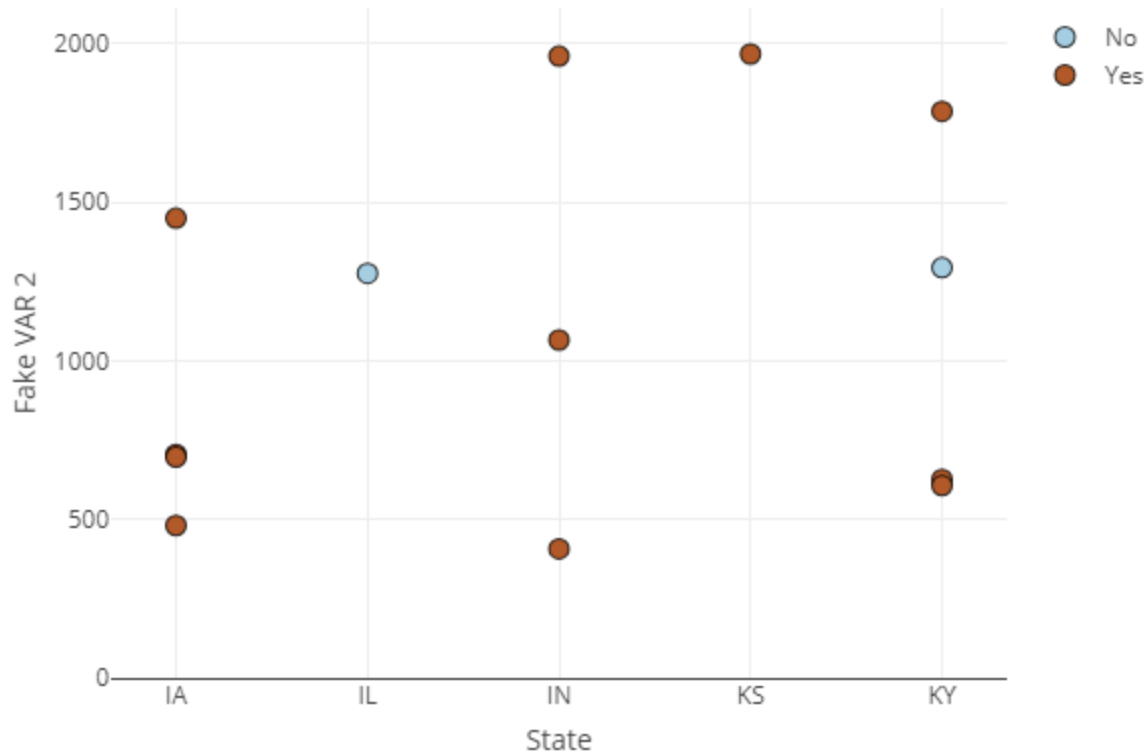
Variable Name

Fake VAR 1

Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

DemoScatterPlot



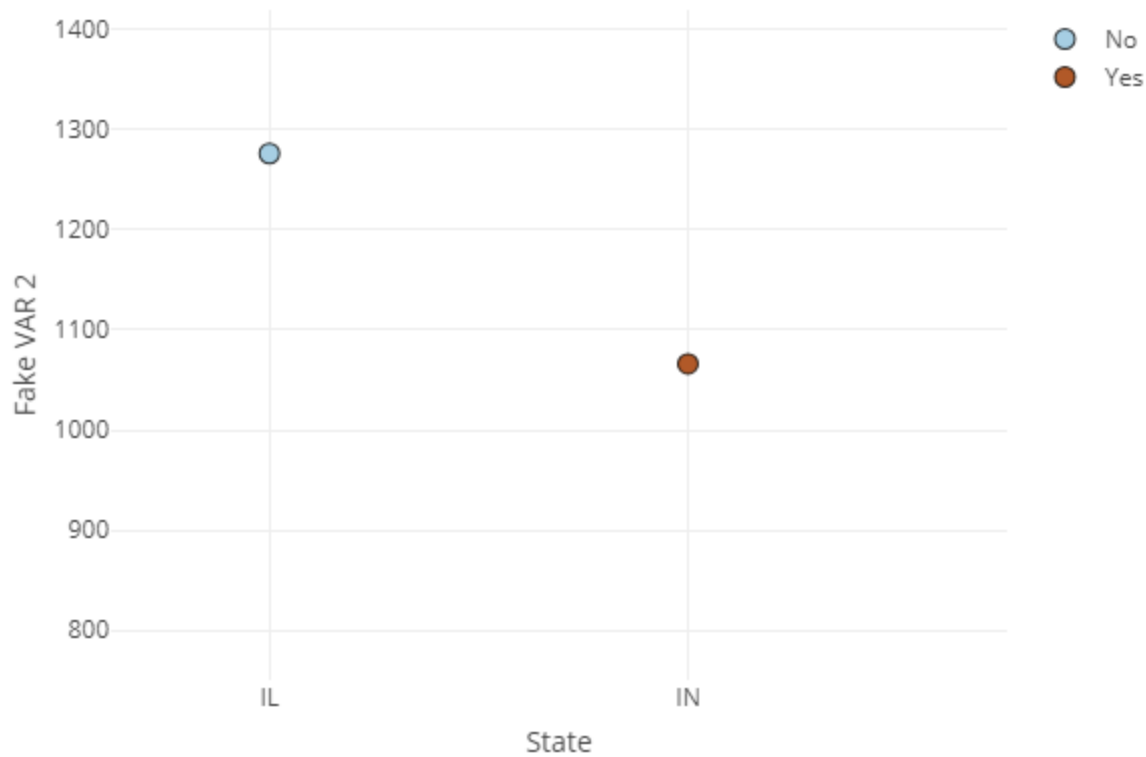
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Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

DemoScatterPlot



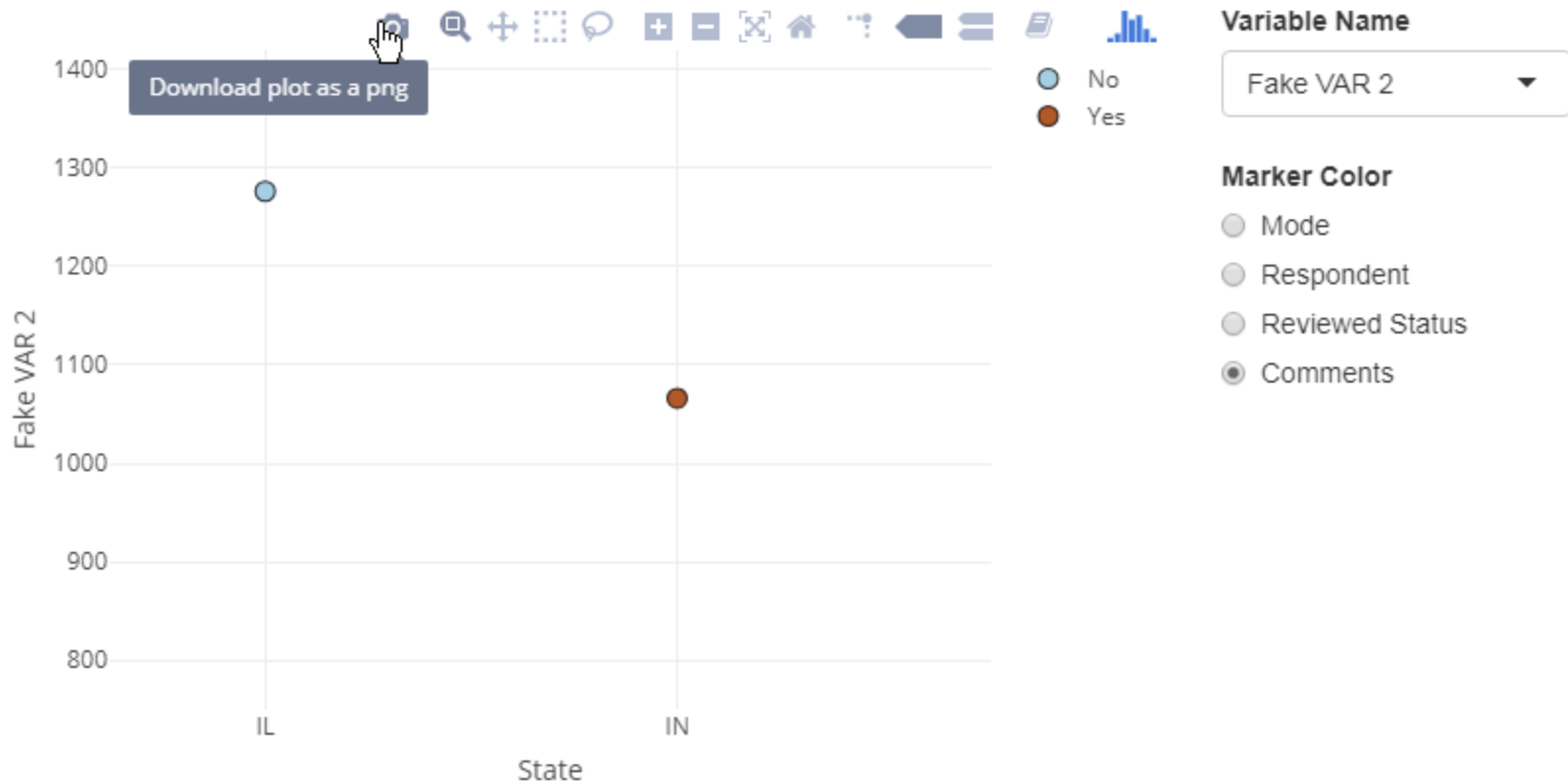
Variable Name

Fake VAR 2 ▼

Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

DemoScatterPlot



DemoScatterPlot

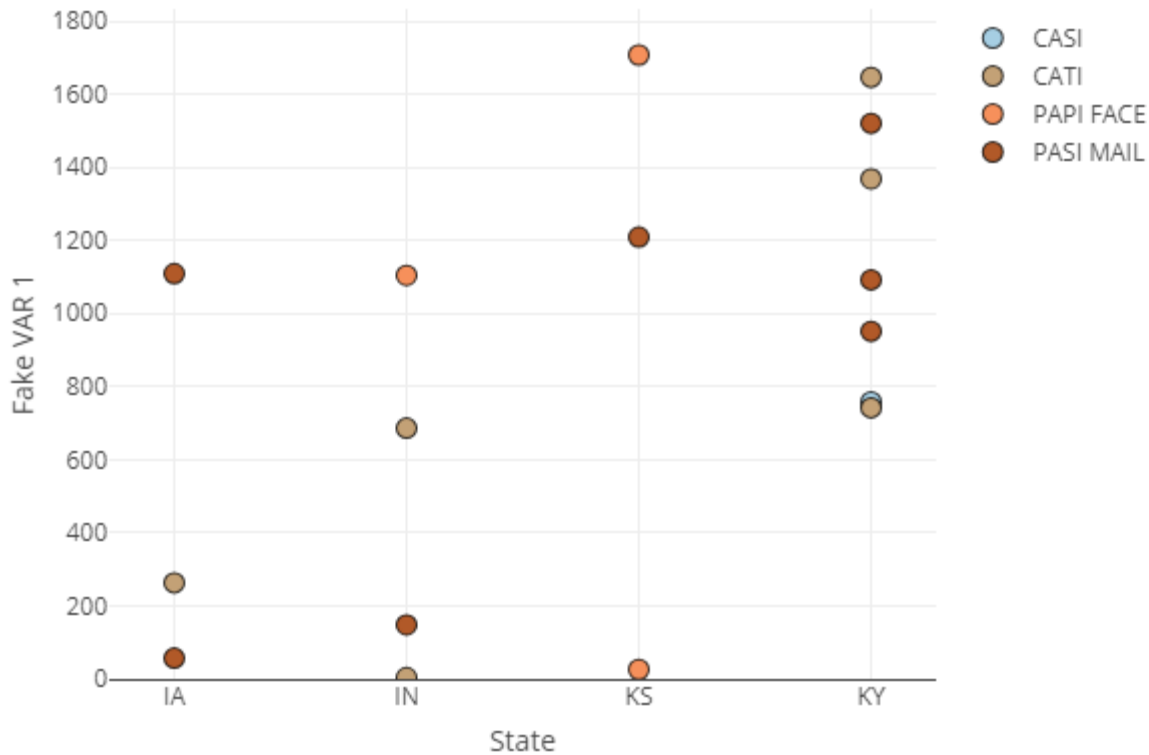
Scatter Plot

Listing

Record

Variable Name

Fake VAR 1



Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

Click Event

- Record
- Listing-Above
- Listing-Below
- Listing-All
- Listing-State

DemoScatterPlot

Scatter Plot Listing Record

Show entries Search:

	id	varname	current_value_num
1	217	DUM1	1707

Showing 1 to 1 of 1 entries Previous Next

Variable Name

Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

Click Event

- Record
- Listing-Above
- Listing-Below
- Listing-All
- Listing-State

↗

DemoScatterPlot

[Scatter Plot](#)
[Listing](#)
[Record](#)

[Copy](#)
[CSV](#)
[Excel](#)
[PDF](#)
[Print](#)

Search:

	id	varname	current_value_num
	<input type="text" value="All"/>	<input type="text" value="All"/>	<input type="text" value="All"/>
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2	214	DUM1	1520
3	207	DUM1	1646
4	217	DUM1	1707

Showing 1 to 4 of 4 entries

Previous Next

Variable Name

Marker Color

- Mode
- Respondent
- Reviewed Status
- Comments

Click Event

- Record
- Listing-Above
- Listing-Below
- Listing-All
- Listing-State

DemoScatterPlot

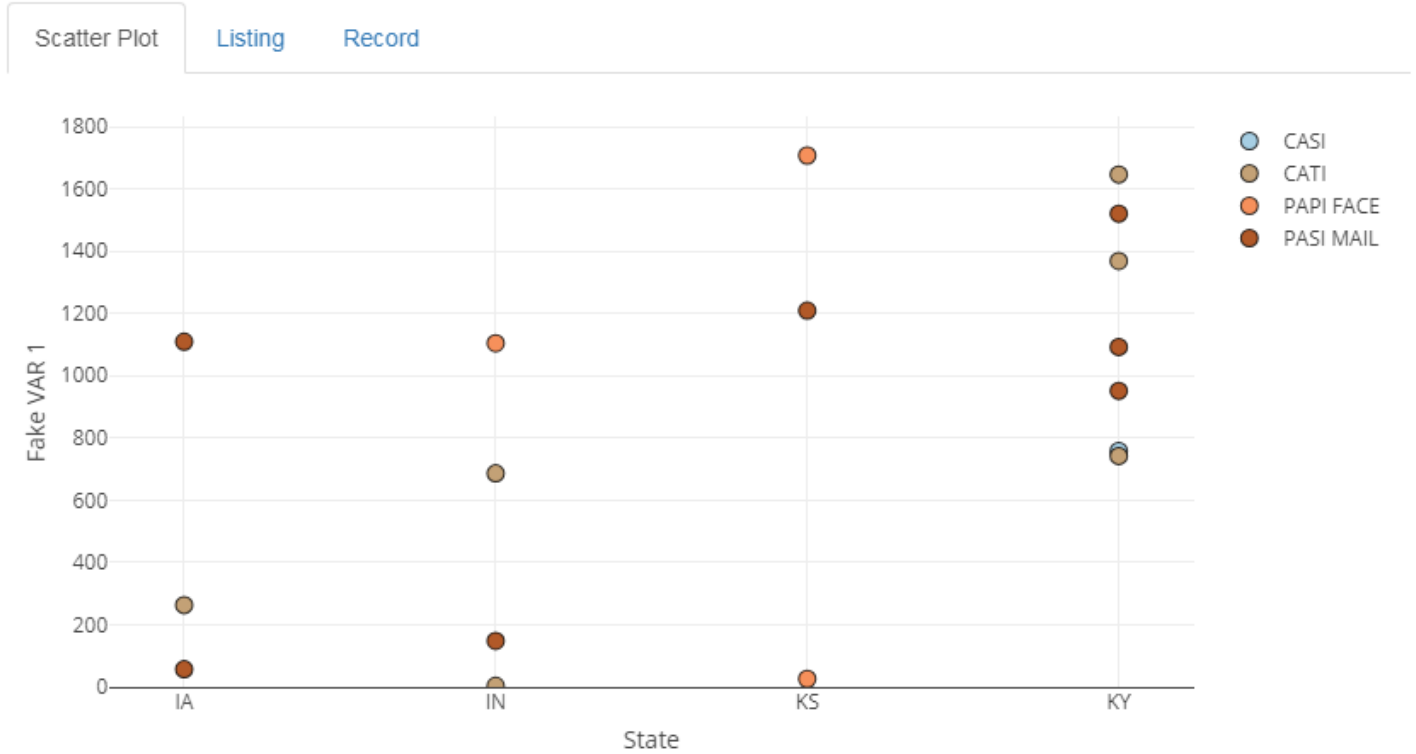
Variable Name
Fake VAR 1

Marker Color

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Click Event

- Record
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Variable Name

Fake VAR 1

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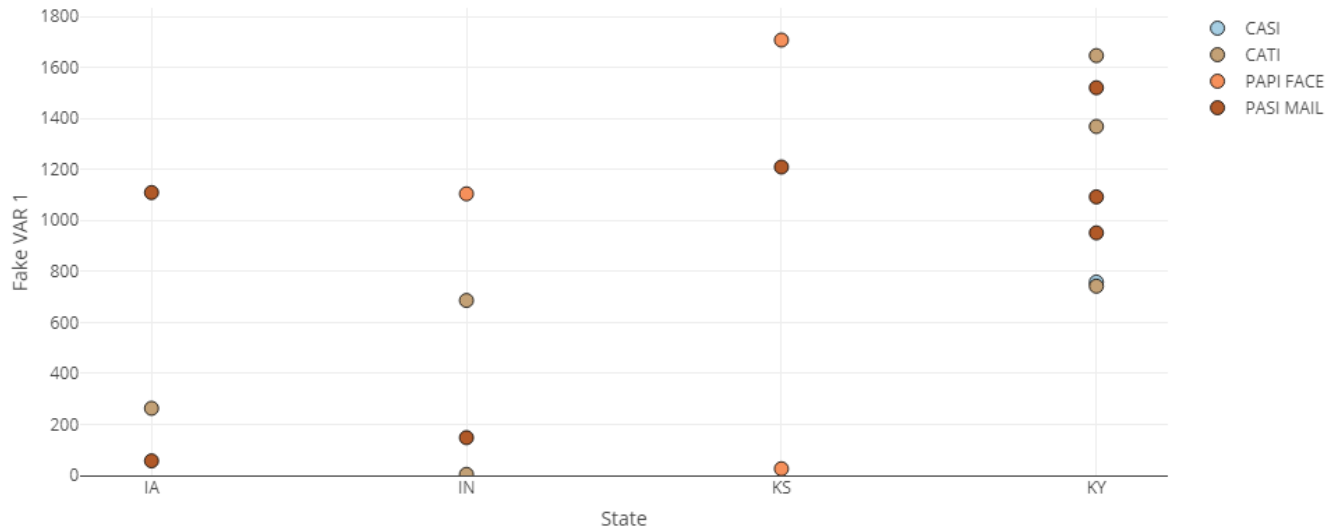
Click Event

- Record
- Listing-Above
- Listing-Below
- Listing-All
- Listing-State

Scatter Plot

Listing

Record

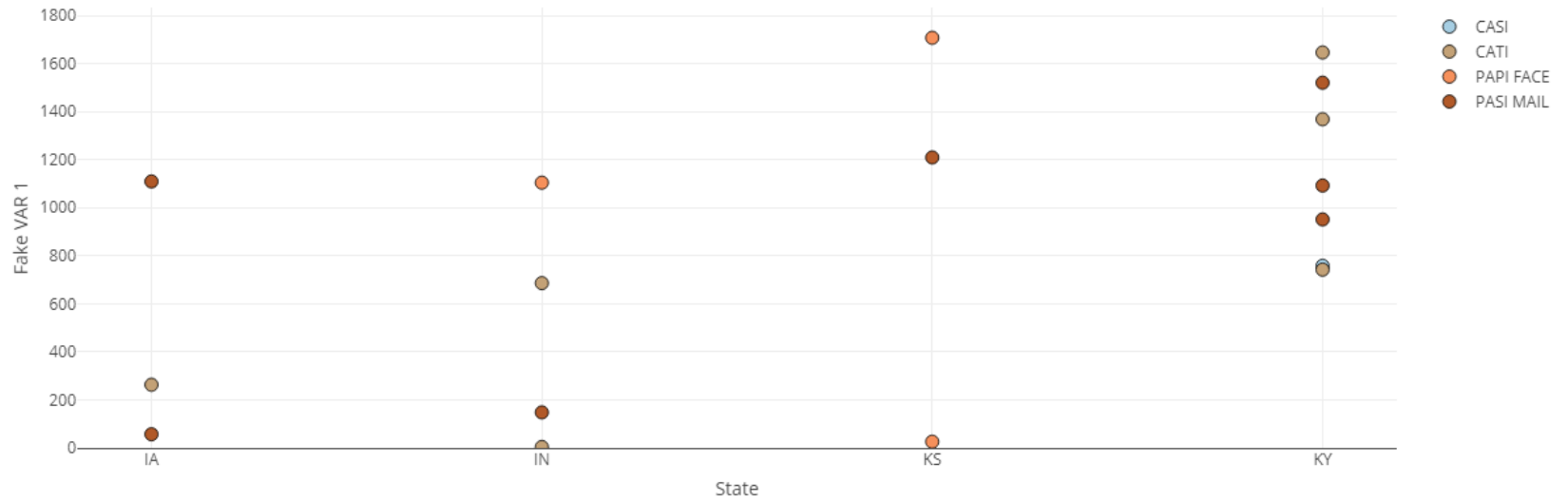




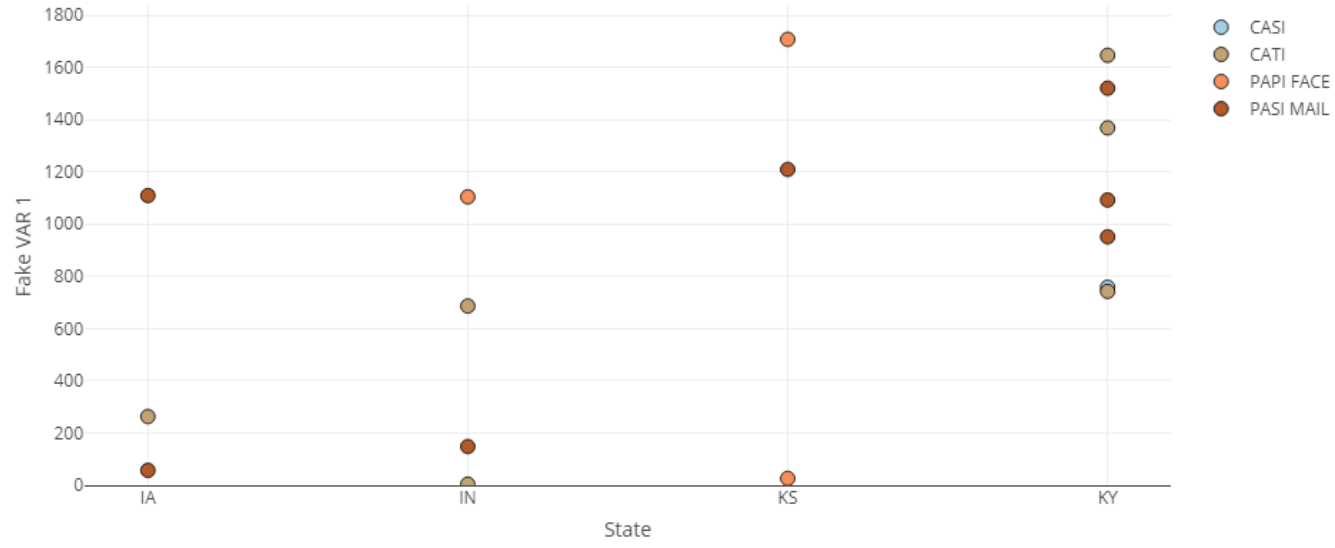
Scatter Plot

Listing

Record



Scatter Plot | Box Plot | Listing | Record | Indications



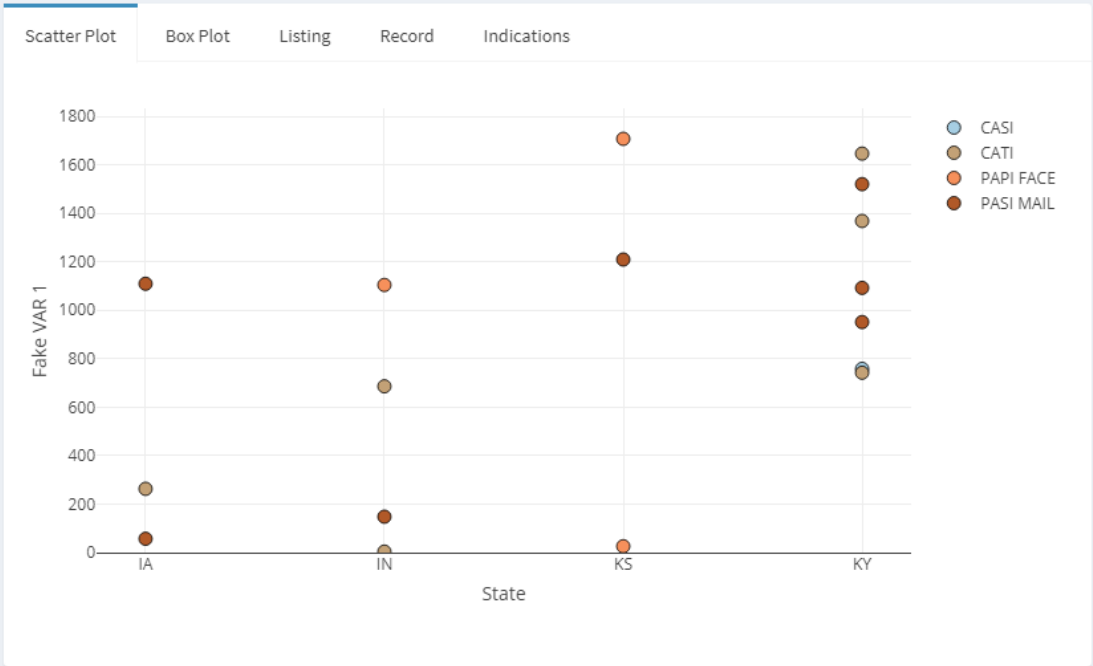
25
Records Displayed

68%
Response

137
Missing

12-27
Clean Date

- Analyze Data
- Risky Records
- Trend Analysis



25
Records Displayed

68%
Response

137
Missing

12-27
Clean Date



Settings ²

Help ²



¹



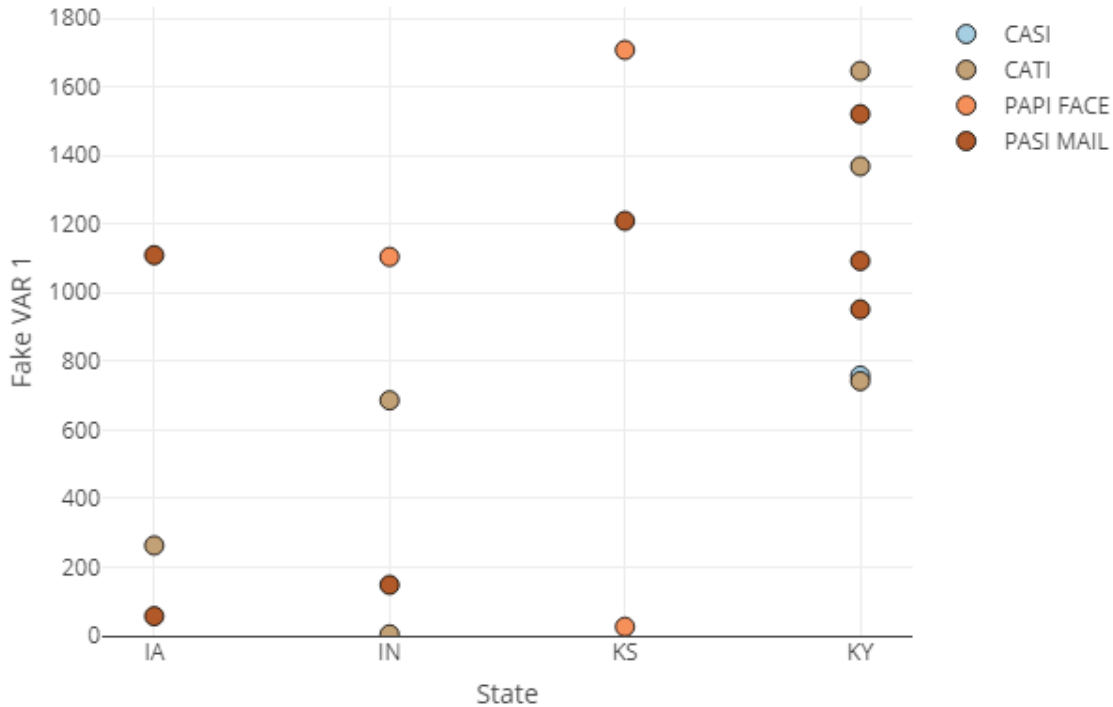
Scatter Plot

Box Plot

Listing

Record

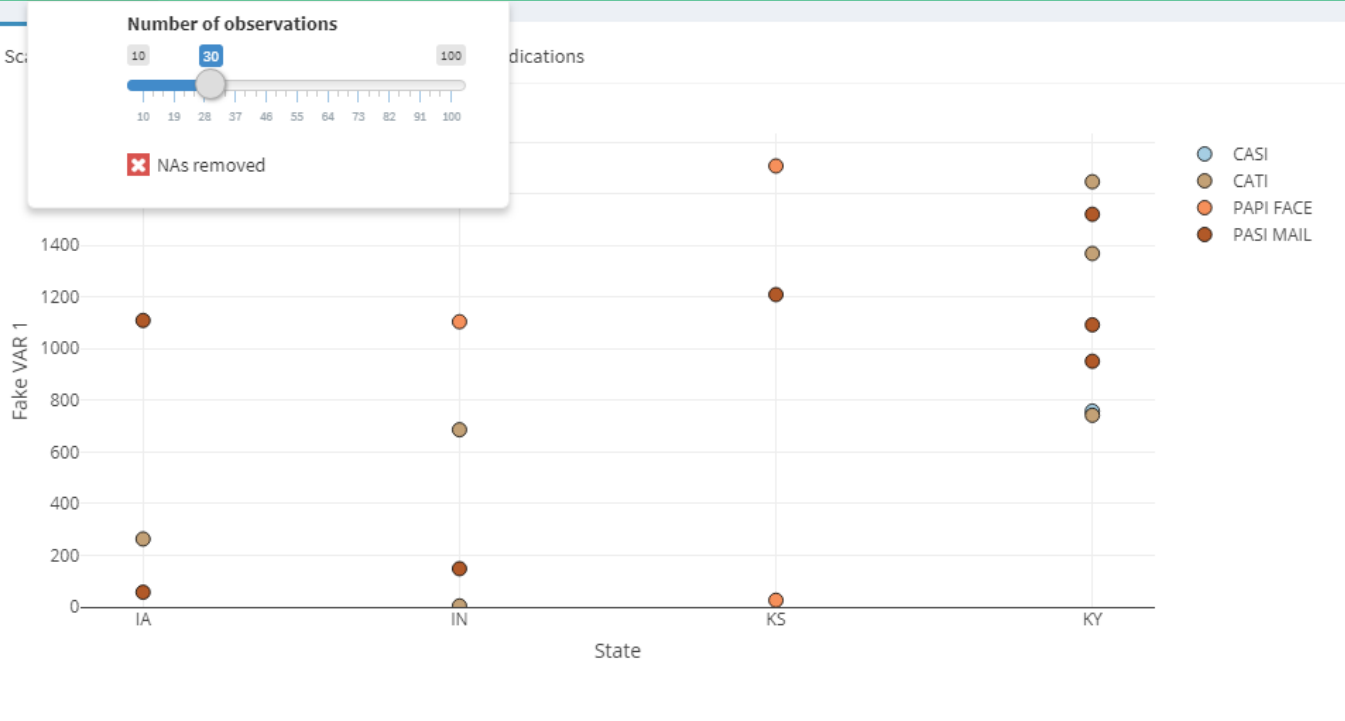
Indications



25

Records Displayed





Useful Packages

- ggplot2
- plotly
- shinydashboard
- shinydashboardPlus
- data.table
- esquisse
- leaflet

Conclusion

- R shiny has shown necessary capability...so far.
 - Need further development
 - Need to test deployment strategy
 - Need to stress test
 - etc.
- Lots of questions to be answered...

Contact Info

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Selected References

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<https://divadnojnarg.github.io/blog/awesomedashboards/>

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Pierson, Steve. ASA Director of Science Policy. (2018). Survey of 2016-2017 Graduates Yields Insights for Current, Prospective Students. AMSTAT NEWS. October 2018. Issue 496.

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