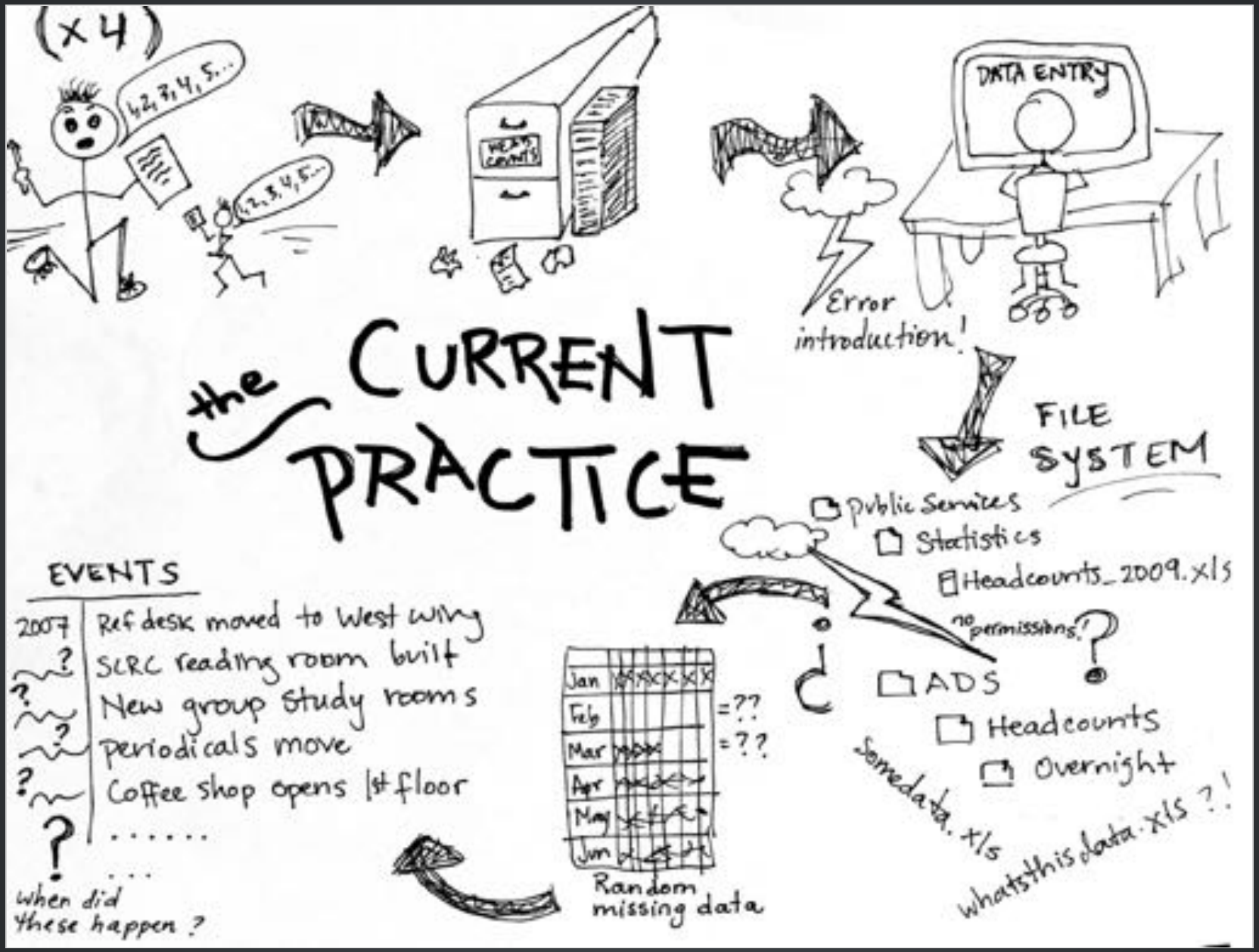
SUMA

UTILIZING EMERGING BROWSER TECHNOLOGY TO DEVELOP AN OPEN-SOURCE SPACE AND SERVICE ANALYTICS SYSTEM

Bret Davidson | Jason Casden

NCSU Libraries



by Joyce Chapman, Suma Community development and data analysis specialist.

Noon Head Count

		2/21/2011 Mon	2/22/2011 Tues	2/23/2011 Wed	2/24/2011 Thurs	2/25/2011 Fri	2/26/2011 Sat	2/27/2011 Sun
	Ground Floor	93	71	139	105	79	15	20
	Lobby and Mezzanine	35	35	47	58	56	13	16
Tower/ Stacks	9th Floor	29	32	51	50	31	7	18
	8th Floor	38	28	50	29	34	2	8
	7th Floor	51	38	42	31	14	5	13
	6th Floor	42	47	48	46	30	9	6
	5th Floor	42	36	41	33	37	12	4
	4th Floor	42	49	42	43	23	15	10
	3rd Floor	38	35	46	35	26	15	15
	2nd Floor	42	29	40	33	29	16	10
	Unity Lab	28	28	35	23	21	6	1
East Wing	Spec. Coll. Reading Rm.	39	31	41	35	28	15	19
	Digital Media Lab	18	13	21	13	18	4	8 5
	1st Floor	220	205	240	221	269	42	73
	2nd Floor	17	26	22	29	14	0	3
West Wing	Techonlogy Sandbox	15	7	17	8	16	3	2
	Quiet Reading Room	55	48	67	60	51	6	10
	1st Floor	28	[redacted] 20	54	39	34	2	0
	2nd Floor	10	5	16	12	6	0	3
	Total	882.	808	1060	903	816	196	245
	Initials	LG.	[illegible]	EE	ECB	EBG	LG.	ECB

Definitions:
Lobby and Mezzanine: study tables on balcony, sitting area in front of circ, print/copy/scan/room, hallway surrounding circ
1st Floor East Wing: computer area, couches, study rooms, presentation practice room
Ground Floor: reading room, guest computers, Hill of Beans, entryway, express desk
2nd Floor East Wing: Does not include classroom/office spaces like ITTC labs
2nd Floor West Wing: Does not include classroom/office spaces like auditorium and mini-theater

Security Patrol Head Count

Date: 5/3/11

		10:00PM	12:00AM	2:00AM	4:00AM
	Ground Floor	80	33	19	6
	Lobby and Mezzanine	49	31	11	9
Tower/ Stacks	9th Floor	101	59	46	28
	8th Floor	75	68	33	17
	7th Floor	87	66	36	20
	6th Floor	89	78	16	5
	5th Floor	63	55	23	12
	4th Floor	54	42	12	8
	3rd Floor	64	30	21	7
	2nd Floor	51	34	12	6
	Unity Lab	27	23	9	3
East Wing	Spec. Coll. Reading Rm.	67	48	24	3
	Digital Media Lab	26	19	8	4
	1st Floor (Commons)	278	226	113	66
	2nd Floor	33	25	14	7
West Wing	Technology Sandbox	18	15	5	2
	Quiet Reading Room	57	38	15	15
	1st Floor	50	41	8	6
	2nd Floor	75	52	13	9
	Total	1339	983	449	233
	Patrol (initials)	HS	[illegible]	HS	[illegible]

Definitions:
Lobby and Mezzanine: study tables on balcony, sitting area in front of circ, print/copy/scan/room, hallway surrounding circ
1st Floor East Wing: computer area, couches, study rooms, presentation practice room
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2nd Floor West Wing: Does not include classroom/office spaces like auditorium and mini-theater

Computer = Computer, laptop use
SMART = SMART Board use
MSurace = Microsoft Surface use
Pixel = Perceptive Pixel use
4screen = QuadScreen Projecting use
Gaming = Gaming (XBox, PS3, Wii)
Other = Other (Socializing, Reading, eating etc.)

INDIVIDUAL	Computer	SMART	MSurface	Pixel	4screen	Gaming	Other
Total#							

DML Observation

INSTRUCTIONS: Tally the activities people are doing on their own using the designated codes below. If people are working in a group, tally them in the 'group' column, and circle each group (example: (II) (IIII)).

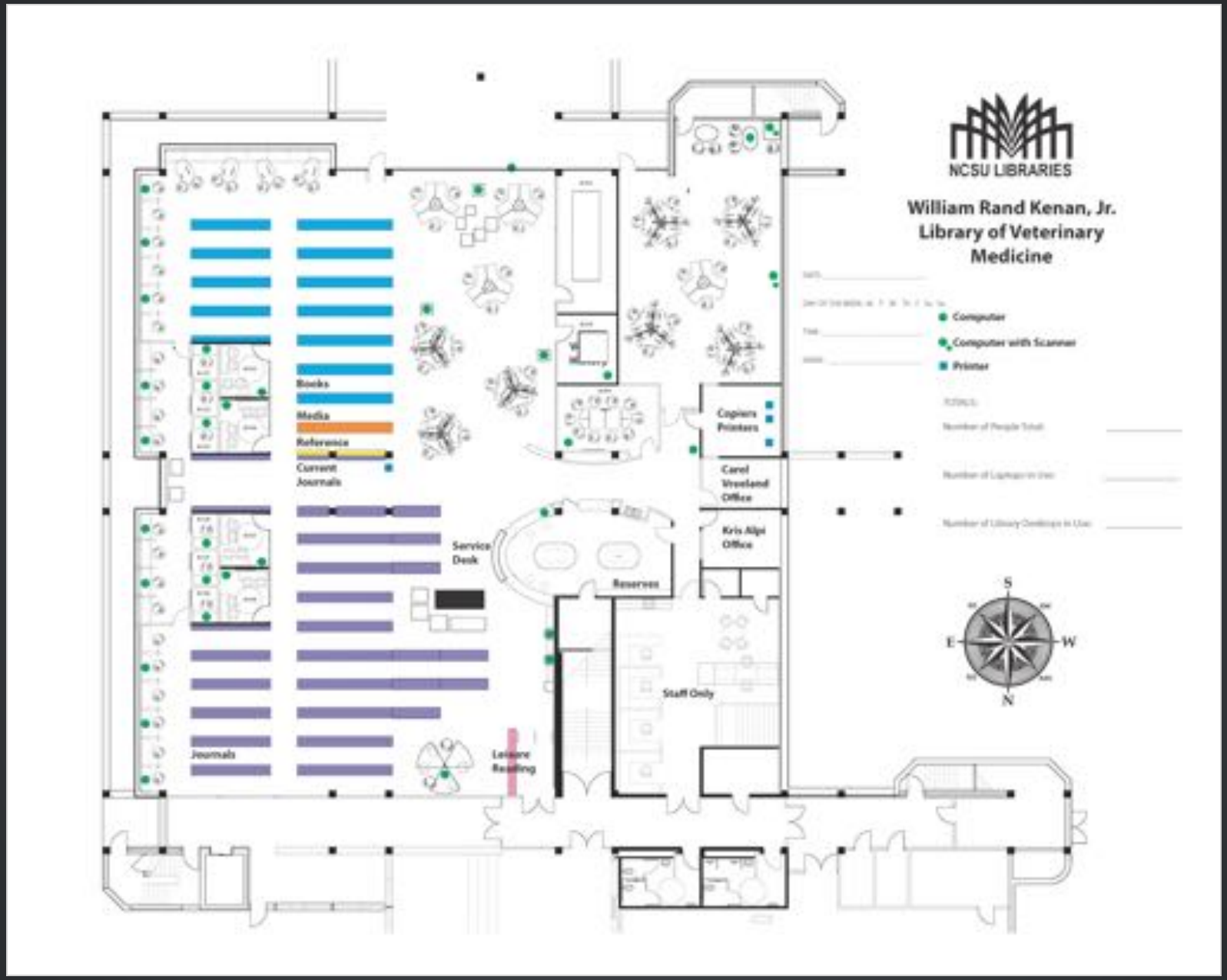
M = Multimedia creation (photo/video editing, video importing/conversion, other multimedia work)
T = Touchscreen use: USING TOUCHSCREEN FUNCTIONALITY (Lenovo PCs)
S = Scanning (Document and book scanning, negative/slide scanning)
C = General Computing (Social Networking, word processing, web-browsing, email, chat, etc.)

Activity	# of ppl Alone	# of ppl in Group (Circle each group)
M	III	(II)
T	I	
S	++++ I	
C	III	(II)

DATE: 04/12/11
TIME: 2:30
STAFF: EBG

NOTES (Interesting activity, use of technology, etc.):

- LARGE BATCH SCAN OF SLIDES
- AUDACITY / SOUND MIXING
- SCANNING 35MM FILM (USED EPSON SCANNER W/ PADDING TAKEN OFF)

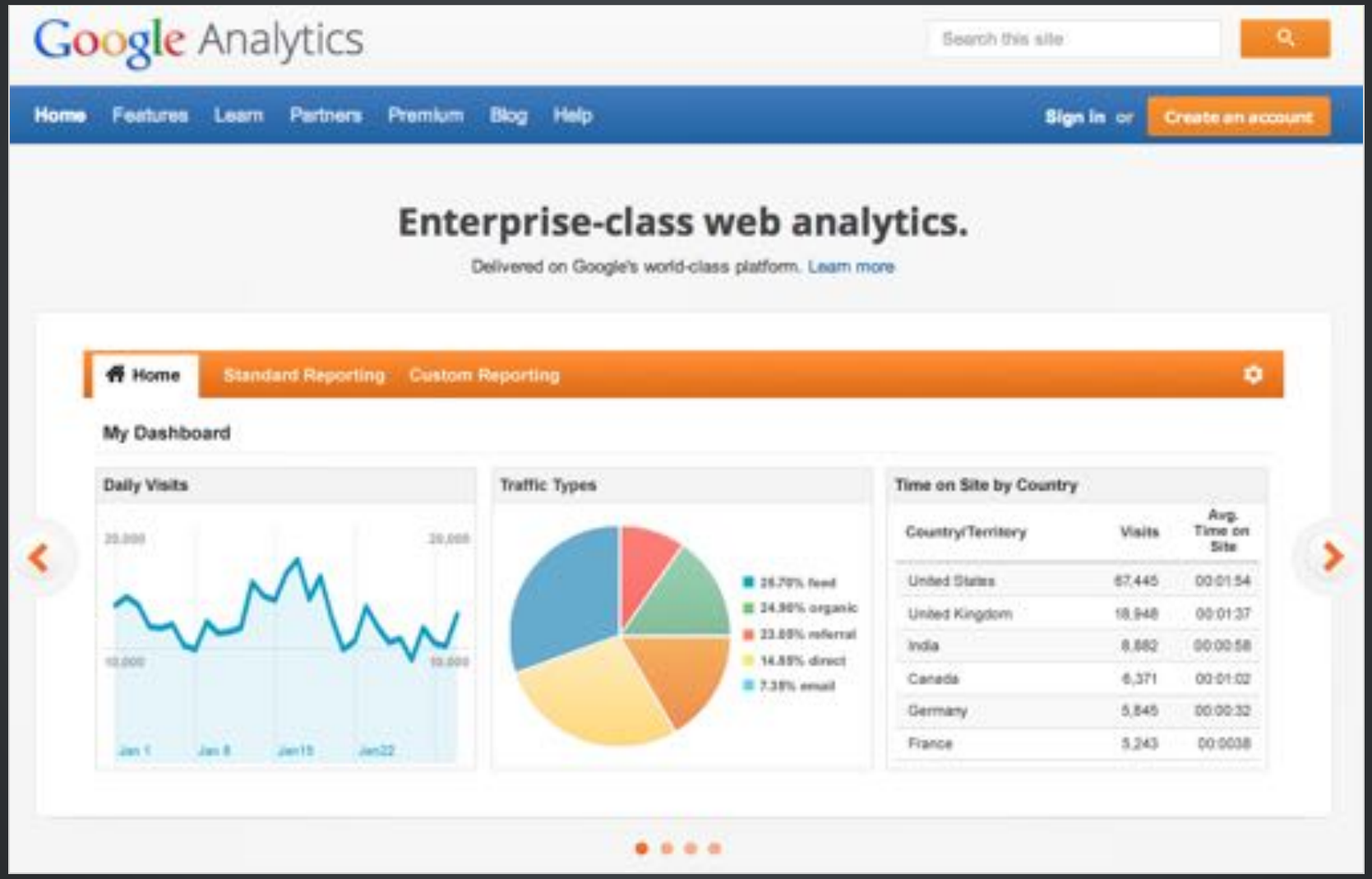

NCSU LIBRARIES
William Rand Kenan, Jr. Library of Veterinary Medicine
Computer
Computer with Scanner
Printer
Books
Media
Reference
Current Journals
Journals
Service Desk
Reserves
Staff Only
Leisure Reading
Copiers Printers
Carol Vreeland Office
Kris Alpi Office
S
E
W
N

Could we collect more detailed data, more easily, with fewer errors, and manage it all more consistently?

And could we build more sophisticated and intuitive analysis tools that are totally reusable for all data by lots of people in our institution?

Could we then use data about space and service usage to make better decisions (even small ones)?

THE WEB HAS HAD THIS FOR YEARS



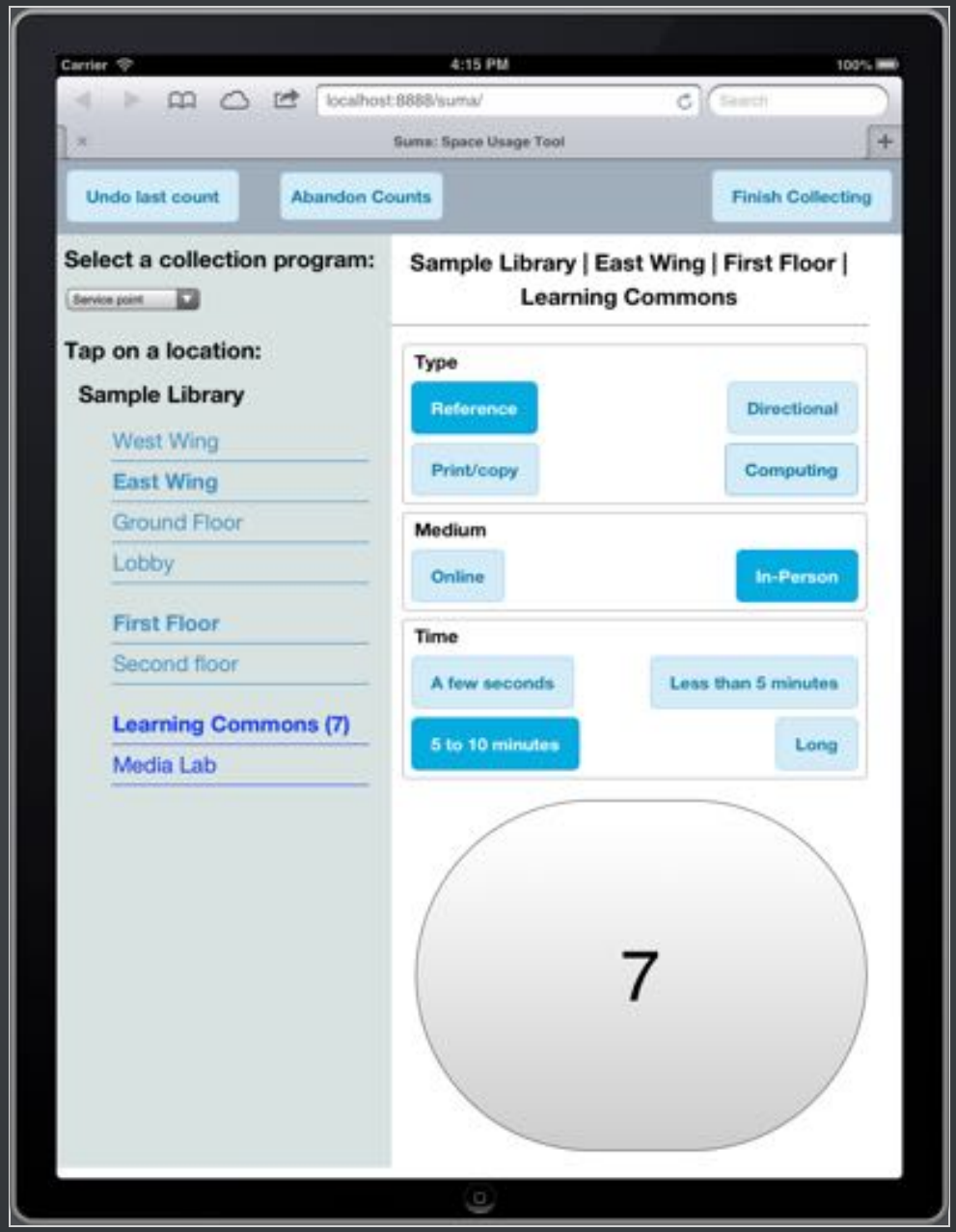
WEB ANALYTICS

COLLECTING RICH RELATIONAL DATA FOR A NEW SERVICE IS TRIVIAL OR EASY

SUMA

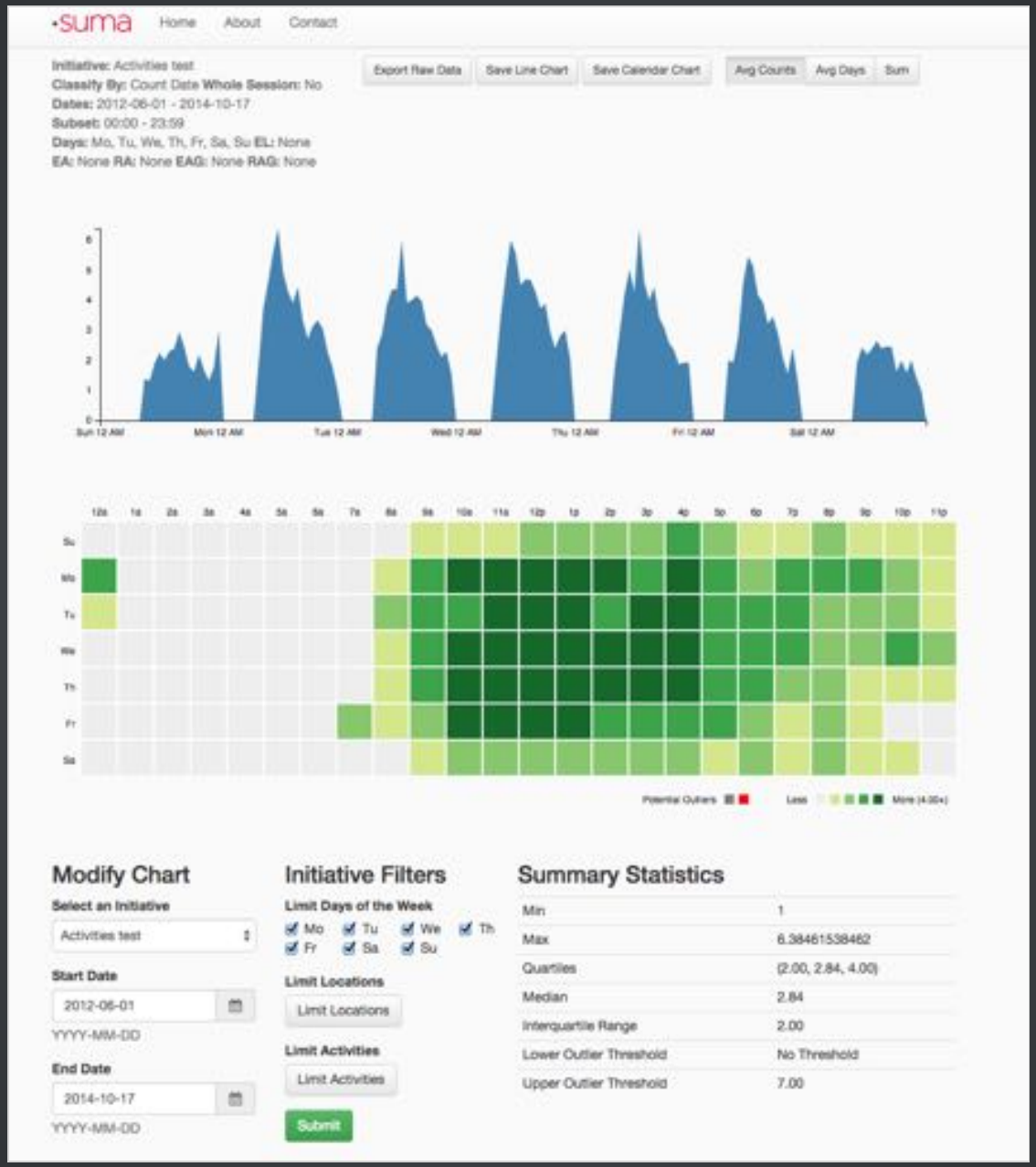
An open source tablet-based app (well, toolkit) to aid library staff in assessment of how patrons are using library spaces.

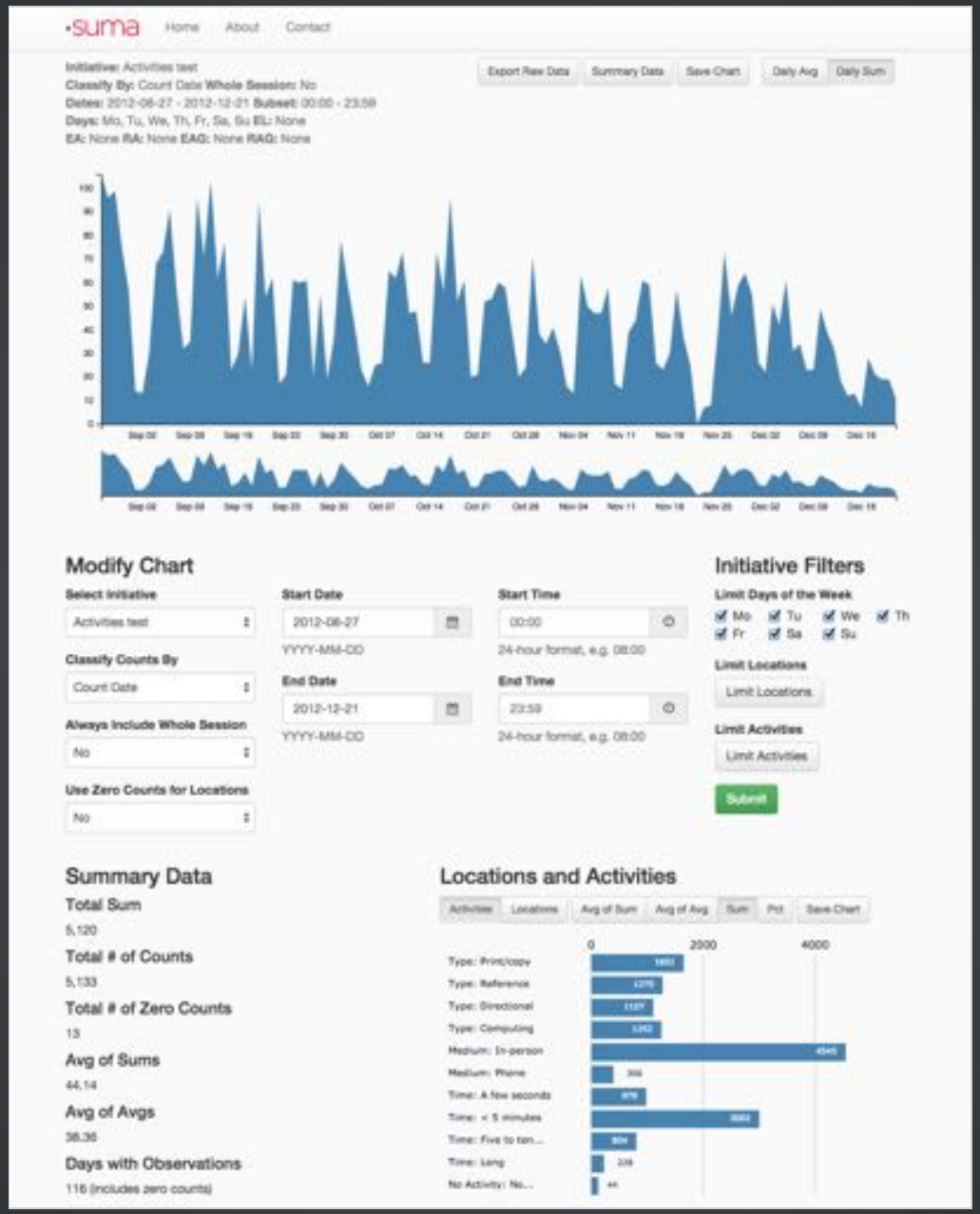
In other words…the gathering, storing, exporting, analyzing, and visualizing of data across spaces/activities/time.


Carrier
4:15 PM
100%
localhost:8888/suma/
Search
Suma: Space Usage Tool
Undo last count
Abandon Counts
Finish Collecting
Select a collection program:
Service point
Tap on a location:
Sample Library
West Wing
East Wing
Ground Floor
Lobby
First Floor
Second floor
Learning Commons (7)
Media Lab
Sample Library | East Wing | First Floor | Learning Commons
Type
Reference
Directional
Print/copy
Computing
Medium
Online
In-Person
Time
A few seconds
Less than 5 minutes
5 to 10 minutes
Long
7

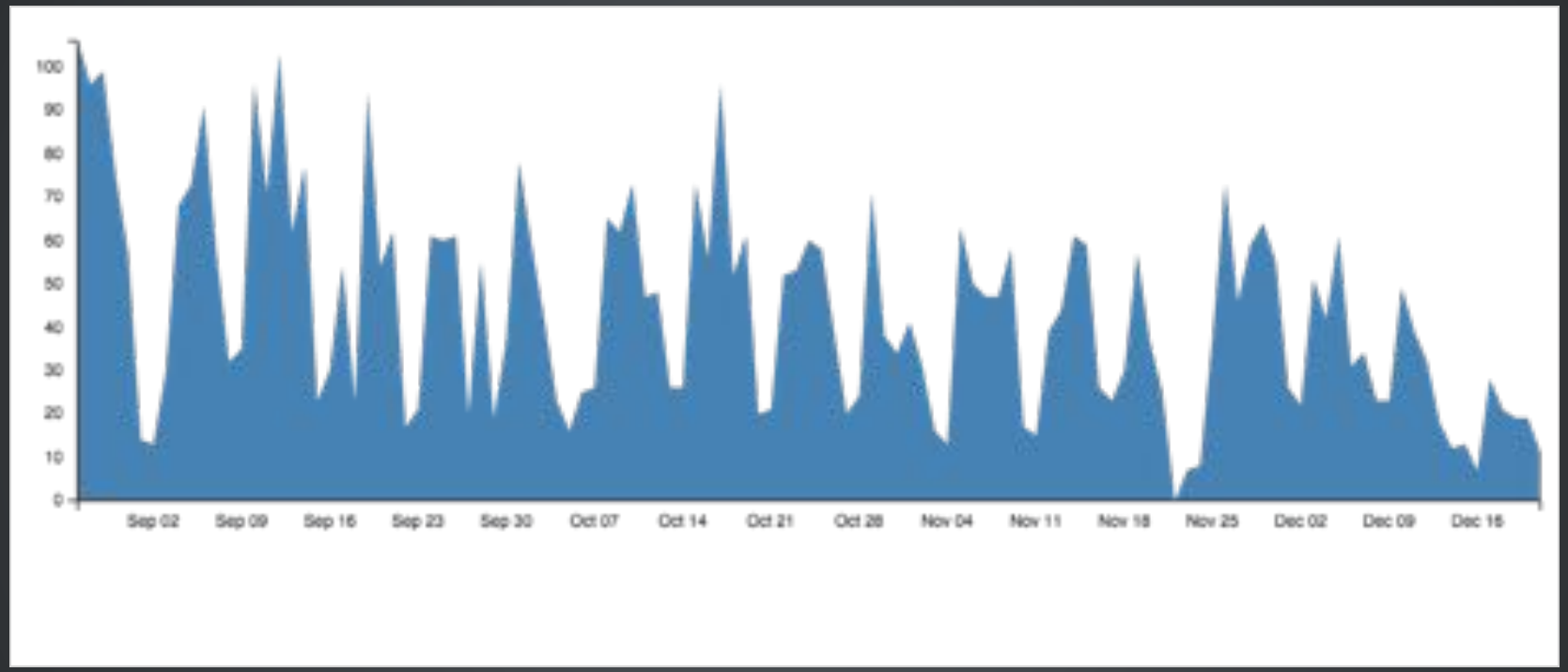
STAFF AS SENSORS

4 REPORTS

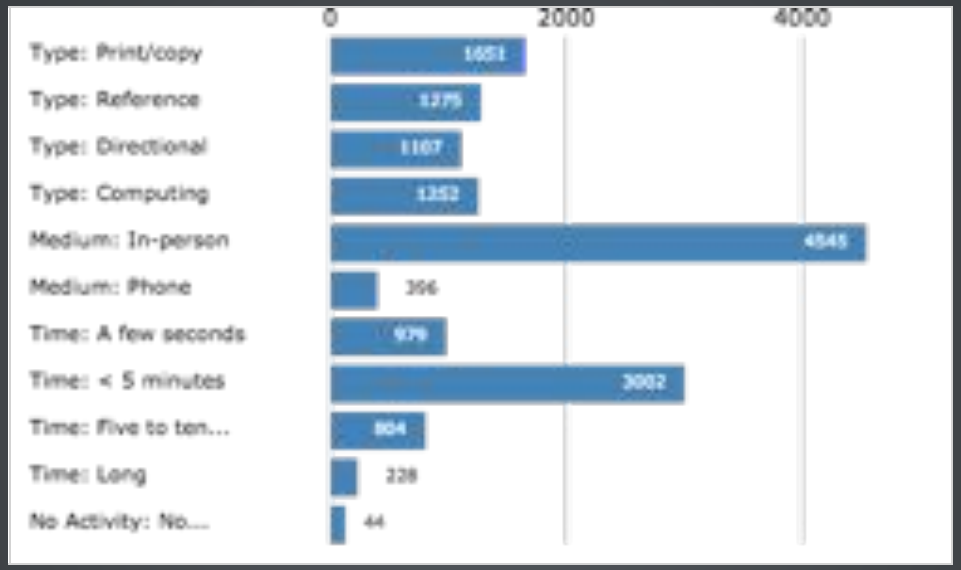

suma
Home
About
Contact
Initiative: Activities test
Classify By: Count Date Whole Session: No
Dates: 2012-06-01 - 2014-10-17
Subset: 00:00 - 23:59
Days: Mo, Tu, We, Th, Fr, Sa, Su EL: None
EA: None RA: None EAG: None RAG: None
Export Raw Data
Save Line Chart
Save Calendar Chart
Avg Counts
Avg Days
Sum
Sun 12 AM
Mon 12 AM
Tue 12 AM
Wed 12 AM
Thu 12 AM
Fri 12 AM
Sat 12 AM
Potential Outliers
Less
More (4.00+)
Modify Chart
Select an Initiative
Activities test
Start Date
2012-06-01
YYYY-MM-DD
End Date
2014-10-17
YYYY-MM-DD
Initiative Filters
Limit Days of the Week
Mo
Tu
We
Th
Fr
Sa
Su
Limit Locations
Limit Locations
Limit Activities
Limit Activities
Submit
Summary Statistics
Min 1
Max 6.38461538462
Quartiles (2.00, 2.84, 4.00)
Median 2.84
Interquartile Range 2.00
Lower Outlier Threshold No Threshold
Upper Outlier Threshold 7.00


suma
Home
About
Contact
Initiative: Activities test
Classify By: Count Date Whole Session: No
Dates: 2012-08-27 - 2012-12-21 Subset: 00:00 - 23:59
Days: Mo, Tu, We, Th, Fr, Sa, Su EL: None
EA: None RA: None EAG: None RAG: None
Export Raw Data
Summary Data
Save Chart
Daily Avg
Daily Sum
Modify Chart
Select Initiative
Activities test
Classify Counts By
Count Date
Always Include Whole Session
No
Use Zero Counts for Locations
No
Start Date
2012-08-27
YYYY-MM-DD
End Date
2012-12-21
YYYY-MM-DD
Start Time
00:00
24-hour format, e.g. 08:00
End Time
23:59
24-hour format, e.g. 08:00
Initiative Filters
Limit Days of the Week
Mo
Tu
We
Th
Fr
Sa
Su
Limit Locations
Limit Locations
Limit Activities
Limit Activities
Submit
Summary Data
Total Sum
5,120
Total # of Counts
5,133
Total # of Zero Counts
13
Avg of Sums
44.14
Avg of Avgs
38.36
Days with Observations
116 (includes zero counts)
Locations and Activities
Activities
Locations
Avg of Sum
Avg of Avg
Sum
Pct
Save Chart
0
2000
4000
Type: Print/copy
Type: Reference
Type: Directional
Type: Computing
Medium: In-person
Medium: Phone
Time: A few seconds
Time: < 5 minutes
Time: Five to ten...
Time: Long
No Activity: No...

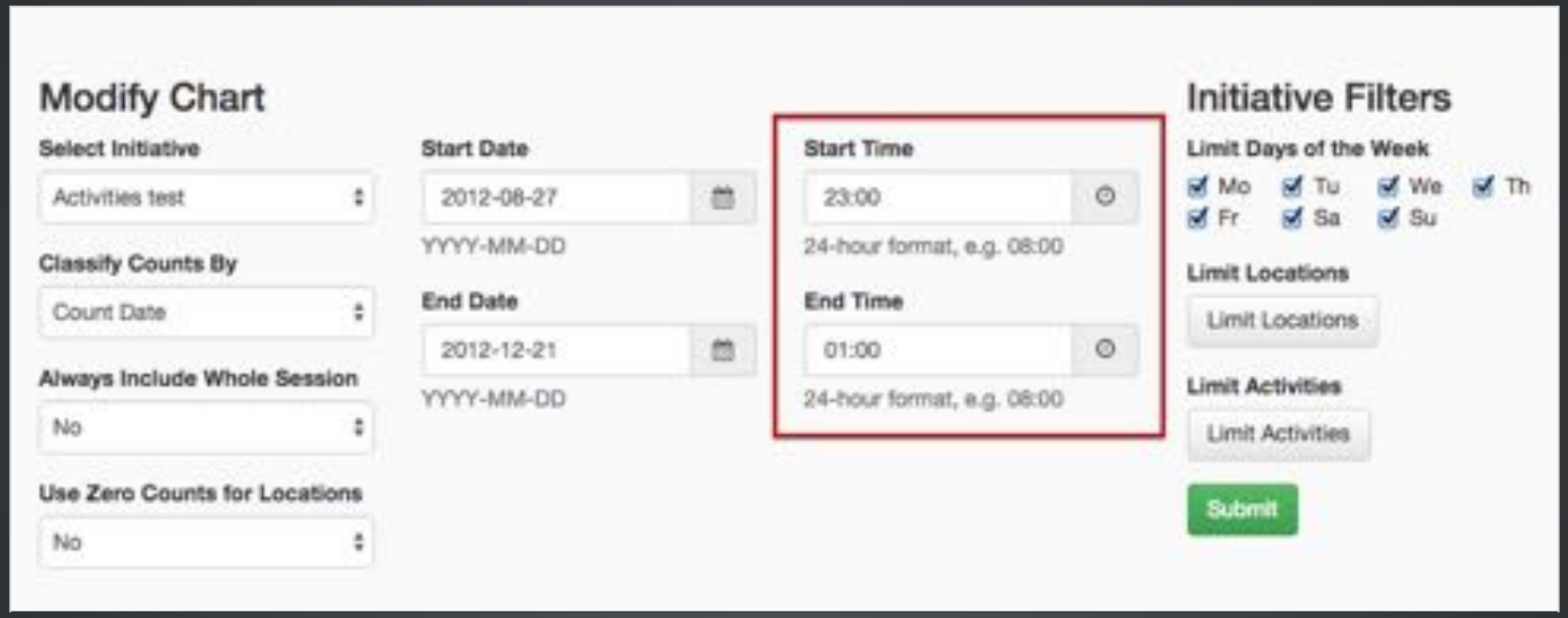
PERIOD TOTALS



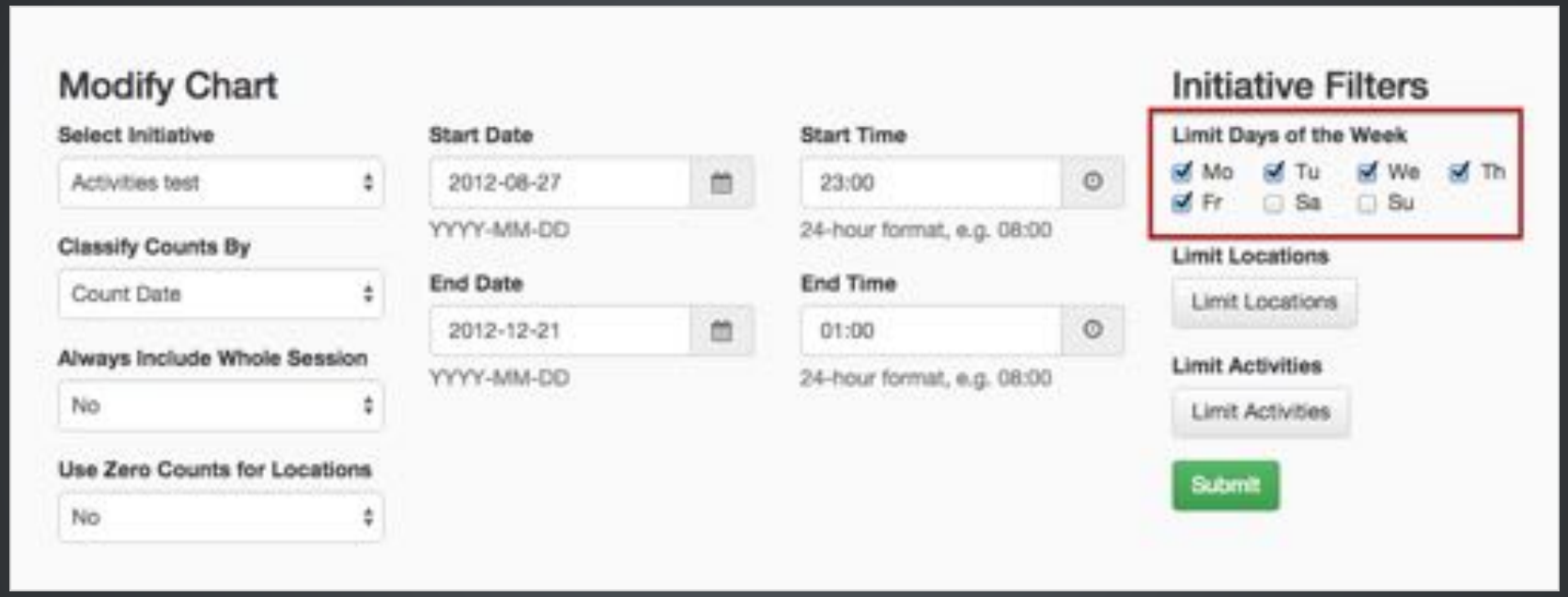
PERIOD TOTALS



TIME FILTER

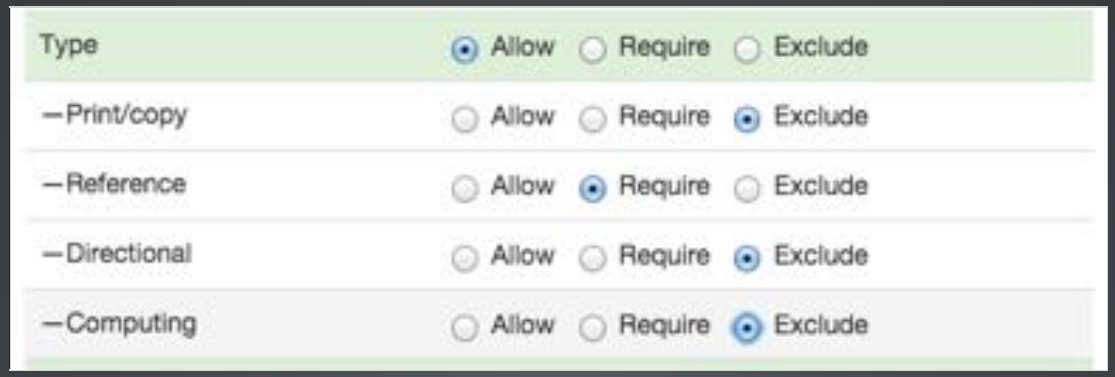

Modify Chart
Select Initiative
Activities test
Classify Counts By
Count Date
Always Include Whole Session
No
Use Zero Counts for Locations
No
Start Date
2012-08-27
YYYY-MM-DD
End Date
2012-12-21
YYYY-MM-DD
Start Time
23:00
24-hour format, e.g. 08:00
End Time
01:00
24-hour format, e.g. 08:00
Initiative Filters
Limit Days of the Week
Mo
Tu
We
Th
Fr
Sa
Su
Limit Locations
Limit Locations
Limit Activities
Limit Activities
Submit

DAY OF WEEK FILTER



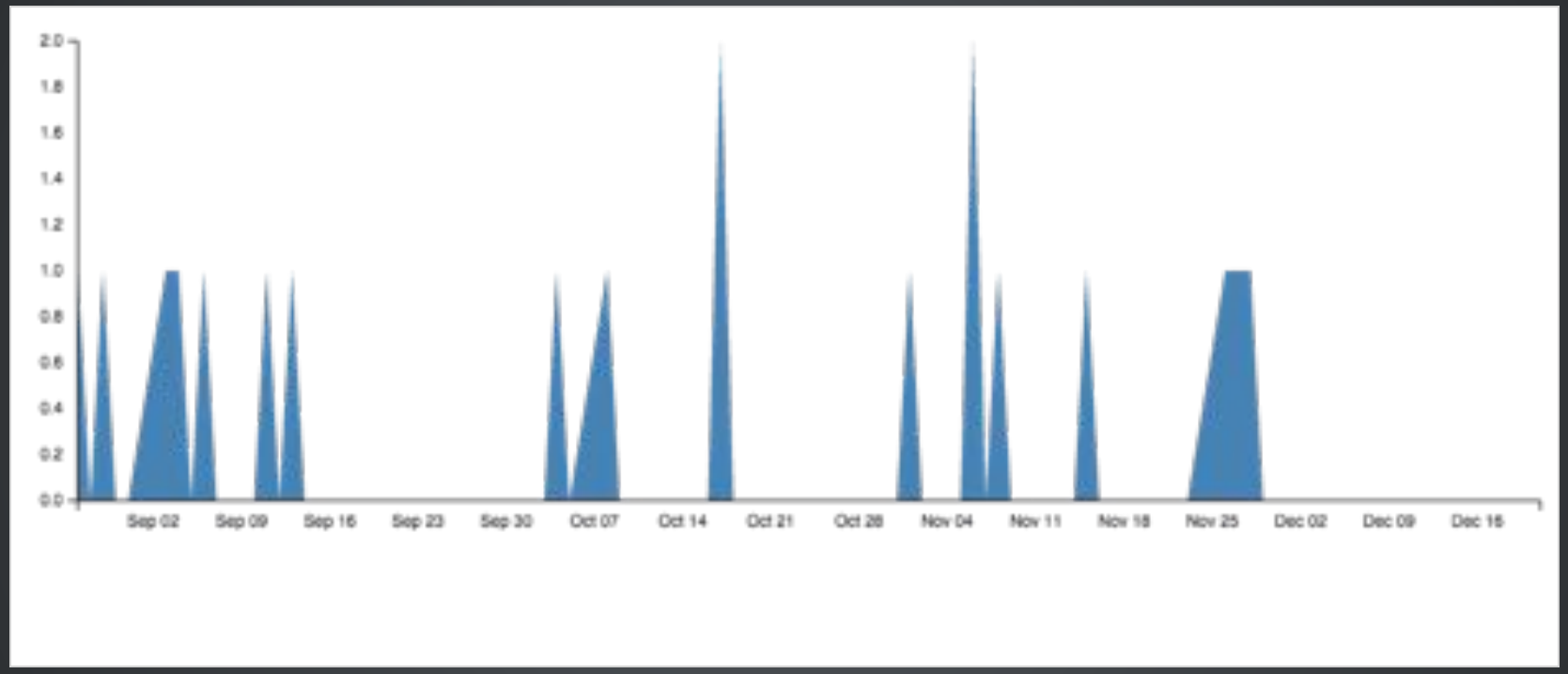
LOCATION FILTER

ACTIVITY FILTER

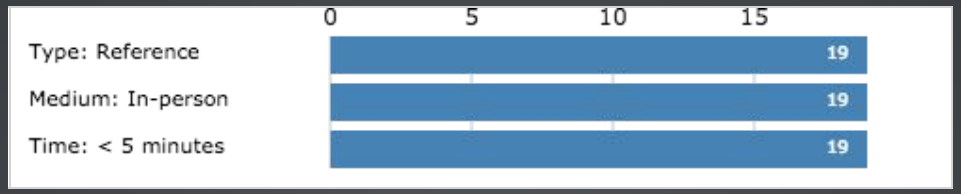


Show all the reference transactions in the learning commons between 11 PM and 1 AM on weekdays that are less than 5 minutes in length.

FILTERED REPORT



FILTERED REPORT



UNDERSTANDING OUR USERS

- Where do our users go?
- What are they doing?
- When are they doing it?
- What *could* they be doing?

SPACE AND SERVICE ANALYTICS

- Staff scheduling
- Building hours
- Service desk service patterns
- Study room reservations
- Technology and furniture use
- Use of specialized spaces (e.g. Graduate Commons)
- Comparing branch and main libraries, at different times of day
- Special Collections researcher services
- Turnaways (e.g. Technology Lending)
- Combine with other data: circulation, gate counts, tech lending, reserves, online services

OPEN SOURCE

- 60+ active academic library pilot projects
- Hosted on GitHub
- Pull requests are always welcome

PROJECT TEAM

- Jason Casden
- Bret Davidson
- Joyce Chapman
- Rob Rucker
- Rusty Earl
- Eric McEachern

THANK YOU!

http://go.ncsu.edu/Suma

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