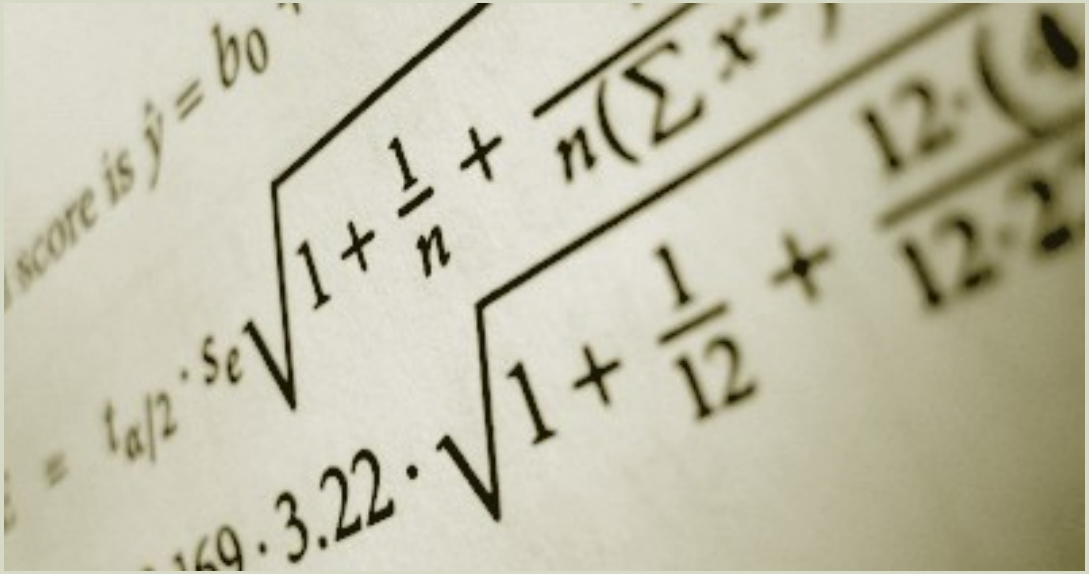
R + GOOGLE ANALYTICS

Theo Van Rooy
theodore.vanrooy
@gmail.com

ABOUT ME



- CU Applied Math – MS 2006
- LinkedIn - http://www.linkedin.com/in/theodorev
- This pres @ http://tvrportfolio.scroggles.com/papers/

HOW I USE R

Applied Math Consultant

- Big Data
- Machine Learning, AI
- Risk Analysis
- Finance
- Marketing
- Analytics

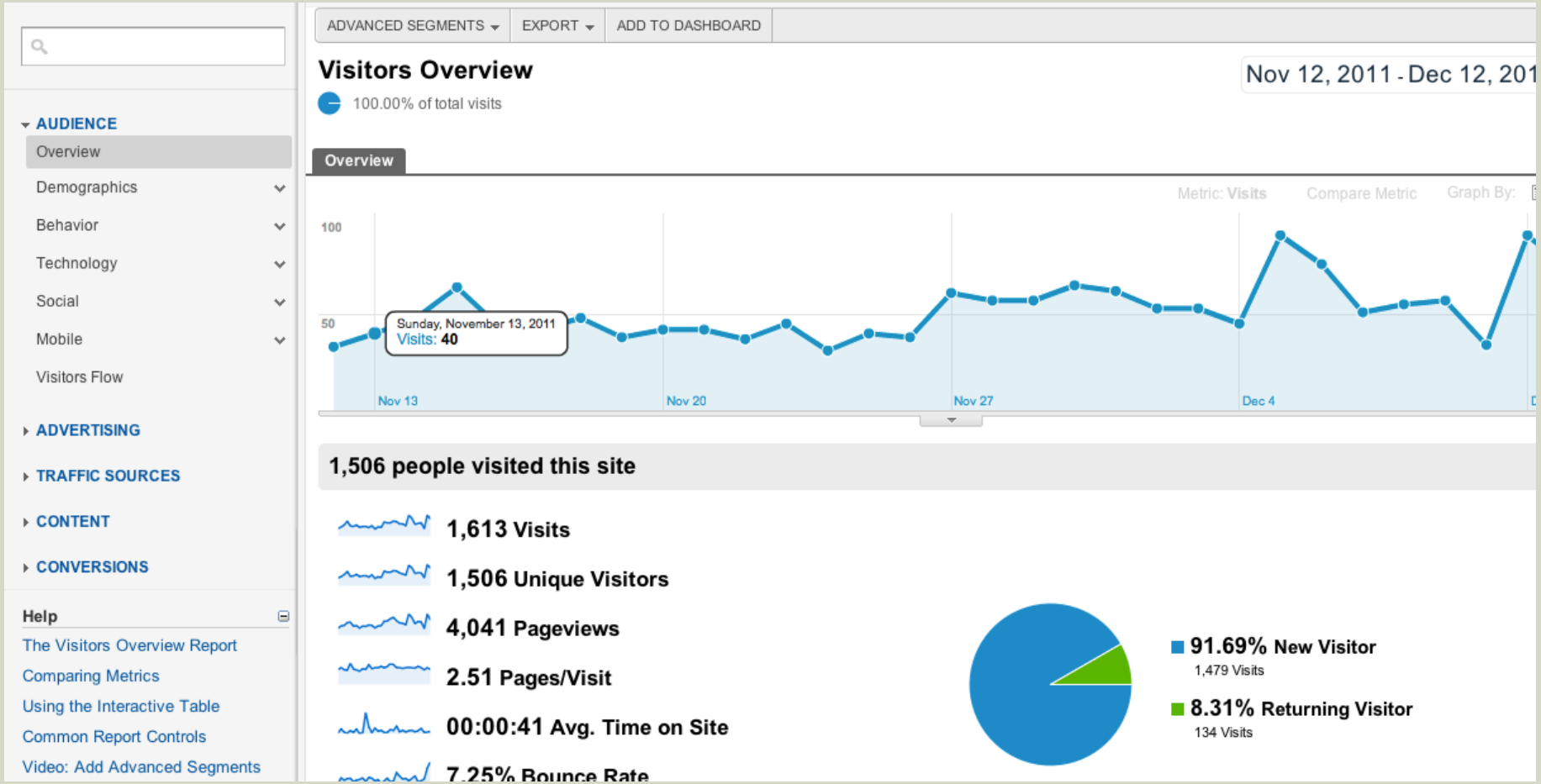
WEB ANALYTICS

Quant Marketing

GOOGLE ANALYTICS

- Free Service!
- Logs all kinds of Great information about your visitors.
  - Visits
  - Visitor Information
  - Events
- Real Time (API)
- Easy to Implement JS

ANALYTICS.GOOGLE.COM



BUT…

- Exporting from Dashboard requires the use of a mouse …
- Dashboard is good for 1 site at a time
- Must make faster!
- Must make better!

HALL-WOODHOUSE.CO.UK

- Has 60 some pubs
- Lots of Traffic
- Wants individual + aggregate analytics

RGOOGLEANALYTICS

I love R

RGOOGLEANALYTICS

- **NOT** a Cran Package

http://code.google.com/p/r-google-analytics/

INSTALL IT

- Need 2 libraries:
  - RCurl
  - XML
- May need to install libxml and libcurl

FROM THE EXAMPLE

```
# 1. Create a new Google Analytics API object
ga <- RGoogleAnalytics()

# 2. Authorize the object with your Google Analytics Account Credentials
ga$SetCredentials("youruser@gmail.com", "password")

# 3. Get the list of different profiles, to help build the query
profiles <- ga$GetProfileData()
profiles[["data"]] = vector("list", length(profiles$profile$TableId))
names(profiles$data) = as.character(profiles$profile$ProfileName)
```

PROFILE DATA

```
> profiles$profile$
profiles$profile$AccountName  profiles$profile$ProfileName  profiles$profile$TableId
> profiles$profile$ProfileName
 [1] www.sendster.co.uk                www.localmarketer.co.uk
 [3] www.olivebranchhorsham.co.uk/     www.olivebranchhorsham.co.uk
 [5] monmouthash.co.uk                 oldinnwidecombeinthemoor.co.uk
 [7] osborneviewhillhead.co.uk/        wheatsheaflowerwoodford.co.uk
 [9] starewell.co.uk                   halfmoonshaftsbury.co.uk
[11] newqueenavon.co.uk/               thehangletonmanor.co.uk
[13] theworldsendtaunton.co.uk         thegrasshopperparkstone.co.uk
[15] housemartinnewmilton.co.uk        thebarnowl.co.uk
[17] theolivebranchwimborne.co.uk      theangellongham.co.uk
[19] worldsendpatching.co.uk           yachtsmanhamworthy.co.uk
[21] wightmouse.co.uk                  thehalfwayinnwareham.co.uk.
[23] theness.co.uk                     thegoffsmanor.co.uk
[25] sevenstarsstroud.co.uk            thehornbrook.co.uk
[27] stpetersfinger.co.uk              blackswanpeasepottage.co.uk
[29] worldsendalmer.co.uk              empressofblandings.co.uk
[31] wellingtonstratfieldturgis.co.uk blackhorsehookwood.co.uk
[33] moatwrotham.co.uk                 theblackhorseiverheath.co.uk
```

PROFILE DATA

```
> profiles$profile$TableId
 [1] ga:19483634 ga:25729627 ga:38977515 ga:38977442 ga:436
 [7] ga:43846749 ga:43968959 ga:43969063 ga:43969163 ga:443
[13] ga:44801732 ga:44801745 ga:44802120 ga:44802126 ga:448
[19] ga:44802405 ga:45294895 ga:45295165 ga:45295171 ga:452
[25] ga:45295745 ga:45295748 ga:45295751 ga:45296128 ga:452
[31] ga:45749276 ga:45749278 ga:45749282 ga:45749584 ga:457
[37] ga:45749657 ga:45749749 ga:45749756 ga:45749760 ga:457
[43] ga:45750131 ga:45750143 ga:45750152 ga:45750308 ga:457
[49] ga:45750511 ga:45870226 ga:45870807 ga:47611298 ga:476
[55] ga:47611784 ga:47612063 ga:47612157 ga:47612321 ga:476
[61] ga:51086216 ga:50233414 ga:51087296
63 Levels: ga:19483634 ga:25729627 ga:38977442 ga:38977515
> 
```

QUERYING THE API

- Make sure date is in “character” format…not date!
- TableID also needs to be in “character”

```
# 4. Build the Data Export API query
query <- QueryBuilder()
datestart = as.character(Sys.Date()-30 )
dateend = as.character(Sys.Date())

#mobile, hour, source, referralPath analysis - mhsr
query$Init(start.date = datestart,
           end.date = dateend,
           dimensions = c("ga:date",  "ga:hour",
           "ga:isMobile", "ga:operatingSystem",
           "ga:referralPath","ga:source"),
           metrics = c("ga:visitors", "ga:visits",
           "ga:newVisits", "ga:timeOnSite", "ga:totalEvents"),
           sort = "ga:date",
           table.id = as.character(profiles$profile$TableId[i]))

#5. Make a request to get the data from the API
data = ga$GetReportData(query)
```

RETURNED DATA

```
> head(profiles$data[[24]]$mhsr$
profiles$data[[24]]$mhsr$aggr.totals    profiles$data[[24]]$mhsr$data
> head(profiles$data[[24]]$mhsr$data)
   ga:date ga:hour ga:isMobile ga:operatingSystem              ga:referralPath
1 20111113      08          No          Macintosh                    (not set)
2 20111113      09          No            Windows                    (not set)
3 20111113      10          No            Windows                    (not set)
4 20111113      10         Yes             iPhone                    /m/places
5 20111113      11         Yes             iPhone /wsussex/pub/goffsmanor.htm
6 20111113      12          No            Windows                    (not set)
         ga:source ga:visitors ga:visits ga:newVisits ga:timeOnSite
1           google           1         1            1             0
2           google           1         1            1             0
3           google           1         1            0             0
4     google.co.uk           1         1            1             0
5 pub-explorer.com           1         1            1             0
6           google           1         1            1             0
  ga:totalEvents
1              0
2              0
3              0
4              0
```

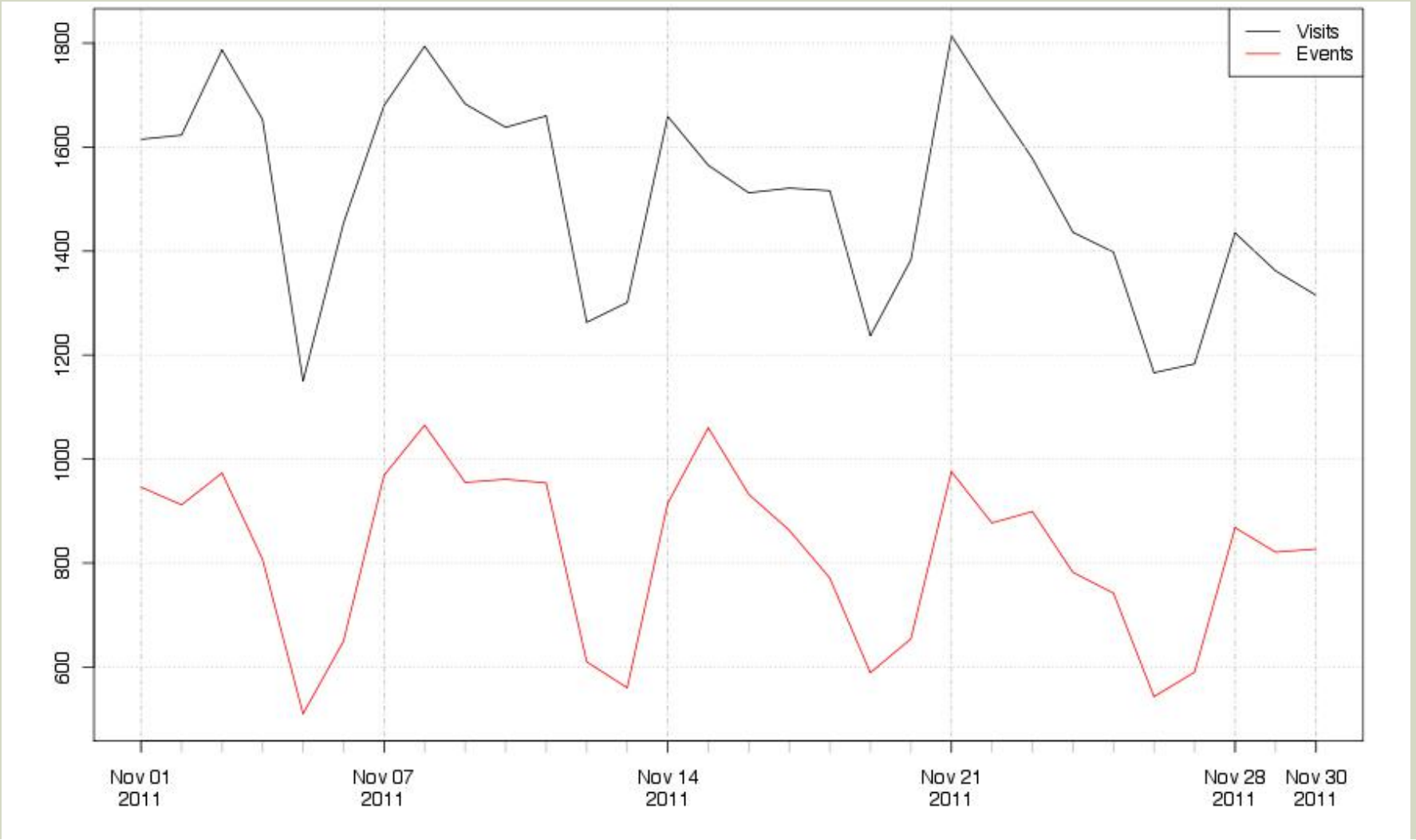
AGGREGATE DATA

```
> profiles$data[[24]]$mhsr$aggr.totals
                 aggregate.totals
ga:visitors                  1143
ga:visits                    1139
ga:newVisits                  885
ga:timeOnSite              130831
ga:totalEvents                515
```

REPEAT AND PROCESS

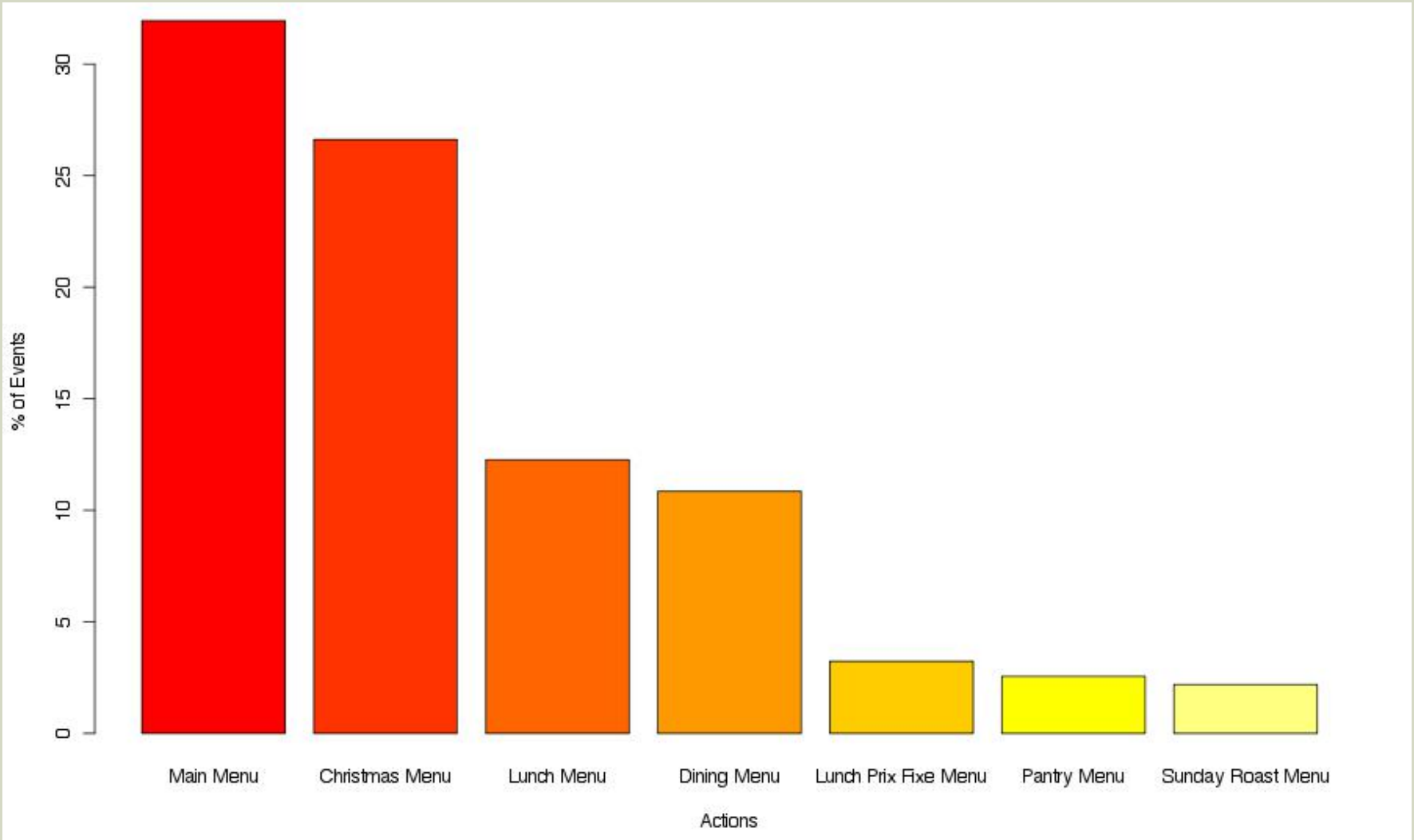
- Run various queries for each site
- Use Aggregate…
- Et Voila!

VISITS AND EVENTS



VISITS BY DAY OF WEEK

EVENTS


% of Events
0
5
10
15
20
25
30
Main Menu
Christmas Menu
Lunch Menu
Dining Menu
Lunch Prix Fixe Menu
Pantry Menu
Sunday Roast Menu
Actions

THEODORE.VANROOY@GMAIL.COM

Thank You