### Taming the Marketing Data Beast

**Tools & Techniques for Data Visualization** 

Leslie Colvin, Division of Marketing & Communications



### What Are We Going to Cover Today?

- What is data visualization?
- Why is it important?
- Where do you start?
- A walkthrough of Google Data Studio & Microsoft Power BI
  - Building sample dashboards
    - Google Analytics
    - Facebook
    - Twitter data

### WHAT IS DATA VISUALIZATION?

### Data visualization is taking data and interpreting it into simple, easy to understand visuals



## WHY IS IT IMPORTANT?

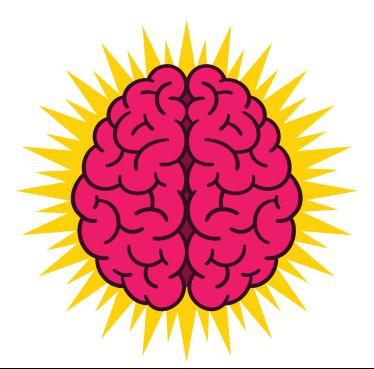
### Visual data helps us to think and communicate



### Visuals can tell a story better than a thousand words



### 90% of information that comes to the brain is visual



### **HOW MUCH DATA IS PRODUCED EVERY DAY?**

### 2.5 EXABYTES ARE PRODUCED EVERY DAY

### Which is equivalents to:

- 530,000,000 million songs
- 150,000,000 iPhones
- 5 million laptops
- 250,000 Libraries of Congress
- 90 years of HD Video



### WHERE DO YOU START?

### Begin with the end in mind. (Stephen Covey) #SayQuotable

### BAD MARKETING DASHBOARDS ARE LIKE BAD INSTRUCTIONS



### **6 STEPS TO DASHBOARD SUCCESS**

- 1. Plan work with stakeholders and your marketing plan
- 2. Metrics Create list of KPIs and metrics for your dashboard
- 3. Data Discovery asses what information you have available
- 4. Design Define what your dashboard users will see
- 5. Build Find the right dashboard platform
- 6. Evaluate Review and evaluate if KPIs were met

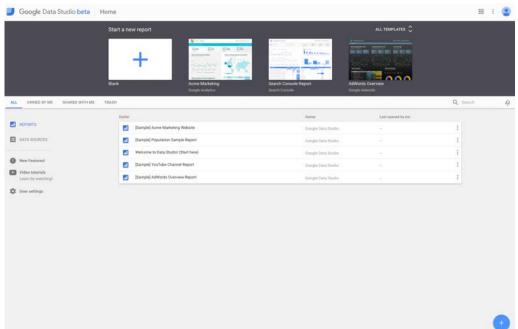


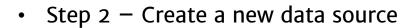
### WHAT IS GOOGLE DATA STUDIO?

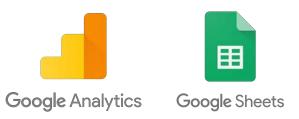
- FREE software program where you can create unlimited custom dashboards
- Connect to multiple data sources to bring all of your data together in one place
- Similar to custom views in Google Analytics, easier to understand, interactive and more visually appealing
- Easily share and collaborate with anyone who has a Google account

### **GETTING STARTED**

 Step 1 – go to datastudio.google.com, click on the blue plus (+) button at the bottom right-hand corner and accept the terms and conditions







You Tube Analytics



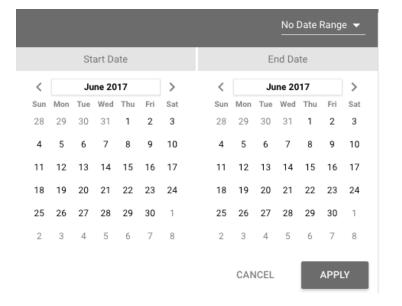
Connectors

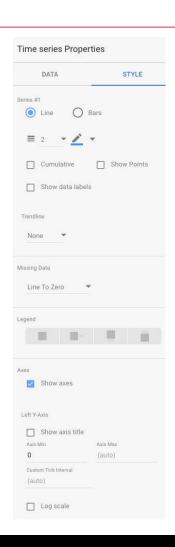
- File Upload
- AdWords
- Attribution 360
- BigQuery
- Cloud SQL
- DCM
- Google Analytics
- Google Sheets
- MySQL
- PostgreSQL
- Search Console
- YouTube Analytics

• Step 3 – start creating!



• Step 4 – Edit and filter dates





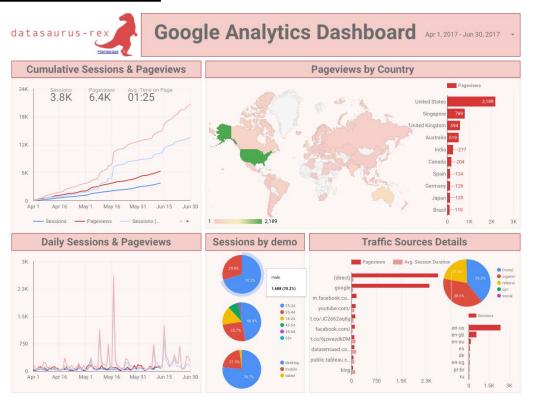
### **SAMPLE REPORTS**

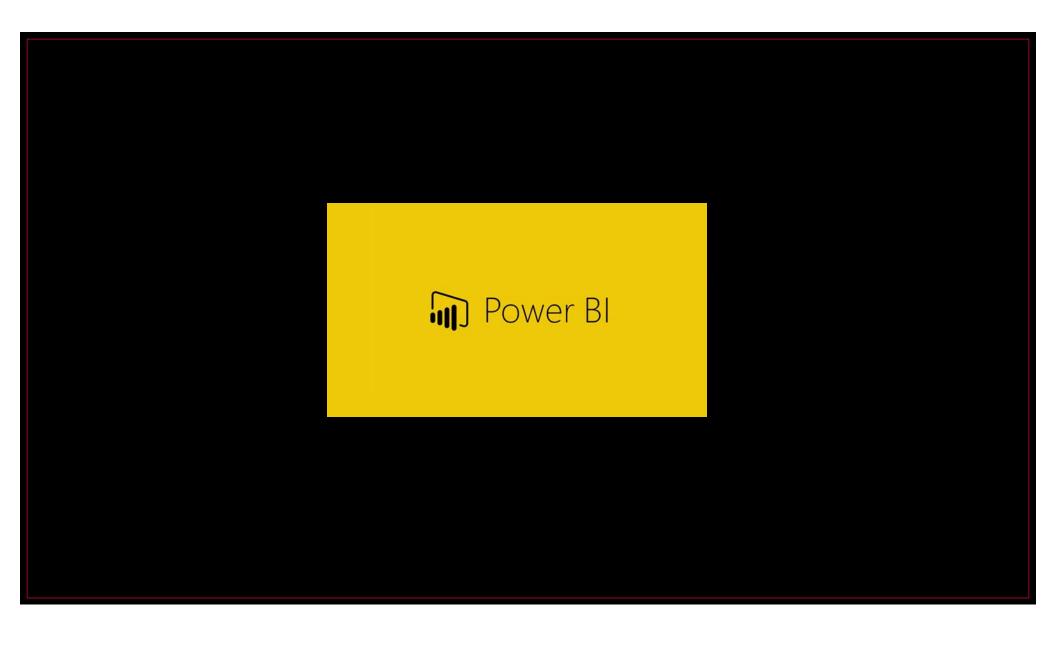


### **SAMPLE REPORTS**



### **SAMPLE REPORTS**





### WHAT IS POWER BI?

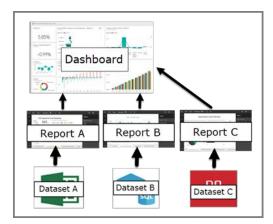
- Data visualization software from Microsoft
- Ability to directly connect to multiple data sources
- Interactive visuals
- Can share with other Power BI users or download into PowerPoint presentation
- Robust online community

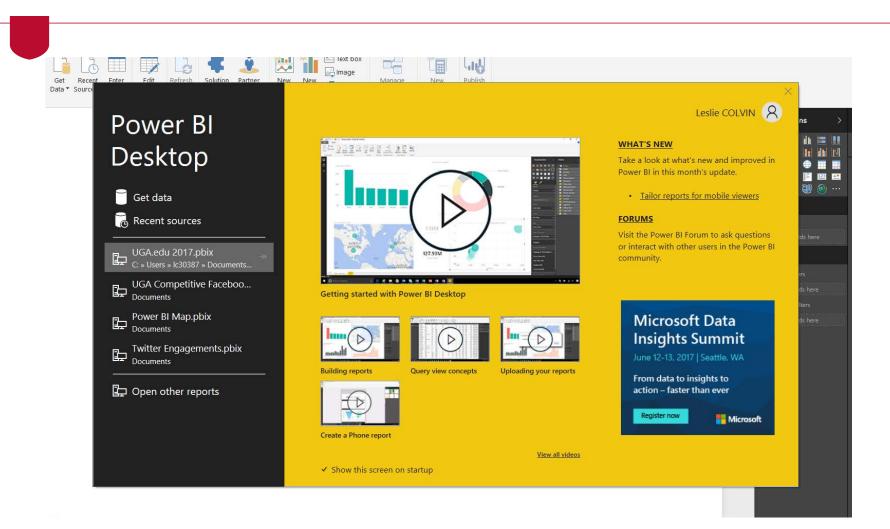
### WHAT SAMPLE REPORTS WILL WE BUILD TODAY?

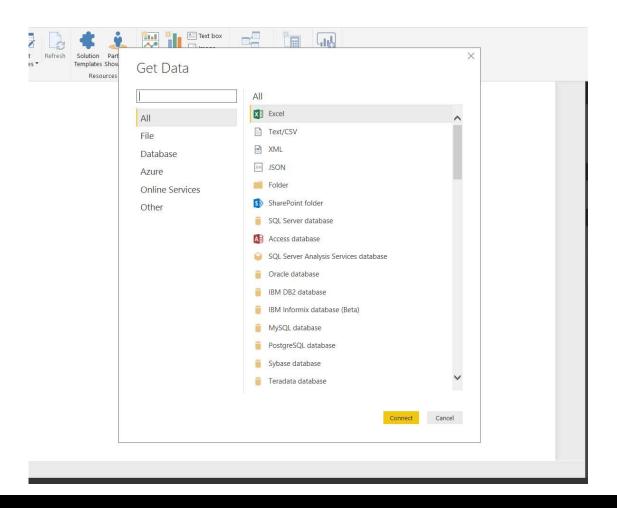
- Google Analytics
  - Review sessions, pageviews, popular stories
- Facebook
  - Build formula for API to review posts, shares
- Twitter
  - Setting up #hashtag monitor to build word cloud

### **GETTING STARTED WITH POWER BI**

- Datasets this is the data that you import or connect to Power BI
  - Direct connections
    - Facebook
    - Google Analytics
    - Mail Chimp
  - Excel sheets
  - Build your own
- Reports one or more pages of visualizations
- Dashboard compilation of reports to share or that have been shared with you

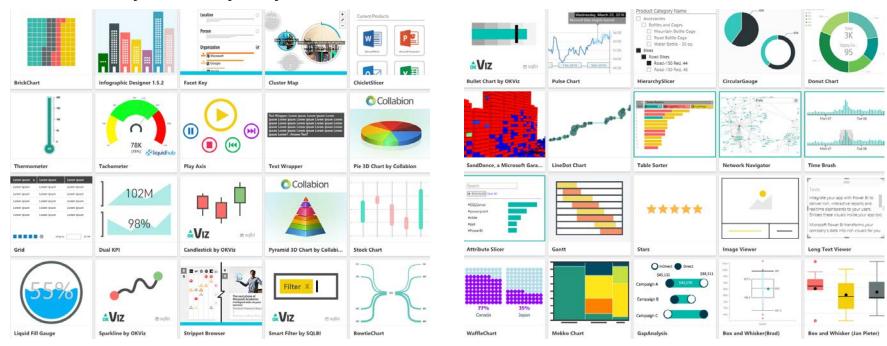




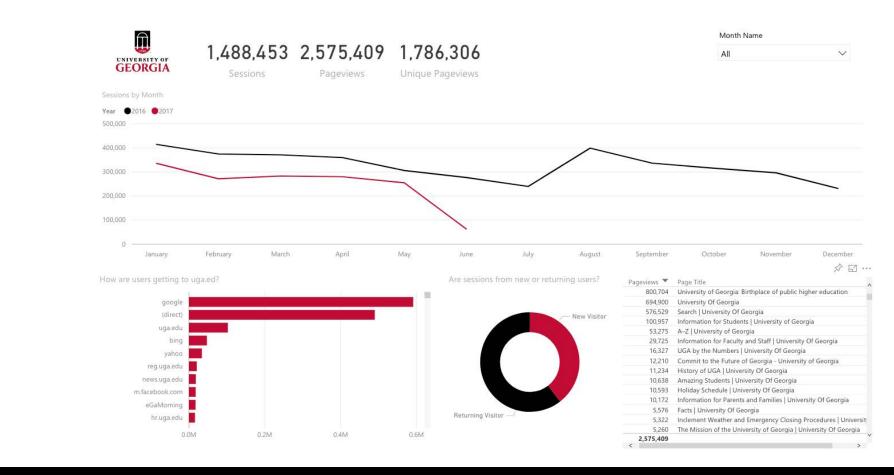


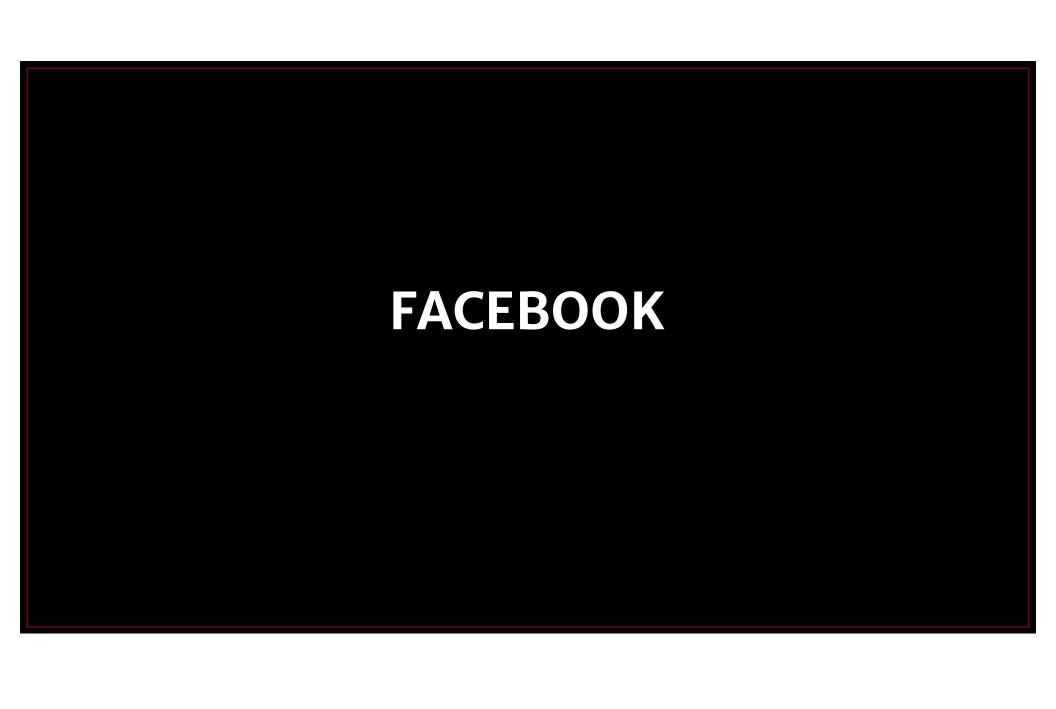
### **POWER BI CUSTOM VISUALS**

· Visualize any data any way with custom visuals available online



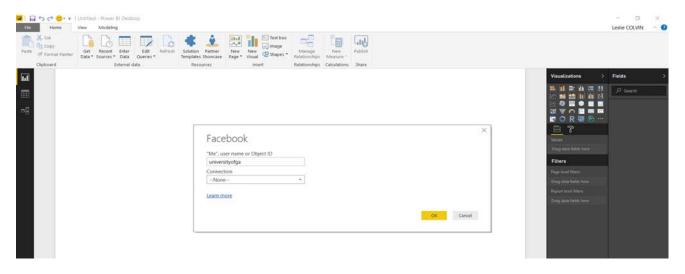
# **GOOGLE ANALYTICS**





### **FACEBOOK API & POWER BI**

- Power BI offers ability to connect directly with any public Facebook page
  - Do not have to be an administrator on the page
  - No user token or access tokens needed



=Facebook.Graph(https://graph.facebook.com/v2.8/universityofga/posts?=limit=100&fields=message,shares,type,created\_time&since=2017-01-01)

→ AB <sub>c</sub> message	A <sup>B</sup> C type	▼ Eo created_time	A <sup>B</sup> <sub>C</sub> id	123 shares.count	Date 🔻
One of our favorite campus bridges 🛪	photo	6/9/2017 10:46:00 AM	21657666681_101544181974016	null	6/9/2017
UGA Public Service and Outreach partners with Goodwill of North Geo	link	6/8/2017 11:35:30 AM	21657666681_101544175969216	1	6/8/2017
Writing Intensive Program brings local elementary students to UGA ca	link	6/6/2017 10:29:25 AM	21657666681_101544120518616	1	6/6/2017
Says Genesis Casas, age 11: "Without stories, there wouldn't be any happ					
Of the 2016 graduating class, 567 graduates were hired by the honore		6/5/2017 10:48:00 AM	21657666681_101544091419016	15	6/5/2017
"It's such an honor to partner strategically with the University of Georgia It's National Cheese Day, which reminds us of this creative trademark					
It's National Cheese Day, which reminds us of this creative trademark	N 10		21657666681_101543927859266	20	V-12-100 V-12-100-100
The University of Georgia College of Engineering celebrates its 5th ann	link	6/3/2017 11:40:00 AM	21657666681_101543948655016	4	6/3/2017
null	video	6/2/2017 8:36:20 PM	21657666681_101544022927316	null	6/2/2017
Catch the Peabody Awards tonight at 9p on PBS and Fusion.  Last week our Grady College of Journalism and Mass Communication, Un	video	6/2/2017 11:19:00 AM	21657666681_101543975614516	26	6/2/2017
Committed to access: UGA ranked 10th among the nation's top public	link	6/1/2017 10:45:00 AM	21657666681_101543971590766	412	6/1/2017
As a PhD student in UGA College of Family and Consumer Sciences, Ap	link	5/31/2017 11:45:42 AM	21657666681_101543947832116	null	5/31/2017
How campus changes in a season: this photo was taken from the same  ( a: Madi DiPietro)	photo	5/30/2017 10:42:00 AM	21657666681_101543747885716	60	5/30/2017
"In loyal love we set apart this house, a memorial to those lovers of pe  Today we honor those that have bravely served and given their lives for a  #MemorialDay		5/29/2017 10:31:15 AM	21657666681_101543895482216	152	5/29/2017
UGA has become a higher education leader for student veterans.	link	5/28/2017 11:05:00 AM	21657666681_101543826684966	15	5/28/2017
Looking sharp, Rutherford Hall 🔌 * (💩: @UGAHousing)	photo	5/27/2017 10:49:48 AM	21657666681_101543846316116	32	5/27/2017
"We wanted to understand what is driving aggressiveness in acute leu Takahiro Ito, biochemistry researcher in UGA Franklin College of Arts an		5/26/2017 10:53:00 AM	21657666681_101543766976716	59	5/26/2017
View of the Arch in 1985	photo	5/25/2017 10:30:05 AM	21657666681_101543793245116	38	5/25/2017



UGA	
235,291	
Page Followe	ers

UGA 154

UGA UGA 11,754 75,927 Shares Reaction Count



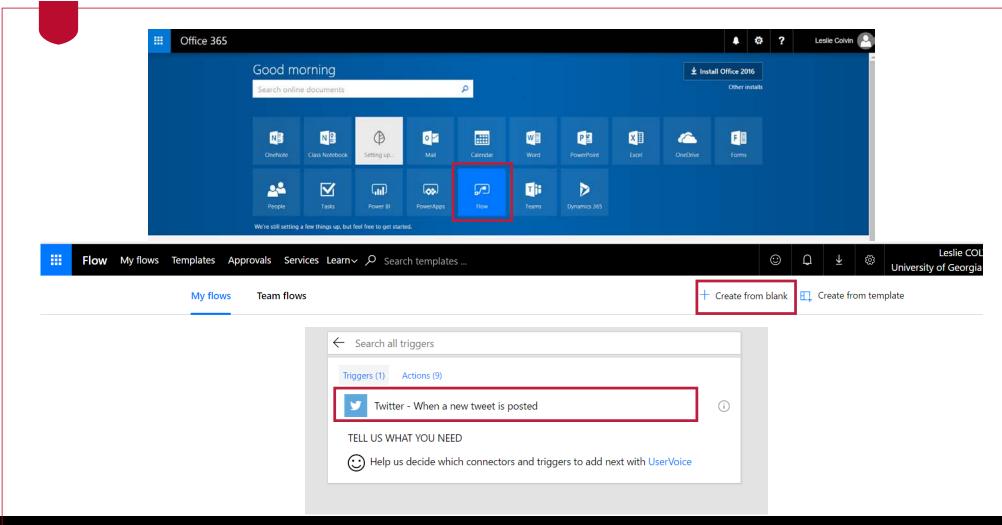


Month	Day	Post Type	Post URL	Reaction Count	Shares 🔻	message
February	25	video	ಿ	2,600	1,192	Athens, GA instead of Athens, Greece? We couldn't think of a better mistake to make, Travelocity 🌯
January	27	link	ම	2,807	1,070	Happy Birthday, UGA! 🏂 It was 232 years ago today that our founders realized the education of our people was essential for the prosperity of our state and of our newborn nation.
May	4	video	@	1,038	843	Happy Star Wars Day, Bulldogs! #MayTheFourthBeWithYou (10 Sound ON for this one!)
May	4	video	ල	2,450	669	"No matter where life takes us after this, we will forever be a part of the Bulldog Nation." Commit to what inspires you, #UGA17 🍲 🕡 :Sean Tackett)
February	5	photo	ම	4,180	551	Glory Glory! (📾: Chris Greer)
May	6	video	ල	1,777	448	"It's the unscripted, that's what makes life extraordinary." - Ernie Johnson (ABJ, '78) Congrats to our newest class of Bulldog alumni! 🐁
January	5	link	@	480	444	Athens campus will close at 3:30p on 1/6/17. Classes and activities after 3:30p are cancelled. More info: emergency.uga.edu
June	1	link	ಅ	1,412	412	Committed to access: UGA ranked 10th among the nation's top public universities by The New York Times
February	19	link	ලා	2,160	367	UGA Miracle raises a record-setting \$1.3M for Children's Healthcare of Atlanta https://t.uga.edu/314
January	22	video	ල	949	349	Just over 230 years ago, Georgia's visionary leaders sparked a movement that would educate a nation and transform the world. https://t.uga.edu/2VH
April	19	video	@	812	331	Before there was Earth Day, Eugene Odum taught us new ways to understand and protect our planet. He is known as the father of modern ecology and founded UGA's Odum School
April Total	11	video	ම	786 <b>75.927</b>	11.754	Sorn/ Shaquille O' Neal. Kenny Smith & Charles Rarkley — Emie Johnson Ir. has a date with #1 IGA17 on May 5th! 🙉 > 🙇 commencement was edit

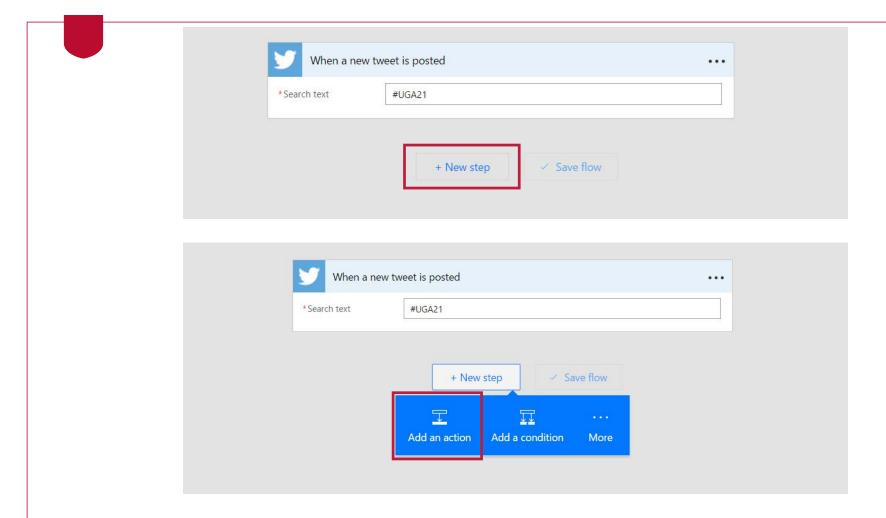


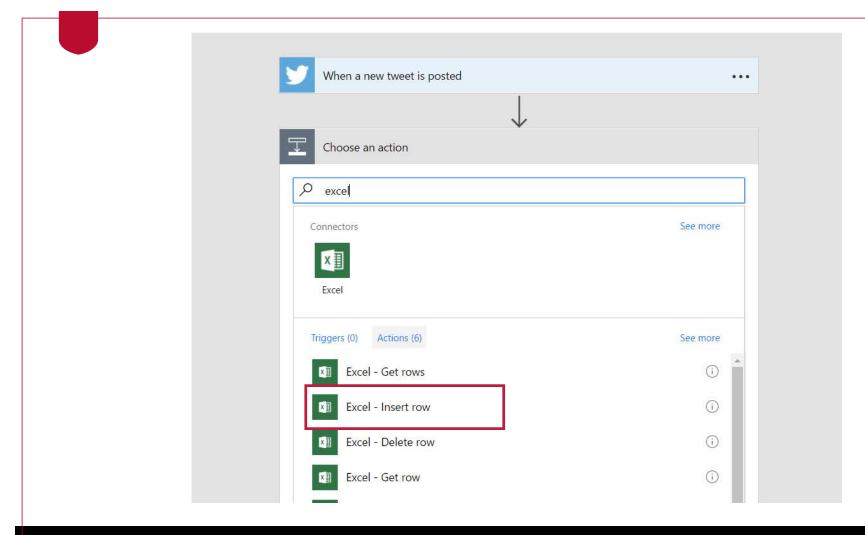


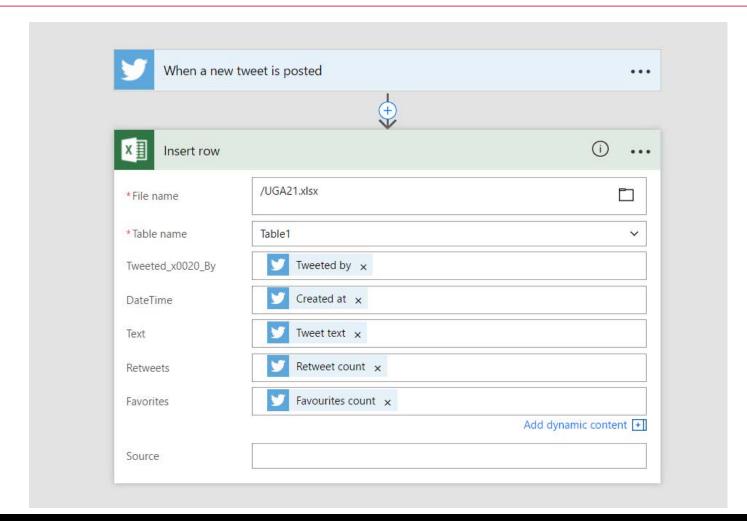




UNIVERSITY OF GEORGIA



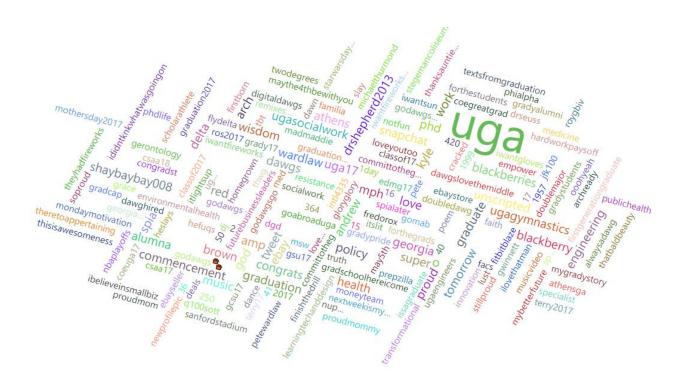




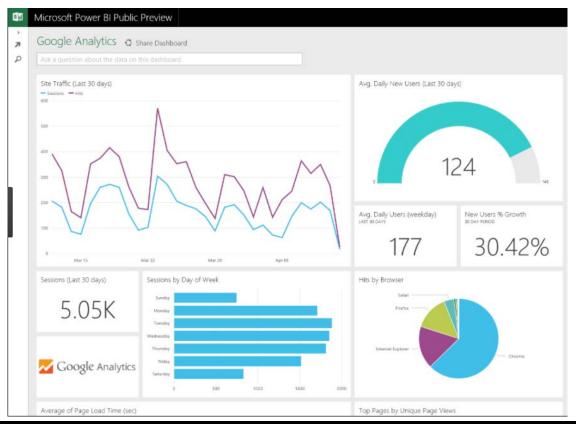
# **THE RAW DATA**

Excel Or	lline				Leslie
slie Colvin		UGA17	Print	Share *	Data +
A	В	С	D	E	F
Tweeted By	■ DateTime	Text	Retweets -	Favorites -	PowerApp
UGACareerCenter	2017-05-03T18:15:28.000Z	Graduation is almost here! Report your post-grad status for a chance at \$250 in prizes! → https://t.co/XfocSZmNDX https://t.co/FDshuq6K4B	0	563	7 kV6CKYJgOg
UGAGrady	2017-05-03T18:33:49.000Z	Join us on the Grady Lawn this Friday starting at 4 p.m. as we celebrate #Grady17. #UGA17 https://t.co/WZwHUDHys7	0	531	2 FqOlZm9kQ
victoriarcooper	2017-05-03T18:47:44.000Z	RT @UGAGrady: Join us on the Grady Lawn this Friday starting at 4 p.m. as we celebrate #Grady17. #UGA17 https://t.co/WZwHUDHys7	1	65	4 pK3Zb8YJPt/
Danny_CMcArthur	2017-05-03T19:08:52.000Z	RT @universityofga: Who wants a #UGA17 poster?Get them at the Arch and the Chapel Bell on Friday from 12-2p ***********************************	13	186	9 beHXuxkWL
jstncrwfrd	2017-05-03T19:26:02.000Z	Four years for the cap, a lifetime for the jersey, #graduation #uga17 #roygbiv #red https://t.co/oLvg1vPSeZ https://t.co/D3Yurlwj5L	0	119	8 s_TknLSxrb0
arnellev	2017-05-03T19:26:22.000Z	RT @UGAGrady: Join us on the Grady Lawn this Friday starting at 4 p.m. as we celebrate #Grady17. #UGA17 https://t.co/WZwHUDHys7	2	2 898	2 uHKa7Xu4IJ
jeffjowdy	2017-05-03T19:59:13.000Z	RT @UGAGrady: Join us on the Grady Lawn this Friday starting at 4 p.m. as we celebrate #Grady17. #UGA17 https://t.co/WZwHUDHys7	3	7331	9 sJTGrF4wa0
forthegirlsuga	2017-05-03T20:02:43.000Z	#UGA17 tag @forthegir/suga in your graduation photos on twitter or instagram to be featured on our feed!	C	10	9 VP8Qn7H36
AdPR_UGA	2017-05-03T20:08:19.000Z	RT @UGAGrady: #Grady17 graduate @SamHendricks67of @AdPR UGA reflects on his Grady family; https://t.co/MQG9FIUK35 #MyGrady5tory #UGA17	3	3 719	9 TAnFntdlc0Y
UGASocialWork	2017-05-03T20:51:58.000Z	See you Friday, #MichaelThurmond @ClassicCenter! #UGASocialWork #UGA17 https://t.co/CYkNtQircM @redandblack @LeeShearer @FlagpoleMag	0	147	9 HcrDhDpTr
Its Jayyy	2017-05-03T21:01:17.000Z	How I'm gonna walk across the stage at Terry Convocation Friday #UGA17 https://t.co/mY3HM2a0pc	0	133	5 SGcEKVbtb
thesassvk94	2017-05-03T21:05:24.000Z	RT @forthegirisuga: #UGA17 tag @forthegirisuga in your graduation photos on twitter or Instagram to be featured on our feed!	2	528	9 FDzrnWHcs
UGAGrady		nt gentregii saga. #00417 rag gentriegii saga iii you gaddadori pinodo bri witer or i iisaga garin do lei leadure o ritod i needi. \$\frac{\pi}{2}\$ \times \text{Journalism} Journalism and regle garage Cinco de Grady: https://t.co/MExtraLIdM #MyGradyStory #UGA17	0	531	4 6NMfXd zs
WorldFamousATH		Yo #UGA17 this is it. Best years of your life *poof* done. Enjoy a last laugh. The Good Stuff tonite @ 9:30, FREEL https://t.co/RsdwVaF76k		330	1 iYvuDHvVF
stiloo7		RT @its_Jayyy; How i'm gonna walk across the stage at Terry Convocation Friday #UGA17 https://t.co/mY3HM2a0pc	1		1 Lx62CRMb
Loyal_To_The_G	2017-05-03T22:49:46.000Z	RT @universityofia: Only 2 days until #UGA17 Parking Seating Keepsakeshttps://t.co/0SUSKR1UVx https://t.co/Nchd2y9aw5	12		8 4T1mHwdy
omgitsemily825	2017-05-03T23:05:06.000Z	Pretty smiles w taywarwick #uga17 @ UGA Chapel Bell https://t.co/4klMbhcRXw			9 SylzegMea
kar118	2017-05-03T23:02:29.000Z		0		6 RPKbFd9r
PeachsinGa	2017-05-03T23:13:27.000Z		13		9 aWksZcNp
danielw00393296	2017-05-04T00:00:04.000Z	KT @ diliversityOlga. Only 2 days dritti #OOA17: all alkings Deatings (Reepsakes) (Co) 0505/K10 vg https:// Cco/ 0505/K10 vg	13		6 z1AExiGzL3
universityofga	2017-05-04T00:00:04:000Z	RT @universityofiga: Only 2 days until #UGA17! Parking Seating Keepsakeshttps://t.co/OSUSKR1UVg https://t.co/Nchd2v9aw5	0		4 Qtb GrFYq
Ayee Bayyy	2017-05-04T00:17:49:000Z	#UGA17 🗼 💸 https://t.co/5Loi5zAf0B			3 bw-tyNBiyk
Clay_Hartley	2017-05-04T00:31:56.000Z	RT (@diliversityOrga: #OGA17 == F Tittps://t.co/j2col32Alob	3		2 YrpudglJX24
JustineSpectra		RT @universityofga: #UGA17 ** https://t.co/5Loi5zAf0B Sneak peak of Graduation Pictures. #UGA17 https://t.co/qLxDHs84lk			5 pAr3-BopU
Nafisat16	2017-05-04T01:50:17.000Z	Taxabas and Control Co	14		io tY02py8lw
ANubianQueen	2017-05-04T01:30:17:000Z	RT @universitvofiga: Who wants a #UGA17 poster?Get them at the Arch and the Chapel Bell on Friday from 12-2p thitps://t.co/vznNx31CPE	22		9 4quPOezRn
Taleyhaa	2017-05-04T03:35:54.000Z	RT @OhSoRayy: #BlackGirlsGraduate "Oh yes they do!" #UGA17 #GSU17 💗 💆 🌉 https://t.co/ZoOkgk35Cw	23		3 91wkCA852
		The Constitution and the Constitution of the C	4		
ErinRichman ugaCOE	2017-05-04T10:15:34.000Z 2017-05-04T11:15:27.000Z	RT (wulliversityolga, #OGA17 With Tittps://t.co/JcolszAlob	0	1 55	14 52uWTrQEo
1000			- 1		1 X8FUPN/JD/ 16 JrzfrLDck4N
ClassicCenter		RT @UGASocialWork: See you Friday, #MichaelThurmond @ClassicCenter! #UGASocialWork #UGA17 https://t.co/CYkhtQircM @redandblack @LeeShearer	0		
ugaCOE		Attending or tuning in? Here's everything you need to know about Spring 2017 Convocation today, https://t.co/ksEGfmTu6N #COEUGA17 #UGA17			1 vbYV9KJWn
kokeefewhite		RT @universityofiga: Last day of finals. 1 day until #UGA17.#MayThe4thBeWithYou https://t.co/dt03cl4tWl			7 OD_Oz7RQC
jstncrwfrd	2017-05-04112:45:38.000Z	RT @universityofga: Last day of finals. 1 day until #UGA17.#MayThe4thBeWithYou https://t.co/dtO3cl4tWl	5	120	0 TLzaD6MDI

### POWER BI - WORD CLOUD VISUAL



## **SAMPLE REPORTS**





Date 1/1/2017 6/9/2017

#### Page Followers

Page	Page Followers
Auburn	351,793
Florida	665,585
GA Tech	136,365
LSU	770,824
Michigan State	475,799
Purdue	224,974
South Carolina	144,840
Tennessee	254,702
Texas A&M	594,122
UGA	235,291
UNC	271,198
UT-Austin	677,523
Virginia	171,019
Wisconsin	285,559



















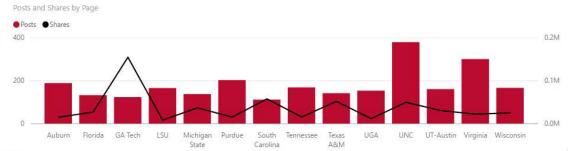












Page	Month	Day	Shares	Post URL	Post Type	message
GA Tech	January	7	136,286	ල	video	What happened when the Georgia Tech swim team got snowed in to their hotel and their meet at Virginia Tech was cancelled.
UNC	March	23	16,025	ලා	video	It's only natural that on #National PuppyDay we introduce you to REMINGTON! The golden retriever is the newest member of the North Carolina Tar Heels baseball team, and he serves an im-
Michigan State	April	6	9,375	ಅ	video	Here's "Victory for MSU" like you've never heard it before.
South Carolina	April	2	8,487	ලා	video	South Carolina Women's Basketball just won the National Championship!!!!!! What a night to be a Gamecock! 🌑 🐧 #ForeverToThee
Wisconsin	May	15	6,566	ಅ	video	Most schools walk to Pomp and Circumstance. Not Badgers we JUMP AROUND at Commencement.
South Carolina	March	24	5,796	ව	video	For the first time in school history, South Carolina Men's Basketball is headed to the NCAA March Madness #Elite8. Tonight, Capstone is glowing garnet in their honor. 🕎 📵
Texas A&M	May	10	5,260	ලා	photo	100 years ago this month, Texas A&M cancelled graduation ceremonies so that the entire Class of 1917 could go serve in World War II Read more about the selfless service of the Class of 191
Florida	April	1	5,191	ලා	video	A message from President Fuchs
South Carolina	April	1	4,908	ල	photo	What an incredible season for Frank Martin and South Carolina Men's Basketball. #ForeverToThee
UNC	April	4	4,192	ම	photo	The North Carolina Tar Heels have won their sixth NCAA National Championship! #GoHeels
Total			522,248			



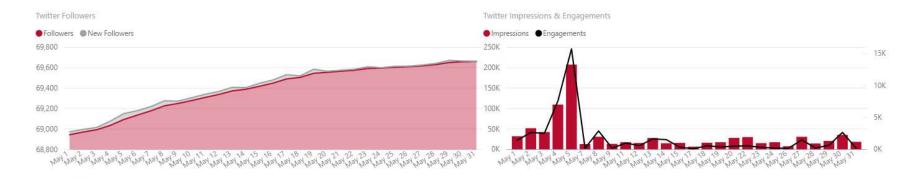
853K Total Tweets Impressions Engagements

46K

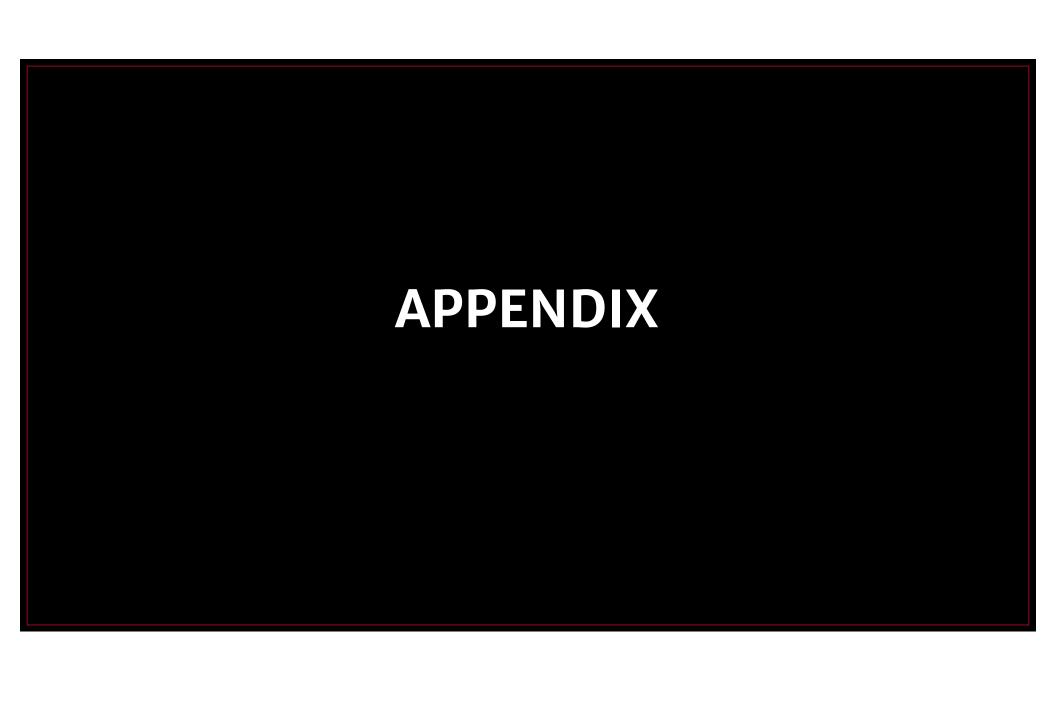
Date



Date	retweets	Engagements *	Tweet permalink	Tweettext
Friday, May 5, 2017	441	5,158	ම	Congrats #UGA17!ðÝŹ‰őÝŹ*őÝŽ‡ https://t.co/BT1xZRffOv
Friday, May 5, 2017	121	3,515	ල	"It's the unscripted, that's what makes life extraordinary." - Ernie Johnson (ABJ, '78) https://t.co/RY3ccNNkK0
Friday, May 5, 2017	90	2,898	ල	"Think about all the big days: who showed up, who didnâ€"t. Letâ€"s be a class who shows up. Letâ€"s be there for others." - Avery Hudson, #UGA17 https://t.co/3pWdD3gtU
Thursday, May 4, 2017	91	2,812	ල	Congratulations #UGA17 Rite of Sankofa graduates! Follow the ceremony on Snapchat ŏŸn: university-ga https://t.co/hwv6Dkl0CL
Tuesday, May 2, 2017	18	2,149	ල	Who wants a #UGA17 poster? Get them at the Arch and the Chapel Bell on Friday from 12-2p ðŸŽ"ðŸŽ"ö https://t.co/vznNx31CPE
Tuesday, May 30, 2017	66	2,140	ම	How #UGA campus changes in just a season: this photo was taken from the same place every Friday during spring semester. (δΨ*: Madi DiPietro) https://t.co/SaV0tFTpRR
Thursday, May 4, 2017	177	2,106	ම	Last day of finals. 1 day until #UGA17. #MayThe4th8eWithYou https://t.co/dtO3cl4tWl
Monday, May 8, 2017	12	1,696	@	Phase II of #UGA's Business Learning Community nears completion, 2 buildings named for business leaders https://t.co/Ae2wOcgeLh https://t.co/4rZKoBa03G
Sunday, May 14, 2017	25	1,526	ල	Happy #MothersDay! https://t.co/m0gSucPlkp
Thursday, May 4, 2017	41	1,491	ල	#TBT: Freshman welcome for #UGA17 Order this G print here >> https://t.co/7Zp29T40wM https://t.co/sw2VUPF3hT
Friday, May 5, 2017	8	1,445	ೌ	That's a wrap on the #UGA17 Graduate Commencement Ceremony! https://t.co/eTSbURgji1
Saturday, May 27, 2017	15	1,240	@	Looking sharp, Rutherford Hall ðÝ'Œâ"€í, (ðÝ": @UGAHousing) https://t.co/aB4yxNXw8S
Wednesday, May 3, 2017	4	1,191	ම	#UGA17 ōŸ",ōŸŽ%sōŸŽ" https://t.co/5Loi5zAf0B
Monday, May 8, 2017	6	1,190	ම	You've seen our Science Learning Center, right? https://t.co/sXVsNdzpNK https://t.co/86wtSp0DME
Thursday, May 4, 2017	102	1,188	ල	"No matter where life takes us after this, we will forever be a part of the Bulldog Nation." Commit to what inspires you, #UGA17 &YZ" https://t.co/6QBjF2JOQE
Total	1,806	46,212		







## **Data Design Dos and Don'ts**

- Do use 1 color to represent each category
- Do order data sets using logical hierarchy
- Do use callouts to highlight imports or interesting information
- Do visualize data in a way that is easy for readers to compare values
- Do use icons to enhance comprehension and reduce unnecessary labeling

- Don't use high contract color combinations such as red/green or blue/vellow
- Don't use 3D charts, they can skew perception of the visualization
- Don't add anything unnecessary to distract from the data
- Don't use more than 6 colors in a single layout
- Don't use distracting fonts or elements (bold, italics, underlined text, etc.)

# **Data Studio Resources**

- http://www.shiftcomm.com/blog/new-shift-webinar-getting-started-withgoogle-data-studio/
- https://datastudiogallery.appspot.com/

### **Power BI Resources**

- Dataset types that can be used with Power BI:
  - https://powerbi.microsoft.com/en-us/documentation/powerbi-service-get-data/
- Microsoft Office Visuals Download
- https://datachant.com/
- https://curbal.com/