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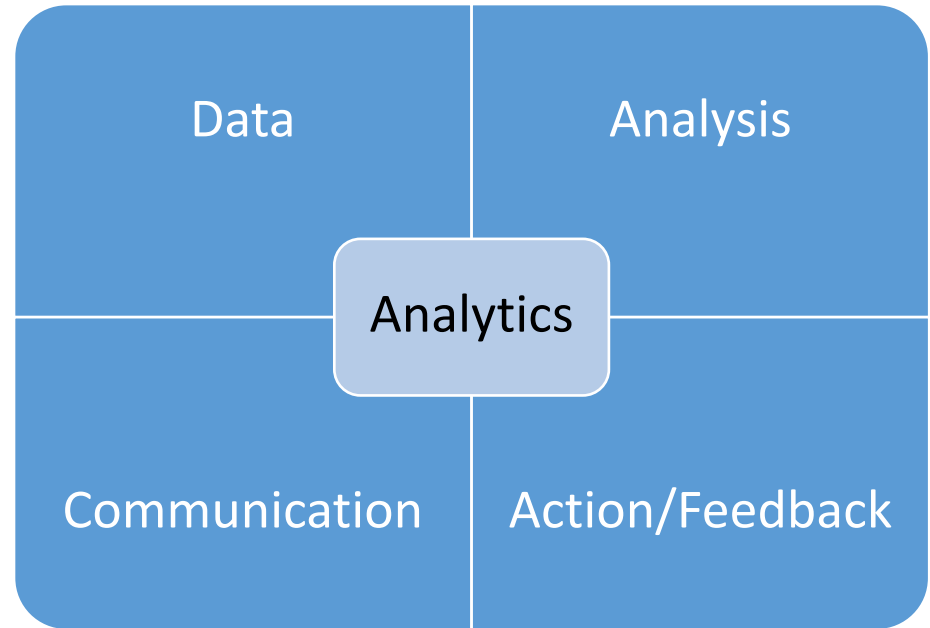
Big Data and Predictive Analytics at Carolina Athletics





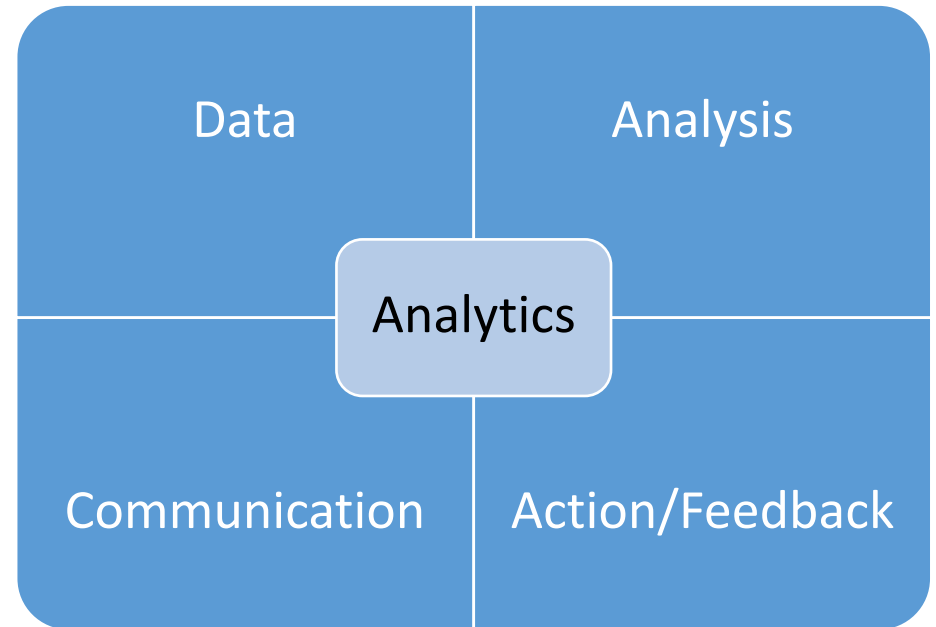
Analytics

Process of finding meaningful patterns and relationships in data to order to drive decision making.



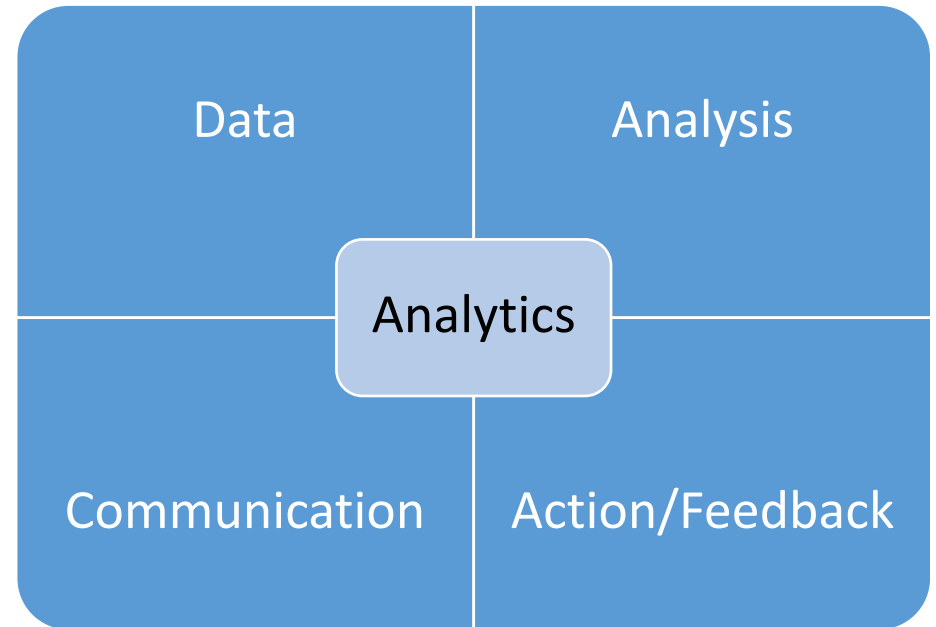
Analytics

- Why Now?
 - Data Availability
 - Data Storage
 - Memory
 - Computing Power

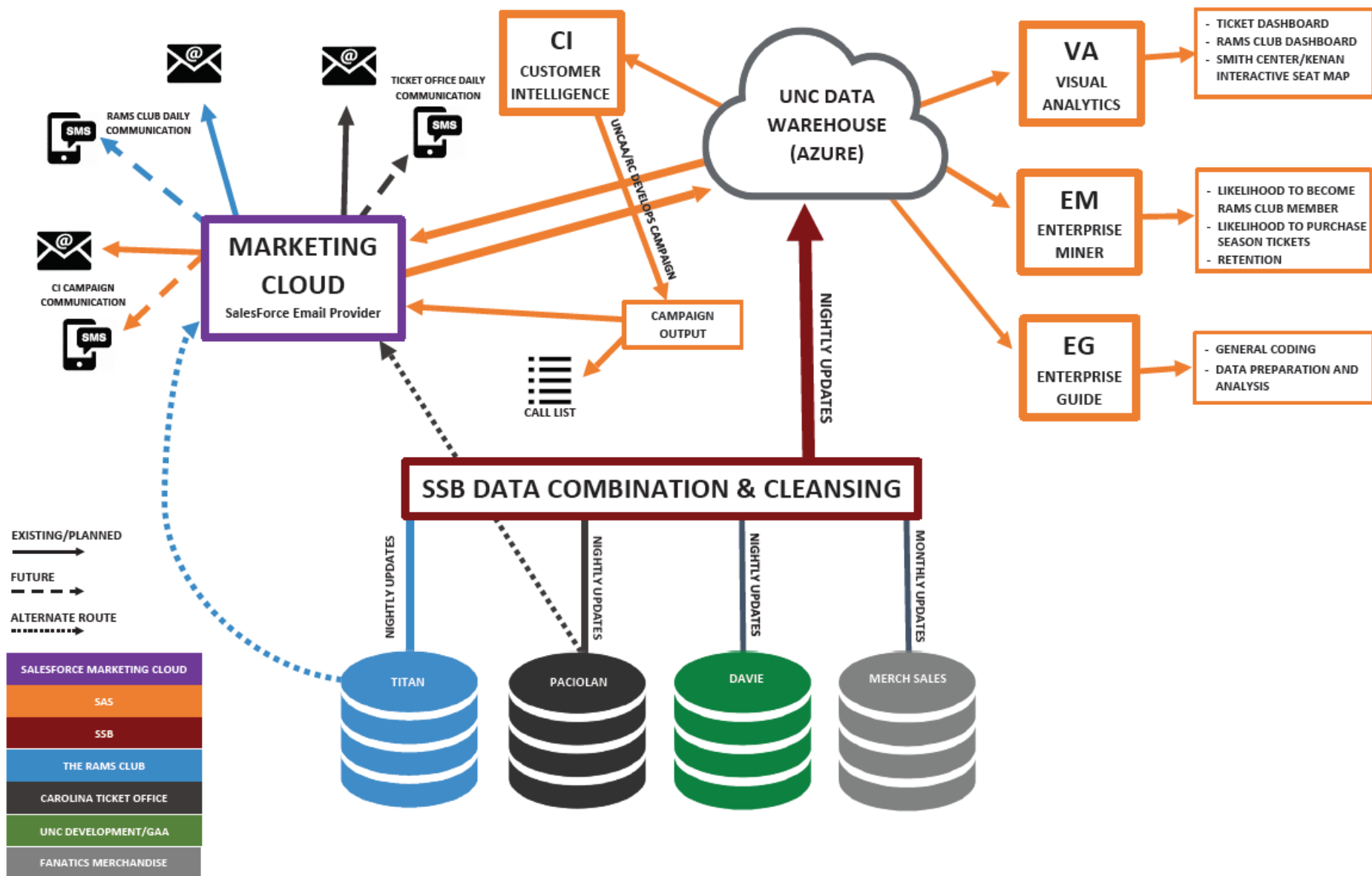


Analytics in Sports

- Areas of Focus:
 - Business and Fan Engagement
 - Ticket Sales
 - Booster Club Memberships
 - Athlete Success
 - Recruiting
 - Game Performance
 - Wellness and Injury Prevention
 - Data Governance



Athletics Department Analytics Platform



Visual Analytics: Ability to Know Where Football Ticket Buyers Live

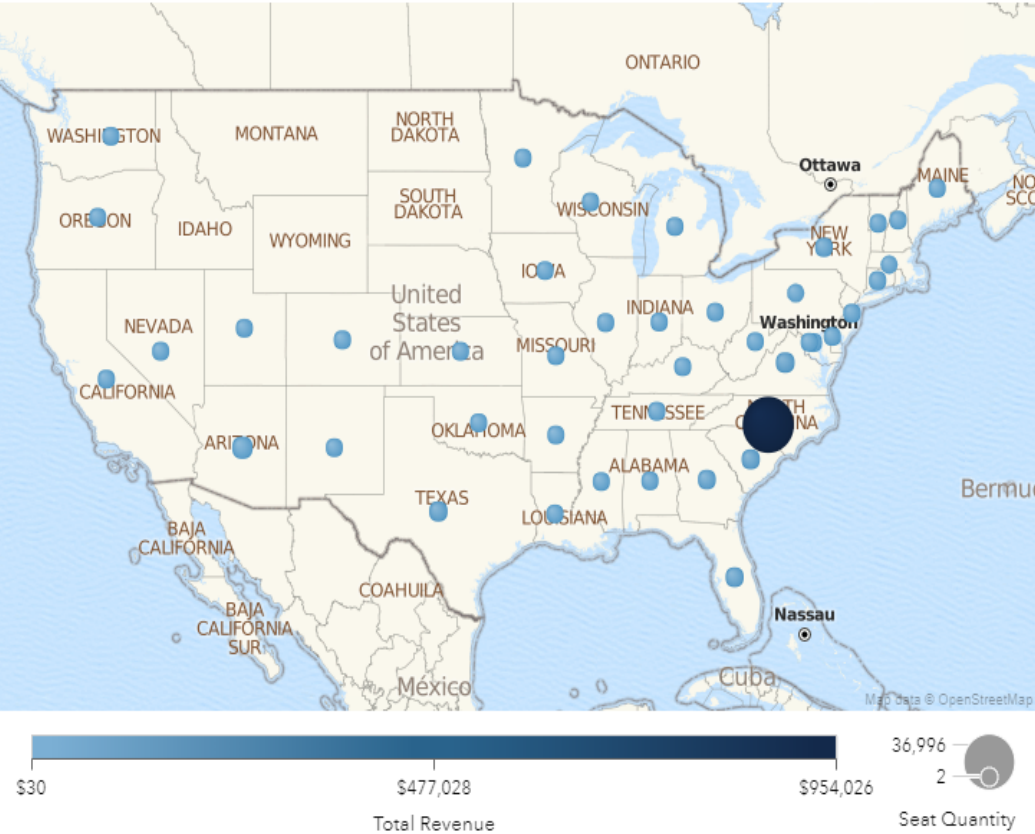
Football

2017 FOOTBALL

WESTERN CAROLINA

Ticket Type

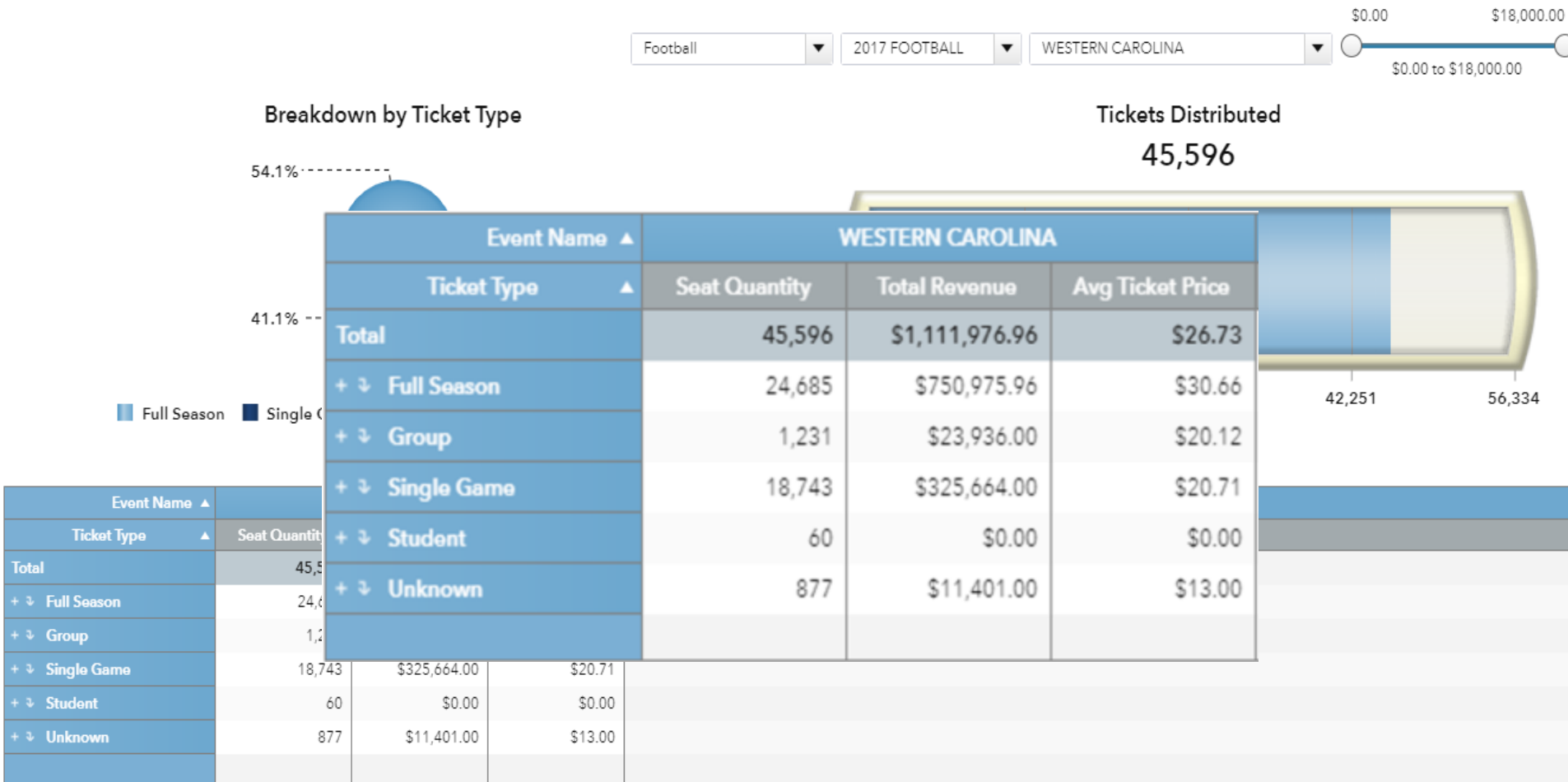
Distribution of Ticket Purchasers



Ticket Purchaser Details

SSB ID	Seat Quantity	Ticket Price	Total Revenue	Ticket Type
	2	\$40.00	\$80.00	Single Game
	4	\$35.00	\$140.00	Full Season
	2	\$17.00	\$34.00	Full Season
	2	\$35.00	\$70.00	Full Season
	3	\$35.00	\$105.00	Full Season
	4	\$13.00	\$52.00	Unknown
	4	\$50.00	\$100.00	Full Season
	8	\$35.00	\$280.00	Full Season
	6	\$40.00	\$240.00	Single Game
	4	\$35.00	\$140.00	Full Season
	4	\$10.00	\$40.00	Single Game
	2	\$35.00	\$70.00	Full Season
	1	\$0.00	\$0.00	Group
	1	\$30.00	\$30.00	Single Game
	3	\$35.00	\$105.00	Full Season
	4	\$13.00	\$52.00	Unknown
	2	\$35.00	\$70.00	Full Season
	3	\$35.00	\$105.00	Full Season
	3	\$35.00	\$105.00	Full Season
	Sum: 45,596	Sum: \$315,317.58	Sum: \$1,111,976.96	

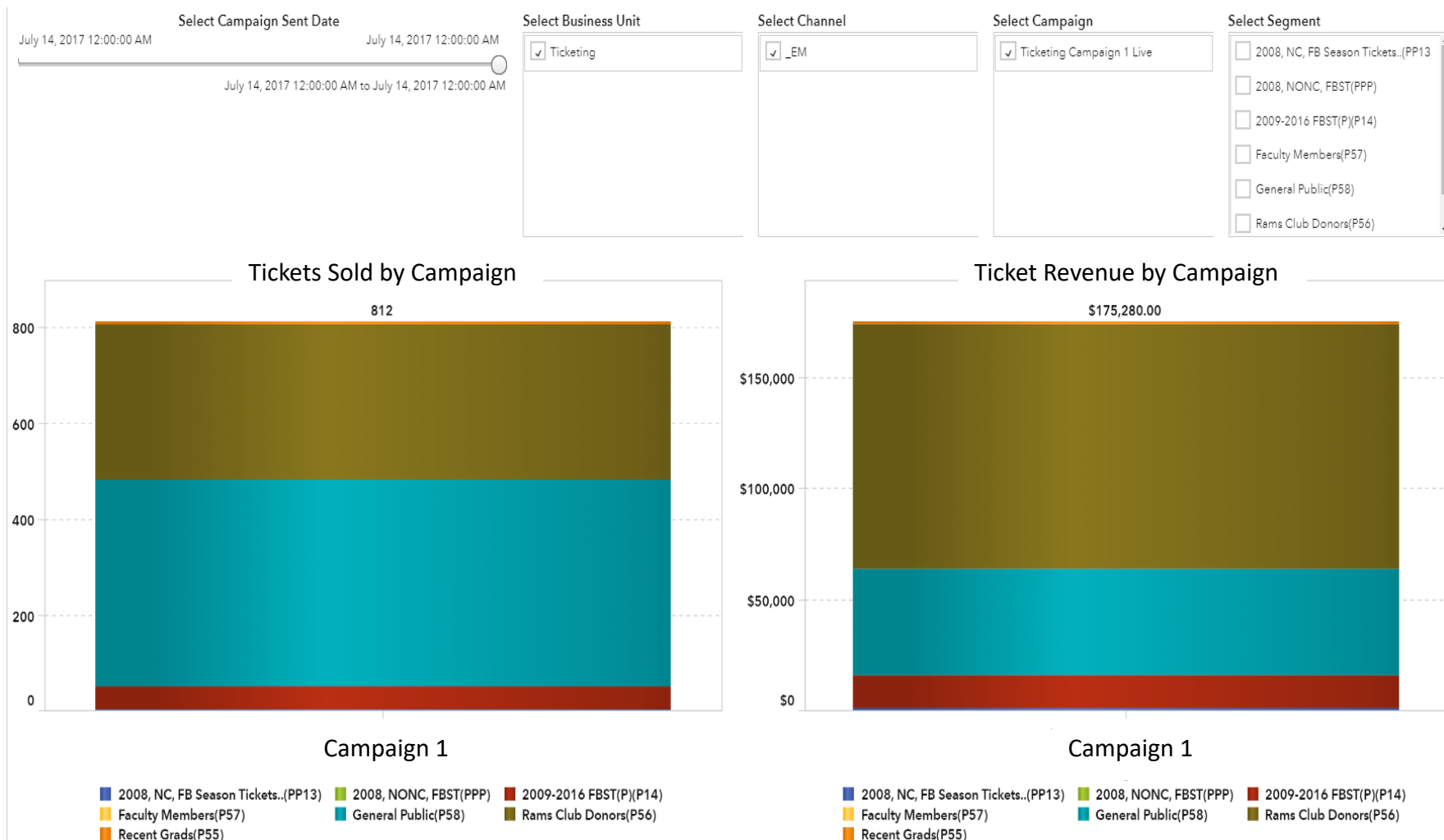
Visual Analytics: Analyzing Ticket Sales for Specific Events



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Big Data and Predictive Analytics in Athletics

Visual Analytics: Analyzing Marketing Campaign Results



Predictive Analytics: Fans Most Likely to Purchase a Football Ticket

Part 1: The Star System



Most Engagement
across UNC

Least Engagement
across UNC

Factors Used to Determine Engagement:

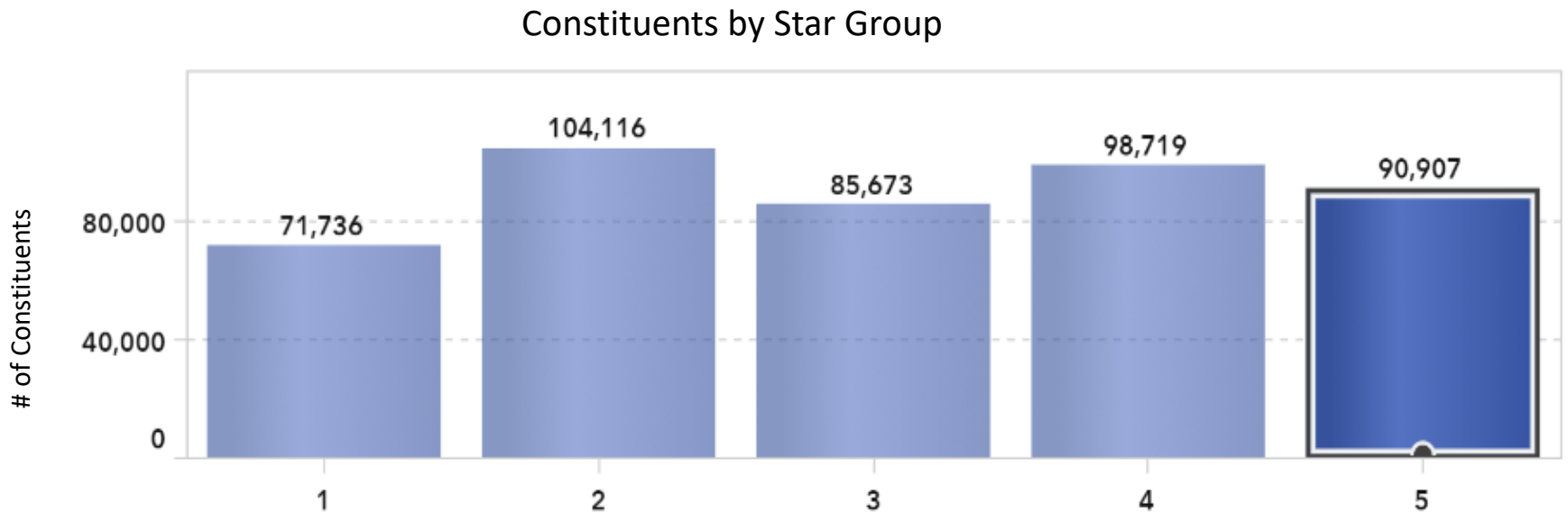
- Football Tickets Purchased
- Men's Basketball Tickets Purchased
- Ram's Club Donations
- University Donation Amounts
- Number of Donations to University
- University Event Attendance

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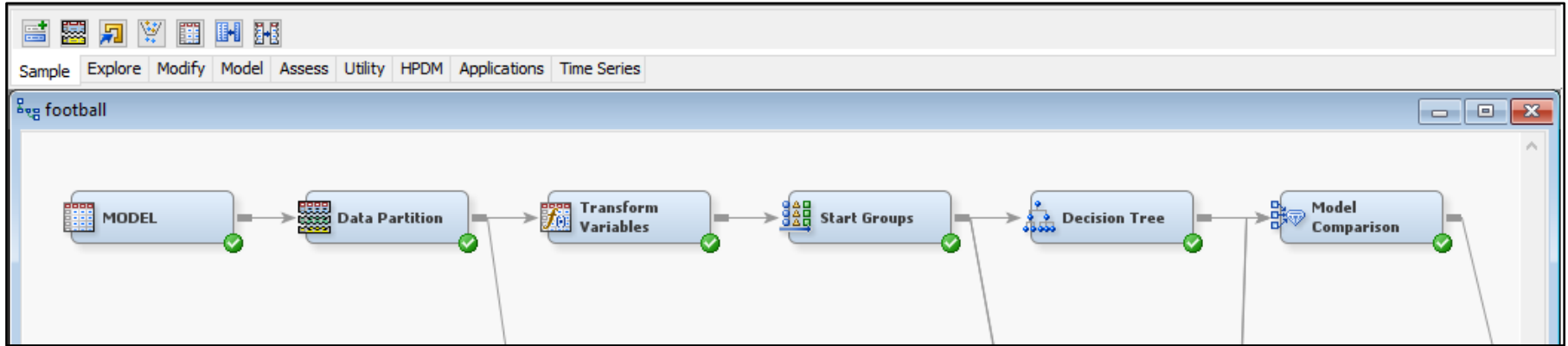
Big Data and Predictive Analytics in Athletics

Predictive Analytics: Fans Most Likely to Purchase a Football Ticket

Part 2: Build Predictive Model Within Each Star Group

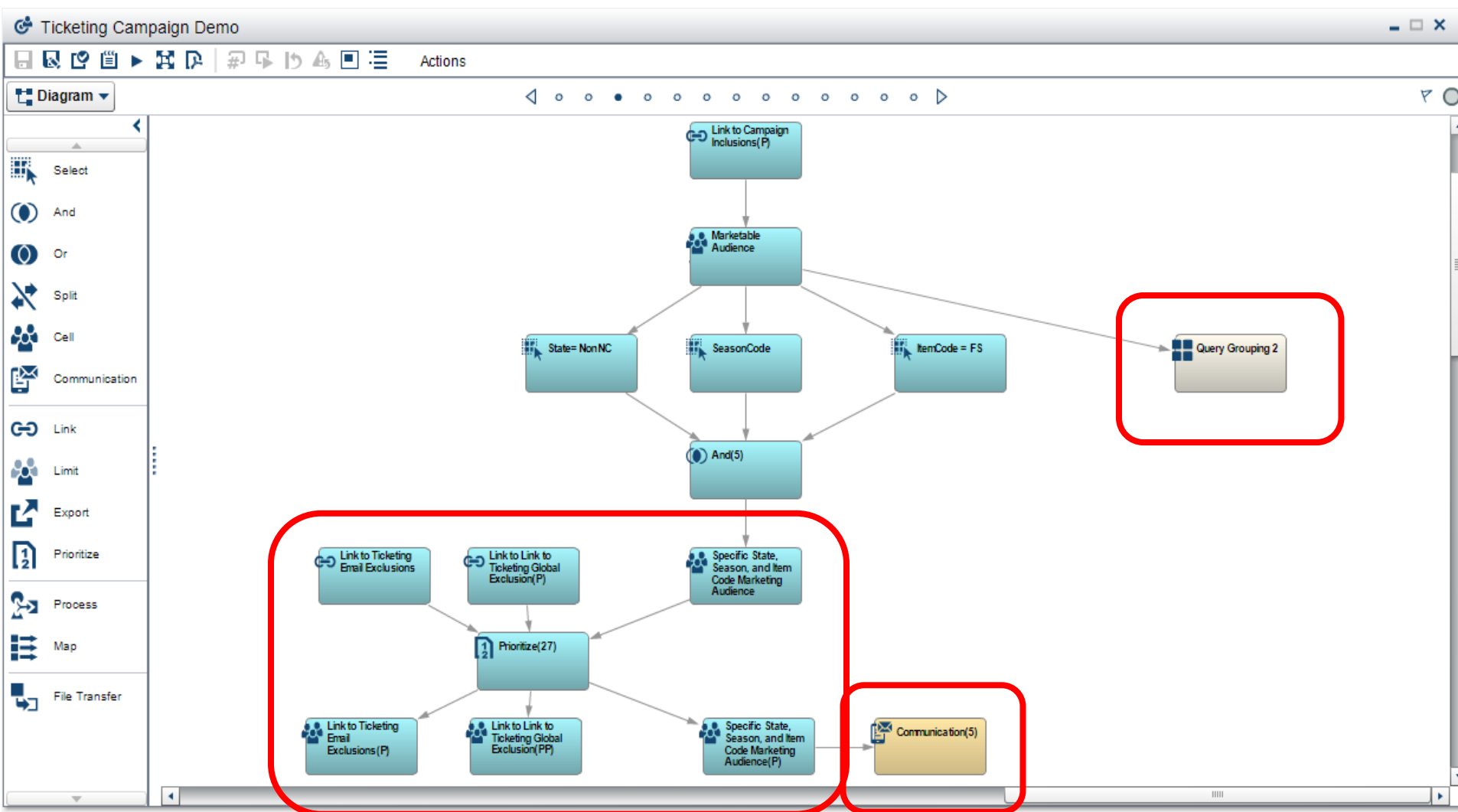


Predictive Analytics: Fans Most Likely to Purchase a Football Ticket

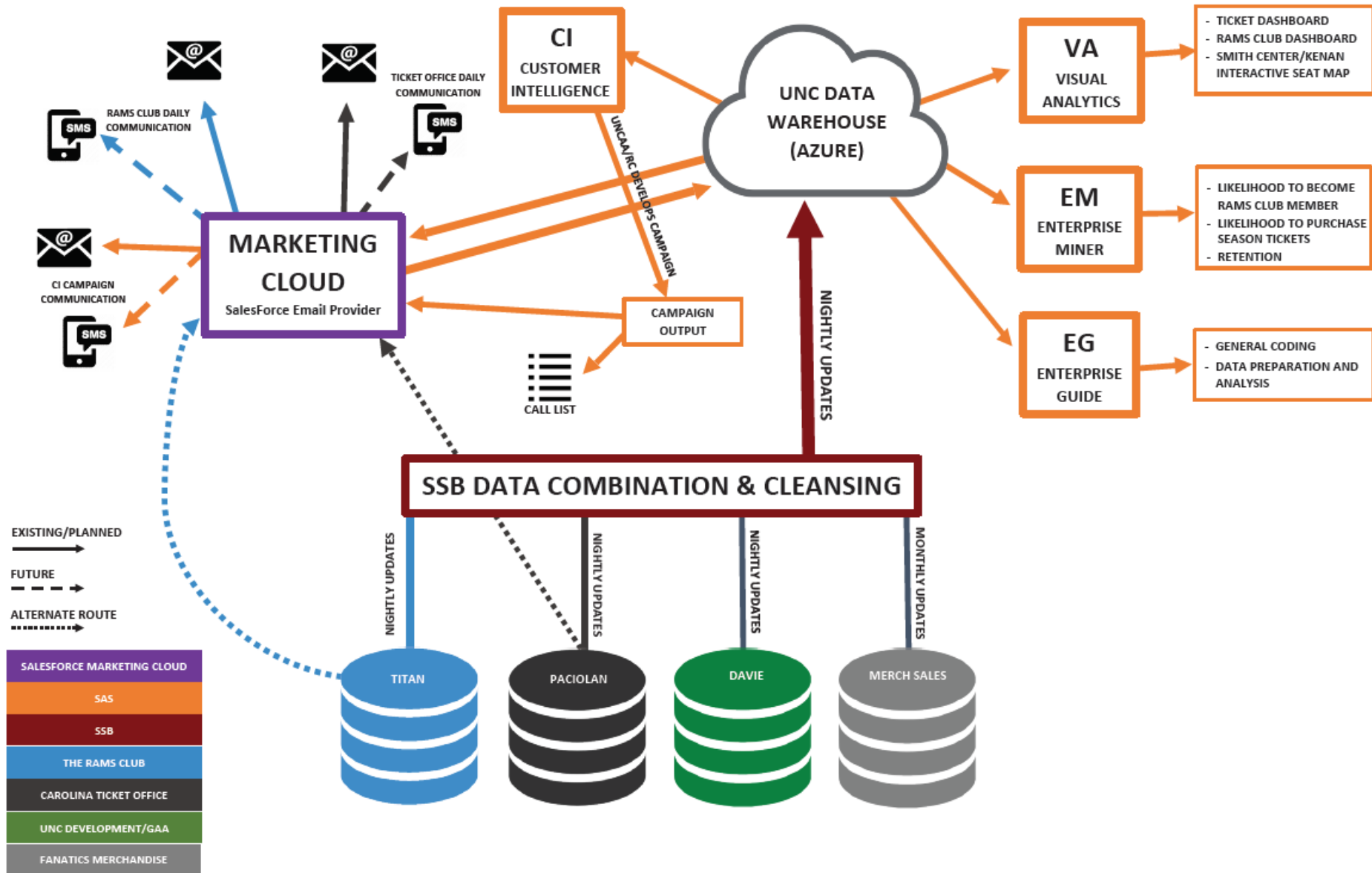


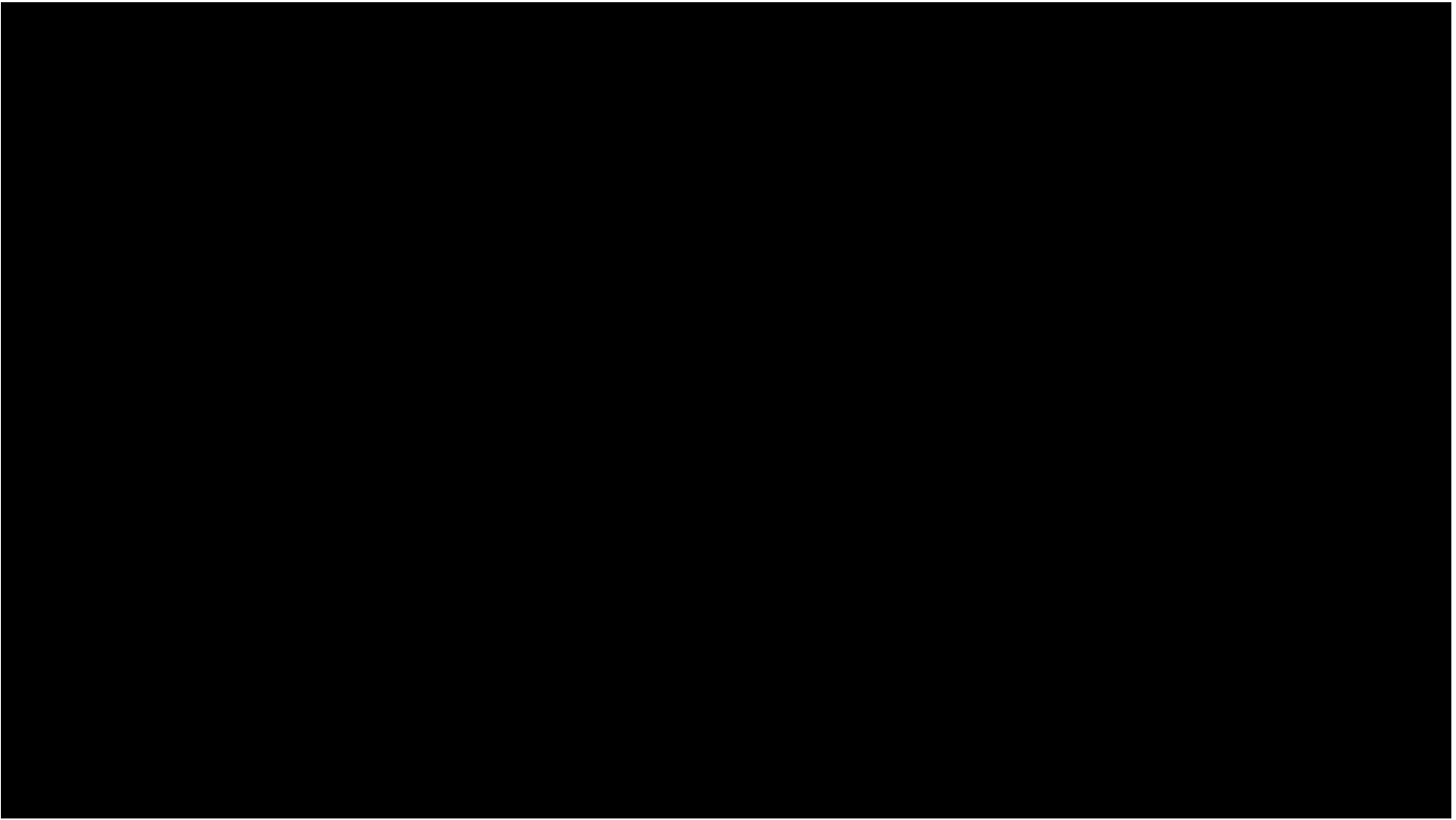
ID	Propensity to Purchase Ticket	Past Football Ticket Purchase?	Football Ticket Purchase Last Year?	Season Ticket Purchase Last Year?	Football Engagement Rank	Past Basketball Ticket Purchase?
1	0.9986	0	1	0	7	1
2	0.9787	1	0	0	7	1
3	0.9503	1	0	0	5	0
4	0.9503	1	0	0	6	0
5	0.9412	1	0	0	6	0

Customer Intelligence Marketing Automation: Campaigns



Athletics Department Analytics Platform





Current Status of the Journey

Journey Began on November 2nd, 2016 (19 months ago)

New Tools:

- SSB Master Data Warehouse
 - Rams Club Donor (Titan) Data: 95,000 records
 - Athletics Ticketing (Paciolan) Data: 450,000 records
 - OUD / GAA (Davie) Data: 1,050,000 records
 - Online Merchandise Sales (Fanatics) Data: Records from 50 States and 58 Countries
- SAS Visual Analytics Software
- SAS Predictive Analytics (Enterprise Miner) Software
- SAS Customer Intelligence Software (used with Marketing Cloud email service provider)



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Constituent Engagement Executive & Coordinating Committee

June 14, 2018

Status Summary

Successes (a sample of highlights):

- Cultural shift, embracing data based decision making
 - Football and Men's Basketball Ticket Buyer Surveys
 - Ticket Pricing Analysis for Football and Men's Basketball
- Collaboration across athletics units, interest across the University
- All Athletics and Rams Club email campaigns through a common email service provider
- Initial game journey campaigns in the SAS CI tool
- Predictive Models built for Football, Men's Basketball and the Rams Club
- Beginning to learn more about our customers
- Collaborations with Faculty
 - Nick Didow, Kenan Flagler Marketing Professor, Customer Surveys
 - Jon Williams, UNC Economics Professor, Secondary Ticket Market Impacts
- \$25.9 million in Football and Men's Basketball Ticket Revenue in 2017/18 – most ever
- 4,700 new football season ticket holders in 2017

Challenges:

- Data quality and issues
- SAS Visual Analytics performance
- Master Data Mart process delays
- Preparing for growth
- “Making the Theoretical become Practical”
- Demonstrable direct ROI



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	FALL 2017	SPRING 2018	FISCAL YEARS 2018 - 2019	FISCAL YEARS 2019 - 2021	FISCAL YEARS 2021 - 2022
	CRAWL	WALK	RUN	FLY	ORBIT
IMPLEMENTATION	<ul style="list-style-type: none"> ■ PLATFORM ESTABLISHED (SAS TOOLS) ■ MARKETING CLOUD ADDED 				
DATA					
ACCESS & ARCHITECTURE	<ul style="list-style-type: none"> ■ MASTER DATA WAREHOUSE CREATED ■ COMMON DATA MODEL CREATED 	<ul style="list-style-type: none"> ■ ANALYTICS DATA MART ESTABLISHED 	<ul style="list-style-type: none"> ■ AUTOMATE ANALYTICS DATA MART 	<ul style="list-style-type: none"> ■ EXPAND DATA MART VARIABLES PER ADDITIONAL SOURCES ■ SYSTEM & ARCHITECTURE REVIEW ■ SYSTEM SUPPORT REVIEW 	
QUALITY	<ul style="list-style-type: none"> ■ DATA QUALITY GROUP FORMED 	<ul style="list-style-type: none"> ■ BEGIN COLLECTING DATA CHECKS ■ PACIOLAN/NEULION INTEGRATION ■ DATA MANAGEMENT GUIDELINES CREATED 	<ul style="list-style-type: none"> ■ IMPLEMENT ORGANIZATIONAL DATA ENTRY STANDARDS ■ EXPANSION OF DATA MANAGEMENT GUIDELINES 	<ul style="list-style-type: none"> ■ ROBUST AUTOMATED DATA CHECKS ■ ENTERPRISE DATA QUALITY INITIATIVE 	
SOURCES		<ul style="list-style-type: none"> ■ INCORPORATE FANATICS DATA 	<ul style="list-style-type: none"> ■ EVALUATE ADDITIONAL DATA SOURCE 		
GOVERNANCE					
OVERSIGHT & DOCUMENTATION	<ul style="list-style-type: none"> ■ DATA GOVERNANCE COMM. FORMED 	<ul style="list-style-type: none"> ■ DATA GOVERNANCE DOCUMENT TREE ■ PRINCIPLES FOR DATA USE ESTABLISHED ■ PRINCIPLES FOR DATA SHARING ESTABLISHED 	<ul style="list-style-type: none"> ■ APPROVED DATA REQUEST LOGISTIC SETUP ■ IMPLEMENT BI COMPETENCY GROUP 	<ul style="list-style-type: none"> ■ IMPLEMENT ENTERPRISE DATA DICTIONARY 	
OTHER					
STAFFING		<ul style="list-style-type: none"> ■ ADDITION OF (1) DATA ANALYST 		<ul style="list-style-type: none"> ■ ADDITION OF (1) DATA ANALYST 	
GRAPHICS & TEMPLATE WAREHOUSE		<ul style="list-style-type: none"> ■ DEVELOP GRAPHICS WAREHOUSE ■ CREATION OF EMAIL TEMPLATE FRAME 	<ul style="list-style-type: none"> ■ EXPANSION OF GRAPHICS FOR MB/FB ■ TEMPLATES FOR OTHER COMM. 	<ul style="list-style-type: none"> ■ EXPANSION OF GRAPHICS - ALL SPORTS 	
UNIVERSITY PARTNERS		<ul style="list-style-type: none"> ■ UDO LAUNCH ROADMAP 	<ul style="list-style-type: none"> ■ GAA DEVELOP & LAUNCH ROADMAP ■ UDO COMPLETE ROADMAP 		
SYSTEMS			<ul style="list-style-type: none"> ■ EXPLORE SAS SYSTEM UPGRADES 		

■ GENERAL PLATFORM (MULTIPLE TEAMS)

■ ATHLETICS

■ THE RAMS CLUB

■ UNIVERSITY DEVELOPMENT (UDO)

■ GENERAL ALUMNI ASSOCIATION (GAA)

■ INFORMATION TECHNOLOGY SERVICES (ITS)

■ CREATIVE SERVICES



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FALL
2017SPRING
2018FISCAL YEARS
2018 - 2019FISCAL YEARS
2019 - 2021FISCAL YEARS
2021 - 2022

CRAWL

WALK

RUN

FLY

ORBIT

CUSTOMER INTELLIGENCE

CAMPAIGNS	<ul style="list-style-type: none"> FOOTBALL TICKET OFFER (7 SEGMENTS) BASIC JOURNEY (1 FB GAME) 	<ul style="list-style-type: none"> BASIC JOURNEY (1 MB GAME) BASIC JOURNEY (1 BB GAME) END OF SEASON SURVEYS MEMBER SURVEY 	<ul style="list-style-type: none"> FB ENGAGEMENT INTERVENTION EXPAND/AUTOMATE FB JOURNEY EXPAND/AUTOMATE MB JOURNEY NEW MEMBER JOURNEY PAST MEMBER JOURNEY PROSPECTIVE MEMBER JOURNEY 	<ul style="list-style-type: none"> MB ENGAGEMENT INTERVENTION RETENTION JOURNEY AUTOMATED STEWARDSHIP JOURNEY 	
OPERATIONAL	<ul style="list-style-type: none"> GENERAL MARKETING CAMPAIGNS 	<ul style="list-style-type: none"> DEVELOP GOALS & SEGMENTATIONS 	<ul style="list-style-type: none"> CONT' DEVELOPMENT OF GOALS & SEGMENTATIONS INCORPORATE A/B TESTING NEXT BEST OFFERS: EVALUATE CI360 	<ul style="list-style-type: none"> NEXT BEST OFFER AUTOMATION AUTOMATION OF MARKETING CLOUD 	

PREDICTIVE MODELLING/SEGMENTATION

MODELS	<ul style="list-style-type: none"> INITIAL FOOTBALL TICKET MODEL INITIAL BASKETBALL TICKET MODEL INITIAL RAMS CLUB NEW MEM. MODEL 	<ul style="list-style-type: none"> SINGLE GAME BUYER MODEL IMPLEMENTED FB SEASON TICKET MODEL RAMS CLUB MEMBERSHIP MODEL IMPLEMENTED FB SEGMENTATION BIG DONOR MODEL IMPLEMENTED UDO SAMPLE PREDICTIVE MODELS GAA DATA EXPLORATION 	<ul style="list-style-type: none"> MB SEASON TICKET MODEL REVISE RAMS CLUB RETENTION FB ENGAGEMENT INTERVENTION SEGMENTATION ANALYSIS FOR ADDITIONAL SPORTS SEGMENTATION ANALYSIS FOR RAMS CLUB MEMBERS PREDICTIVE MODEL: GAA MEMBERSHIP 	<ul style="list-style-type: none"> MB ENGAGEMENT INTERVENTION EVENT ATTENDANCE FORECASTING TICKET PRICING PREDICTIVE MODEL: GAA MEMBERSHIP 	
OPERATIONAL			<ul style="list-style-type: none"> RE-EVALUATE/TUNE CURRENT MODELS 	<ul style="list-style-type: none"> RE-EVALUATE SEASON TICKET MODELS ASSOCIATION ANALYSIS ON WEBSITE 	

VISUALIZATION

DASHBOARDS	<ul style="list-style-type: none"> TICKET REVENUE TICKET BUYER DISTRIBUTION CI CAMPAIGN RESULTS RAMS CLUB MEMBERSHIP CONSTITUENT REPORT STADIUM MAP REPORTS 	<ul style="list-style-type: none"> HOME EVENTS (TICKETING) TICKET SALE TRENDS RAMS CLUB CAMPAIGN REPORT OVR TICKET BUYER DISTRIBUTION MAPS UPDATED RAMS CLUB DASHBOARDS 	<ul style="list-style-type: none"> EVENT GATE TRAFFIC GRAPHICS FOR SPORT SEGMENTATIONS SURVEY RESULTS OTHER VISUALIZATIONS TO SUPPORT ANALYSIS 	<ul style="list-style-type: none"> FORMAL PORTAL COMPLETION EVENT ATTENDANCE FORECAST VISUAL ASSOCIATION ANALYSIS VISUALS OTHER VISUALIZATION TO SUPPORT ANALYSIS 	
OTHER			<ul style="list-style-type: none"> SURVEY STRATEGY & BUILD FOR FB/MB SOCIAL MEDIA ANALYSIS GAME DAY APP WITH CONCESSIONS ORDER/DELIVERY WEBSITE METRIC ANALYSIS 		

GENERAL PLATFORM (MULTIPLE TEAMS)

ATHLETICS

THE RAMS CLUB

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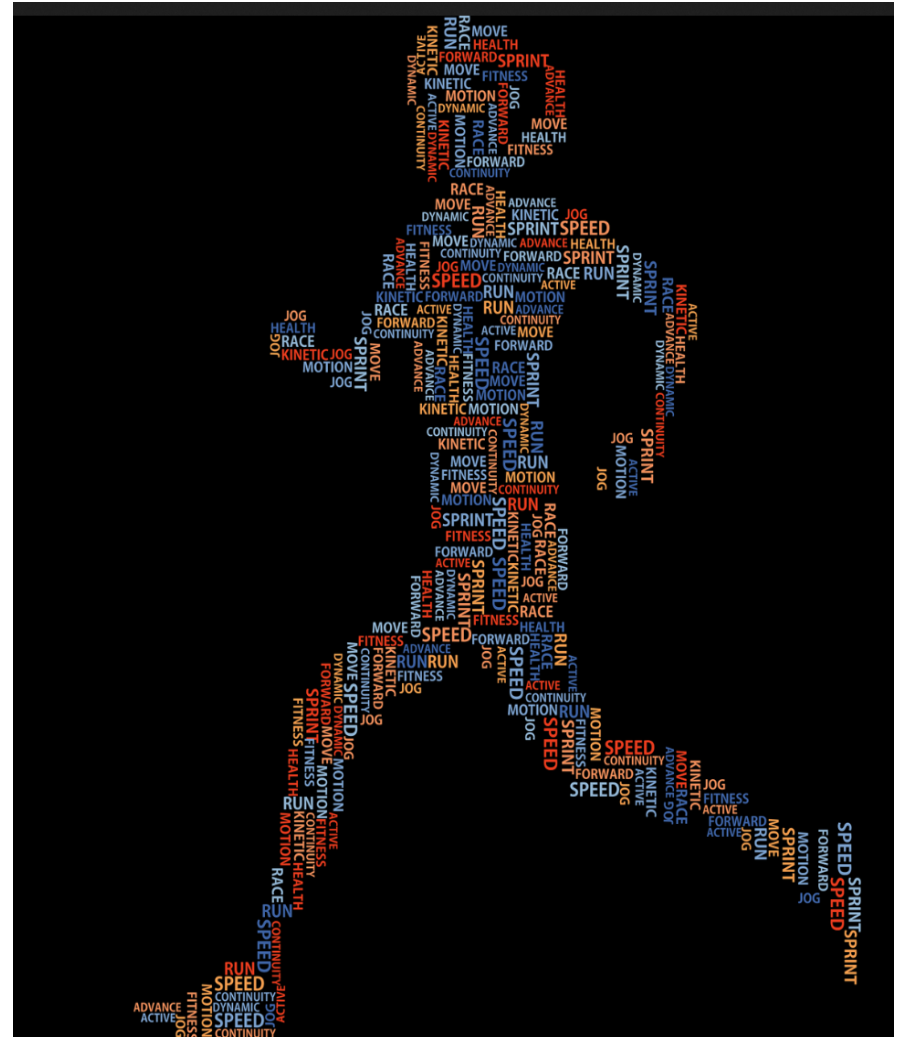
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What's Next?

- UNC Athletics
- Sports in General



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Questions?

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