TRACETOR AND DATA

OAC/OAS Fantasy Football Decision Support Tool

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Our goal in this presentation

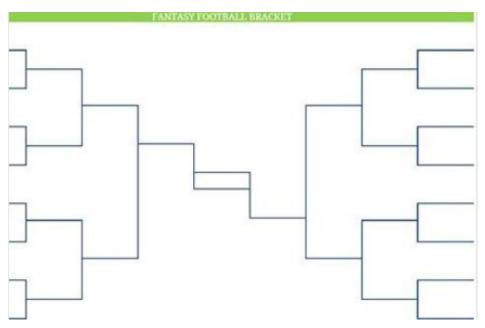
Illustrate techniques to curate data from multiple sources and create a robust decision support tool with OAC/OAS

- Blend aspects of classic and modern analytics
- Generate and Import datasets
- Explore data for hidden insights using add Statistics
 - Reference lines
 - -Trends
 - Clusters and Outliers
- Use Case: NFL Fantasy Team Decision Support



A game that allows you to be the owner, general manager, and coach of your own NFL team

• Your team competes in a league typically composed of 10 or 20 teams, you can have teams in multiple leagues



A game that allows you to be the owner, general manager, and coach of your own NFL team

 You draft your team(s) at the beginning of the season made up of NFL players



A game that allows you to be the owner, general manager, and coach of your own NFL team

 You have a game schedule of the teams in your league you will compete against each week

Angue	Conf. Team Name	.05	08	RB	Running Back	WR	With Receiver	TE	Tight Enda	Kickers		Def Vatue	Defensive Rankings	Def Base	Eye We
PC	AW CTHERS	08	Matt Caseel	Rb	.arry Johnson	Wr	Dwayns Bows	TE	Sean Ryan	Conner Barth	1	38	Pts Allowed: 25	Basso 4+3	8
		28	Fyler Thigpen	Rb.	Jamaal Charles	Ŵ1	Mark Bradley	Τ£	Braid Cottain	Manual Street	Q.	25-0-0	Rosh: 30	Sauka; 10	
				10	Celby Smith	Ŵ٢	Bobby Engram	TE	Wr. Devent Darling			e	Pass 28	T-Dviers 38	
FC .	AE NY Jets	28	Kellen Clemons	12	Thomas Jones	Wr	Jerricho Cotchery	TE	Dustin Keller	Jay Feety		1	Pts Allowed: #18	Lana: 3-4	9
	10 m m f 1	26	Mark Sanchez	12	Shonn Green	Mr.	Chanai Stuckey	TE	James Dearth			8	Rush:#T	Backs: 41	
				10	aux Washington	hr.	David Clowney			2		19) 	Pass; #23	T-Deers 25	
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		28	J.T. O'Sultvan	111	Kanny Watson	Nr	Laveranues Coles	TE	Bart Utecht		12	28	Rinh: 21	Elecka: 17	
				10	Brian Leonard	Nr.	Chris Henry	TE	Chase Colfman				Pass; 15	5-Dvers: 25	
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				12	Nichael Bash	Nr	Chuz Schlens					22	PRAN 10	f-Duers: 24	
FC	AS JANUARS	26	David Garrard	14	Maurice Jones - Drew	Nr	Torry Holt	TE	Marcades Lewis	Josh Scobee	2	25	Pta Allowed: 21	Base: 4+3	7
		26	Cles Lemen	Ra.	Chastery Washington	Wr.	Mike Walker	TE:	Grag Extandia				Rush: 13	Sacks: 29	
				10	areg Jonan								Pasa 34	f-Doors 24	
FC .	AE BILS	28	Front Edwards	10	Marshen Lynch	Ŵr	Terrail Owens	TE	Shewn Nelson	Rian Lindell		17	Pts Allowed: 14	Base: 4+3	9
	10-10-10-10-10-10-10-10-10-10-10-10-10-1	DB.	Ryan Fitzpatrick	Hb.	red Jackson	Wr.	Lee Evana	TE	Derek Schouman	100000 mm		Sectors 1	Rush: 22	Sacks: 24	
				112	Dominic Rhoden	Wr.	Josh Read						PREAT 13	T-Overs: 18	
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	-	28	Chris Setette	10	-amont Jordan	dir.	Eddie Royal	TE	Daniel Graham			1	Rushi 27	Sacks; 29	
				10	Correll Buckhaller	Nr.	Briendon Stokley	TE	Richard Quinn			22	Pasa: 26	I-Dyers: 15	
FC	AS Texans	08	Matt Schaub	10	Steve Staton	Чr	Andes Johnson	TÉ.	Owen Daniels	Kris Brown		23	Pta Allowed: 27	Buss 4+3	10

A game that allows you to be the owner, general manager, and coach of your own NFL team

- Based on players on-field performance each week, you score points.
- Add up all the points and the team with the most at the end of the NFL week is the winner



		F	LE)	Х	RB	١	NR	-	ΓE	Q	(B	۵	DE	F	ŀ	<	
Player	Matchup	Rush A/G	Rush YPC	Rec/Tar per Game	Rec YPC	Off Pass Rank	Off Rush Rank	Def Pass Rank	Def Rush Rank	8	Ð	¥	Y	0/U	Line	Forecast	Premium Matchup Rating ▲
Mike Evans, WR	vs. PHI	0.0	0	5.3/9.3	13.9	15	50	60	1	<u>\$13.7K</u>	<u>\$7.9K</u>	<u>\$7.3K</u>	\$32	46.5	+133	Few Clouds 3 mph	124
David Johnson, RB	@ LAR	11.0	3.0	4.5/7.3	9.3	64	63	22	52	<u>\$15.6K</u>	<u>\$8.4K</u>	<u>\$8.2K</u>	\$38	43.5	+560	Clear Sky 1 mph	123.1
Ezekiel Elliott, RB	vs. NYG	22.5	4.1	2.9/4.0	9.6	62	21	2	61	<u>\$15.3K</u>	<u>\$8.1K</u>	<u>\$8.4K</u>	\$37	41.5	-140	Dome	122.9
A <u>tonio Brown</u> , WR	vs. KC	0.0	0	7.4/12.2	14.4	14	37	45	49	<u>\$16.6K</u>	<u>\$8.9K</u>	<u>\$8.8K</u>	\$40	52.5	+401	Light Rain 6 mph	122.8
Odell Beckham Jr, WR	@ DAL	0.3	5.0	6.5/10.6	11.8	43	60	6	18	<u>\$14.7K</u>	<u>\$8.2K</u>	<u>\$9.4K</u>	\$37	41.5	+130	Dome	122.6
Saquon Barkley, RB	@ DAL	14.5	4.6	8.0/11.0	6.4	43	60	6	18	<u>\$13.9K</u>	<u>\$7.9K</u>	<u>\$8.0K</u>	\$30	41.5	+130	Dome	121.9
AJ Green, WR	vs. BAL	0.0	0	5.0/9.1	14.7	53	55	18	36	<u>\$15.3K</u>	<u>\$8.4K</u>	<u>\$6.8K</u>	\$28	43	-106	Scattered Clouds 2 mph	120.5
Melvin Gordon, RB	@ BUF	17.0	3.7	4.1/5.8	8.3	12	43	43	40	<u>\$14.5K</u>	<u>\$8.2K</u>	<u>\$7.4K</u>	\$37	41.5	-307	Overcast Clouds 5 mph	120.3
T.Y. Hilton, WR	@ WAS	0.0	0	3.8/7.2	16.7	57	39	17	58	<u>\$12.2K</u>	<u>\$7.2K</u>	<u>\$6.7K</u>	\$20	48	+213	Broken Clouds 9 mph	120.2
Dede Westbrook	vs. NE	0.1	-6.0	4.0/6.9	13.1	37	3	55	59	<u>\$8.8K</u>	<u>\$5.7K</u>	<u>\$4.9K</u>	\$14	44.5	+113	Light Rain 6 mph	113.1
Rishard Matthews	vs. HOU	0.1	-3.0	3.6/6.0	14.6	48	28	38	32	<u>\$8.4K</u>	<u>\$6.0K</u>	<u>\$4.2K</u>	\$11	41	+159	Scattered Clouds 5 mph	112.8
Dante Pettis	vs. DET	0.0	0	1.5/3.5	32.0	51	4	41	39	<u>\$7.4K</u>	<u>\$4.5K</u>	<u>\$4.0K</u>	\$12	48.5	-240	Clear Sky 3 mph	112.3
Allen Hurns	vs. NYG	0.0	0	3.5/5.2	12.8	62	21	2	61	<u>\$7.3K</u>	<u>\$5.4K</u>	<u>\$3.8K</u>	\$12	41.5	-140	Dome	112.2
T 10		~ ~	~	0.540	40.0	40	40			*1 -11		***	***		150		05

The Game has grown in popularity and complexity

You are the team Owner, General Manager, and Coach

- You can release players
- You can trade players
- You can pick up players off the wire (these are players that are not on any other team)





Our Leagues

There are several types of leagues and often rules and operating formats will very

- In our league we have about 15 to 20 players per team across 4 positions:
 - Quarter Back up to 3 per team, we have 1, can play 1 per game
 - Running Back up to 7 per team, we have 5, can play 2 per game
 - Tight End up to 4 per team, we have 2, can play 1 per game
 - Kicker up to 2 per team, we have 1, can play 1 per game
 - Wide Receiver up to 8 per team, we have 6, can play 3 per game
- We have 4 teams that participate in 4 different leagues

OAS/OAC enables

Oracle Analytics Cloud/Server includes classic and modern

- Al-powered,
- self-service analytics capabilities for data preparation
- visualization
- enterprise reporting
- augmented analysis
- natural language processing/generation

You can use these features to:



- Collect up-to-date data from your organization.
- Present the data in easy-tounderstand formats (such as tables and graphs).
- Deliver data in a timely fashion to the employees in your organization.

Our current status: Week 12

Situation:

• We are at the end of week 11

Mission:

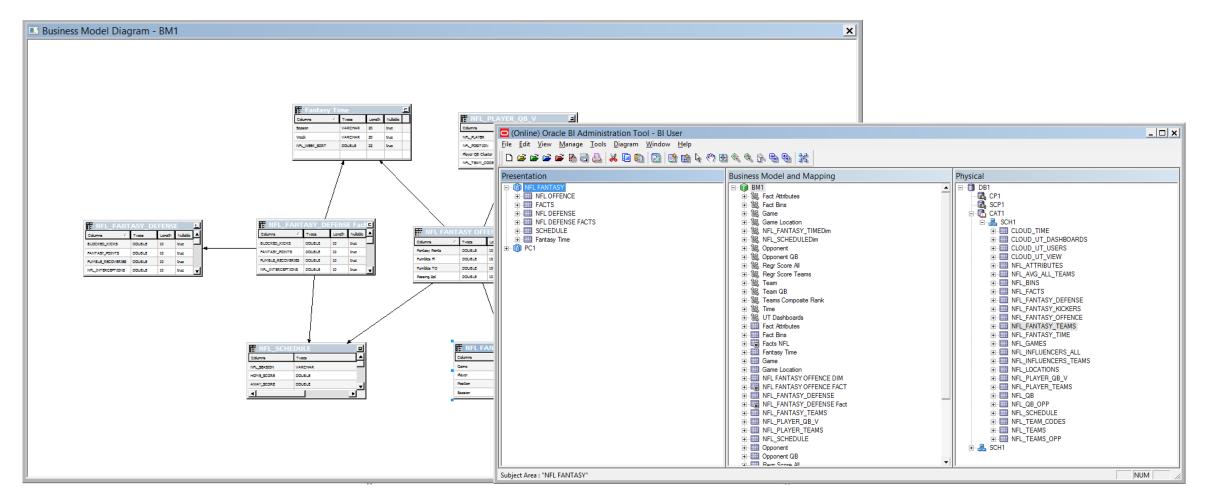
 Recommend 3 RW on each team to start in week 12

Constraint:

• Have a 2 days



We have a classic data model

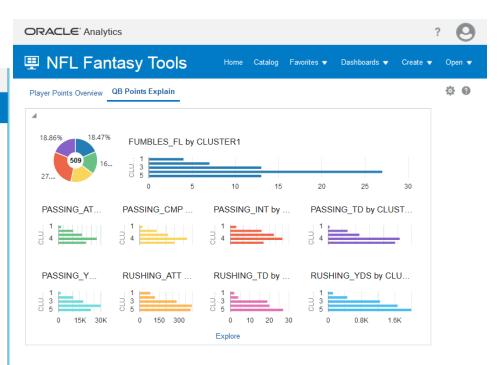


Classic Analytics Dashboards

We have used the classic data model to create classic dashboards to support QB decisions

• QB Player Points Overview

	LE Analytics														?
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layer F	Points														
layer F	Points		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Fantasy	~
-		Team Code	Week 1 Fantasy Points	Week 2 Fantasy Points	Week 3 Fantasy Points	Week 4 Fantasy Points	Week 5 Fantasy Points	Week 6 Fantasy Points				Week 10 Fantasy Points	Week 11 Fantasy Points	Fantasy Points	▲▼
osition			Fantasy	Fantasy	Fantasy	Fantasy	Fantasy	Fantasy Points	Week 7 Fantasy Points	Week 8 Fantasy Points	Week 9 Fantasy	Fantasy	Fantasy Points	Points	314
Position	Player	Code ARI	Fantasy Points	Fantasy Points	Fantasy Points	Fantasy Points	Fantasy Points	Fantasy Points 32	Week 7 Fantasy Points 42	Week 8 Fantasy Points	Week 9 Fantasy Points	Fantasy Points 31	Fantasy Points	Points	
Position	Player Kyler Murray	Code ARI	Fantasy Points 28	Fantasy Points 33	Fantasy Points 24	Fantasy Points 29	Fantasy Points 28	Fantasy Points 32 24	Week 7 Fantasy Points 42	Week 8 Fantasy Points 46	Week 9 Fantasy Points 44	Fantasy Points 31	Fantasy Points 23	Points	314
Position	Player Kyler Murray Patrick Mahomes	Code ARI KC	Fantasy Points 28 26	Fantasy Points 33 31	Fantasy Points 24 47	Fantasy Points2923	Fantasy Points 28 33	Fantasy Points 32 24	Week 7 Fantasy Points 42 14 35	Week 8 Fantasy Points 46 36	Week 9 Fantasy Points 44 38	Fantasy Points 31	Fantasy Points232423	Points	314 306
Position	Player Kyler Murray Patrick Mahomes Russell Wilson	Code ARI KC SEA	Fantasy Points 28 26 38	Fantasy Points333142	Fantasy Points 24 47 46	Fantasy Points29232324	Fantasy Points 28 33	Fantasy Points 32 24 3	Week 7 Fantasy Points 42 14 35	Week 8 Fantasy Points 46 36 28	Week 9 Fantasy Points 44 38 27	Fantasy Points 31	Fantasy Points 23 24 23 28	Points	314 306 300
Position	Player Kyler Murray Patrick Mahomes Russell Wilson Aaron Rodgers Justin Herbert	Code ARI KC SEA GB	Fantasy Points 28 26 38	Fantasy Points 33 31 31 42 22	Fantasy Points 24 24 47 46 30	Fantasy Points29232437	Fantasy Points 28 33 29	Fantasy Points 32 24 3	Week 7 Fantasy Points 42 14 35 35 35	Week 8 Fantasy Points 46 36 28 27	Week 9 Fantasy Points 44 38 27 36	Fantasy Points 31 29 24	Fantasy Points 23 24 23 28 28 33	Points	314 306 300 286
layer F ^P osition ฉุB	Player Kyler Murray Patrick Mahomes Russell Wilson Aaron Rodgers Justin Herbert	Code ARI KC SEA GB LAC	Fantasy Points 28 26 38 38 38	Fantasy 33 31 42 22 23	Fantasy 24 47 46 30 17 20	Fantasy Points 29 23 24 37 28	Fantasy Points 28 33 29 29 34	Fantasy Points 32 24 3 3 3 39	Week 7 Fantasy Points 42 14 35 35 43 27	Week 8 Fantasy Points 46 36 28 27	Week 9 Fantasy Points 44 38 27 36 27	Fantasy Points 31 29 24 15	Fantasy Points 23 24 23 23 24 23 33 33 34	Points	314 306 300 286 256



Navigate to Oracle Data Visualization

A project enables you to dynamically explore multiple data sets in graphical way, all within a single interface. You can upload data from many commonly used data sources to create robust sets of information within project visualizations.

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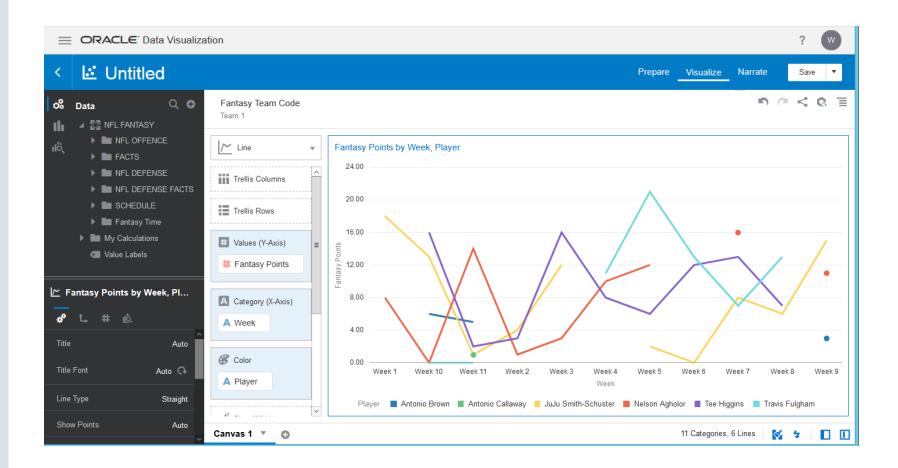
Create a Project to explore the data

		Create	E
Create			
Project	Data Set	Data Flow	
Sequence	Connection	Cole Player	

- A project enables you to dynamically explore multiple data sets in graphical way, all within a single interface.
- We can use clasic subject areas or upload data from many commonly used data sources to create robust sets of information within project visualizations.

Add Data Set				Create Data Set
Data Sets Subject A	reas	Search		् 🔳 🏢
NFL FANTASY	NFL Stats			
			Cancel	Add to Project

Getting started with our analysis



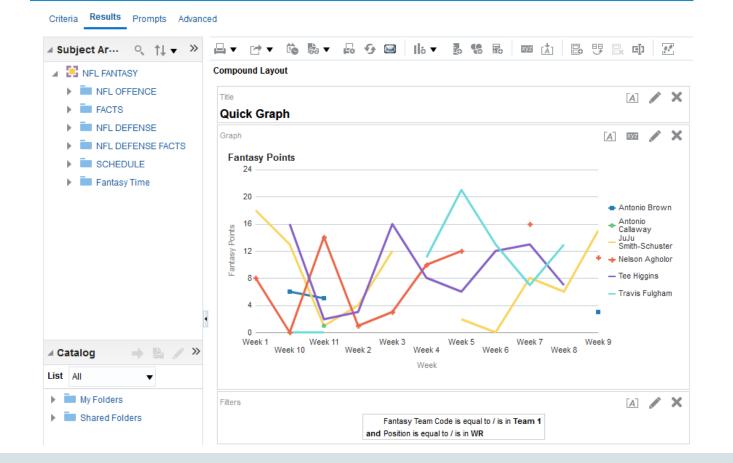
I started working with the classical data model in data vis.

Create a quick project with a line graph visual

Quick Graph

ORACLE Analytics

Solution Street Graph



Average Reference Line



Here I can use "right click, Add Statistics" on the visualization to add an average reference line to the graph.

This allows us to see how each player compared to the average of all the players.

Trend

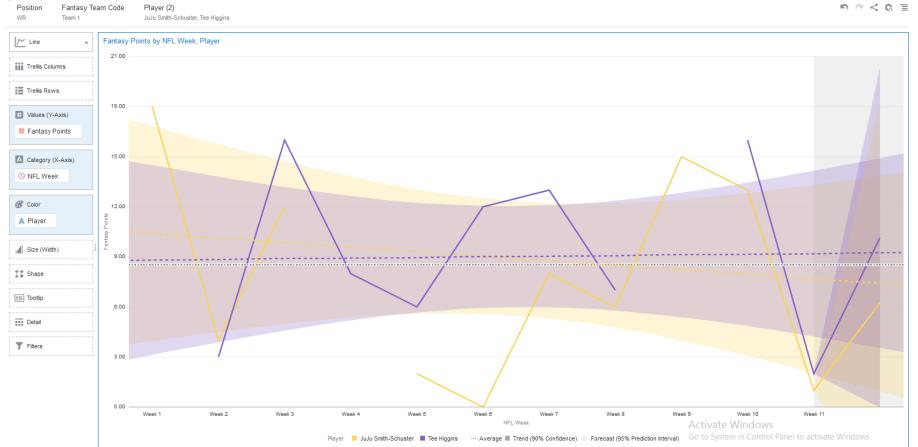


Next, I wanted to analyze the trend of each player, so again I'm able to right-click, "Add Statistics" and select Trend

Here I can observe the trends of each player.

Forecast

 Forecasting is the process of making predictions of the future, based on past and present data and most commonly by analysis of trends



Clusters

Cluster analysis or clustering is the task of grouping a set of objects in such a way that objects in the same group are grouped in a coherence with maximal proximity to each other than to those in other groups.

Wide Receivers performance prediction concepts:

- How has the WR performed in the past?
- How has the WR's QB been performing?
- Opponent defense ranking by receiving yards allowed?

Player Clusters

• How has the WR performed in the past?

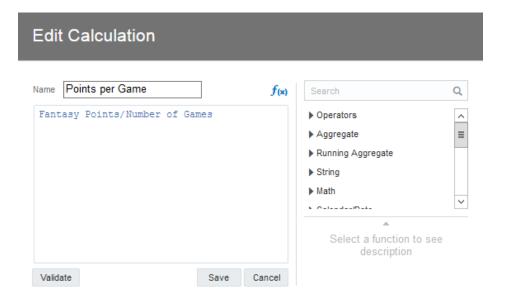
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S <mark>Data Q.O</mark> III ∡ S⊒ NFLFWEASY	Position Flayer						ŝ	~<0	
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roups 5			Keenan Allen	11.20	Cluster 5				
			Kenny Golladay	11.00	Cluster 5				
			Mike Evans	9.64	Cluster 5				
			Odell Beckhamult	10.00	Cluster 5	÷			

This simple report shared as a CSV and saved.

New Calculation

We wanted to get the Fantasy points per game

Very robust calculation wizard:



Players Outliers

• Outliers are data records that are located the furthest away from the average expectation of individuals values.

ORACLE [®] Data Visualiza	tion				?	w
< 🗷 NFL WR Clus	ster Summary	Pre	epare Visualiz	ze Nam	ate S	ave 🔻
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 Im Facts Im NFL DEFENSE Im NFL DEFENSE FACTS Im Schedule 	Rows	Player Davante Adams Tyreek Hill Calvin Ridley	FP Per Game	Cluster 5 Cluster 5 Cluster 5	Outliers Non-Outlier Outlier Outlier	
Fantasy Time My Calculations FP Per Game OPP	# FP Per Game Clusters Outliers	Calvin Ridley D.K. Metcalf Adam Thielen Richie James Tyler Lockett	13.75 13.50 12.90 12.50 11.90	Cluster 5 Cluster 5 Cluster 5 Cluster 5	Outlier Outlier Non-Outlier Outlier	
Value Labels Player, FP Per Game, Clust	6 Color	A.J. Brown Keenan Allen DeAndre Hopkins	11.30 11.63 11.20 11.10	Cluster 5 Cluster 5 Cluster 5	Outlier Outlier Non-Outlier	
$d^{0} \square \Sigma \# \dot{\mathbf{k}}$ Add Statistics	,	Chase Claypool Kenny Golladay Stefon Diggs	11.00 11.00 10.90	Cluster 5 Cluster 5 Cluster 5	Outlier Outlier Non-Outlier	
✓ Clusters	E Tooltip	Justin Jefferson Robert Woods Will Fuller	10.60 10.50 10.30	Cluster 5 Cluster 5 Cluster 5	Non-Outlier Non-Outlier Non-Outlier	
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Create Data Set

- Using the share icon, select file
- Enter the desired file name
- Select "Data (csv)" for format
- Select save

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File		13 90	Cluster 5	
Nam	e NFL WR Cluster Summary			
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NFL Fantasy Decision Support Case

• Having just a few days available, we need to make recemendations for which WR to play for week 12 for 4 teams.

- Based on what we know about the data we have decided to focus on cluster calculations.
 - Player clusters by fantasy points per week as of week 11
 - Player clusters by the player's QB fantasy points at week 11
 - Player clusters by passing yards allow of the opposing defence as of week 11

Player clusters by fantasy points per week as of week 11 Create dataset for WR clusters

K WR Clusters Prepare Visualize Narrate 08 Data Q Position Player WR All	Save 🔹
Vo Data	< 6 =
III ▲ I NFL FANTASY III ■ NFL OFFENCE IIII ■ Table ■ Player, FP Per Game, Clusters	
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A Player AJ. Brown 11.63 Cluster 5	
A Position A Player Adam Thielen 12.90 Cluster 5	
Calvin Ridley 13.75 Cluster 5	
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O NFL Week Davante Adams 17.50 Cluster 5	
O Away Team Color DeAndre Hopkins 11.10 Cluster 5	
O Home Team Justin Jefferson 10.60 Cluster 5	
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φ* Σ # ik Robert Woods 10.50 Cluster 5	
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Allen Lazard 9.50 Cluster 4	
Legend Auto Allen Robinson 9.10 Cluster 4	

Player clusters by the player's QB fantasy points at week 11

Create dataset for WR player QB fantasy points

	Position WR					B (2	< 6
 Image: A State of the second se		Playe	r, Team Code, Week, Playe - QB Cluster: <null></null> Week: W				
A Game	Rows	^	Player	Team Code	Week	Player QB Cluster 🔻	
A Player	A Player		Allen Lazard	GB	Week 11	5	^
A Position	A Flayer		Andy Isabella	ARI	Week 11	5	=
A Seasion	A Team Code		Antonio Brown	ТВ	Week 11	5	
A Team Code	A Week		Brandin Cooks	HOU	Week 11	5	
🔺 Week			Byron Pringle	KC	Week 11	5	
() NFL Week	A Player QB Cl		Chris Godwin	ТВ	Week 11	5	
🕓 Away Team			Christian Kirk	ARI	Week 11	5	
🕚 Home Team	- 😚 Color	=	D.K. Metcalf	SEA	Week 11	5	
Blaver Team Code Week			Darrius Shepherd	GB	Week 11	5	
Player, Team Code, Week, 	, Size		Davante Adams	GB	Week 11	5	
			David Moore	SEA	Week 11	5	
	∧ 📩 Shape		DeAndre Hopkins	ARI	Week 11	5	
tle /	Auto		Demarcus Robinson	KC	Week 11	5	
tle Font Auto	Tooltip		Equanimeous St. Brown	GB	Week 11	5	
tle Font Auto			Jalen Guyton	LAC	Week 11	5	
gend ,	Auto T Filters		Keenan Allen	LAC	Week 11	5	
	A Player QB		Keke Coutee	HOU	Week 11	5	

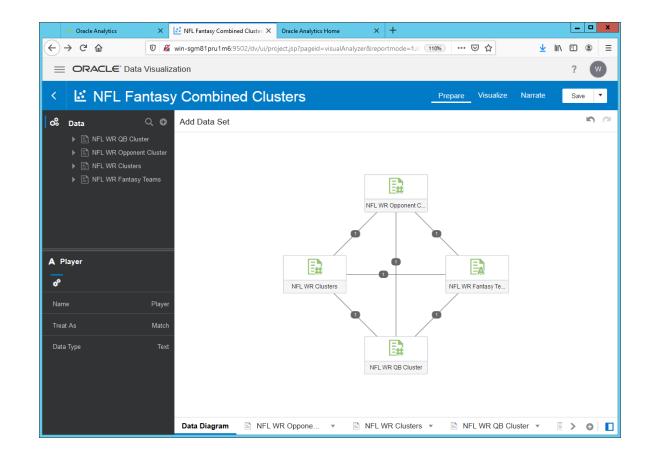
Player clusters by passing yards allow of the opposing defence as of week 11

Create dataset for WR Opponent Clusters

O Data Q O Marine O Away Team Code /	Position WR							5	a < ¢ I
O Home Team Code O Away Score O Game Code	Table	•	Player, Game, 1 Week: Week 11	Feam Code	, Oppone	nt Team Code	, Opp Rnk I	Pssng Yrds	Allwd, Opp P
Home ScoreNFL Season	Rows	^	Player	Game	Team Code	Opponent Team Code	Opp Rnk Pssng Yrds Allwd	Opp Passing Yrds Allwd	Clusters 💌
S Week Sort	A Game		Brandin Cooks	NE-HOU	HOU	NE	5.00	344.00	Cluster 5
A Opponent Team ···	A Team Code		Byron Pringle	KC-LV	KC	LV	2.00	352.00	Cluster 5 ≡
A Cluster 1	A lealin code		Damiere Byrd	NE-HOU	NE	HOU	3.00	349.00	Cluster 5
A Player QB Cluster	A Opponent Te		Demarcus Robinson	KC-LV	KC	LV	2.00	352.00	Cluster 5
FACTS Fantasy Points	# Opp Rnk Pss	=	Donte Moncrief	NE-HOU	NE	HOU	3.00	349.00	Cluster 5
	# Opp Passing		Jakobi Meyers	NE-HOU	NE	HOU	3.00	349.00	Cluster 5
📰 Player, Game, Team Code,	Clusters		Jalen Guyton	NYJ- LAC	LAC	NYJ	4.00	347.00	Cluster 5
e [#] i Σ # Υ ik			Josh Reynolds	LV-TB	LV	тв	1.00	376.00	Cluster 5
Add Statistics	Color		Keenan Allen	NYJ- LAC	LAC	NYJ	4.00	347.00	Cluster 5
	L		Keke Coutee	NE-HOU	HOU	NE	5.00	344.00	Cluster 5
l Clusters	I Size		Mecole Hardman	KC-LV	KC	LV	2.00	352.00	Cluster 5
Algorithm Hierarchical Clustering	to Shape		Mike Williams	NYJ- LAC	LAC	NYJ	4.00	347.00	Cluster 5
Groups 5	L		N'Keal Harry	NE-HOU	NE	HOU	3.00	349.00	Cluster 5 🗸

Blend Cluster datasets

Data sets are based on the clasic data model and enterprise data



Tell the story

Data behind the recommendations tells the story for team 1

🝞 Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted,										
Fantasy Team Code: Team 1										
Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters					
JuJu Smith- Schuster	PIT	6.0	4	2.0	12.0					
Nelson Agholor	LV	6.0	4	2.0	12.0					
Tee Higgins	CIN	6.0	4	1.0	9.0					
Travis Fulgham	PHI	6.0	4	1.0	9.0					
Antonio Brown	тв	4.5	5	1.0	8.5					
Antonio Callaway	MIA	1.5	3	0.5	4.0					

Tell the story

Data behind the recommendations tells the story for team 2

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Fantasy Team Code: Team 2

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	Sum of clusters 💌
A.J. Brown	TEN	BAL	5	4	3	12
Calvin Ridley	ATL	NO	5	4	2	11
Equanimeous St. Brown	GB	IND	1	5	4	10
T.Y. Hilton	IND	GB	2	3	4	9
D.J. Moore	CAR	DET	4	1	3	8
Antonio Callaway	MIA	DEN	1	3	1	5

Data behind the recommendations tells the story for team 3

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	Sum of clusters 💌
Jerry Jeudy	DEN	MIA	4	3	4	11
Tyler Lockett	SEA	ARI	5	5	1	11
Tee Higgins	CIN	WAS	4	4	2	10
Denzel Mims	NYJ	LAC	3	2	2	7
Rashard Higgins	CLE	PHI	3	3	1	7
Chris Conley	JAX	PIT	2	2	1	5

Data behind the recommendations tells the story for team 4

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	Sum of clusters \blacktriangledown
Davante Adams	GB	IND	5	5	4	14
Adam Thielen	MIN	DAL	5	4	4	13
Diontae Johnson	PIT	JAX	4	4	4	12
Tyler Lockett	SEA	ARI	5	5	1	11
Larry Fitzgerald	ARI	SEA	2	5	3	10
Steven Sims	WAS	CIN	3	2	1	6

Tell the story Weighed values

 What if we want to give more weight to the players cluster, and less to the Opponent's

"Opponent Clusters"*.5 "Player Clusters"*1.5

Data behind the weighted recommendations tells the story for team 1

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters \blacksquare
JuJu Smith-Schuster	PIT	6.0	4	2.0	12.0
Nelson Agholor	LV	6.0	4	2.0	12.0
Tee Higgins	CIN	6.0	4	1.0	9.0
Travis Fulgham	PHI	6.0	4	1.0	9.0
Antonio Brown	тв	4.5	5	1.0	8.5
Antonio Callaway	MIA	1.5	3	0.5	4.0

Data behind the weighted recommendations tells the story for team 2

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters 🕶
A.J. Brown	TEN	7.5	4	1.5	11.5
Calvin Ridley	ATL	7.5	4	1.0	10.0
Equanimeous St. Brown	GB	1.5	5	2.0	9.5
T.Y. Hilton	IND	3.0	3	2.0	9.5
D.J. Moore	CAR	6.0	1	1.5	9.0
Antonio Callaway	MIA	1.5	3	0.5	4.0

Data behind the weighted recommendations tells the story for team 3

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters

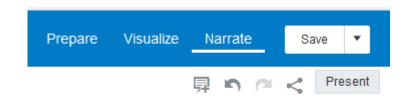
Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$
Jerry Jeudy	DEN	6.0	3	2.0	11.5
Tee Higgins	CIN	6.0	4	1.0	9.0
Tyler Lockett	SEA	7.5	5	0.5	9.0
Denzel Mims	NYJ	4.5	2	1.0	7.0
Rashard Higgins	CLE	4.5	3	0.5	6.0
Chris Conley	JAX	3.0	2	0.5	4.5

Tell the story Data behind the weighted recommendations tells the story for team 4

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$
Davante Adams	GB	7.5	5	2.0	13.5
Adam Thielen	MIN	7.5	4	2.0	13.0
Diontae Johnson	PIT	6.0	4	2.0	12.0
Larry Fitzgerald	ARI	3.0	5	1.5	9.0
Tyler Lockett	SEA	7.5	5	0.5	9.0
Steven Sims	WAS	4.5	2	0.5	5.5

Narrate



ΩB	Cluster Opponent Clusters	, Sum	of clusters
	Team 1: Choosing		
	Brown over Opponent Ch	sters	 Sum of clusters
	Higgins and	3	12
	Fulgham because	2	11
	of QB play.	4	10
	3	4	9

Present mode

$\left(\leftarrow ight) ightarrow$ C $rac{1}{2}$	👽 🔏 win-sgm81pru1m6:9502/dv/ui/project.jsp?pageid=visualAnalyzer&reportmode=presentation&reportpath=%2F%40Catalog%2Fusers%2Fweblogic% 🚥 叉 🏠	<u>↓</u> II\ 🗊 🛎 Ξ
Overview of Data		₽ < ×

^ ~

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Fantasy Team Code: Team 1

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	 Sum of clusters
JuJu Smith-Schuster	PIT	JAX	4	4	4	12
Nelson Agholor	LV	KC	4	4	4	12
Antonio Brown	тв	LAS	3	5	2	10
Tee Higgins	CIN	WAS	4	4	2	10
Travis Fulgham	PHI	CLE	4	4	2	10
Antonio Callaway	MIA	DEN	1	3	1	5

Team 1: Choosing Brown over Higgins and Fulgham because of QB play.

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Fantasy Team Code: Team 3

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	 Sum of clusters
Jerry Jeudy	DEN	MIA	4	3	4	11
Tyler Lockett	SEA	ARI	5	5	1	11
Tee Higgins	CIN	WAS	4	4	2	10
Denzel Mims	NYJ	LAC	3	2	2	7
Rashard Higgins	CLE	PHI	3	3	1	7
Chris Conley	JAX	РГГ	2	2	1	5

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Fantasy Team Code: Team 2

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	 Sum of clusters
A.J. Brown	TEN	BAL	5	4	3	12
Calvin Ridley	ATL	NO	5	4	2	11
Equanimeous St. Brown	GB	IND	1	5	4	10
T.Y. Hilton	IND	GB	2	3	4	9
D.J. Moore	CAR	DET	4	1	3	8
Antonio Callaway	MIA	DEN	1	3	1	5

Player, Team Code, Opponent Team Code, Player Clusters, Player QB Cluster, Opponent Clusters, Sum of clusters

Player	Team Code	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	 Sum of clusters
Davante Adams	GB	IND	5	5	4	14
Adam Thielen	MIN	DAL	5	4	4	13
Diontae Johnson	PIT	JAX	4	4	4	12
Tyler Lockett	SEA	ARI	5	5	1	11
Larry Fitzgerald	ARI	SEA	2	5	3	10
Steven Sims	WAS	CIN	3	2	1	6

Tell the story Export

Tee Higgins

Denzel Mims

Chris Conley

Rashard Higgins

CIN

NYJ

CLE

JAX

WAS

LAC

PHI

PIT

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Overview of Data			File							F.	₽ <			
yer, Team Code, C)pponent Te	am Code, Player C	lusters, Player	QB CI				Те	am Code, Player Cl	usters, Player	QB Cluster, Oppo	onent Clusters, Su	m of clusters	
tasy Team Code: Tea	am 1				Name	NFL Fantasy Combine	ed Clusters							
Player	Team Code	Opponent Team Code	Player Clusters	Playe	Name	The E Fundacy Combine		de	Opponent Team Code	Player Clusters	Player QB Cluster	Opponent Clusters	 Sum of clusters 	
JuJu Smith-Schuster	PIT	JAX	4						BAL	5	i 4	3		1
Nelson Agholor	LV	КС	4		Format	Powerpoint (pptx)			NO	5	i 4	2		1
Antonio Brown	тв	LAS	3						IND	1	5	4		1
Tee Higgins	CIN	WAS	4			Powerpoint (pptx)			GB	2	: 3	4		
Travis Fulgham	PHI	CLE	4		Include		_		DET	4	1	3		
Antonio Callaway	MIA	DEN	1			Acrobat (pdf)			DEN	1	3	1		
Team 1: Ch	loosing B	rown over Higgi	ins and Fulg	gham	Size	lmage (png)								
					Orientation	Package (dva)								
yer, Team Code, C	Opponent Te	am Code, Player C	lusters, Player	QB CI				Те	am Code, Player Cl	usters, Player	QB Cluster, Oppo	onent Clusters, Su	m of clusters	
tasy Team Code: Tea						Save	Cancel						Sum of	
-			Player Clusters	Player		Save	Cancel			Player Clusters	Player QB Cluster	Opponent Clusters	clusters	
	DEN	MIA	4						IND	5	5	4	14	
	SEA	ARI	5						DAL				13	

4

3

3

2

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1

10

7

7

5

SEA

WAS

Diontae Johnson PIT

Larry Fitzgerald ARI

Tyler Lockett

Steven Sims

JAX

ARI

SEA

CIN

4

2

3

5

4

5

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2

4

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3

1

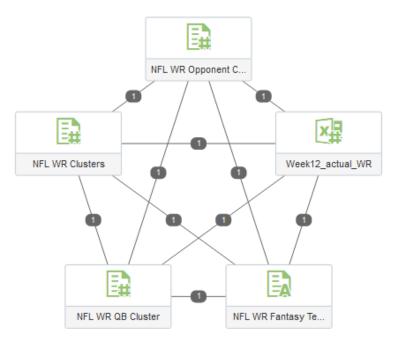
12

11

10

6

Actual Import week 12 player points



Actuals Team 1

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters, Pts

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$	Pts
JuJu Smith-Schuster	PIT	6.0	4	2.0	12.0	9
Nelson Agholor	LV	6.0	4	2.0	12.0	5
Tee Higgins	CIN	6.0	4	1.0	9.0	10
Travis Fulgham	PHI	6.0	4	1.0	9.0	1
Antonio Brown	тв	4.5	5	1.0	8.5	1
Antonio Callaway	MIA	1.5	3	0.5	4.0	0

Actuals Team 2

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters, Pts

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$	Pts
A.J. Brown	TEN	7.5	4	1.5	11.5	15
Calvin Ridley	ATL	7.5	4	1.0	10.0	11
Equanimeous St. Brown	GB	1.5	5	2.0	9.5	3
T.Y. Hilton	IND	3.0	3	2.0	9.5	14
D.J. Moore	CAR	6.0	1	1.5	9.0	6
Antonio Callaway	MIA	1.5	3	0.5	4.0	0

Actuals Team 3

Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters, Pts

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$	Pts
Jerry Jeudy	DEN	6.0	3	2.0	11.5	15
Tee Higgins	CIN	6.0	4	1.0	9.0	10
Tyler Lockett	SEA	7.5	5	0.5	9.0	2
Denzel Mims	NYJ	4.5	2	1.0	7.0	6
Rashard Higgins	CLE	4.5	3	0.5	6.0	1
Chris Conley	JAX	3.0	2	0.5	4.5	0

Actuals

Team 4

🕡 Player, Team Code, Player Cluster Weighted, Player QB Cluster, Opponet Cluster Weighted, Weighted Sum of Clusters, Pts

Fantasy Team Code: Team 4

Player	Team Code	Player Cluster Weighted	Player QB Cluster	Opponet Cluster Weighted	Weighted Sum of Clusters $igstar{}$	Pts
Davante Adams	GB	7.5	5	2.0	13.5	12
Adam Thielen	MIN	7.5	4	2.0	13.0	5
Diontae Johnson	PIT	6.0	4	2.0	12.0	4
Larry Fitzgerald	ARI	3.0	5	1.5	9.0	2
Tyler Lockett	SEA	7.5	5	0.5	9.0	2
Steven Sims	WAS	4.5	2	0.5	5.5	0

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Our goal in this presentation

Illustrate techniques to curate data from multiple sources and create a robust decision support tool with OAC/OAS

- Blend aspects of classic and modern analytics
- Generate and Import datasets
- Explore data for hidden insights using add Statistics
 - Reference lines
 - -Trends
 - Clusters and Outliers
- Use Case: NFL Fantasy Team Decision Support

Combine classic and modern flows



Moving Forward



Questions?

Oracle Analytics Server helpful links

• Oracle Analytics Server Doc

<u>https://docs.oracle.com/en/middleware/bi/analytics-server/user-oas/introduction-visualization-and-reporting-oracle-analytics-server.html</u>

• Oracle Analytics Server Reference:

https://docs.oracle.com/en/middleware/bi/analytics-server/user-oas/part-reference.html

• Oracle Analytics Server Tutorials

https://docs.oracle.com/en/middleware/bi/analytics-server/tutorials.html

• Oracle Analytics Cloud Examples:

https://www.oracle.com/solutions/business-analytics/data-visualization/examples.html

Helpful Links – <u>example</u> {Speaker to fill in}

ORACLE AUTONOMOUS CLOUD https://cloud.oracle.com/tryit

ORACLE AUTONOMOUS HANDS ON LAB FOR DEVELOPERS https://go.oracle.com/e/f2?LP=82486

ORACLE MACHINE LEARNING ON OTN https://www.oracle.com/technetwork/database/options/oml/overview/index.html

OML TUTORIALS

Basic getting started: https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/omlug/get-startedoracle-machine-learning.html#GUID-2AEC56A4-E751-48A3-AAA0-0659EDD639BA Credit_Scoring_100K Targeting Top Customers: https://oracle.github.io/learninglibrary/workshops/adwc4dev/?version=Self-Guided&page=SGintro.md&elqTrackId=e57daae9db8d44bfac4a9e6614175e5a&elqaid=82487&elqat=2&source=%3Aow%3Alp%3Acpo%3A %3A

ORACLE ANALYTICS CLOUD Examples: <u>https://www.oracle.com/solutions/business-analytics/data-visualization/examples.html</u>