

Project Goals

By: Rohan Inampudi, Amish Dara, Abhijit Chebiyam, Anik Patel

Project goals:

- Create a tier list of fantasy football players
- The highest tiers (tiers 1 - 3) will contain the best players and the lowest tiers will contain the worst players (tiers 4 and lower)
- **Graph:**
 - We aim to create a graph that displays these tiers with the players being the nodes
 - Each level of the tree will be its own tier
 - The closer to the root that the players are, the higher tier they will be
 - The leaves of tree will be the lowest tier
- **Algorithm:**
 - We will be using breadth first search to traverse the tree because we are more interested in players that are near the root (they are the highest tier)
 - We will be using Dijkstra's algorithm to find the shortest path between nodes in the graph
 - This will allow us to optimize our time complexities and search easily for players in the graph
 - In addition, we will be utilizing the Iterative Deepening depth first search
 - Sorting by position will give a large number of players and larger depth that will allow us to use Iterative Deepening depth first search to access players without accessing too much memory
 - Our algorithm will take into account a variety of stats and generate a score for each player
 - Each category will be weighted differently based on influence
 - The overall weights for each player will be added up to determine the score for each player
 - The Graph will sort the weights into tiers
- **DataSet:**
 - The dataset that we are using is adapted from FanDuel:
 - Can be download each week to reflect salary changes with players
 - CSV file will be loaded into our project using fstream/ofstream
 - Will sort out players with injury designation of 0 average points per game
 - Create trees for each position QB, WR, RB, TE, DST, K
 - Trees will sort by "value" metric that will be calculated based on salary and average points per game
 - <https://www.fanduel.com/contest>

Id	Position	First Name	Nickname	Last Name	FPPG	Played	Salary	Game	Team	Opponent	Injury Indicator	Injury Details	Tier		
51732-54140	RB	Dalvin	Dalvin Cook	Cook	25.787500381469727	8	10500	DAL@MIN	MIN	DAL					
51732-55050	RB	Christian	Christian McCaffrey	McCaffrey	16.38000030517578	5	10000	DET@CAR	CAR	DET	O	Shoulder - ac joint			
51732-42104	RB	Alvin	Alvin Kamara	Kamara	23.655554877387154	9	9700	ATL@NO	NO	ATL	Q	Foot			
51732-45889	WR	Davante	Davante Adams	Adams	22.371429443359375	7	9500	GB@IND	GB	IND	Q	Ankle			
51732-6894	QB	Aaron	Aaron Rodgers	Rodgers	23.835556030273438	9	9000	GB@IND	GB	IND					
51732-69189	QB	Justin	Justin Herbert	Herbert	24.614999771118164	8	8500	NYJ@LAC	LAC	NYJ					
51732-63115	QB	Lamar	Lamar Jackson	Jackson	20.653333875868057	9	8400	TEN@BAL	BAL	TEN					
51732-6504	QB	Drew	Drew Brees	Brees	18.32666693793403	9	8200	ATL@NO	NO	ATL	O	Ribs			
51732-39280	RB	Derrick	Derrick Henry	Henry	17.422222561306423	9	8200	TEN@BAL	TEN	BAL					
51732-40442	RB	Aaron	Aaron Jones	Jones	18.34285627092634	7	8200	GB@IND	GB	IND					
51732-28573	WR	Michael	Michael Thomas	Thomas	4.833333333333333	3	8200	ATL@NO	NO	ATL					
51732-53562	RB	Nick	Nick Chubb	Chubb	12.883333841959635	6	8100	PHI@CLE	CLE	PHI					
51732-14190	WR	Julio	Julio Jones	Jones	14.757143293108259	7	8100	ATL@NO	ATL	NO					
51732-6589	QB	Ben	Ben Roethlisberger	Roethlisberger	19.786666870117188	9	8000	PIT@JAC	PIT	JAC					
51732-29253	WR	Keenan	Keenan Allen	Allen	14.388888888888889	9	8000	NYJ@LAC	LAC	NYJ					
51732-38791	RB	Ezekiel	Ezekiel Elliott	Elliott	14.333333333333334	9	8000	DAL@MIN	DAL	MIN					
51732-39716	WR	Adam	Adam Thielen	Thielen	14.477778116861979	9	7900	DAL@MIN	MIN	DAL					
51732-64555	WR	Calvin	Calvin Ridley	Ridley	15.824999809265137	8	7800	ATL@NO	ATL	NO	Q	Foot			
51732-6616	QB	Matt	Matt Ryan	Ryan	19.737777709960938	9	7800	ATL@NO	ATL	NO					
51732-71845	RB	Miles	Miles Sanders	Sanders	14.5	6	7700	PHI@CLE	PHI	CLE					
51732-54879	QB	Deshawn	Deshawn Watson	Watson	21.984444512261284	9	7700	NE@HOU	HOU	NE					
51732-63336	QB	Joe	Joe Burrow	Burrow	18.599999321831596	9	7700	CIN@WAS	CIN	WAS					
51732-14185	QB	Cam	Cam Newton	Newton	19.5	8	7600	NE@HOU	NE	HOU					
51732-72846	WR	A.J.	A.J. Brown	Brown	14.257143293108259	7	7500	TEN@BAL	TEN	BAL					
51732-52442	RB	Joe	Joe Mixon	Mixon	14.84999974568685	6	7500	CIN@WAS	CIN	WAS	Q	Foot			
51732-6654	QB	Matthew	Matthew Stafford	Stafford	18.313334147135418	9	7500	DET@CAR	DET	CAR	Q	Thumb			
51732-70324	QB	Carson	Carson Wentz	Wentz	19.13777838812934	9	7400	PHI@CLE	PHI	CLE					
51732-30635	RB	Mike	Mike Davis	Davis	12.555555555555555	9	7400	DET@CAR	CAR	DET					
51732-21948	QB	Ryan	Ryan Tannehill	Tannehill	20.002222696940105	9	7300	TEN@BAL	TEN	BAL					
51732-56250	WR	Terry	Terry McLaurin	McLaurin	14.022221883138021	9	7300	CIN@WAS	WAS	CIN					
51732-130288	RB	James	James Robinson	Robinson	16.466666327582466	9	7200	PIT@JAC	JAC	PIT	Q	Shoulder			
51732-24849	QB	Jameis	Jameis Winston	Winston	1.25	2	7200	ATL@NO	NO	ATL					
51732-33259	QB	Teddy	Teddy Bridgewater	Bridgewater	18.467999267578126	10	7200	DET@CAR	CAR	DET	Q	Knee - mcl			
51732-42028	WR	Will	Will Fuller V	Fuller V	13.255555894639757	9	7100	NE@HOU	HOU	NE					
51732-22038	QB	Kirk	Kirk Cousins	Cousins	16.919999864366318	9	7100	DAL@MIN	MIN	DAL					
51732-63043	WR	DJ	DJ Moore	Moore	11.70999984741211	10	7100	DET@CAR	CAR	DET					
51732-41535	QB	Baker	Baker Mayfield	Mayfield	13.93777804904514	9	7000	PHI@CLE	CLE	PHI					
51732-40687	RB	James	James Conner	Conner	12.233333163791233	9	7000	PIT@JAC	PIT	JAC					
51732-7968	QB	Philip	Philip Rivers	Rivers	14.733334011501736	9	7000	GB@IND	IND	GB					
51732-54244	WR	Kenny	Kenny Golladay	Golladay	11.15999984741211	5	7000	DET@CAR	DET	CAR	Q	Hip			
51732-31001	WR	Amari	Amari Cooper	Cooper	12.233333163791233	9	6900	DAL@MIN	DAL	MIN					
51732-91598	RB	D'Andre	D'Andre Swift	Swift	12.455555386013454	9	6900	DET@CAR	DET	CAR					
51732-14225	QB	Andy	Andy Dalton	Dalton	4.769999980926514	4	6900	DAL@MIN	DAL	MIN					