EFFECTS OF NBA SCHEDULE ON GAME RESULTS

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CS-5483 Network Science

Project Progress Report 2

DATASETS

TEAM_ID	TEAM_ABBREVIATION	TEAM_NAME	GAME_ID	GAME_DATE	MATCHUP	WL
1610612747	LAL	Los Angeles Lakers	1321900001	2019-07-01	LAL vs. MIA	L
1610612762	UTA	Utah Jazz	1621900002	2019-07-01	UTA vs. MEM	L
1610612758	SAC	Sacramento Kings	1321900002	2019-07-01	SAC vs. GSW	W
1610612744	GSW	Golden State Warriors	1321900002	2019-07-01	GSW @ SAC	L
1610612759	SAS	San Antonio Spurs	1621900001	2019-07-01	SAS @ CLE	W

MIN	PTS	...	FT_PCT	OREB	DREB	REB	AST	STL	BLK	TOV	PF	PLUS_MINUS
240	79	...	0.656	11	23	34	15	4	4	12	26	-29.4
200	68	...	0.462	14	27	41	16	10	7	19	26	-6.6
239	81	...	0.731	10	30	40	20	7	0	19	26	4.0
240	77	...	0.708	7	29	36	13	7	4	17	25	-4.0
200	97	...	0.706	5	26	31	18	8	2	22	15	7.0

```
nba_team_details['OKC']
```

```
{'ID': 1610612760,
 'NICKNAME': 'Thunder',
 'CITY': 'Oklahoma City',
 'FULL_NAME': 'Oklahoma City Thunder',
 'LAT': '35.4729886',
 'LON': '-97.5170536'}
```
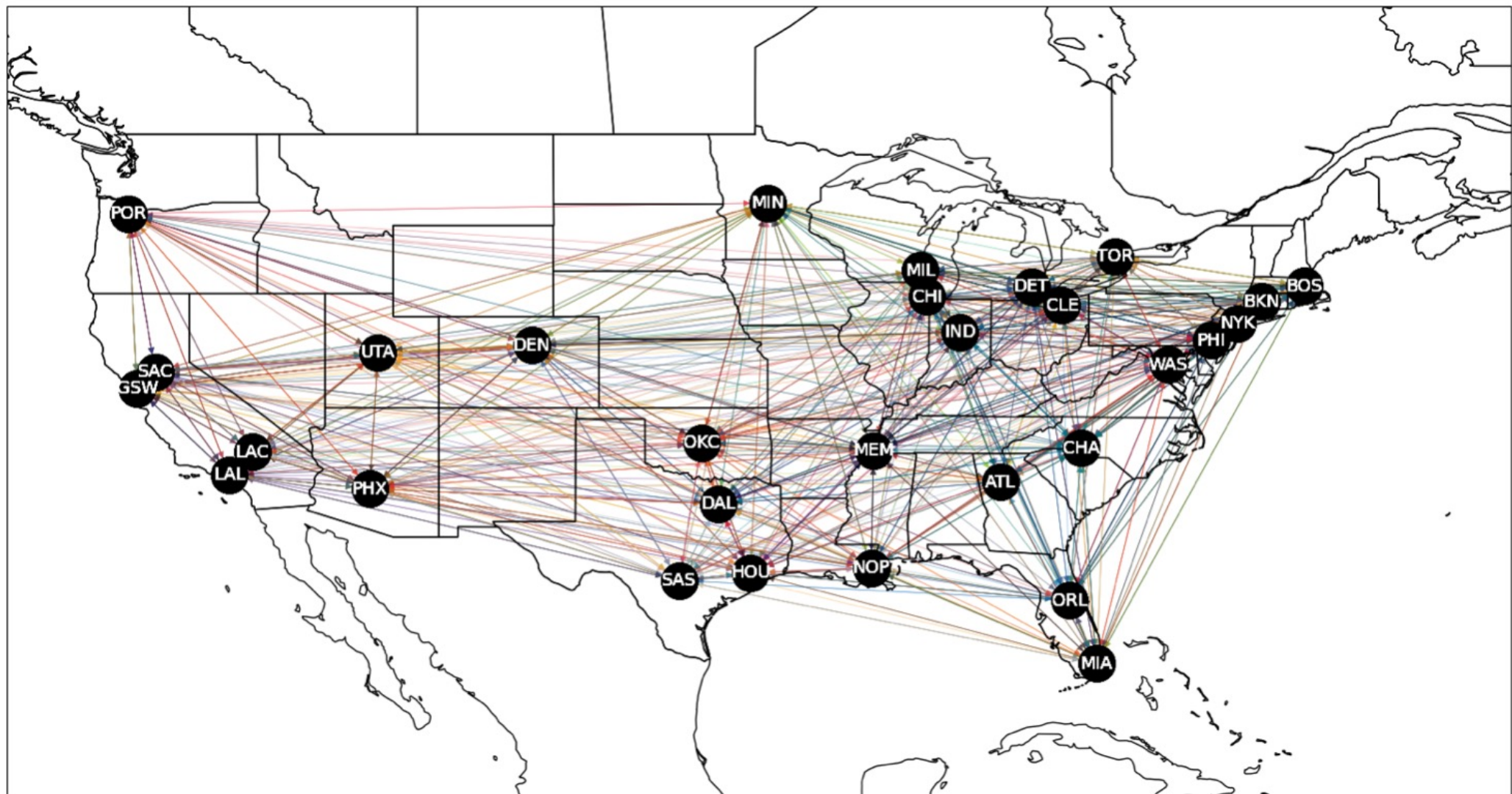
- NBA API – Easier Access to Official NBA Stats
  - Individual Game Stats
    - Pandas DataFrame with 2460 rows and 39 columns
  - Team Details
    - List of 30 dictionaries containing team ID, nickname, city, full name, latitude, and longitude
- Both datasets are made from API endpoint data
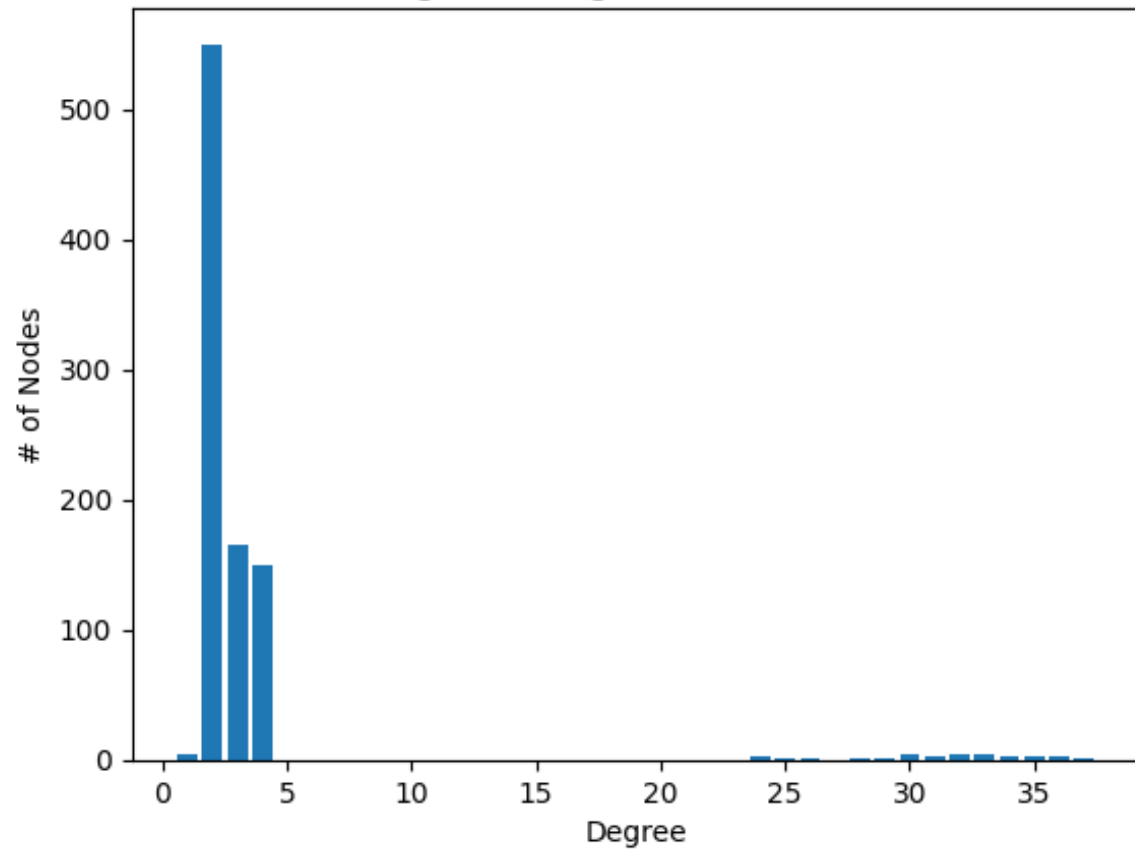
PROGRESS

- Successfully converted models using NetworkX from MultiDiGraphs to DiGraphs

  - Accomplished by combining edges with the same source and destination into one edge with an averaged edge weight.

- Added advanced statistics (estimated offensive and defensive efficiency) to individual game statistics

- Analyzed degree distributions for multiple teams and seasons to find interesting patterns

- Computed and analyzed longest and shortest paths over various lengths
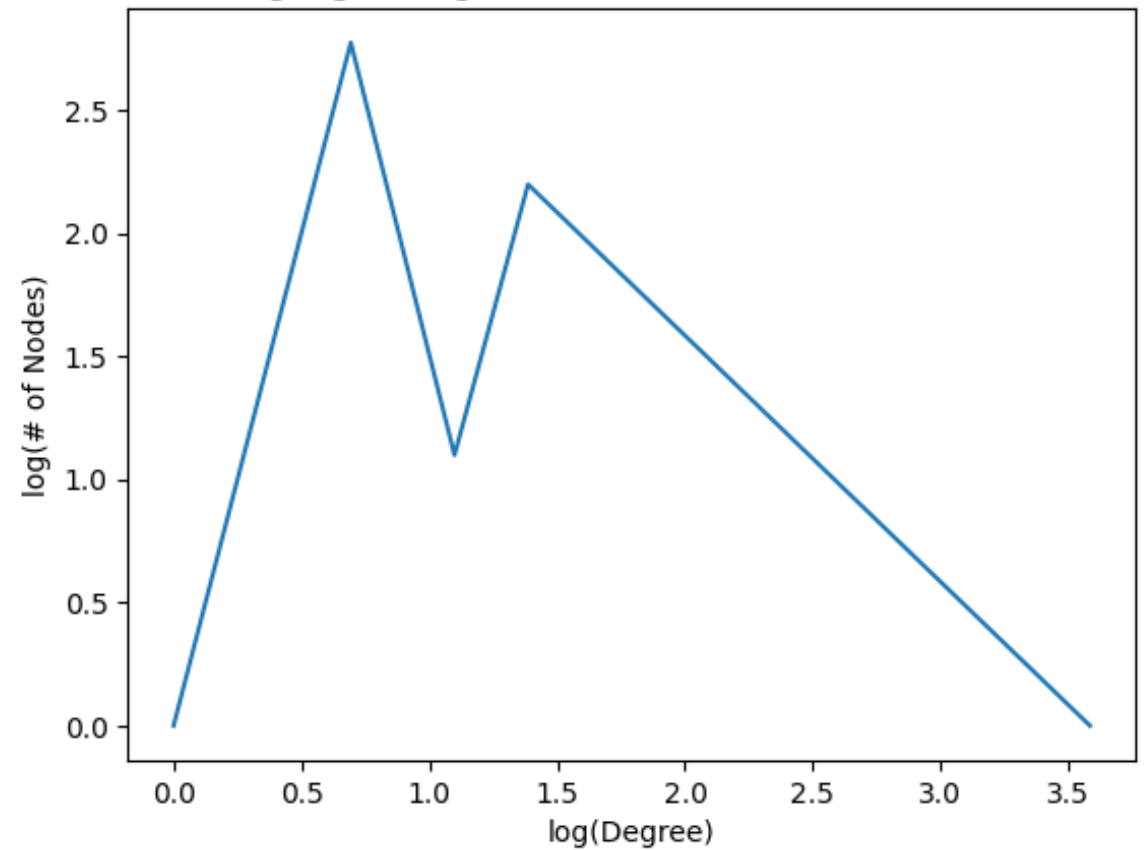
NETWORK FOR ALL TEAMS IN 2016-17 NBA SEASON

PLOTS OF RESULTS

NEXT STEPS

- Continue analysis on different teams and NBA seasons

- Find shortest and longest paths for each team and compare

  - Are shortest and longest paths for each team of a certain length similar?

  - Is one arena included in many different paths for different teams?

- Run more algorithms on graph to find any other interesting trends

  - Giant components

  - Bellman-Ford path (allows for negative edge weights)