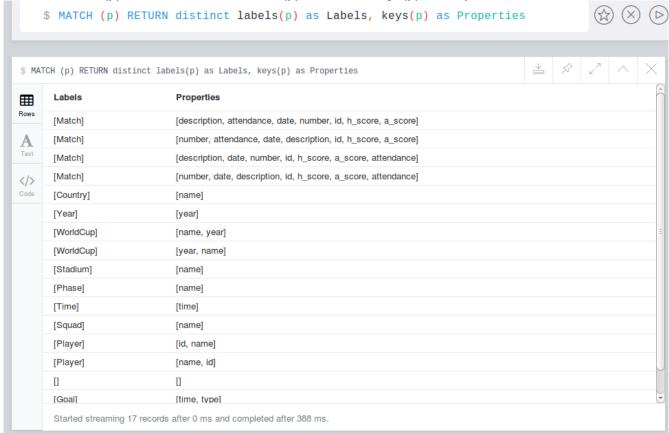
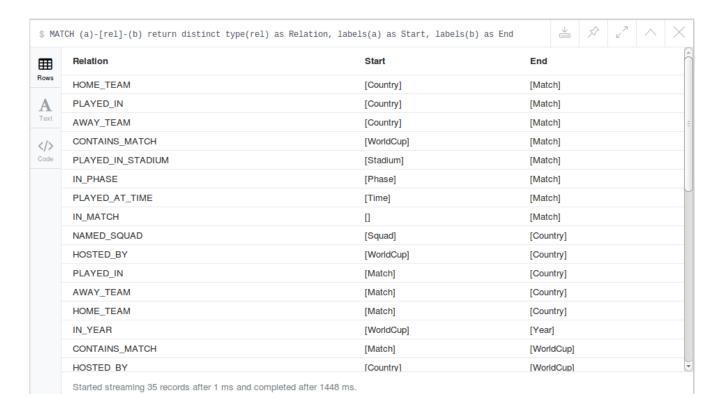
1. Schema Queries

a.) Find all the unique node labels in the graph and their properties.

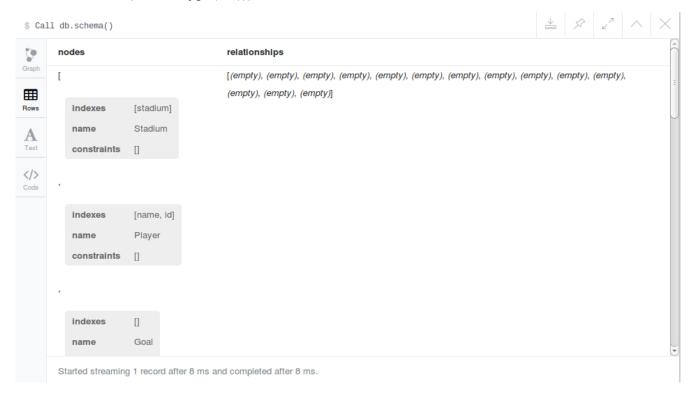
MATCH (p) RETURN distinct labels(p) as Labels, keys(p) as Properties



b.) Find all distinct relationship types that exist in the graph and the labels of the two (i.e. start and end) nodes that each of the relationship connects.MATCH (a)-[rel]-(b) return distinct type(rel) as Relation, labels(a) as Start, labels(b) as End



- c.) Show the schema of the dataset. How many incoming and outgoing relationships does the "Country" node have?
 - i) Call db.schema()
 - ii) MATCH ()-[in]->(x:Country), (x:Country)-[out]->() return (count(distinct type(in))+ count(distinct type(out))) as InOutRel





2. Data Queries

a.) How many penalty goals Gabriel Batistuta scored in WorldCups?
 Match (p:Player) -[:SCORED_GOAL]-(g:Goal)
 Where p.name= "Gabriel Batistuta" AND g.type = "penalty"
 Return p.name as PlayerName, count(*) as PenaltyScored

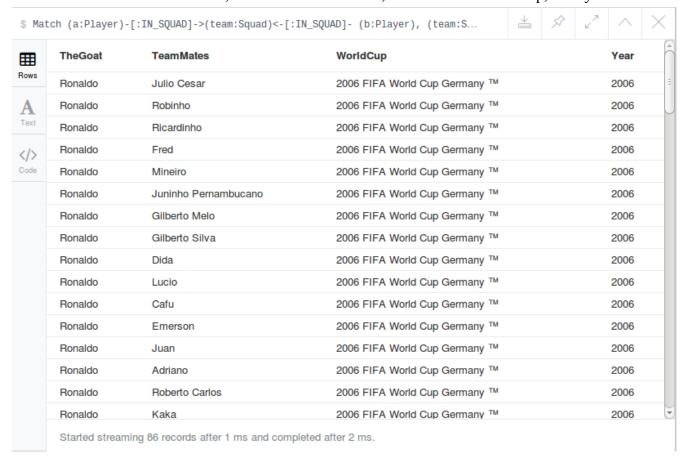


b.) Which players were teammates of Ronaldo in WorldCups (i.e. played in the same squad as him) and in which years?

Match (a:Player)-[:IN_SQUAD] → (team:Squad)<-[:IN_SQUAD]- (b:Player), (team:Squad)-[:FOR_WORLD_CUP]->(time:WorldCup)

Where a.name = "Ronaldo"

Return a.name AS TheGoat, b.name AS TeamMates, time.name as WorldCup, time.year as Year



c.) Find all the stadiums in which Brazil played against England. Also show the dates of these matches.

Match (team1:Country)-[:PLAYED_IN]->(x:Match)<-[:PLAYED_IN]-(team2:Country), (x:Match)-[:PLAYED_IN_STADIUM]->(loc:Stadium)

Where team1.name="Brazil" AND team2.name="England"

Return team1.name as Team1, team2.name as Team2, x.date as MatchDate, loc.name as Stadium



d.) Find the teams that were in the "Final" phase of the WorldCups in ascending order based on the WorldCups name. The results should have the following titles: Home team, Away Team, WorldCup name.

 $\label{eq:match} $$ Match (x:Match)-[IN_PHASE] \to (stage:Phase), (team2:Country) < -[AWAY_TEAM]-(x:Match)-[HOME_TEAM]->(team1:Country), (x:Match) \leftarrow [CONTAINS_MATCH]-(WorldCup:WorldCup)$

Where stage.name="Final"

Return team1.name as HomeTeam ,team2.name as AwayTeam,WorldCup.name as WorldCupName

Order By WorldCup.name ASC



3	HomeTeam	AwayTeam	WorldCupName
/8	Uruguay	Argentina	1930 FIFA World Cup Uruguay ™
A Text	Argentina	Uruguay	1930 FIFA World Cup Uruguay ™
	Czechoslovakia	Italy	1934 FIFA World Cup Italy ™
	Italy	Czechoslovakia	1934 FIFA World Cup Italy ™
le	Italy	Hungary	1938 FIFA World Cup France ™
	Hungary	Italy	1938 FIFA World Cup France ™
	Germany FR	Hungary	1954 FIFA World Cup Switzerland ™
	Hungary	Germany FR	1954 FIFA World Cup Switzerland ™
	Brazil	Sweden	1958 FIFA World Cup Sweden ™
	Sweden	Brazil	1958 FIFA World Cup Sweden ™
	Brazil	Czechoslovakia	1962 FIFA World Cup Chile ™
	Czechoslovakia	Brazil	1962 FIFA World Cup Chile ™
	England	Germany FR	1966 FIFA World Cup England ™
	Germany FR	England	1966 FIFA World Cup England ™
	Brazil	Italy	1970 FIFA World Cup Mexico ™
	Italy	Brazil	1970 FIFA World Cup Mexico ™

e.) Find the 5 players that scored the most goals in all WorldCups. Tip: You should consider the both goal types: penalty and goal.?

Match (p:Player)-[:SCORED_GOAL]-(g:Goal) Return p.name as Player, count(g.type) as ScoredGoals Order By ScoredGoals desc limit 5

\$ Match (p:Player)-[:SCORED_GOAL]-(g:Goal) Return p.name as Player, count(g.ty... Player ScoredGoals ▦ Rows Ronaldo Gerd Mueller 14 A Text 13 Just Fontaine Miroslav Klose 13 </> Code 12 Pelé Started streaming 5 records after 161 ms and completed after 161 ms.

f.) Which WorldCup (i.e. year) had the most goals scored and how many?

$\label{eq:match} \begin{tabular}{ll} Match (p:Player)-[:IN_SQUAD] \to (:Squad)-[FOR_WORLD_CUP] \to (WorldCup:WorldCup), \\ (p:Player)-[:SCORED_GOAL]->(g:Goal) \\ \end{tabular}$

Return WorldCup.name as WorldCup, count(g.type) as NoOfGoals Order By NoOfGoals desc limit 1

\$ Mat	ch (p:Player)-[:IN_SQUAD]->(:Squad)-[FOR_WORLD_CUP]->(WorldCup:WorldCup),	* × ×			
=	WorldCup	NoOfGoals			
Rows	2002 FIFA World Cup Korea/Japan ™	336			
A Text					
> Code					
	Started streaming 1 record after 143 ms and completed after 143 ms.				

Tip: Properties are of type string. To add two numeric properties convert each into int using toInt()

g.) Find the players who played for two or more different countries in different WorldCups.

Match (a:Player)-[:IN_SQUAD] - (:Squad)<-[:NAMED_SQUAD]-(team1:Country),(b:Player)
[:IN_SQUAD]->(:Squad)<-[:NAMED_SQUAD]-(team2:Country)

Where a.name=b.name and team1.name<>team2.name

Return distinct a.name as Players

\$ Match (a:Player)-[:IN_SQUAD]->(:Squad)<-[:NAMED_SQUAD]-(team1:Country),(b:Pl...</pre> **Players** \blacksquare Luis Suarez Ruben Sosa Α Mario Mendez Jose Santamaria </> Code Jean Petit Jorge Campos Luis Garcia Luis Regueiro Miguel Gutierrez Jose Navarro Francisco Hernandez Hugo Perez Alberto Gonzalez Atilio Demaria Luis Monti Andreas Koepke

Started streaming 60 records after 1 ms and completed after 576 ms.