Problem solving on Joins

Relevel by Unacademy



Additional Questions - Set 2 (Joins)

Instructions:

• We will use mode.com for this set of questions.





benn.college_football_players players

full_school_name	school_name	player_name	position	height	weight	year	hometown	state	id
Cincinnati Bearcata	Cincinnati	Ralph Abernathy	RB	67	161	JR	ATLANTA, GA	GA	1
Cincinnati Bearcats	Cincinnati	Mekale McKay	WR	76	195	50	LOUISVILLE, KY	KY	2
Cincinnati Bearcats	Cincinnati	Trenier Orr	CB	71	177	50	WINTER GARDEN, FL.	FL	3
Cincinnati Bearcats	Cincinnati	Bennie Coney	QB	75	216	FR	PLANT CITY, FL.	FL.	4
Cincinnati Bearcats	Cincinnati	Johnny Holton	WR	75	190	JR.	MIAMI, FL	FL.	5
Cincinnati Bearcats	Cincinnati	Howard Wilder	DB	71	180	JR	SEA ISLAND, GA	GA	6
Cincinnati Bearcata	Cincinnati	Munchie Legaux	90	77	200	SR	NEW ORLEANS, LA	LA	7
Cincinneti Bearcata	Cincinnati	Mark Barr	WR	73	163	FR	FORT LAUDERDALE, FL.	FL.	8
Cincinnati Bearcata	Cincinnati	Aaron Brown	CB	71	172	FR	MIAMI, FL	FL.	9
Cincinneti Bearcats	Cincinnati	Anthony McClung	WR	73	177	SR	INDIANAPOLIS, IN	IN .	10
Cincinnati Bearcata	Cincinnati	Tion Green	RB	73	220	50	SANFORD, FL.	R.	11
Cincinnati Bearcats	Cincinnati	Mike Tyson	8	74	200	SR	NORFOLK, VA	VA	12
Cincinnati Bearcats	Cincinnati	Gunner Kiel	Q8	76	208	FR	COLUMBUS, IN	IN .	13
Cincinnati Bearcats	Cincinnati	Adrian Witty	5	70	187	JR.	DEERFIELD BEACH, FL	FL.	14
Cincinnati Bearcats	Cincinnati	Patrick Coyne	FB	73	240	50	CINCINNATI, OH	CH	15
Cincinnati Bearcats	Cincinnati	Dionne Thrweatt-Vass	CB	70	190	SR	40	-	16
Cincinnati Bearcata	Cincinnati	Jordan Luatien	FB	75	2.40	58	GREENWOOD, IN	IN	17
Cincinnati Bearcata	Cincinnati	Deven Drane	C8	71	187	SR	PLANTATION, FL	R.	18
Cincinneti Beercets	Cincinnati	Brendon Kay	08	76	228	SR	MARINE CITY: MI	MI	19
Cincinnati Bearcata	Cincinnati	Leviticus Payne	CB	69	183	50	SOUTHFIELD, MI	MI	20

benn.college_football_teams

division	conference	school_name	roster_url	id
FBS (Division I-A Teams)	American Athletic	Cincinnati	http://espn.go.com/ncf/teams/roster?teamId=2132	1
FBS (Division I-A Teams)	American Athletic	Connecticut	http://espn.go.com/ncf/teams/roster?teamId=41	2
FBS (Division I-A Teams)	American Athletic	Houston	http://espn.go.com/ncf/teams/roster?teamId=248	3
FBS (Division I-A Teams)	American Athletic	Louisville	http://espn.go.com/ncf/teams/roster?teamId=97	4
FBS (Division I-A Teams)	American Athletic	Memphis	http://espn.go.com/ncf/teams/roster?teamId=235	5
FBS (Division I-A Teams)	American Athletic	Rutgers	http://espn.go.com/ncf/teams/roster?teamId=164	6
FBS (Division I-A Teams)	American Athletic	South Florida	http://espn.go.com/ncf/teams/roster?teamId=58	7
FBS (Division I-A Teams)	American Athletic	Southern Methodist	http://espn.go.com/ncf/teams/roster?teamId=2567	8
FBS (Division I-A Teams)	American Athletic	Temple	http://espn.go.com/ncf/teams/roster?teamId=218	9
FBS (Division I-A Teams)	American Athletic	UCF	http://espn.go.com/ncf/teams/roster?teamId=2116	10
FBS (Division I-A Teams)	ACC	Boston College	http://espn.go.com/ncf/teams/roster?teamId=103	11
FBS (Division I-A Teams)	ACC	Clemson	http://espn.go.com/ncf/teams/roster?teamId=228	12
FBS (Division I-A Teams)	ACC	Duke	http://espn.go.com/ncf/teams/roster?teamId=150	13
FBS (Division I-A Teams)	ACC	Florida State	http://espn.go.com/ncf/teams/roster?teamId=52	14
FBS (Division I-A Teams)	ACC	Georgia Tech	http://espn.go.com/ncf/teams/roster?teamId=59	15

Question-1:

Write a query to return player_name, school_name, position, conference from the above dataset.



Answer-1:

SELECT

players.player_name,

players.school_name,

players.position,

teams.conference

FROM

benn.college_football_players players

JOIN

benn.college_football_teams teams

ON players.school_name = teams.school_name





Question-2:

Write a query to find the total number of players playing in each conference. Order the output in the descending order of number of players.



Answer-2:

SELECT teams.conference, COUNT(players.player_name) AS num_players FROM benn.college_football_players players JOIN benn.college_football_teams teams ON players.school_name = teams.school_name GROUP BY teams.conference ORDER BY num_players DESC



Question-3:

Write a query to find the average height of players per division



Answer-3:

SELECT
teams.division,
AVG(players.height) AS avg_height
FROM
benn.college_football_players players
JOIN
benn.college_football_teams teams
ON players.school_name = teams.school_name
GROUP BY
Teams.division



Question-4:

Write a query to return to the conference where average weight is more than 210. Order the output in the descending order of average weight.



Answer-4

SELECT teams.conference, AVG(players.weight) AS avg_weight FROM benn.college_football_players players JOIN benn.college_football_teams teams ON players.school_name = teams.school_name **GROUP BY** teams.conference **HAVING** AVG(players.weight) > 210 **ORDER BY** avg_weight DESC



Question-5:

Write a query to return to the top 3 conference with the highest BMI (weight/height) ratio



Answer-5:

SELECT

teams.conference,

703*SUM(players.weight)/SUM(POWER(players.height,2)) AS bmi

FROM

benn.college_football_players players

JOIN

benn.college_football_teams teams

ON players.school_name = teams.school_name

GROUP BY

teams.conference

ORDER BY

bmi DESC

LIMIT 3





- Tutorial.excel_sql_inventory_data
- Tutorial.excel_sql_transaction_data

Question-1:

Write a query to join the above tables.



Answer-1:

SELECT a.*,

b.time

FROM

tutorial.excel_sql_inventory_data a

LEFT JOIN

tutorial.excel_sql_transaction_data b

ON a.product_id = b.product_id



Question-2:

Find the product which does not sell a single unit.



Answer-2:

SELECT

a.*,

b.time

FROM

tutorial.excel_sql_inventory_data a

LEFT JOIN

tutorial.excel_sql_transaction_data b

ON a.product_id = b.product_id

WHERE

b.time IS NULL



Question-3:

Write a query to find how many units are sold per product. Sort the data in terms of unit sold(descending order)



Answer-3:

```
SELECT
 a.product_id,
 a.product_name,
 COUNT(b.time) AS units_sold
FROM
tutorial.excel_sql_inventory_data a
LEFT JOIN
tutorial.excel_sql_transaction_data b
ON a.product_id = b.product_id
GROUP BY
 a.product_id,
 a.product_name
ORDER BY
 units_sold DESC
```



Question-4:

Write a query to return product_type and units_sold where product_type is sold more than 50 times.



Answer-4:

```
SELECT
a.product_type,
COUNT(b.time) AS units_sold
FROM
tutorial.excel_sql_inventory_data a
LEFT JOIN
tutorial.excel_sql_transaction_data b
ON a.product_id = b.product_id
GROUP BY
a.product_type
HAVING
COUNT(b.time) > 50
```



Question-5:

Write a query to return the total revenue generated.



Answer-5:

SELECT
SUM(price_unit) AS total_revenue
FROM
tutorial.excel_sql_inventory_data a
LEFT JOIN
tutorial.excel_sql_transaction_data b
ON a.product_id = b.product_id
WHERE
b.time IS NOT NULL



Question-6:

Write a query to return the most selling product under product_type = 'dry goods'



Answer-6:

SELECT product_name, COUNT(b.time) AS unit_sold FROM tutorial.excel_sql_inventory_data a **LEFT JOIN** tutorial.excel_sql_transaction_data b ON a.product_id = b.product_id WHERE product_type = 'dry_goods' **GROUP BY** product_name ORDER BY unit_sold DESC LIMIT 1



Question-7:

Write a query to find the difference between inventory and total sales per product_type?



Answer-7:

```
SELECT
product_type,
SUM(current_inventory) - COUNT(b.time) AS delta
FROM
tutorial.excel_sql_inventory_data a
LEFT JOIN
tutorial.excel_sql_transaction_data b
ON a.product_id = b.product_id
GROUP BY
product_type
ORDER BY
delta DESC
```



Question-8:

Find the product-wise sales for product_type ='dairy'



Answer-8:

```
SELECT
a.product_name,
SUM(a.price_unit)*COUNT(b.time) AS sales
FROM
tutorial.excel_sql_inventory_data a
LEFT JOIN
tutorial.excel_sql_transaction_data b
ON a.product_id = b.product_id
WHERE
 product_type = 'dairy'
GROUP BY
 product_name
ORDER BY
 sales DESC
```





- Tutorial.yammer_users
- Tutorial.yammer_experiments
- Tutorial.yammer_events
- Tutorial.yammer_emails



Question-1:

Find the number of users per language type/



Anwer-1:

SELECT

language,

COUNT(user_id) AS num_user

FROM

tutorial.yammer_users

GROUP BY

language



Question-2:

Write a query to find how many users are part of experiments.



Answer-2:

SELECT

COUNT(DISTINCT a.user_id) AS total_users,

COUNT(DISTINCT b.user_id) AS users_experiment

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_events b

ON a.user_id = b.user_id



Question-3:

Find the number of users in experiment per language category.



Answer-3:

SELECT

a.language,

COUNT(DISTINCT b.user_id) AS users_experiment

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_events b

ON a.user_id = b.user_id

GROUP BY

a.language



Question-4:

Write a query to find how many users have received at least one email



Answer-4:

SELECT

COUNT(DISTINCT a.user_id) AS total_users,

COUNT(DISTINCT b.user_id) AS users_with_email

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_emails b

ON a.user_id = b.user_id



Question-5:

Write a query to find how many users per company id have received at least one email?



Answer-5:

SELECT

a.company_id,

COUNT(DISTINCT b.user_id) AS users_with_email

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_emails b

ON a.user_id = b.user_id

GROUP BY

a.company_id



Question-6:

Write a query to find how many users have received at least one event



Answer-6:

SELECT

COUNT(DISTINCT a.user_id) AS total_users,

COUNT(DISTINCT b.user_id) AS users_with_events

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_events b

ON a.user_id = b.user_id



Question-7:

Write a query to find how many distinct users per state have at least one event?



Answer-7:

SELECT

a.state,

COUNT(DISTINCT b.user_id) AS users_with_events

FROM

tutorial.yammer_users a

LEFT JOIN

tutorial.yammer_events b

ON a.user_id = b.user_id

GROUP BY

a.state







Question-1:

Write a query to join the tables tutorial.us_housing_units and tutorial.us_housing_units_completed.

Return all the records



Answer-1:

SELECT a.year, a.month, a.month_name, a.south AS south_unit, a.west AS west unit, a.midwest AS midwest unit, a.northeast AS northeast_unit, b.south AS south_completed, b.west AS west_completed, b.midwest AS midwest_completed, b.northeast AS northeast_completed FROM tutorial.us_housing_units a **LEFT JOIN** tutorial.us_housing_units_completed b ON a.year = b.year

AND a.month = b.month



Question-2:

Write a query to return year, month, month_name and difference between the units and units completed for west from 2000 onwards.



Answer-2:

SELECT
a.year,
a.month,
a.month_name,
a.west as west_a,
b.west as west_b,
a.west - b.west AS difference_in_units
FROM
tutorial.us_housing_units a
LEFT JOIN
tutorial.us_housing_units_completed b
ON a.year = b.year
AND a.month = b.month
WHERE
a.year >= 2000





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Question-1:

Write a query that performs a left join between the tutorial.crunchbase_companies table and tutorial.crunchbase_acquisitions table. List the individual rows.



Answer-1:

SELECT*

FROM tutorial.crunchbase_companies companies

LEFT JOIN tutorial.crunchbase_acquisitions acquisitions

ON companies.permalink = acquisitions.company_permalink



Question-2:

Count the number of unique companies (don't double-count companies) and unique acquired companies.



Answer-2

SELECT

COUNT(DISTINCT companies.permalink) AS unique_companies,

COUNT(DISTINCT acquisitions.company_permalink) AS unique_companies_acquired

FROM tutorial.crunchbase_companies companies

LEFT JOIN tutorial.crunchbase_acquisitions acquisitions

ON companies.permalink = acquisitions.company_permalink



Question-3:

Write a query to give a count of number of companies which never acquired any company



Answer-3:

SELECT COUNT(DISTINCT companies.permalink) AS num_no_acquisition

FROM

tutorial.crunchbase_companies companies

LEFT JOIN

tutorial.crunchbase_acquisitions acquisitions

ON companies.permalink = acquisitions.company_permalink

WHERE

acquisitions.company_permalink IS NULL



Question-4:

Count the number of unique companies (don't double-count companies) and unique acquired companies by state. Do not include results for which there is no state data, and order by the number of acquired companies from highest to lowest.



Answer-4:

SELECT companies.state_code,

COUNT(DISTINCT companies.permalink) AS unique_companies,

COUNT(DISTINCT acquisitions.company_permalink) AS unique_companies_acquired

FROM tutorial.crunchbase_companies companies

LEFT JOIN tutorial.crunchbase_acquisitions acquisitions

ON companies.permalink = acquisitions.company_permalink

WHERE companies.state_code IS NOT NULL

GROUP BY 1

ORDER BY 3 DESC



Question-5:

Write a query that joins tutorial.crunchbase_companies and tutorial.crunchbase_investments_part1 using a FULL JOIN. Count up the number of rows that are present in one table and present in both the table.



Answer-5:

SELECT

COUNT(CASE WHEN companies.permalink IS NOT NULL AND investments.company_permalink IS NULL

THEN companies.permalink ELSE NULL END) AS companies_only,

COUNT(CASE WHEN companies.permalink IS NOT NULL AND investments.company_permalink IS NOT

NULL

THEN companies.permalink ELSE NULL END) AS both_tables,

 ${\tt COUNT}({\tt CASE~WHEN~companies.permalink~IS~NULL~AND~investments.company_permalink~IS~NOT~NULL~and~investments.company~permalink~IS~NOT~NULL~and~investments.company~permalink~IS~NOT~NULL~and~investments.company~permalink~IS~NOT~NULL~and~investments.company~permalink~IS~NOT~NULL~and~investments.company~permalink~IS~NOT~NULL~and~investments$

THEN investments.company_permalink ELSE NULL END) AS investments_only

FROM

tutorial.crunchbase_companies companies

FULL JOIN

tutorial.crunchbase_investments_part1 investments

ON companies.permalink = investments.company_permalink



Question-6:

Write a query to find the records where a company received investment 5 year after founding year.



Answer-6:

```
SELECT companies.permalink,
    companies.name,
    companies.status,
    COUNT(investments.investor_permalink) AS investors
FROM
tutorial.crunchbase_companies companies
LEFT JOIN
tutorial.crunchbase_investments_part1 investments
    ON companies.permalink = investments.company_permalink
    AND investments.funded_year > companies.founded_year + 5
GROUP BY 1,2, 3
```





Question-1:

In the tutorial.city_populations dataset, add a column which tells how many cities have less population than the city mentioned in the row



Answer-1:

```
SELECT
 a.city,
 a.state,
 a.population_estimate_2012,
 COUNT(b.city) AS num_city_with_higher_population
FROM
tutorial.city_populations a
JOIN
 tutorial.city_populations b
ON a.population_estimate_2012 >b.population_estimate_2012
GROUP BY
 a.city,
 a.state,
 A.population_estimate_2012
```



Question-2:

In the tutorial.city_populations dataset, add a column which tells the rank of city in terms of population. City with highest population should get rank = 1



Answer-2:

```
SELECT
 a.city,
 a.state,
 a.population_estimate_2012,
 COUNT(b.city) AS rank
FROM
tutorial.city_populations a
JOIN
 tutorial.city_populations b
ON a.population_estimate_2012 <=b.population_estimate_2012
GROUP BY
 a.city,
 a.state,
 a.population_estimate_2012
ORDER BY
rank
```



THANK YOU

