SQL SUBQUERIES

FLASHBACK: SO FAR WE HAVE SEEN QUERIES AS STANDALONE COMMANDS THAT FETCH DATA FROM A DATABASE

LET'S RECAP THAT REAL QUICK

RECAP

A VERY SIMPLE QUERY
THE BASIC SELECT-FROM-WHERE

RECAP

FIND ALL EMAIL IDS

THIS IS A TABLE NAMED 'STUDENTS'

StudentID	FirstName	LastName	Gender	Email
1	Janani	Ravi	F	janani@loonycorn.com
2	Swetha	Kolalapudi	F	swetha@loonycorn.com
3	Navdeep	Singh	M	navdeep@loonycorn.com
4	Vitthal	Srinivasan	M	vitthal@loonycorn.com

COLUMNS ARE NAMED 'STUDENTID', 'FIRSTNAME', 'LASTNAME', 'GENDER' AND 'EMAIL'

RECAP

FIND ALL EMAIL IDS

```
SELECT  EMAIL

FROM  STUDENTS;
```

REMEMBER, WHEN ALL ROWS ARE TO BE SELECTED, YOU CAN SKIP THE WHERE CLAUSE

RECAP

FIND ALL EMAIL IDS

Email
janani@loonycorn.com
swetha@loonycorn.com
navdeep@loonycorn.com
vitthal@loonycorn.com

RECAP

A MORE COMPLICATED QUERY USING GROUP BY

RECAP

FIND THE TOTAL SALES ACROSS ALL STORES FOR EACH PRODUCT

StoreLocation	Product	Date	Revenue
Bellandur	Bananas	January 18,2016	8,236.33
Bellandur	Nutella	January 18,2016	7,455.67
Bellandur	Peanut Butter	January 18,2016	5,316.89
Bellandur	Milk	January 18,2016	2,433.76
Koramangala	Bananas	January 18,2016	9,456.01
Koramangala	Nutella	January 18,2016	3,644.33
Koramangala	Peanut Butter	January 18,2016	8,988.64
Koramangala	Milk	January 18,2016	1,621.58
Bellandur	Bananas	January 17,2016	2342.33
Bellandur	Nutella	January 17,2016	6345.10
Bellandur	Peanut Butter	January 17,2016	5673.01
Bellandur	Milk	January 17,2016	4543.98
Koramangala	Bananas	January 17,2016	8902.65
Koramangala	Nutella	January 17,2016	9114.67
Koramangala	Peanut Butter	January 17,2016	5102.05
Koramangala	Milk	January 17,2016	1299.45

RECAP

FIND THE TOTAL SALES ACROSS ALL STORES FOR EACH PRODUCT

```
SELECT      Product,
            SUM(REVENUE)TotalRevenue

FROM        Sales_Data


GROUP BY    Product;
```

RECAP

FIND THI
ALL STO

FROM THIS, BANANAS ARE OUR BEST PRODUCT!

Product	TotalRevenue
Bananas	28,937.32
Milk	9898.77
Nutella	26,559.77
Peanut Butter	25,080.59

RECAP

AN EVEN MORE COMPLICATED QUERY

USING JOINS

RECAP

JOINS

- CROSS JOIN ("CARTESIAN JOIN")
- INNER JOIN
- OUTER JOIN
  - LEFT
  - RIGHT
  - FULL
- NATURAL JOIN

'STORES'

StoreID	StoreLocation	City
1	Bellandur	Bangalore
2	Koramangala	Bangalore

```
STORES S
INNER JOIN
SALESDATA REV
ON S.STOREID = REV.STOREID
AND S.STORELOCATION = 'KORAMANGALA';
```

OPERATOR

'SALES_DATA'

StoreID	ProductID	Date	Revenue
1	1	January 18,2016	8,236.33
1	3	January 18,2016	7,455.67
1	4	January 18,2016	5,316.89
1	2	January 18,2016	2,433.76
..	..	..	..

OUTPUT

StoreID	StoreLocation	City	StoreID	ProductID	Date	Revenue
2	Koramangala	Bangalore	2	1	January 18,2016	9,456.01
2	Koramangala	Bangalore	2	3	January 18,2016	3,644.33
2	Koramangala	Bangalore	2	4	January 18,2016	8,988.64
2	Koramangala	Bangalore	2	2	January 18,2016	1,621.58
2	Koramangala	Bangalore	2	1	January 17,2016	8902.65
2	Koramangala	Bangalore	2	3	January 17,2016	9114.67
2	Koramangala	Bangalore	2	4	January 17,2016	5102.05
2	Koramangala	Bangalore	2	2	January 17,2016	1299.45

RECAP

OUR MOST COMPLICATED QUERY YET

USING JOINS, GROUP BY, HAVING

RECAP

LET'S FIND THE AVG RATING OF ALL MOVIES HAVING AT LEAST 2 REVIEWS

MOVIES

MovieID	MovieName	Year	Country
1	The Godfather	1972	USA
2	The Departed	2006	USA
3	Infernal Affairs	2002	Hong Kong
4	Parinda	1989	India
5	Gunda	1998	India
6	Little Caesar	1931	USA

REVIEWS

MovieID	ReviewID	Review	RatingStars
1	1	Amazing	5
1	2	Genre-Defining	5
1	3	Classic	5
1	4	Overrated	1
1	5	OK, Not Great	3
1	6	Two Thumbs Up	5
3	7	Crossover Hit	5
3	8	Love It	4
3	9	Nailbiting!	5
1	10	Cinematic Masterpiece	5
5	11	So Bad Its Good	0
2	12	Not As Good As Original	3
2	13	Overrated	2
2	14	Too Morbid	3
4	15	Sad, Thought-Provoking	4
4	16	Cinema At Its Best	5

RECAP

LET'S FIND THE AVG RATING OF ALL MOVIES HAVING AT LEAST 2 REVIEWS

MOVIES

MovieID	MovieName	Year	Country

REVIEWS

MovieID	ReviewID	Review	RatingStars

EASY-PEASY! 1 SIMPLE QUERY, WITH 4 STEPS

✓ JOIN
THE 2 TABLES ON MOVEID

✓ GROUP-BY
MOVIE NAME

NEW

HAVING
MORE THAN 2 REVIEWS

✓ AVG
THE RATINGS IN EACH GROUP

RECAP

HAVING

IS AN OPERATOR THAT TESTS WHETHER SUB-GROUPS SATISFY A GIVEN CONDITION

HAVING IS SIMILAR TO WHERE - BOTH OPERATORS ARE FOLLOWED BY A CONDITION

WHERE OPERATES ON INDIVIDUAL ROWS

HAVING WORKS ON SUB-GROUPS CREATED BY GROUP-BY

RECAP

HAVING

IS AN OPERATOR THAT TESTS WHETHER SUB-GROUPS SATISFY A GIVEN CONDITION

HAVING IS SIMILAR TO WHERE - BOTH OPERATORS ARE FOLLOWED BY A CONDITION

WHERE OPERATES ON INDIVIDUAL ROWS

HAVING WORKS ON SUB-GROUPS CREATED BY GROUP-BY

HAVING ALWAYS MUST BE USED ALONG WITH AGGREGATE OPERATORS

RECAP

HAVING

HAVING ALWAYS MUST BE USED
ALONG WITH AGGREGATE OPERATORS

RECAP

LET'S FIND THE AVG RATING OF ALL MOVIES HAVING AT LEAST 2 REVIEWS

```
SELECT          M.MOVIENAME,
                AVG(R.RATINGSTARS)

FROM                MOVIES M
        INNER JOIN
                    REVIEWS R
        ON
                    M.MOVIEID = R.MOVIEID

GROUP BY MOVIENAME

HAVING COUNT(REVIEWID)  >= 2;
```

JOIN
THE 2 TABLES ON MOVEID

GROUP-BY
MOVIE NAME

NEW
HAVING
MORE THAN 2 REVIEWS

AVG
THE RATINGS IN EACH GROUP

RECAP

LET'S FIND THE AVG RATING OF ALL MOVIES HAVING AT LEAST 2 REVIEWS

MovieName	RatingStars
The Godfather	4.15
The Departed	2.67
Infernal Affairs	4.67
Parinda	4.5