O'REILLY®

SQL-Powered Excel

Month/Year

From `VLOOKUP()` to SQL `JOIN`

Shout-out to Power Query!

- From <u>Office Support</u>: "Power Query enhances self-service business intelligence (BI) for Excel with an intuitive and consistent experience for discovering, combining, and refining data across a wide variety of sources including relational, structured and semi-structured, OData, Web, Hadoop, and more."

Shout-out to Power Query!

- From <u>Office Support</u>: "Power Query enhances self-service business intelligence (BI) for Excel with an intuitive and consistent experience for discovering, combining, and refining data across a wide variety of sources including relational, structured and semi-structured, OData, Web, Hadoop, and more."
  - **Including relational databases & SQL!**

Shout-out to Power Query!

- From <u>Office Support</u>: "Power Query enhances self-service business intelligence (BI) for Excel with an intuitive and consistent experience for discovering, combining, and refining data across a wide variety of sources including relational, structured and semi-structured, OData, Web, Hadoop, and more."
  - **Including relational databases & SQL!**
  - **But not yet for Mac … stay tuned!**

FROM `VLOOKUP()` Duct Tape to `JOIN` Blowtorch

Demo: `vlookup-vs-join.xlsx`

Putting the relationships into relational databases

One-to-one relationship, William Charles Schneider excluded

empno	ssn
9759	440-80-1399
5156	988-29-1279
9844	620-05-3151
4965	430-34-7111
5262	415-71-1652
1403	448-03-4029
8215	834-01-6607
9735	342-47-7354
7870	863-68-8610
4460	277-77-0447
3304	115-95-2906
6811	544-79-3154
9909	603-38-9521
6395	112-29-8261
4858	259-37-7332
8514	115-85-7502
4518	163-09-9662
3891	895-87-1755
2029	886-95-9630
7852	192-83-2309
3245	573-20-2785

empno	ename	job	mgr	hiredate	sal	deptno	locno
9759	SCOTT	MANAGER	3710	5/26/1994	1900	50	3
5156	SCHRUTE	ASST TO REGIONAL MANAGER	9759	11/11/2000	1500	80	3
9844	HALPERT	SALESPERSON	9759	3/1/2001	1500	80	3
4965	BEESLY	SECRETARY	9759	7/13/2000	1300	60	3
5262	HOWARD	TEMP	9759	3/24/2005	900	60	3
1403	BERNARD	SALESPERSON	9759	6/14/2003	1500	80	3
8215	LEVINSON	VP SALES	2029	6/30/2002	2500	50	1
9735	HUDSON	SALESPERSON	9759	5/14/1998	1500	80	3
7870	MALONE	ACCOUNTANT	3304	12/2/1999	1100	10	3
4460	PALMER	SUPPLIER RELATIONS REP	9759	4/30/1998	1300	90	3
3304	MARTIN	DIRECTOR ACCOUNTING	9759	3/27/1996	1600	10	3
6811	MARTINEZ	SENIOR ACCOUNTANT	3304	9/28/1999	1300	10	3
9909	LAPIN	SALESPERSON	9759	6/13/1990	1500	80	3
6395	KAPOOR	CUSTOMER RELATIONS REP	9759	1/20/2002	1300	20	3
4858	FLENDERSON	HUMAN RESOURCES REP	7852	4/20/1994	1750	30	3
8514	FILIPPELLI	MANAGER	2029	11/2/2002	2000	50	2
4518	BRATTON	QUABITY ASSUWANCE	9759	7/15/1989	1300	70	3
3891	PHILBIN	FOREMAN	9759	9/20/1997	1500	40	3
2029	WALLACE	CHIEF FINANCIAL OFFICER	7852	3/16/1999	3000	50	1
7852	BRAND	CHIEF EXECUTIVE OFFICER	7852	12/21/1987	5000	50	1

One-to-many relationship

empno	ename	job	mgr	hiredate	sal	conm	deptno	locno
9759	SCOTT	MANAGER	3710	5/26/1994	1900		50	3
5156	SCHRUTE	ASST TO REGINONAL MANAGER	9759	11/11/2000	1500		80	3
9844	HALPERT	SALESPERSON	9759	3/1/2001	1500		80	3
4965	BEESLY	SECRETARY	9759	7/13/2000	1300		60	3
5262	HOWARD	TEMP	9759	3/24/2005	900		60	3
1403	BERNARD	SALESPERSON	9759	6/14/2003	1500		80	3
8215	LEVINSON	VP SALES	2029	6/30/2002	2500		50	1
9735	HUDSON	SALESPERSON	9759	5/14/1998	1500		80	3
7870	MALONE	ACCOUNTANT	3304	12/2/1999	1100		10	3
4460	PALMER	SUPPLIER RELATIONS REP	9759	4/30/1998	1300		90	3
3304	MARTIN	DIRECTOR ACCOUNTING	9759	3/27/1996	1600		10	3
6811	MARTINEZ	SENIOR ACCOUNTANT	3304	9/28/1999	1300		10	3
9909	LAPIN	SALESPERSON	9759	6/13/1990	1500		80	3
6395	KAPOOR	CUSTOMER RELATIONS REP	9759	1/20/2002	1300		20	3
4858	FLENDERSON	HUMAN RESOURCES REP	7852	4/20/1994	1750		30	3
8514	FILIPPELLI	MANAGER	2029	11/2/2002	2000		50	2
4518	BRATTON	QUABITY ASSUWANCE	9759	7/15/1989	1300		70	3
3891	PHILBIN	FOREMAN	9759	9/20/1997	1500		40	3
2029	WALLACE	CHIEF FINANCIAL OFFICER	7852	3/16/1999	3000		50	1
7852	BRAND	CHIEF EXECUTIVE OFFICER	7852	12/21/1987	5000		50	1

deptno	dept_title
10	ACCOUNTING
20	CUSTOMER RELATIONS
30	HUMAN RESOURCES
40	LOGISTICS
50	MANAGEMENT
60	OPERATIONS
80	SALES
90	SUPPLIER RELATIONS
100	DATA ANALYTICS

Introducing Schemas
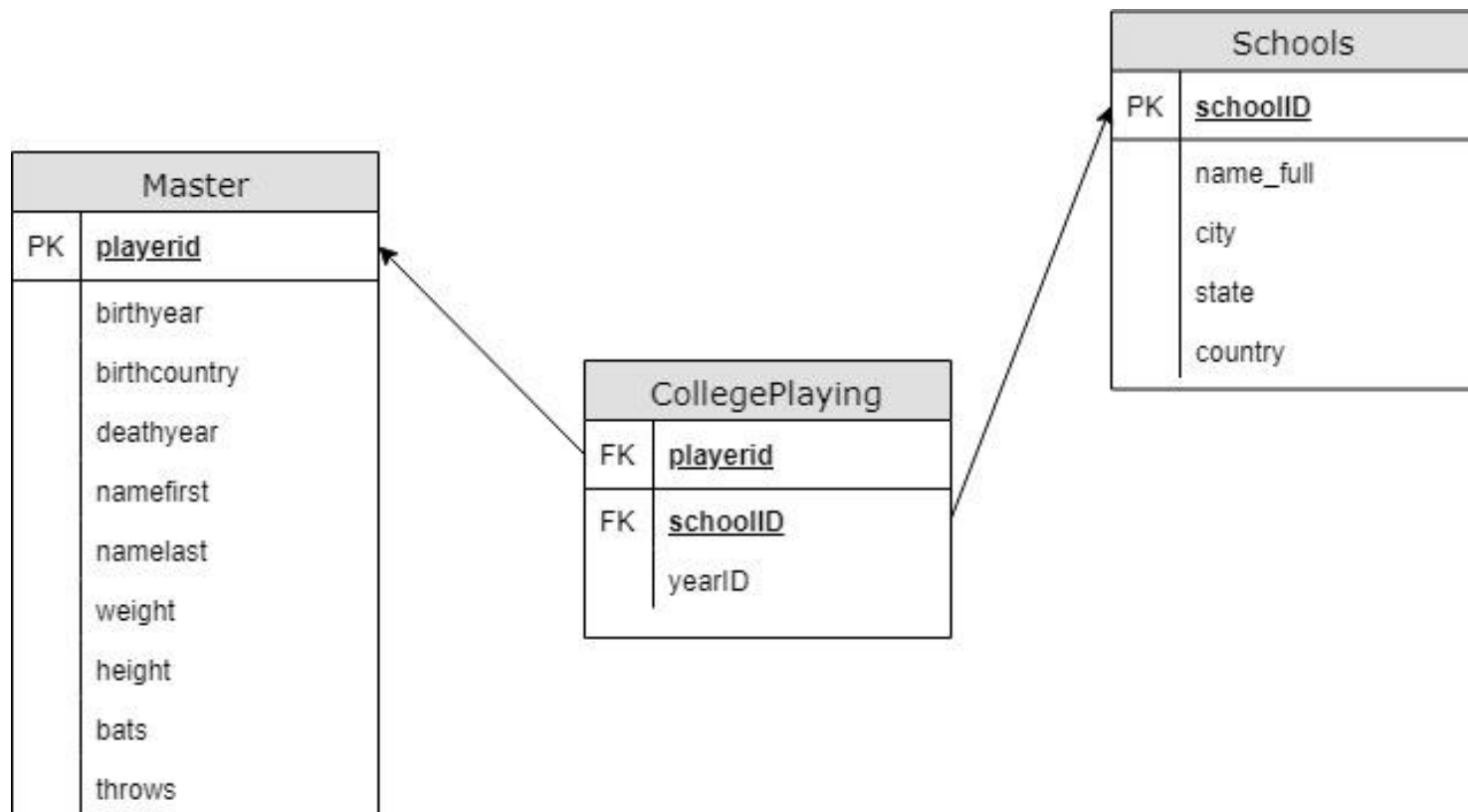
Key-Lookup
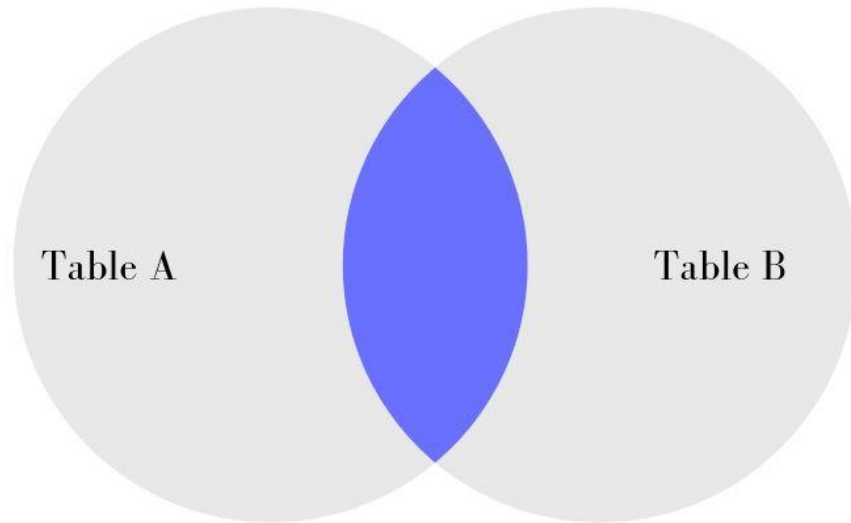
Demo: `inner-join-demo.sql`

Drills -- INNER JOIN

For the `Master` and `HallOfFame` tables:

1. Return a list of unique first and last names for all individuals in `.HallOfFame`
2. Return first and last names along with the year, votes needed and votes received for all successful HoF inductees
3. Return the birth year of the oldest individual inducted for each year of HoF inductions. How "old" was each player at induction?

Drills -- INNER JOIN

For the `Master` and `HallOfFame` tables:

1. Return a list of unique first and last names for all individuals in `.HallOfFame`
2. Return first and last names along with the year, votes needed and votes received for all successful HoF inductees
3. Return the birth year of the oldest individual inducted for each year of HoF inductions. How "old" was each player at induction?

Solutions: `inner-join-drills.sql`

LEFT OUTER JOIN

Returns all records from Table A and matching records from Table B. NULL if no match
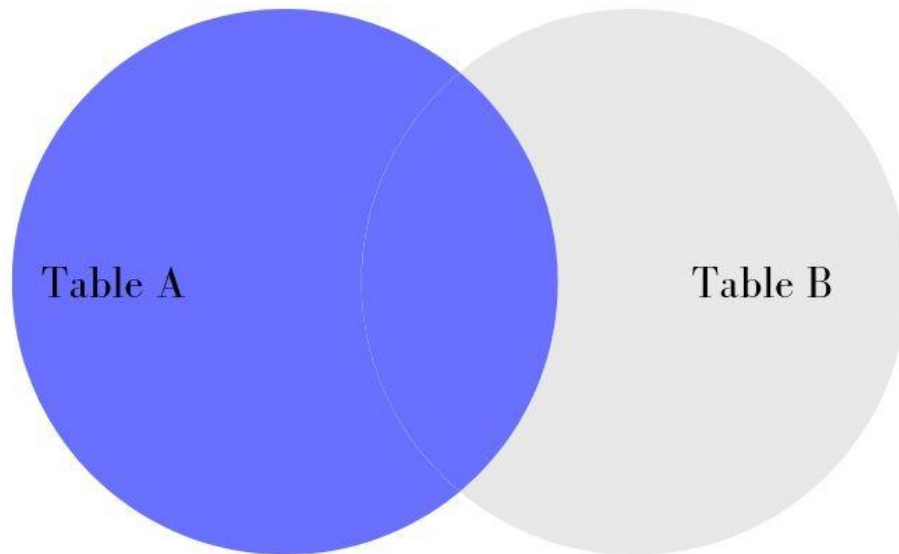
Demo: `left-outer-join-demo.sql`

Drills -- LEFT OUTER JOIN

1. Find the maximum annual salary paid to anyone included in `Master`, sorted descending by salary.
2. Keeping the names of all schools listed in `Schools`, find the first name, last name and years played for all schools (Check `CollegePlaying`).

Drills -- LEFT OUTER JOIN

1. Find the maximum annual salary paid to anyone included in `Master`, sorted descending by salary.

2. Keeping the names of all schools listed in `Schools`, find the first name, last name and years played for all schools (Check `CollegePlaying`).

Solutions: `left-outer-join-drills.sql`

O'REILLY®

Thank you