

SQL **MEDIUM**



25+2 bonus questions

DESIGNED BY

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COURSE LENGTH

4 hours

QUESTION 1

Show unique birth years from patients and sort them in ascending order

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: YEAR() gets only year part from
birth_date column

Step 2: DISTINCT() gets only unique birth
years

Step 3: ORDER BY to sort in ascending
order

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
3074	Grant	Hernandez	M	1960-12-22	Hamilton	ON	Penicillin	171	119
3075	Marsellus	Falcone	M	1925-03-14	Smithville	ON	Codeine	202	124
3076	Adam	Freamon	M	1961-08-06	Hamilton	ON	Sulfa	209	112
3077	Penelope	Gordon	F	2009-12-08	Hamilton	ON	Peanut Butter	123	46
3078	Jill	Jorkins	F	1979-05-22	Kingston	ON	NULL	175	120
3079	Betty	Petrie	F	1998-06-13	Burlington	ON	Sulfa Drugs	168	113



unique birth years
1918
1923
1925
1926
1927
1928

QUESTION 2

Show unique first names from patients table which only occurs once.

For example,
if 2 or more people are named 'John' in the
first_name column then don't include 'John'
in output. If only 1 person is named 'Leo'
then include them in output.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: use a CTE to get first_name and
their no.of occurrences

Step 2: get first_name that occur only
once from CTE

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
3671	Ray	Lawson	M	1954-09-07	Burlington	ON	Dye	150	86
3672	Dante	Brown	M	1977-08-02	Sarnia	ON	Penicillin	189	122
3673	Abby	Kendall	F	2017-12-23	Dunton	ON	Milk	48	8
3674	Buddy	Lydecker	M	1966-07-03	Hamilton	ON	NULL	178	69
3675	Rose	Donahue	F	2001-08-04	Hamilton	ON	Codeine	185	73
3676	Lucky	Carver	M	1980-08-09	Hamilton	ON	Penicillin	198	98



first_name
Abby
Adelaide
Adelia
Akira
Albert
Aldo

QUESTION 3

Show patient_id and first_name from patients where their first_name start and ends with 's' and is at least 6 characters long

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: LIKE to filter only first_name which start and ends with 's'

Step 2: LEN() to filter only first_name which are at least 6 characters long

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
494	Amy	McFly	F	2004-05-29	Burlington	ON	Penicillin	156	65
495	Cindy	Randall	F	1965-12-23	Oakville	ON	Honey	144	68
496	Spiros	Mangel	M	1998-12-13	Oakville	ON	Sulfa	177	131
497	Louie	Sydnor	M	2014-05-05	Toronto	ON	NULL	81	26



patient_id	first_name
496	Spiros
629	Spiros
648	Stanislaus
1273	Stanislaus
1789	Seamus
1926	Stanislaus

QUESTION 4

Show patient_id, first_name, last_name
from patients whose diagnosis is
'Dementia'.

Diagnosis is stored in admissions table.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

APPROACH

Step 1: JOIN patients and admissions table

Step 2: Filter only patients whose diagnosis
is 'Dementia'

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
159	Noike	Maloney	F	1988-03-13	Hamilton	ON	Strawberries	147	60
160	Miranda	Delacour	F	1989-08-04	Stoney Creek	ON	Valporic Acid	163	88
161	Marty	Carrington	M	1950-03-25	Sarnia	ON	Feathers	145	68

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
159	2018-10-06	2018-10-14	Cleft Palate And Complete Unilateral Cleft Up	9
159	2018-11-16	2018-11-16	Fractured Left Leg	13
160	2018-06-09	2018-06-18	Dementia	24
161	2018-08-02	2018-08-10	Asthma	12



patient_id	first_name	last_name
160	Miranda	Delacour
178	David	Bustamonte
207	Matt	Celine
613	Jaki	Granger
836	Montana	Vimes

QUESTION 5

Display every patient's first_name. Order the list by length of each name and then alphabetically

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: LEN to calculate length of
first_name

Step 2: ORDER BY to sort alphabetically

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
946	Kay	MacAllister	F	1958-08-10	Oakville	ON	Penicillin	185	105
947	Melody	Blossom	F	1997-04-05	Hamilton	ON	NULL	166	103
948	AI	Edwards	M	1982-02-04	Ottawa	ON	NULL	185	114
949	Hannah	Arroway	F	2007-04-06	Burlington	ON	NULL	141	41



first_name
AI
AI
AI
AI

QUESTION 6

Show total number of male patients and total number of female patients from patients table.

Display the two results in same row.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: subquery to calculate total no.of
male patients

Step 2: subquery to calculate total no.of
female patients

Step 3: main query to display the 2
subqueries output in same row

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



total no.of male patients	total no.of female patients
2468	2062

QUESTION 7

Show first_name, last_name and allergies from patients table who have allergies to either 'Penicillin' or 'Morphine'.

Show results in ascending order of allergies then by first_name and finally by last_name.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: WHERE and IN to filter allergies
that are either 'Penicillin' or
'Morphine'

Step 2: ORDER BY to sort multiple columns
in ascending order

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



first_name	last_name	allergies
Briareos	Hayes	Morphine
Christine	Argyros	Morphine
Griselda	Hopper	Morphine
Henry	Huang	Morphine
Janice	Redfield	Morphine
Jesse	Guarnaccia	Morphine

QUESTION 8

Show patient_id, diagnosis from admissions table. Find patients admitted multiple times for the same diagnosis.

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

APPROACH

Step 1: subquery to get how many times each patient has been admitted for the same diagnosis

Step 2: main query to get patients who've been admitted for the same diagnosis more than once

RESULT

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
135	2019-04-06	2019-04-12	Caeserian Section	21
137	2018-10-26	2018-10-27	Pregnancy	23
137	2019-04-30	2019-05-06	Pregnancy	13
139	2018-10-25	2018-10-28	Pyclonephritis	18
143	2018-09-13	2018-09-15	Ca R Breast	26



patient_id	diagnosis
137	Pregnancy
320	Pneumonia
1577	Congestive Heart Failure
2004	Left Shoulder Rotator Cuff Repair
2859	Severed Spine At C3
3012	Appendicitis

QUESTION 9

Show city along with number of patients in each city.

Order from most to least patients and then by city name ascending.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: GROUP BY to get city-wise patients count

Step 2: ORDER BY most to least no.of patients and then by city name in ascending order

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



city	total no.of patients
Hamilton	1938
Toronto	317
Burlington	276
Brantford	147
Ancaster	117
Stoney Creek	107
Cambridge	79
Dundas	79

QUESTION 10

Show first name, last name and role of every person that is either patient or doctor. The roles are either "Patient" or "Doctor".

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

doctors

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist
3	Miriam	Tregre	General Surgeon
4	James	Russo	Obstetrician/Gynecologist
5	Scott	Hill	Gastroenterologist

APPROACH

Step 1: set role as 'Patient' for entries
from patients table

Step 2: set role as 'Doctor' for entries
from doctors table

Step 3: UNION ALL to combine both
outputs from individual SELECT
statements

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist
3	Miriam	Tregre	General Surgeon



first_name	last_name	role
Donald	Waterfield	Patient
Mickey	Baasha	Patient
Jiji	Sharma	Patient
Blair	Diaz	Patient

QUESTION 11

Show all allergies ordered by most to least popular. Don't consider NULL values into account.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: WHERE to ignore allergies that
have NULL values

Step 2: ORDER BY to sort from most to
least popular allergies

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



allergies	popularity
Penicillin	1082
Codeine	305
Sulfa	157

QUESTION 12

Show all patient's first_name, last_name and birth_date who were born in the 1970s decade.

Sort the list starting from the earliest birth_date.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: WHERE to filter patients who were
born in 1970s decade
i.e. 1970-1979

Step 2: ORDER BY to sort list starting from
earliest birth_date

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



first_name	last_name	birth_date
Frances	Kobayakawa	1970-01-02
Sunny	Burrell	1970-01-07
Penelope	Beckett	1970-01-14
Deborah	Stewart	1970-01-14

QUESTION 13

We want to display each patient's full name in a single column. Their last_name in all upper letters must appear first, then first_name in all lower case letters. Separate last_name and first_name with a comma. Order the list by first_name in descending order.

Example: SMITH,jane

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: UPPER() and LOWER() to convert
letters to upper and lower case

Step 2: CONCAT() to concatenate upper
and lower case with ',' in-between

Step 3: ORDER BY to sort using first_name
in descending order

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
90	Prue	Cleever	F	1983-09-19	Odessa	ON	Sulfa Drugs	149	119
91	Zoe	Miller	F	1951-12-12	Hamilton	ON	Honey	184	103
92	Mendy	Strate	M	1956-03-29	Stoney Creek	ON	NULL	206	111
93	Delores	Bones	F	2006-07-19	Hamilton	ON	NULL	154	50
94	Hal	Riviera	M	1965-04-02	Kingston	ON	Tylenol	194	110
95	Gene	Edwards	M	1965-06-06	Hamilton	ON	Sulphate	199	96



full_name
MILLER,zoe
CORBIE,ziva
KOBAYAKAWA,zenigata
OVERSTREET,zenigata
BENNETT,zen
MEPHESTO,zelda

QUESTION 14

Show province_id(s) and sum of height
where sum of its patients height are greater
than or equal to 7000

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: SUM() to get sum of patients height

Step 2: HAVING to filter province_id(s) that
has sum of patients height greater
than or equal to 7000

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



province_id	sum_of_height
BC	7720
NS	9765
ON	678037

QUESTION 15

Show difference between largest weight and smallest weight for patients with last name as 'Maroni'

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: MAX() and MIN() to find largest weight and smallest weight

Step 2: Subtract previous found 2 values

Step 3: WHERE to filter only patients with last name as 'Maroni'

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
3832	Tulio	Maroni	M	2010-03-14	Hamilton	ON	NULL	123	41
2057	Cassie	Maroni	F	1994-02-22	Kelowna	BC	NULL	149	53
3611	Ben	Maroni	M	1975-11-02	Kapuskasing	ON	NULL	155	69
2489	Nino	Maroni	M	1987-11-06	Grimsby	ON	Penicillin	171	82
2569	Boris	Maroni	M	1951-08-31	Toronto	ON	NULL	196	99
4241	Elizabeth	Maroni	F	1993-02-28	Hamilton	ON	NULL	165	112



difference
71

QUESTION 16

Show all days of the month (1-31) and how many admission_dates occurred on that day. Sort by the day with most to least admissions.

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

APPROACH

Step 1: DAY() to get day number from
admission_date column

Step 2: ORDER BY to sort admission dates
from most to least admissions

RESULT

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22



admission date	no.of admissions
11	184
4	184
9	183
2	180
12	179
6	179

QUESTION 17

Show all columns for patient_id: 542's most recent admission_date

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

APPROACH

Step 1: WHERE to filter only patient_id: 542

Step 2: ORDER BY to sort based on most recent admission_date to first admission_date

Step 3: LIMIT to show only first entry which will be the most recent admission_date

RESULT

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
541	2019-05-18	2019-05-19	Congestive Heart Failure	24
542	2018-06-11	2018-06-12	Uterine Fibroid	17
542	2019-04-06	2019-04-09	Abdominal Pain	14
543	2018-09-26	2018-09-27	L CVA	13
544	2018-12-27	2019-01-03	Depression	20
544	2019-05-30	2019-06-01	Schizophrenia Paranoid Delusions	25



patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
542	2019-04-06	2019-04-09	Abdominal Pain	14

QUESTION 18

Show patient_id, attending_doctor_id, and diagnosis for admissions that match one of the two criteria:

1. patient_id is an odd number and attending_doctor_id is either 1, 5, or 19
2. attending_doctor_id contains a 2 and the length of patient_id is 3 characters

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

APPROACH

Step 1: WHERE to filter based on two given criteria

Step 2: %2 to check if remainder is not 0
i.e. odd number and IN to filter attending_doctor_id of 1,5,19

APPROACH

Step 3: OR to match one of the two given criteria

Step 4: LIKE to identify if attending_doctor_id contains 2 and LEN to get length of patient_id

RESULT

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
9	2018-12-31	2018-12-31	Ruptured Appendicitis	19
9	2019-03-02	2019-03-09	Osteoarthritis	8
10	2018-12-30	2019-01-05	Zenkers Diverticulitis	14
10	2019-02-27	2019-02-27	Lower Quadrant Pain	27
13	2019-04-28	2019-05-01	Renal Failure	1
100	2018-11-06	2018-11-14	Respiratory Failure	21
100	2018-12-04	2018-12-13	Depression, Dementia	22



patient_id	attending_doctor_id	diagnosis
9	19	Ruptured Appendicitis
13	1	Renal Failure
15	5	Hiatal Hernia
31	19	Cardiovascular Disease
51	1	Undiagnosed Chest Pain
100	22	Depression, Dementia

QUESTION 19

Show first_name, last_name, and total number of admissions attended for each doctor

Every admission has been attended by a doctor

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

doctors

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist
3	Miriam	Tregre	General Surgeon
4	James	Russo	Obstetrician/Gynecologist
5	Scott	Hill	Gastroenterologist

APPROACH

Step 1: JOIN (i.e. inner join) to match admissions and doctors table based on attending_doctor_id and doctor_id

Step 2: GROUP BY to group based on doctor_id

Step 3: COUNT to get total number of admissions

RESULT

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
13	2019-04-28	2019-05-01	Renal Failure	1
24	2019-05-04	2019-05-10	Anterior MI	1

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist



first_name	last_name	number of admissions
Claude	Walls	214
Joshua	Green	187
Miriam	Tregre	168
James	Russo	197

QUESTION 20

For each doctor, display their id, full name, first and last admission date they attended

TABLE

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

doctors

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist
3	Miriam	Tregre	General Surgeon
4	James	Russo	Obstetrician/Gynecologist
5	Scott	Hill	Gastroenterologist

APPROACH

Step 1: CONCAT() to concatenate
first_name and last_name as
full_name

Step 2: MIN() to get first admission date

APPROACH

Step 3: MAX() to get most recent admission date

Step 4: WHERE to match tables doctors and admissions based on common column

RESULT

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
862	2018-06-10	2018-06-18	Congestive Heart Failure	1
2112	2018-06-11	2018-06-20	Pregnancy	1
1717	2018-06-16	2018-06-16	Appendicitis	1



doctor_id	full_name	first_admission_date	last_admission_date
1	Claude Walls	2018-06-10	2019-06-03
2	Joshua Green	2018-06-06	2019-06-03

QUESTION 21

Display the number of patients for each province. Order by patient count in descending order.

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

province_names

province_id	province_name
NT	Northwest Territories
NS	Nova Scotia
NU	Nunavut
ON	Ontario

APPROACH

Step 1: COUNT() to get patients count

Step 2: WHERE to match tables patients
and province_names based on
common column

Step 3: ORDER BY to sort based on
patients count in descending order

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76

province_id	province_name
NT	Northwest Territories
NS	Nova Scotia
NU	Nunavut
ON	Ontario



province_name	number_of_patients
Ontario	4298
Nova Scotia	60
British Columbia	49

QUESTION 22

Display the patient's full name, their admission diagnosis and their doctor's full name who diagnosed their problem

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

admissions

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
3	2019-01-24	2019-01-29	Cardiac Arrest	2
3	2018-10-21	2018-10-27	Congestive Heart Failure	8
6	2018-06-13	2018-06-15	Asthma Exacerbation	3
6	2018-11-08	2018-11-09	Uterine Fibroid	22

TABLE

doctors

doctor_id	first_name	last_name	specialty
1	Claude	Walls	Internist
2	Joshua	Green	Cardiologist
3	Miriam	Tregre	General Surgeon
4	James	Russo	Obstetrician/Gynecologist
5	Scott	Hill	Gastroenterologist

APPROACH

Step 1: JOIN (i.e. inner join) to match patients and admissions table based on patient_id

Step 2: JOIN (i.e. inner join) to match admissions and doctors table based on attending_doctor_id and doctor_id

APPROACH

Step 3: CONCAT() to concatenate
first_name and last_name of patient
as patient_full_name

Step 4: CONCAT() to concatenate
first_name and last_name of doctor
as doctor_full_name

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
1	2018-09-20	2018-09-20	Ineffective Breathin Pattern R/T Fluid Accumulatio	24
1	2018-11-06	2018-11-08	Ovarian Dermoid-Cyct	21

doctor_id	first_name	last_name	specialty
21	Lisa	Cuddy	Obstetrician/Gynecologist



patient_full_name	diagnosis	doctor_full_name
Donald Waterfield	Ovarian Dermoid-Cyct	Lisa Cuddy
Donald Waterfield	Ineffective Breathin Pattern R/T Fluid Accumulatio	Jenny Pulaski
Jiji Sharma	Cardiac Arrest	Joshua Green

QUESTION 23

Display the first_name, last_name and number of duplicate patients based on their first_name and last_name

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: GROUP BY to consider first_name
and last_name as a single entity

Step 2: HAVING to filter first_name and
last_name that occur more than
once

Step 3: COUNT() to get no.of occurrences

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
2960	Alexandra	Holroyd	F	1969-02-28	Brantford	ON	NULL	145	62
2961	Emily	Levinson	F	1986-09-14	Hamilton	ON	Penicillin	166	45
2962	Blanche	Deane	F	1980-06-20	Victoria	BC	NULL	171	103
2963	Dotty	Jones	F	1994-02-06	Fruitland	ON	Codeine	165	91
3507	Alexandra	Holroyd	F	1951-07-24	Toronto	ON	NULL	133	70
3508	Temple	Harkness	F	1980-08-05	Hamilton	ON	NULL	155	54



first_name	last_name	no_of_duplicate_patients
Alexandra	Holroyd	2
Avon	Travis	2
Belladonna	Thomas	2
Chris	Johnson	2
Dol	Forelli	2
Emil	Owens	2

QUESTION 24

Display patient's full name, height in feet rounded to 1 decimal, weight in pounds rounded to whole number, birth_date, gender in non abbreviated capital letters.

Note:

Given units in patients table for height: cm and weight: kg

QUESTION 24

Hint:

Convert cm to feet: divide by 30.48

Convert kg to pounds: multiply by 2.205

TABLE

patients

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

APPROACH

Step 1: CONCAT() to concatenate
first_name and last_name as
full_name

Step 2: ROUND() to round height to 1
decimal in feet

APPROACH

Step 3: ROUND() to round weight to 0 decimal i.e. whole number in pounds

Step 4: CASE() to show non abbreviated form of gender i.e. 'MALE' for 'M'

RESULT

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NULL	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5



full_name	height_feet	weight_pounds	birth_date	gender
Donald Waterfield	5.1	143	1963-02-12	MALE
Mickey Baasha	6.1	168	1981-05-28	MALE
Jiji Sharma	6.4	234	1957-09-05	MALE
Blair Diaz	6.3	229	1967-01-07	MALE
Charles Wolfe	1.5	22	2017-11-19	MALE
Sue Falcon	1.4	11	2017-09-30	FEMALE

QUESTION 25

Show product_name,company_name and category_name from the products, suppliers and categories table

TABLE

products

product_id	product_name	supplier_id	category_id	quantity_per_unit	unit_price	units_in_stock	units_on_order	reorder_level	discontinued
1	Chai	1	1	10 boxes x 20 bags	18	39	0	10	0
2	Chang	1	1	24 - 12 oz bottles	19	17	40	25	0
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	13	70	25	0
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	53	0	0	0
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	0	0	0	1

suppliers

supplier_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax	home_page
1	Exotic Liquids	Charlotte Cooper	Purchasing Manager	49 Gilbert St.	London	British Isles	EC1 4SD	UK	(171) 555-2222	NULL	NULL
2	New Orleans Cajun Delights	Shelley Burke	Order Administrator	P.O. Box 78934	New Orleans	North America	70117	USA	(100) 555-4822	NULL	#CAJUN.HTM#
3	Grandma Kelly's Homestead	Regina Murphy	Sales Representative	707 Oxford Rd.	Ann Arbor	North America	48104	USA	(313) 555-5735	(313) 555-3349	NULL
4	Tokyo Traders	Yoshi Nagase	Marketing Manager	9-8 Sekimai Musashino-shi	Tokyo	Eastern Asia	100	Japan	(03) 3555-5011	NULL	NULL

TABLE

categories

category_id	category_name	description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
3	Confections	Desserts, candies, and sweet breads
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, crackers, pasta, and cereal
6	Meat/Poultry	Prepared meats

APPROACH

Step 1: get all 3 tables and set aliases

Step 2: WHERE to combine all 3 tables
based on common columns

RESULT

product_id	product_name	supplier_id	category_id	quantity_per_unit	unit_price	units_in_stock	units_on_order	reorder_level	discontinued
1	Chai	1	1	10 boxes x 20 bags	18	39	0	10	0
2	Chang	1	1	24 - 12 oz bottles	19	17	40	25	0

supplier_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax	home_page
1	Exotic Liquids	Charlotte Cooper	Purchasing Manager	49 Gilbert St.	London	British Isles	EC1 4SD	UK	(171) 555-2222	NULL	NULL
2	New Orleans Cajun Delights	Shelley Burke	Order Administrator	P.O. Box 78934	New Orleans	North America	70117	USA	(100) 555-4822	NULL	#CAJUN.HTM#

category_id	category_name	description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings



product_name	company_name	category_name
Chai	Exotic Liquids	Beverages
Chang	Exotic Liquids	Beverages

BONUS QUESTION 1

Show category_name and average product unit price for each category rounded to 2 decimal places

TABLE

categories

category_id	category_name	description
1	Beverages	Soft drinks, coffees, teas, beers, and ales
2	Condiments	Sweet and savory sauces, relishes, spreads, and seasonings
3	Confections	Desserts, candies, and sweet breads
4	Dairy Products	Cheeses
5	Grains/Cereals	Breads, crackers, pasta, and cereal
6	Meat/Poultry	Prepared meats

products

product_id	product_name	supplier_id	category_id	quantity_per_unit	unit_price	units_in_stock	units_on_order	reorder_level	discontinued
1	Chai	1	1	10 boxes x 20 bags	18	39	0	10	0
2	Chang	1	1	24 - 12 oz bottles	19	17	40	25	0
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	13	70	25	0
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	53	0	0	0
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	0	0	0	1

APPROACH

Step 1: get categories and products tables
and set aliases

Step 2: WHERE to combine categories and
products tables based on common
column i.e. category_id

Step 3: AVG() and ROUND() to calculate
average and round to 2 decimal
places

RESULT

category_id	category_name	description
7	Produce	Dried fruit and bean curd
8	Seafood	Seaweed and fish

product_id	product_name	supplier_id	category_id	quantity_per_unit	unit_price	units_in_stock	units_on_order	reorder_level	discontinued
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	15	0	10	0
14	Tofu	6	7	40 - 100 g pkgs.	23.25	35	0	0	0
28	Rössle Sauerkraut	12	7	25 - 825 g cans	45.6	26	0	0	1
51	Manjimup Dried Apples	24	7	50 - 300 g pkgs.	53	20	0	10	0
74	Longlife Tofu	4	7	5 kg pkg.	10	4	20	5	0



category_name	average_unit_price
Produce	32.37
Seafood	20.68

BONUS QUESTION 2

Show city, company_name, contact_name from customers and suppliers table merged together.

Create a column which contains 'customers' or 'suppliers' depending on the table it came from.

TABLE

customers

customer_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin	Western Europe	12209	Germany	030-0074321	030-0076545
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222	México D.F.	Central America	05021	Mexico	(5) 555-4729	(5) 555-3745
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.	Central America	05023	Mexico	(5) 555-3932	NULL
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London	British Isles	WA1 1DP	UK	(171) 555-7788	(171) 555-6750

suppliers

supplier_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax	home_page
1	Exotic Liquids	Charlotte Cooper	Purchasing Manager	49 Gilbert St.	London	British Isles	EC1 4SD	UK	(171) 555-2222	NULL	NULL
2	New Orleans Cajun Delights	Shelley Burke	Order Administrator	P.O. Box 78934	New Orleans	North America	70117	USA	(100) 555-4822	NULL	#CAJUN.HTM#
3	Grandma Kelly's Homestead	Regina Murphy	Sales Representative	707 Oxford Rd.	Ann Arbor	North America	48104	USA	(313) 555-5735	(313) 555-3349	NULL
4	Tokyo Traders	Yoshi Nagase	Marketing Manager	9-8 Sekimai Musashino-shi	Tokyo	Eastern Asia	100	Japan	(03) 3555-5011	NULL	NULL

APPROACH

Step 1: get required columns and add a new column 'source' from customers table

Step 2: get required columns and add a new column 'source' from suppliers table

Step 3: UNION ALL to combine all records from both tables

RESULT

customer_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax
WILMK	Wilman Kala	Matti Karttunen	Owner/Marketing Assistant	Keskuskatu 45	Helsinki	Scandinavia	21240	Finland	90-224 8858	90-224 8858
WOLZA	Wolski Zajazd	Zbyszek Piestrzeniewicz	Owner	ul. Filtrowa 68	Warszawa	Eastern Europe	01-012	Poland	(26) 642-7012	(26) 642-7012

supplier_id	company_name	contact_name	contact_title	address	city	region	postal_code	country	phone	fax	home_page
1	Exotic Liquids	Charlotte Cooper	Purchasing Manager	49 Gilbert St.	London	British Isles	EC1 4SD	UK	(171) 555-2222	NULL	NULL
2	New Orleans Cajun Delights	Shelley Burke	Order Administrator	P.O. Box 78934	New Orleans	North America	70117	USA	(100) 555-4822	NULL	#CAJUN.HTM#



city	company_name	contact_name	source
Helsinki	Wilman Kala	Matti Karttunen	customers
Warszawa	Wolski Zajazd	Zbyszek Piestrzeniewicz	customers
London	Exotic Liquids	Charlotte Cooper	suppliers
New Orleans	New Orleans Cajun Delights	Shelley Burke	suppliers

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Senthil Arul, Consultant