SQL Coursework

Data Mining & Analytics

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Data & Decision Analytics

Problem 1

Output the total number of hours that the staff member with ID number 10566 has worked in the given time period. You can assume that each shift lasts for 8 hours.

SQL Query:

```
SELECT allocation_people_id,
count(DISTINCT allocation_id) * 8 AS Total_Hours
FROM allocation
WHERE allocation_people_id = '10566';
```

Output:

Allocation_people_id	Total_Hours
10566	1392

Problem 2

Output a list of staff members who were born in 1957, ordered from oldest to youngest, giving their full names written as "[first name] [surname]" and their dates of birth.

SQL Query:

```
SELECT strftime('%Y', people_dob) AS Year,
people_dob,
people_first_name || " " || people_surname AS Full_Name
FROM people
WHERE strftime('%Y', people_dob) = '1957'
ORDER BY people_dob ASC;
```

Output:

Year	People_dob	Full_Name
1957	1957-10-19	OSCAR DONALDSON
1957	1957-11-04	ZACHARY MACKAY
1957	1957-11-13	OWEN THOMPSON
1957	1957-11-15	OLLIE DUNCAN
1957	1957-12-13	SOPHIE MCDONALD
1957	1957-12-13	KIAN HAMILTON
1957	1957-12-25	LUCY BOYLE
1957	1957-12-27	MADDISON JAMIESON

Problem 3

Output a list of staff who were working in the Neurology Ward on 1 June 2022 giving their full names written as "[first name] [surname]"

SQL Query:

```
SELECT allocation_date,
ward_specialty,
people_first_name || " " || people_surname AS Full_Name
FROM allocation
LEFT JOIN
ward ON allocation_ward = ward_id
LEFT JOIN
people ON allocation_people_id = people_id
WHERE ward_specialty = 'Neurology' AND
allocation_date = '2022-06-01';
```

Output:

Allocation_date	Ward_Specialty	Full_Name
2022-06-01	Neurology	LEON MUIR
2022-06-01	Neurology	JASMINE CRAIG
2022-06-01	Neurology	ELLIOT MCKAY
2022-06-01	Neurology	SCARLETT ROSS
2022-06-01	Neurology	EVELYN WALKER
2022-06-01	Neurology	AMELIA DOUGLAS
2022-06-01	Neurology	LOUIE SHAW
2022-06-01	Neurology	ARTHUR FRASER
2022-06-01	Neurology	GRACIE RITCHIE
2022-06-01	Neurology	CHARLIE WILSON
2022-06-01	Neurology	LUCAS YOUNG
2022-06-01	Neurology	LOUIE SHAW
2022-06-01	Neurology	TEDDY CRAWFORD
2022-06-01	Neurology	DANIEL DONALDSON
2022-06-01	Neurology	CONNOR WILSON
2022-06-01	Neurology	GRACIE RITCHIE
2022-06-01	Neurology	AVA JOHNSTONE
2022-06-01	Neurology	MIA MILLAR
2022-06-01	Neurology	LOUIE SHAW
2022-06-01	Neurology	TEDDY CRAWFORD
2022-06-01	Neurology	DANIEL DONALDSON

Problem 4

The hospital spotted suspicious behaviour on the General Wards (G1 and G2) on the following shifts in March: morning 3 March 2022; morning 8 March 2022; evening 14 March 2022. Return the name(s) of any staff members who have worked on all three of these shifts. Do not return the names of staff members who have only worked on one or two of these shifts

SQL Query:

```
SELECT people_id,
people_first_name,
people_surname,
```

```
allocation_ward
FROM people
LEFT JOIN
allocation ON people_id = allocation_people_id
WHERE (allocation_date = '2022-03-03' AND
allocation_shift = 'Morning' AND
allocation_ward IN ('G1', 'G2') ) OR
(allocation_date = '2022-03-08' AND
allocation_shift = 'Morning' AND
allocation_ward IN ('G1', 'G2') ) OR
(allocation_date = '2022-03-14' AND
allocation_shift = 'Evening' AND
allocation_ward IN ('G1', 'G2') )
GROUP BY people_id
HAVING count(DISTINCT allocation_date || allocation_shift || allocation_ward) = 3;
```

Output:

People_id	People_first_name	People_surname	Allocation_ward
10346	CONNOR	GRANT	G2

Problem 5

Output the number of each staff type (consultant, doctor, health care assistant, nurse) working each shift for the emergency department on 1 May 2022

SQL Query:

```
SELECT band_type,
shift_id,
count( * ) AS staff_count
FROM band
LEFT JOIN
people ON band_id = people_band
LEFT JOIN
allocation ON people_id = allocation_people_id
LEFT JOIN
shift ON allocation_shift = shift_id
LEFT JOIN
ward ON allocation_ward = ward_id
WHERE ward_specialty = 'Emergency' AND
allocation_date = '2022-05-01'
GROUP BY band_type,
shift_id
ORDER BY band_type,
shift_id;
```

Output:

Band_type	Shift_id	Staff_count
Consultant	Evening	3
Consultant	Morning	3
Consultant	Night	3
Doctor	Evening	3
Doctor	Morning	3
Doctor	Night	3

Health Care Assistant	Evening	10
Health Care Assistant	Morning	10
Health Care Assistant	Night	10
Nurse	Evening	6
Nurse	Morning	6
Nurse	Night	6

Problem 6

Output the number of each staff type (consultant, doctor, health care assistant, nurse) working each shift for the emergency department on 1 May 2022.

SQL Query:

```
SELECT band_type,
substr(allocation_date, 1, 7) AS month,
sum(8) AS Total_hours
FROM allocation
LEFT JOIN
people ON allocation_people_id = people_id
LEFT JOIN
band ON people_band = band_id
LEFT JOIN
shift ON allocation_shift = shift_id
WHERE allocation_date >= '2022-01-01' AND
allocation_date <= '2022-08-31'
GROUP BY band_type,
month
ORDER BY band_type,
month;
```

Output:

Band_type	Month	Total_Hours
Consultant	2022-01	15624
Consultant	2022-02	14112
Consultant	2022-03	15624
Consultant	2022-04	15120
Consultant	2022-05	15624
Consultant	2022-06	15120
Consultant	2022-07	15624
Consultant	2022-08	15624
Doctor	2022-01	15624
Doctor	2022-02	14112
Doctor	2022-03	15624
Doctor	2022-04	15120
Doctor	2022-05	15624
Doctor	2022-06	15120
Doctor	2022-07	15624
Doctor	2022-08	15624
Health Care Assistant	2022-01	47616
Health Care Assistant	2022-02	43008
Health Care Assistant	2022-03	47616
Health Care Assistant	2022-04	46080
Health Care Assistant	2022-05	47616

Health Care Assistant	2022-06	46080
Health Care Assistant	2022-07	47616
Health Care Assistant	2022-08	47616
Nurse	2022-01	39432
Nurse	2022-02	35616
Nurse	2022-03	39432
Nurse	2022-04	38160
Nurse	2022-05	39432
Nurse	2022-06	38160
Nurse	2022-07	39432
Nurse	2022-08	39432

Problem 7

Output the total staff costs for each specialty between 1 January 2022 and 31 August 2022. Assume that a full-time member of staff works 230 shifts per year and that the salary figures given in the band table are the amount paid to a member of staff for one year's work.

SQL Query:

```
SELECT people_specialty,
sum(band_salary / 230) AS Amt
FROM people
LEFT JOIN
band ON people_band = band_id
LEFT JOIN
Allocation ON people_id = allocation_people_id
WHERE allocation_date BETWEEN '2022-01-01' AND [2022-08-31]
GROUP BY people_specialty;
```

Output:

People_specialty	**Amt**
Cardiology	1818338
Emergency	2925531
General	2046946
Geriatric	2014777
Neurology	961142
Oncology	1955595
Opthalmology	1081609
Orthopaedics	1902479
Paediatrics	1918171
Psychiatry	2014524
Respiratory	1908047