

INFO20003 Semester 1, 2018

Assignment 2 – Sample Solutions

General note: Typically we have provided a single solution per question, however frequently all variants INNER JOIN, NATURAL JOIN, CROSS PRODUCT with conditions are valid and equally acceptable.

1. List the first name, last name, department name and job title of all staff.

```
SELECT first_name, last_name, job_title, department_name
FROM staff LEFT JOIN departments
ON staff.department_id = departments.department_ID
INNER JOIN jobs
ON jobs.job_id = staff.job_id;
```

Answer: 107 rows

NOTE: Kimberly Grant has to be in - she has NULL as department, but we asked for ALL staff, therefore LEFT JOIN needed to be performed here.

2. List each country name and the number of staff in each country. Order the result by country name.

```
SELECT country_name, COUNT(staff_id)
FROM countries c
LEFT JOIN locations l
ON c.country_id = l.country_id
LEFT JOIN departments d
ON l.location_id = d.location_id
LEFT JOIN staff s
ON d.department_id = s.department_id
GROUP BY country_name
ORDER BY country_name;
```

Answer: 25 rows

Argentina	0
Australia	0
Belgium	0
Brazil	0
Canada	2
China	0
Denmark	0
Egypt	0
France	0
Germany	1
India	0
Israel	0

Italy	0
Japan	0
Kuwait	0
Malaysia	0
Mexico	0
Netherlands	0
Nigeria	0
Singapore	0
Switzerland	0
United Kingdom	35
United States of America	68
Zambia	0
Zimbabwe	0

3. Who has spent the shortest amount of time in a job title? Print what was their name (first and last name), how long the job lasted in days and what was the job title?

```
SELECT first_name, last_name, job_title, to_days(end_date) - to_days(start_date)
AS days_in_role
FROM staff INNER JOIN jobs INNER JOIN job_history
ON job_history.job_id = jobs.job_id
AND staff.staff_id = job_history.staff_id
ORDER BY days_in_role
LIMIT 1;
```

Or

```
SELECT first_name, last_name, job_title, DATEDIFF(end_date, start_date) AS
days_in_role
FROM staff NATURAL JOIN jobs NATURAL JOIN job_history
WHERE DATEDIFF(end_date, start_date) =
(SELECT MIN(DATEDIFF(end_date, start_date)) FROM job_history);
```

Answer: Jonathon Taylor Sales Representative 282

4. List the first name, last name, job title, and the number of staff members they supervise for all supervisors who supervise five or more staff.

```
SELECT boss.first_name, boss.last_name, job_title, count(emp.staff_id) as
staff_count
FROM staff as emp INNER JOIN staff as boss INNER JOIN jobs
ON emp.supervisor_id = boss.staff_id
AND boss.job_id = jobs.job_id
GROUP BY boss.first_name, boss.last_name, job_title
HAVING staff_count >= 5;
```

Answer: 14 rows

Adam	Fripp	Stock Manager	8
Alberto	Errazuriz	Sales Manager	6

Den	Raphaely	Purchasing Manager	5
Eleni	Zlotkey	Sales Manager	6
Gerald	Cambrault	Sales Manager	6
John	Russell	Sales Manager	6
Karen	Partners	Sales Manager	6
Kevin	Mourgos	Stock Manager	8
Matthew	Weiss	Stock Manager	8
Nancy	Greenberg	Finance Manager	5
Neena	Kochhar	Administration Vice President	5
Payam	Kaufling	Stock Manager	8
Shanta	Vollman	Stock Manager	8
Steven	King	President	14

5. Which departments currently do not have a manager or any staff? Print department names.

```
SELECT department_name
FROM departments
WHERE manager_ID IS NULL
OR department_ID NOT IN (SELECT department_id from staff);
```

Answer: 16 rows

Treasury
 Corporate Tax
 Control And Credit
 Shareholder Services
 Benefits
 Manufacturing
 Construction
 Contracting
 Operations
 IT Support
 NOC
 IT Helpdesk
 Government Sales
 Retail Sales
 Recruiting
 Payroll

6. Which region has most locations? Print the region name, as well as the total number of locations in that region.

```
SELECT region_name, count(locations.location_id) as num_locations
FROM regions NATURAL JOIN countries NATURAL JOIN locations
```

```
GROUP BY regions.region_id, region_name
ORDER BY num_locations DESC
LIMIT 1;
```

Answer:

Europe 9

7. Staff commission is eligible for any staff member. Find the names of staff who will exceed the maximum salary for their job title if they achieve their commission. The calculation of staff's total income if the commission is achieved is their salary multiplied by the commission percent and added over their original salary. List the staff's first name, last name and the amount they will exceed over the maximum salary for their current job role. Order the results from the highest amount to lowest.

```
SELECT first_name, last_name,
       (salary + salary * commission_pct) - max_salary AS exceed_amount
FROM staff NATURAL JOIN jobs
WHERE (salary + salary * commission_pct) > max_salary
ORDER BY exceed_amount DESC;
```

Answer: 7 rows

Lisa	Ozer	23670.00
Ellen	Abel	22920.00
Janette	King	14920.00
Clara	Vishney	11170.00
Peter	Tucker	9920.00
Patrick	Sully	8170.00
Allan	McEwen	1420.00

8. List the cities, country names and region names for cities that are not in the United States of America nor Europe and that do not have any staff working in those cities.

```
SELECT locations.city, countries.country_name, regions.region_name
FROM locations NATURAL JOIN countries NATURAL JOIN regions
WHERE location_id NOT IN
      (SELECT location_id FROM departments NATURAL JOIN staff)
AND countries.country_name != 'United States of America'
AND regions.region_name != 'Europe';
```

Or

```
SELECT locations.city, countries.country_name, regions.region_name
FROM locations NATURAL JOIN countries NATURAL JOIN regions
      LEFT JOIN departments ON departments.location_id = locations.location_id
      LEFT JOIN staff ON staff.department_id = departments.department_id
WHERE staff_id IS NULL
AND countries.country_name != 'United States of America'
AND regions.region_name != 'Europe';
```

Answer: 9 rows

Sao Paulo	Brazil	Americas
Whitehorse	Canada	Americas
Mexico City	Mexico	Americas
Sydney	Australia	Asia
Beijing	China	Asia
Bombay	India	Asia
Tokyo	Japan	Asia
Hiroshima	Japan	Asia
Singapore	Singapore	Asia

9. Print job titles, the date the jobs ended, and the current manager's first and last name for all jobs that ended in 2006 which are not currently managed by Steven King.

```
SELECT job_title, end_date, staff.first_name, staff.last_name
FROM job_history NATURAL JOIN departments NATURAL JOIN jobs
INNER JOIN staff ON staff.staff_id = departments.manager_id
WHERE end_date >= '2006-01-01' AND end_date < '2007-01-01'
AND CONCAT(staff.first_name, ' ', staff.last_name) <> 'Steven King';
```

Answer: 2 rows

Programmer	2006-07-24	60	Alexander	Hunold
Sales Representative	2006-12-31	80	John	Russell

10. Print the first name, last name and their current salary for all staff who held more than one job position prior to their current position, and whose current salary is below the average value for maximum salaries for all positions they held in the past prior to their current position.

```
SELECT staff.first_name, staff.last_name, salary
FROM staff JOIN (
    SELECT staff.first_name, staff.last_name, avg(max_salary) as avg_salary
    FROM job_history INNER JOIN staff ON job_history.staff_id = staff.staff_id
    INNER JOIN jobs on job_history.job_id = jobs.job_id
    GROUP BY staff.first_name, staff.last_name, staff.staff_id
    HAVING COUNT(staff.staff_id) > 1 ) as hist
WHERE hist.first_name = staff.first_name and hist.last_name = staff.last_name
AND salary < avg_salary;
```

Answer: 2 rows

Jonathon	Taylor	86000.00
Jennifer	Whalen	44000.00