SQL part 5. Using multiple tables. Basic joins.

1. Display employees names and surnames. If employee works in a department, display department name and address. Skip employees without departments.

```
  name   | surname   |      dept_name      |   address
---------+-----------+---------------------+-------------
 Mark    | Clark     | ADMINISTRATION      | GRANT AVE 2
 Ana     | Edwards   | DISTRIBUTED SYSTEMS | GRANT AVE 3
 Ian     | Green     | DISTRIBUTED SYSTEMS | GRANT AVE 3
 Peter   | Jackson   | EXPERT SYSTEMS      | 47TH STR
 Chris   | Johnson   | DISTRIBUTED SYSTEMS | GRANT AVE 3
 Carl    | Jones     | ALGORITHMS          | 45TH STR
 Arnold  | Lewis     | DISTRIBUTED SYSTEMS | GRANT AVE 3
 John    | Smith     | ADMINISTRATION      | GRANT AVE 2
 Mary    | White     | DISTRIBUTED SYSTEMS | GRANT AVE 3
 Andrew  | Williams  | EXPERT SYSTEMS      | 47TH STR
 Peter   | Wilson    | DISTRIBUTED SYSTEMS | GRANT AVE 3
 Adam    | Wood      | EXPERT SYSTEMS      | 47TH STR
 Wayne   | Young     | DISTRIBUTED SYSTEMS | GRANT AVE 3
```

2. Transform previous query to produce following sentences for employees.

```
                                   sentence
-----------------------------------------------------------------------------
 Employee Mark Clark works in ADMINISTRATION located at GRANT AVE 2
 Employee Ana Edwards works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee Ian Green works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee Peter Jackson works in EXPERT SYSTEMS located at 47TH STR
 Employee Chris Johnson works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee Carl Jones works in ALGORITHMS located at 45TH STR
 Employee Arnold Lewis works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee John Smith works in ADMINISTRATION located at GRANT AVE 2
 Employee Mary White works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee Andrew Williams works in EXPERT SYSTEMS located at 47TH STR
 Employee Peter Wilson works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
 Employee Adam Wood works in EXPERT SYSTEMS located at 47TH STR
 Employee Wayne Young works in DISTRIBUTED SYSTEMS located at GRANT AVE 3
```

3. Find surnames and salaries of all employees working at departments located at 47TH STR.

```
 surname  | salary
----------+---------
 Jackson  |  900.00
 Williams | 3070.00
 Wood     |  900.00
```

4. Modify previous query and count employees working at departments located at 47TH STR. Also find an average salary of those employees (rounded to two decimal places).

```
 employees_at_47th_str | avg_salary
-----------------------+------------
                     3 |    1623.33
```

5. Find surnames, jobs and salaries of employees. Display also salary ranges for employees jobs (use *JOBS* table).

surname	job	salary	job_min_salary	job_max_salary
Bell	ASSISTANT	1850.00	1500.00	2100.00
Clark	LECTURER	2610.20	2510.00	3000.00
Edwards	SECRETARY	1590.00	1470.00	1650.00
Green	ASSISTANT	1839.70	1500.00	2100.00
Jackson	PHD STUDENT	900.00	800.00	1000.00
Johnson	PROFESSOR	3230.00	3000.00	4000.00
Jones	PROFESSOR	3350.00	3000.00	4000.00
Lewis	ASSISTANT	1971.00	1500.00	2100.00
Smith	PRINCIPAL	4730.00	4280.00	5100.00
White	LECTURER	2845.50	2510.00	3000.00
Williams	PROFESSOR	3070.00	3000.00	4000.00
Wilson	PROFESSOR	3960.00	3000.00	4000.00
Wood	PHD STUDENT	900.00	800.00	1000.00
Young	ASSISTANT	1889.00	1500.00	2100.00

6. Check if employees' salaries are in salary ranges defined for their jobs.

surname	job	salary	job_min_salary	job_max_salary

(0 rows)

7. Find employees whose salaries are in salary range defined for assistants.

surname	job	salary	job_min_salary	job_max_salary
Bell	ASSISTANT	1850.00	1500.00	2100.00
Edwards	SECRETARY	1590.00	1500.00	2100.00
Green	ASSISTANT	1839.70	1500.00	2100.00
Lewis	ASSISTANT	1971.00	1500.00	2100.00
Young	ASSISTANT	1889.00	1500.00	2100.00

8. For every department that employs employees find the number of employees and sum of employees' salaries.

department	employees_at_dept	salaries_at_dept
ADMINISTRATION	2	7340.20
ALGORITHMS	1	3350.00
DISTRIBUTED SYSTEMS	7	17325.20
EXPERT SYSTEMS	3	4870.00

9. Modify previous query and display only those departments that employ at least 2 employees.

department	employees_at_dept	salaries_at_dept
ADMINISTRATION	2	7340.20
DISTRIBUTED SYSTEMS	7	17325.20
EXPERT SYSTEMS	3	4870.00

10. Label departments according to employees number. If department employs less or equal to 2 employees, label it as “small”. If department employs from 3 to 6 employees, label it as “medium”. If department employs 7 or more employees, label it as “big”. Skip departments with no employees.

```
     department      | label
---------------------+--------
 ADMINISTRATION      | small
 ALGORITHMS          | small
 DISTRIBUTED SYSTEMS | big
 EXPERT SYSTEMS      | medium
```