

From: Kyle Salitrik | UserID: kps168 | PSU ID: 997543474

Subject: SQL Queries for Generating Schedules

Date: October 3, 2017

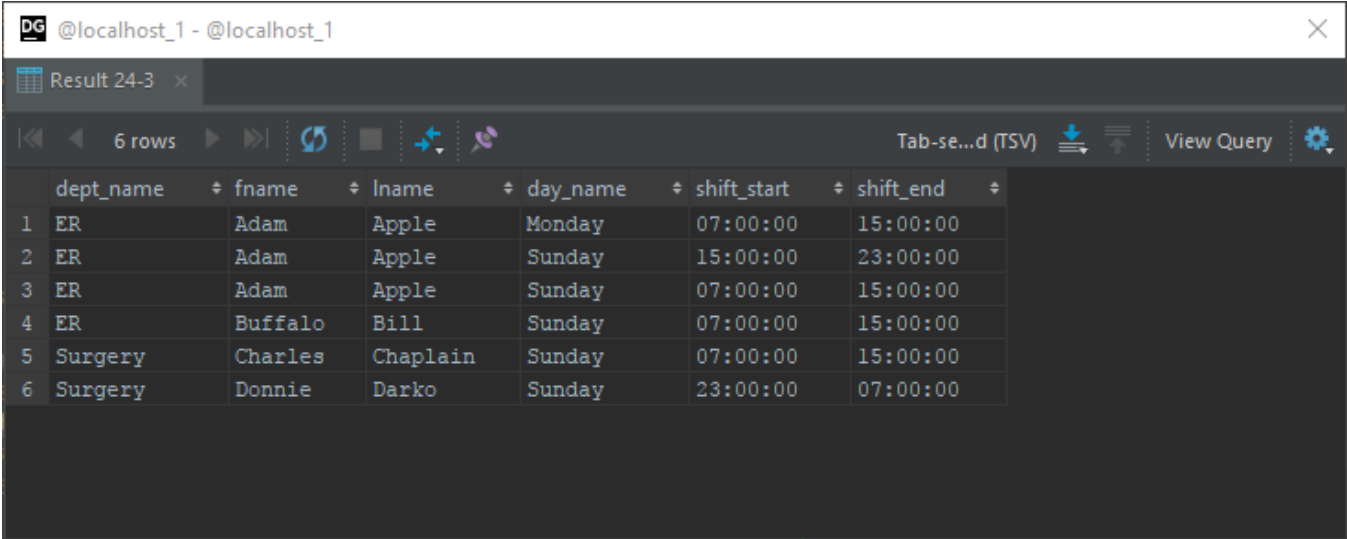
---

## Code Used for Queries

This following code block shows the SQL queries used to generate the data.

```
1 USE cmpsc431;
2
3 ## Weekly Schedule Query
4 SET @week_start_date = '2017-10-01';
5 SELECT dept_name, fname, lname, day_name, shift_start, shift_end
6 FROM week, shift, department, shift_times, employee, weekday
7 WHERE week.start_date = @week_start_date
8       AND shift.employee = employee.EID
9       AND shift.week_id = week.WID
10      AND shift.department = department.DID
11      AND shift.shift_time = shift_times.STID
12      AND shift.dow = weekday.WDID
13 ORDER BY dept_name, lname, fname;
14
15 ## Department Charge Nurse Query
16 SET @week_start_date = '2017-10-01';
17 SELECT dept_name, day_name, fname, lname, shift_start, shift_end
18 FROM week, shift, department, shift_times, employee, weekday
19 WHERE week.start_date = @week_start_date
20       AND shift.employee = employee.EID
21       AND shift.week_id = week.WID
22       AND shift.department = department.DID
23       AND shift.shift_time = shift_times.STID
24       AND shift.dow = weekday.WDID
25       AND department.charge_nurse = employee.EID
26 ORDER BY dept_name, day_name, shift_start;
27
28 ## Employee Schedule Query
29 SET @desired_employee = 1;
30 SET @week_start_date = '2017-10-01';
31 SELECT dept_name, fname, lname, day_name, shift_start, shift_end, weekday.WDID
32 FROM week, shift, department, shift_times, employee, weekday
33 WHERE week.start_date = @week_start_date
34       AND employee.EID = @desired_employee
35       AND shift.employee = employee.EID
36       AND shift.week_id = week.WID
37       AND shift.department = department.DID
38       AND shift.shift_time = shift_times.STID
39       AND shift.dow = weekday.WDID
40 ORDER BY WDID, shift_start
```

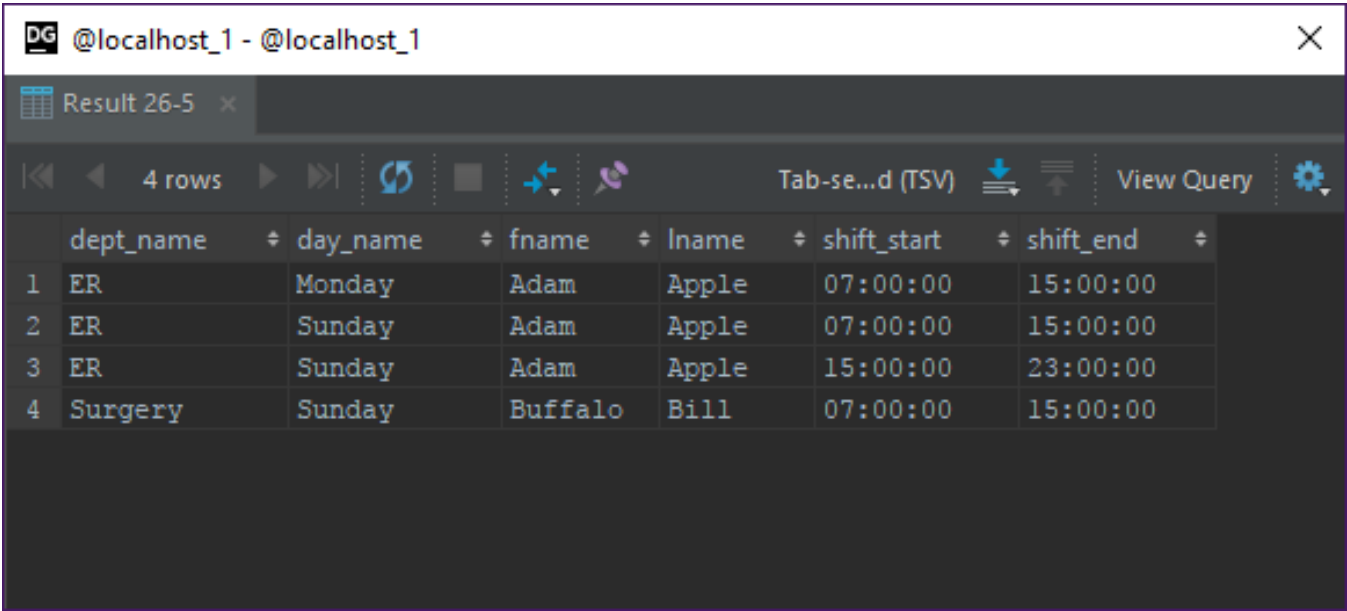
# Query Results



The screenshot shows a database query result window titled "@localhost\_1 - @localhost\_1". The window displays "Result 24-3" with 6 rows. The columns are: dept\_name, fname, lname, day\_name, shift\_start, and shift\_end. The data is as follows:

|   | dept_name | fname   | lname    | day_name | shift_start | shift_end |
|---|-----------|---------|----------|----------|-------------|-----------|
| 1 | ER        | Adam    | Apple    | Monday   | 07:00:00    | 15:00:00  |
| 2 | ER        | Adam    | Apple    | Sunday   | 15:00:00    | 23:00:00  |
| 3 | ER        | Adam    | Apple    | Sunday   | 07:00:00    | 15:00:00  |
| 4 | ER        | Buffalo | Bill     | Sunday   | 07:00:00    | 15:00:00  |
| 5 | Surgery   | Charles | Chaplain | Sunday   | 07:00:00    | 15:00:00  |
| 6 | Surgery   | Donnie  | Darko    | Sunday   | 23:00:00    | 07:00:00  |

Figure 1: Weekly Schedule Query Results



The screenshot shows a database query result window titled "@localhost\_1 - @localhost\_1". The window displays "Result 26-5" with 4 rows. The columns are: dept\_name, day\_name, fname, lname, shift\_start, and shift\_end. The data is as follows:

|   | dept_name | day_name | fname   | lname | shift_start | shift_end |
|---|-----------|----------|---------|-------|-------------|-----------|
| 1 | ER        | Monday   | Adam    | Apple | 07:00:00    | 15:00:00  |
| 2 | ER        | Sunday   | Adam    | Apple | 07:00:00    | 15:00:00  |
| 3 | ER        | Sunday   | Adam    | Apple | 15:00:00    | 23:00:00  |
| 4 | Surgery   | Sunday   | Buffalo | Bill  | 07:00:00    | 15:00:00  |

Figure 2: Department Charge Nurse Query Results

The screenshot shows a database interface with a window titled "@localhost\_1 - @localhost\_1". Below the title bar is a tab labeled "Result 24-8". The interface includes navigation icons (back, forward, search, etc.) and a toolbar with options like "Tab-se...d (TSV)", "View Query", and a settings icon. The main area displays a table with 8 columns: dept\_name, fname, lname, day\_name, shift\_start, shift\_end, and WDID. There are 3 rows of data.

|   | dept_name | fname | lname | day_name | shift_start | shift_end | WDID |
|---|-----------|-------|-------|----------|-------------|-----------|------|
| 1 | ER        | Adam  | Apple | Sunday   | 07:00:00    | 15:00:00  | 1    |
| 2 | ER        | Adam  | Apple | Sunday   | 15:00:00    | 23:00:00  | 1    |
| 3 | ER        | Adam  | Apple | Monday   | 07:00:00    | 15:00:00  | 2    |

Figure 3: Employee Schedule Query Results

## Table Creation Code

This following code block shows the SQL queries used to generate the tables.

```

1 CREATE TABLE employee
2 (
3     EID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
4     home_dept INT(11),
5     fname CHAR(50) NOT NULL,
6     mname CHAR(50),
7     lname CHAR(50),
8     ssn CHAR(12),
9     phone1 CHAR(13),
10    phone2 CHAR(13),
11    start_date DATETIME DEFAULT CURRENT_TIMESTAMP NOT NULL,
12    end_date DATE,
13    full_time TINYINT(1) DEFAULT '0' NOT NULL,
14    salaried TINYINT(1) DEFAULT '0' NOT NULL,
15    pay_rate DOUBLE DEFAULT '0' NOT NULL,
16    CONSTRAINT employee_department_DID_fk FOREIGN KEY (home_dept) REFERENCES
    department (DID)
17 );
18 CREATE INDEX employee_department_DID_fk ON employee (home_dept);
19
20 CREATE TABLE department
21 (
22     DID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
23     charge_nurse INT(11),
24     min_staff INT(11) DEFAULT '0' NOT NULL,
25     max_staff INT(11) DEFAULT '100' NOT NULL,
26     beds INT(11) DEFAULT '0' NOT NULL,
27     dept_name CHAR(50) NOT NULL,
28     CONSTRAINT department_employee_EID_fk FOREIGN KEY (charge_nurse) REFERENCES
    employee (EID)
29 );
30 CREATE INDEX department_employee_EID_fk ON department (charge_nurse);
31
32 CREATE TABLE shift_status

```

```

33 (
34     SSID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
35     status CHAR(50)
36 );
37
38 CREATE TABLE shift_times
39 (
40     STID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
41     shift_start TIME NOT NULL,
42     shift_end TIME NOT NULL
43 );
44
45 CREATE TABLE weekday
46 (
47     WDID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
48     day_name CHAR(10)
49 );
50
51 CREATE TABLE week
52 (
53     WID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
54     start_date DATE NOT NULL,
55     end_date DATE NOT NULL
56 );
57
58 CREATE TABLE shift
59 (
60     SID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
61     employee INT(11) NOT NULL,
62     department INT(11) NOT NULL,
63     shift_time INT(11) NOT NULL,
64     week_id INT(11) NOT NULL,
65     dow INT(11) NOT NULL,
66     shift_status INT(11),
67     pay_modifier DOUBLE,
68     CONSTRAINT shift_employee_EID_fk FOREIGN KEY (employee) REFERENCES employee (EID)
69 ),
70     CONSTRAINT shift_department_DID_fk FOREIGN KEY (department) REFERENCES
71     department (DID),
72     CONSTRAINT shift_shift_times_STID_fk FOREIGN KEY (shift_time) REFERENCES
73     shift_times (STID),
74     CONSTRAINT shift_week_WID_fk FOREIGN KEY (week_id) REFERENCES week (WID),
75     CONSTRAINT shift_weekday_WDID_fk FOREIGN KEY (dow) REFERENCES weekday (WDID),
76     CONSTRAINT shift_shift_status_SSID_fk FOREIGN KEY (shift_status) REFERENCES
77     shift_status (SSID)
78 );
79
80 CREATE INDEX shift_department_DID_fk ON shift (department);
81 CREATE INDEX shift_employee_EID_fk ON shift (employee);
82 CREATE INDEX shift_shift_status_SSID_fk ON shift (shift_status);
83 CREATE INDEX shift_shift_times_STID_fk ON shift (shift_time);
84 CREATE INDEX shift_weekday_WDID_fk ON shift (dow);
85 CREATE INDEX shift_week_WID_fk ON shift (week_id);

```