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Subject: SQL Queries for Generating Schedules

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Code Used for Queries

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

```
USE cmpsc431;

## Weekly Schedule Query
SET @week_start_date = '2017-10-01';
SELECT dept_name, fname, lname, day_name, shift_start, shift_end
FROM week, shift, department, shift_times, employee, weekday
WHERE week.start_date = @week_start_date
      AND shift.employee = employee.EID
      AND shift.week_id = week.WID
      AND shift.department = department.DID
      AND shift.shift_time = shift_times.STID
      AND shift.dow = weekday.WDID
ORDER BY dept_name, lname, fname;

## Department Charge Nurse Query
SET @week_start_date = '2017-10-01';
SELECT dept_name, day_name, fname, lname, shift_start, shift_end
FROM week, shift, department, shift_times, employee, weekday
WHERE week.start_date = @week_start_date
      AND shift.employee = employee.EID
      AND shift.week_id = week.WID
      AND shift.department = department.DID
      AND shift.shift_time = shift_times.STID
      AND shift.dow = weekday.WDID
      AND department.charge_nurse = employee.EID
ORDER BY dept_name, day_name, shift_start;

## Employee Schedule Query
SET @desired_employee = 1;
SET @week_start_date = '2017-10-01';
SELECT dept_name, fname, lname, day_name, shift_start, shift_end, weekday.WDID
FROM week, shift, department, shift_times, employee, weekday
WHERE week.start_date = @week_start_date
      AND employee.EID = @desired_employee
      AND shift.employee = employee.EID
      AND shift.week_id = week.WID
      AND shift.department = department.DID
      AND shift.shift_time = shift_times.STID
      AND shift.dow = weekday.WDID
ORDER BY WDID, shift_start
```

Query Results

@localhost_1 - @localhost_1

Result 24-3

6 rows | Tab-se...d (TSV) | View Query

	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

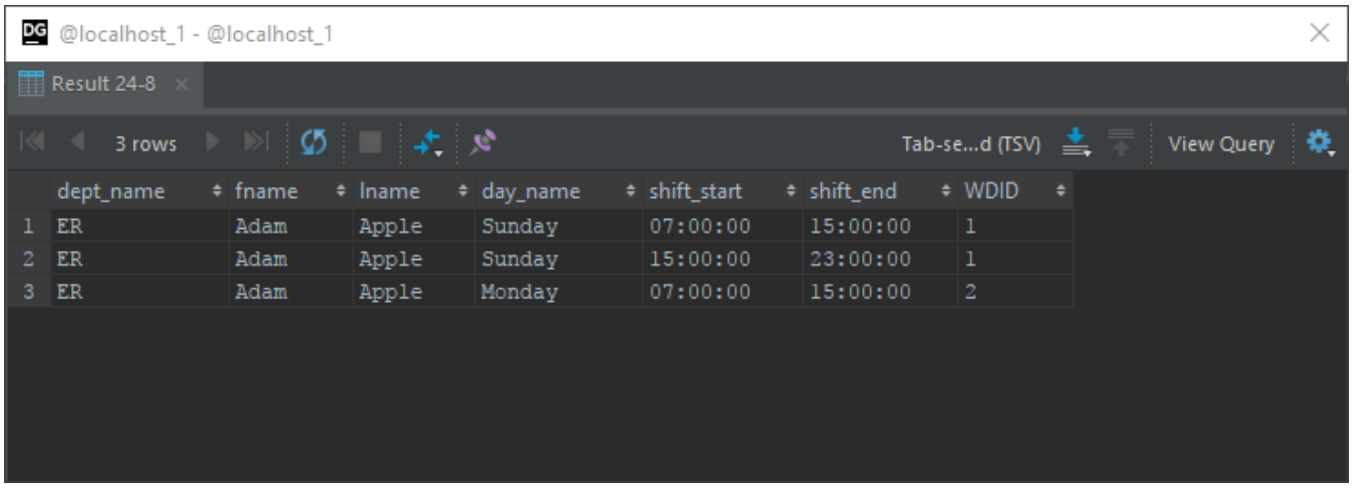
@localhost_1 - @localhost_1

Result 26-5

4 rows | Tab-se...d (TSV) | View Query

	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



	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.

```
CREATE TABLE employee
(
    EID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    home_dept INT(11),
    fname CHAR(50) NOT NULL,
    mname CHAR(50),
    lname CHAR(50),
    ssn CHAR(12),
    phone1 CHAR(13),
    phone2 CHAR(13),
    start_date DATETIME DEFAULT CURRENT_TIMESTAMP NOT NULL,
    end_date DATE,
    full_time TINYINT(1) DEFAULT '0' NOT NULL,
    salaried TINYINT(1) DEFAULT '0' NOT NULL,
    pay_rate DOUBLE DEFAULT '0' NOT NULL,
    CONSTRAINT employee_department_DID_fk FOREIGN KEY (home_dept) REFERENCES
    department (DID)
);
CREATE INDEX employee_department_DID_fk ON employee (home_dept);

CREATE TABLE department
(
    DID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    charge_nurse INT(11),
    min_staff INT(11) DEFAULT '0' NOT NULL,
    max_staff INT(11) DEFAULT '100' NOT NULL,
    beds INT(11) DEFAULT '0' NOT NULL,
    dept_name CHAR(50) NOT NULL,
    CONSTRAINT department_employee_EID_fk FOREIGN KEY (charge_nurse) REFERENCES
    employee (EID)
);
CREATE INDEX department_employee_EID_fk ON department (charge_nurse);

CREATE TABLE shift_status
```

```
(
    SSID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    status CHAR(50)
);

CREATE TABLE shift_times
(
    STID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    shift_start TIME NOT NULL,
    shift_end TIME NOT NULL
);

CREATE TABLE weekday
(
    WDID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    day_name CHAR(10)
);

CREATE TABLE week
(
    WID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    start_date DATE NOT NULL,
    end_date DATE NOT NULL
);

CREATE TABLE shift
(
    SID INT(11) PRIMARY KEY NOT NULL AUTO_INCREMENT,
    employee INT(11) NOT NULL,
    department INT(11) NOT NULL,
    shift_time INT(11) NOT NULL,
    week_id INT(11) NOT NULL,
    dow INT(11) NOT NULL,
    shift_status INT(11),
    pay_modifier DOUBLE,
    CONSTRAINT shift_employee_EID_fk FOREIGN KEY (employee) REFERENCES employee (EID),
    CONSTRAINT shift_department_DID_fk FOREIGN KEY (department) REFERENCES department (DID),
    CONSTRAINT shift_shift_times_STID_fk FOREIGN KEY (shift_time) REFERENCES shift_times (STID),
    CONSTRAINT shift_week_WID_fk FOREIGN KEY (week_id) REFERENCES week (WID),
    CONSTRAINT shift_weekday_WDID_fk FOREIGN KEY (dow) REFERENCES weekday (WDID),
    CONSTRAINT shift_shift_status_SSID_fk FOREIGN KEY (shift_status) REFERENCES shift_status (SSID)
);
CREATE INDEX shift_department_DID_fk ON shift (department);
CREATE INDEX shift_employee_EID_fk ON shift (employee);
CREATE INDEX shift_shift_status_SSID_fk ON shift (shift_status);
CREATE INDEX shift_shift_times_STID_fk ON shift (shift_time);
CREATE INDEX shift_weekday_WDID_fk ON shift (dow);
CREATE INDEX shift_week_WID_fk ON shift (week_id);
```