Homework 7 Solutions

Problem 1:

Find all flights from MKE to MAD.

```
SELECT
     airlineAbbr, flightNr, depCityCode, arrCityCode, depTime, arrTime
FROM
     flights
WHERE
     arrCityCode = 'MAD' and depCityCode = 'MKE';
```

Problem 2:

Find all flights between MKE and MAD.

```
SELECT
    airlineAbbr, flightNr, depCityCode, arrCityCode, depTime, arrTime
FROM
    flights
WHERE
    (arrCityCode = 'MAD' and depCityCode = 'MKE')
     OR
    (arrCityCode = 'MKE' and depCityCode = 'MAD');
```

Problem 3:

Find all flights from Detroit to Chicago.

```
SELECT
    *
FROM
    flights, (SELECT code from airports WHERE city='Detroit') detcodes
    WHERE flights.arrCityCode IN
                (SELECT code
                 FROM airports
                 WHERE city = 'Chicago')
     AND flights.depCityCode IN
                (SELECT code
                 FROM airports
                 WHERE city = 'Detroit')
```

Problem 4:

Find all "flights" from Chicago to Chicago. There is a Chicago Transit Authority L-train (for elevated) from Midway airport to O'Hare airport.)

```
SELECT
    *
FROM
    flights, (SELECT code from airports WHERE city='Detroit') detcodes
    WHERE flights.arrCityCode IN
      (SELECT code
       FROM airports
       WHERE city = 'Chicago')
    AND flights.depCityCode IN
      (SELECT code
       FROM airports
       WHERE city = 'Chicago')
```

Problem 5:

Find all flights with one stop-over from EAU to MAD. Do not worry about arriving at your stop-over after the connecting flight has already left, since this means that you have to stay overnight.

```
SELECT
    f1.airlineAbbr AS AIRL, f1.flightNr, f1.depTime, f1.arrTime,
f1.depCityCode, f1.arrCityCode, f2.airlineAbbr AS AIRL, f2.flightNr,
f2.depTime, f2.arrTime,
    f2.depCityCode, f2.arrCityCode
FROM
    flights f1 INNER JOIN flights f2
    ON f1.arrCityCode = f2.depCityCode
WHERE
    f1.depCityCode = 'EAU' and f2.arrCityCode = 'MAD';
```

AIRL	flightNr	depTime	arrTime	depCityCode	arrCityCode	AIRL	flightNr	depTime	arrTime	depCityCode	arrCityCode
PWI	306	15:30:00	16:05:00	EAU	RHI	PWI	400	08:00:00	09:10:00	RHI	MAD
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	400	08:00:00	09:10:00	RHI	MAD
PWI	306	15:30:00	16:05:00	EAU	RHI	PWI	402	12:00:00	13:10:00	RHI	MAD
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	402	12:00:00	13:10:00	RHI	MAD
PWI	306	15:30:00	16:05:00	EAU	RHI	PWI	404	20:00:00	21:10:00	RHI	MAD
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	404	20:00:00	21:10:00	RHI	MAD
PWI	306	15:30:00	16:05:00	EAU	RHI	PWI	500	08:00:00	09:10:00	RHI	MAD
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	500	08:00:00	09:10:00	RHI	MAD
TWA	185	16:50:00	17:30:00	EAU	LSE	TWA	151	13:55:00	14:50:00	LSE	MAD
TWA	175	09:50:00	10:30:00	EAU	LSE	TWA	151	13:55:00	14:50:00	LSE	MAD

Problem 6:

Find all flights with one stop-over from EAU to MAD. But now guarantee that you will arrive at your stop-over before the connecting flight departs.

```
SELECT
    f1.airlineAbbr AS AIRL, f1.flightNr, f1.depTime, f1.arrTime,
f1.depCityCode, f1.arrCityCode, f2.airlineAbbr AS AIRL, f2.flightNr,
f2.depTime, f2.arrTime,
    f2.depCityCode, f2.arrCityCode
FROM
    flights f1 INNER JOIN flights f2
    ON f1.arrCityCode = f2.depCityCode
WHERE
     f1.depCityCode = 'EAU' and f2.arrCityCode = 'MAD' and f1.arrTime
< f2.depTime;
```

AIRL	flightNr	depTime	arrTime	depCityCode	arrCityCode	AIRL	flightNr	depTime	arrTime	depCityCode	arrCityCode
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	402	12:00:00	13:10:00	RHI	MAD
PWI	306	15:30:00	16:05:00	EAU	RHI	PWI	404	20:00:00	21:10:00	RHI	MAD
PWI	302	10:30:00	11:05:00	EAU	RHI	PWI	404	20:00:00	21:10:00	RHI	MAD
TWA	175	09:50:00	10:30:00	EAU	LSE	TWA	151	13:55:00	14:50:00	LSE	MAD

Problem 7:

Count the number of flights leaving Chicago.

```
SELECT COUNT(*)
FROM
    flights
WHERE
    depCityCode IN (
        SELECT
            code
        FROM
            airports
        WHERE
            city = 'Chicago');
```

Problem 8:

Count the number of flights leaving Chicago. But do not count flights from Chicago to Chicago.

```
SELECT
    COUNT(*)
FROM
    flights
WHERE
    depCityCode IN (SELECT
            code
        FROM
            airports
        WHERE
            city = 'Chicago')
        AND arrCityCode NOT IN (SELECT
            code
        FROM
            airports
        WHERE
            city = 'Chicago');
```

Problem 9:

Find all possible ways to get from Milwaukee to Marquette with one additional stop insuring that you can make the connection.

```
SELECT * FROM flights f1 INNER JOIN flights f2 ON f1.arrCityCode =
f2.depCityCode
WHERE
     f1.depCityCode IN
        (SELECT code FROM airports WHERE city = 'Milwaukee')
     AND
     f2.arrCityCode IN
        (SELECT code FROM airports WHERE city = 'Marquette')
     AND
      f1.arrTime < f2.depTime;
```

Problem 10:

Find the numbers of flights leaving a city for another city.

```
SELECT
    temp.cityname, COUNT(*) AS 'Departing Flights'
FROM
    flights, (SELECT DISTINCT city AS cityname FROM airports) temp
WHERE
    depCityCode IN
            (SELECT code FROM airports WHERE city = temp.cityname)
        AND arrCityCode NOT IN
        (SELECT code FROM airports WHERE city = temp.cityname)
GROUP BY
        temp.cityname
ORDER BY
        temp.cityname ASC;
```

cityname	Departing Flig...	
Appleton	10	
Chicago	24	
Detroit	21	
Eau Claire	13	
Grand Rapids	3	
Green Bay	8	
La Crosse	6	
Madison	24	
Marquette	4	
Milwaukee	34	
Mosinee	5	
Muskegon	3	
Rhinelander	10	
Rockford	6	
Springfield	6	