

Assignment #2: Oracle SQL Programming

PEAK (NAME, ELEV, DIFF, MAP, REGION)
CLIMBER (NAME, SEX)
PARTICIPATED (TRIP_ID, NAME)
CLIMBED (TRIP_ID, PEAK, WHEN)

1. Which peaks are difficulty level 5?

- SQL
SELECT NAME
FROM PEAK
WHERE DIFF=5;

- RESULT
NAME

Taylor Dome
Mount Clarence King

2. Which females have climbed a 14,000 peak?

- SQL
SELECT DISTINCT CR.NAME
FROM CLIMBER CR, PEAK P, PARTICIPATED PA, CLIMBED CD
WHERE CR.SEX = 'F' AND
P.ELEV >= 14000 AND
CR.NAME=PA.NAME AND
PA.TRIP_ID=CD.TRIP_ID AND
CD.PEAK=P.NAME;

- RESULT
NAME

BARBARA
BETTY
DONNA
ELIZABETH
JENNIFER
LINDA
MARIA
MARY
PATRICIA

9 rows selected.

3. Who has gone on a climb with Mark?

- SQL

```
SELECT DISTINCT PA1.NAME
FROM PARTICIPATED PA1, PARTICIPATED PA2
WHERE PA1.TRIP_ID=PA2.TRIP_ID AND
      PA1.NAME <> 'MARK' AND
      PA2.NAME = 'MARK';
```

- RESULT

NAME

BETTY
DANIEL
JOHN
KENNETH
MARY
MICHAEL
PATRICIA
PAUL
STEVEN

9 rows selected.

4. Who has climbed a peak climbed by Patricia?

- SQL

```
SELECT DISTINCT CR1.NAME
FROM CLIMBER CR1, PARTICIPATED PA1, CLIMBED CD1
WHERE CR1.NAME <> 'PATRICIA' AND
      CR1.NAME=PA1.NAME AND
      PA1.TRIP_ID=CD1.TRIP_ID AND
      CD1.PEAK IN (SELECT CD2.PEAK
                  FROM CLIMBER CR2, PARTICIPATED PA2, CLIMBED CD2
                  WHERE CR2.NAME= 'PATRICIA' AND
                        CR2.NAME=PA2.NAME AND PA2.TRIP_ID=CD2.TRIP_ID );
```

- RESULT

NAME

BARBARA
BETTY
DANIEL
DONALD
DONNA
EDWARD
ELIZABETH
GEORGE
JENNIFER
JOHN
KENNETH

NAME

LINDA
MARIA
MARK
MARY
MICHAEL
PAUL
ROBERT
STEVEN

19 rows selected.

5. Which maps have a maximum peak height of less than 10,000 feet?

- SQL
SELECT P1.MAP
FROM PEAK P1
MINUS
SELECT P2.MAP
FROM PEAK P2
WHERE P2.ELEV >= 10000;

- RESULT

MAP

Cannell Peak
Crag Peak
Lament Peak
Monache Mtn
Ninemile Canyon
Onyx
Owens Peak
Rockhouse Basin
Silver City
Sirretta Peak

10 rows selected.

6. Find any maps that have peaks from more than one region on them.

- SQL

```
SELECT DISTINCT P1.MAP
FROM PEAK P1, PEAK P2
WHERE P1.MAP = P2.MAP AND
      P1.REGION <> P2.REGION;
```

- RESULT

MAP

Mineral King
Mount Whitney
Mt Brewer
Mt Langley
Mt Williamson
Triple Divide Peak

6 rows selected.

7. Which peaks are on a map with a peak that is at least 14,000 feet in height?

- SQL

```
SELECT DISTINCT P1.NAME  
FROM PEAK P1, PEAK P2  
WHERE P1.MAP = P2.MAP AND P2.ELEV >= 14000;
```

- RESULT

NAME

Center Peak
Joe Devel Peak
Junction Peak
Lone Pine Peak
Mount Barnard
Mount Bradley
Mount Carillon
Mount Chamberlin
Mount Corcoran
Mount Guyot
Mount Hale

NAME

Mount Hitchcock
Mount Irvine
Mount Keith
Mount Langley
Mount LeConte
Mount Mallory
Mount McAdie
Mount Muir
Mount Newcomb
Mount Pickering
Mount Russell

NAME

Mount Tyndall
Mount Whitney
Mount Williamson
Mount Young
Thor Peak
Trojan Peak
Tunnabora Peak
University Peak

30 rows selected.

8. Which peaks of difficulty level 5 (if any) remain unclimbed?

- SQL
SELECT DISTINCT P1.NAME
FROM PEAK P1
WHERE P1.DIFF >= 5
MINUS
SELECT CD.PEAK
FROM CLIMBED CD;

- RESULT

NAME

Taylor Dome

9. Which maps have at least a 2,000 foot difference between the shortest and tallest peak on the map?

- SQL
SELECT DISTINCT P1.MAP
FROM PEAK P1, PEAK P2
WHERE P1.MAP=P2.MAP AND
P1.ELEV-P2.ELEV >= 2000;

- RESULT

MAP

Mount Whitney

10. Who has climbed the most peaks, and what is that number?

- SQL

```
CREATE VIEW mostClimber AS
SELECT PA.NAME, COUNT(*) total_number
FROM PARTICIPATED PA,
     CLIMBED CD
WHERE PA.TRIP_ID=CD.TRIP_ID
GROUP BY PA.NAME;
```

```
SELECT M1.NAME, M1.total_number
FROM mostClimber M1
WHERE M1.total_number = ( SELECT MAX(M2.total_number)
                        FROM mostClimber M2);
```

- RESULT

NAME	TOTAL_NUMBER

MARY	94

11. Who climbed their first peak after June 1, 2003?

- SQL

```
SELECT DISTINCT PA.NAME
FROM PARTICIPATED PA
WHERE PA.NAME NOT IN (SELECT PA2.NAME
                     FROM PARTICIPATED PA2, CLIMBED C
                     WHERE C.TRIP_ID = PA2.TRIP_ID AND
                          C.WHEN < ;01-JUN-03;);
```

- RESULT

NAME

GEORGE
JENNIFER
MARIA
PAUL

12. For each region, list the percentage of its peaks that have been climbed.

- SQL

```
CREATE VIEW NUM_CLIMBED AS
SELECT COUNT (DISTINCT C.PEAK) CNT, P.REGION
FROM CLIMBED C, PEAK P
WHERE C.PEAK = P.NAME
GROUP BY P.REGION;
```

```
CREATE VIEW NUM_PEAKS AS
SELECT P.REGION, COUNT (*) AS CNT
FROM PEAK P
GROUP BY P.REGION;
```

```
SELECT C.REGION, (C.CNT * 100) / P.CNT
FROM NUM_CLIMBED C, NUM_PEAKS P
WHERE C.REGION = P.REGION;
```

- RESULT

REGION	(C.CNT*100)/P.CNT
Corocoran to Whitney	88.8888889
Great Western Divide	70
Kaweahs and West	25
Kearsarge Pass	66.6666667
Kings Kern Divide	45.4545455
Mineral King	90
Olancha to Langley	72.7272727
Southern Sierra	70
Whitney to Williamson	44.4444444

9 rows selected.

13. What is the average height of the unclimbed peaks in the "Corocoran to Whitney" region?

- SQL

```
SELECT AVG(Temp1.ELEV)
FROM ( SELECT P1.NAME, P1.ELEV
      FROM PEAK P1
      WHERE P1.REGION= 'Corocoran to Whitney'
      MINUS
      SELECT P2.NAME, P2.ELEV
      FROM PEAK P2, CLIMBED CD
      WHERE P2.NAME=CD.PEAK AND P2.REGION= 'Corocoran to Whitney' ) Temp1;
```

- RESULT

```
AVG(TEMP1.ELEV)
-----
      13714
```

14. Who has climbed every single peak that Barbara has climbed?

- SQL

```
SELECT DISTINCT PA1.NAME
FROM PARTICIPATED PA1
WHERE NOT EXISTS ( SELECT CD2.PEAK
                  FROM PARTICIPATED PA2, CLIMBED CD2
                  WHERE PA2.NAME=;BARBARA; AND
                        PA2.TRIP_ID=CD2.TRIP_ID
                  MINUS
                  SELECT CD3.PEAK
                  FROM PARTICIPATED PA3, CLIMBED CD3
                  WHERE PA3.TRIP_ID=CD3.TRIP_ID AND
                        PA1.NAME=PA3.NAME);
```

- RESULT

```
NAME
-----
BARBARA
MARY
```

15. Which span of at most 90 days had the greatest number of summit ascents, and what is that number? A "summit ascent" is when a climber makes it to the top of a peak on a given day.

- SQL

```
//get all pairs
```

```
CREATE VIEW PAIRS AS
SELECT DISTINCT C1.WHEN start_date, C2.WHEN end_date
FROM CLIMBED C1, CLIMBED C2
WHERE C2.WHEN <= C1.WHEN + 90;
```

```
//join all pairs with all climbs
```

```
CREATE VIEW NUM_CLIMBS AS
SELECT PAIRS.start_date, PAIRS.end_date, COUNT(*)num
FROM PAIRS, CLIMBED, PARTICIPATED
WHERE CLIMBED.WHEN >= pairs.start_date AND
      CLIMBED.WHEN <= pairs.end_date AND
      CLIMBED.TRIP_ID = PARTICIPATED.TRIP_ID
GROUP BY PAIRS.start_date, PAIRS.end_date;
```

```
//get the greatest num
```

```
SELECT start_date, end_date, num
FROM NUM_CLIMBS
WHERE num = (SELECT MAX(num) FROM NUM_CLIMBS);
```

- RESULT

START_DAT	END_DATE	NUM
11-JUN-02	09-SEP-02	194