

CS143 Homework #2

1. a.     SELECT person-name  
          FROM Work  
          WHERE salary > ALL (SELECT salary  
                              FROM Employee E, Work W  
                              WHERE E. person-name=W.person-name AND city='Los Angeles')

          SELECT person-name  
          FROM Work  
          WHERE salary > (SELECT MAX(salary)  
                          FROM Employee  
                          WHERE city='Los Angeles')

          SELECT W.person-name  
          FROM Work W, Employee E, Work W2, Employee E2  
          WHERE W.person-name=E.person-name  
AND W2.person-name=E2.person-name and E2.city='Los Angeles'

b.     SELECT DISTINCT(manager-name)  
          FROM Manage M, Work W  
          WHERE M.manager-name=W.person-name AND w.salary > SOME  
                  (SELECT salary  
                  FROM Work W2  
                  WHERE M.person-name=W2.person-name)

          SELECT DISTINCT(manager-name)  
          FROM Manage M, Work W, Work W2  
          WHERE M.manager-name=W.person-name AND  
                  M.person-name=W2.person-name AND  
                  W.salary > W2.salary

2. a.     (SELECT company-name  
          FROM Company)  
          EXCEPT  
          (SELECT company-name  
          FROM Work  
          WHERE salary<=100000)

b.      $\pi_{company-name}(Company) - \pi_{company-name}(\sigma_{salary \leq 100000}(Work))$

c.     The results of (a) and (b) should be the same, since we are using the same strategy. The only possible difference I can think of might be caused by a discrepancy between set and multiset semantics, which can be corrected by a DISTINCT keyword if necessary.

3. a. i. (SELECT name  
FROM MovieStar  
WHERE gender='F')  
INTERSECT  
(SELECT name  
FROM MovieExec  
WHERE netWorth>1000000)
- ii. (SELECT name  
FROM MovieStar S, MovieExec E  
WHERE S.name=E.name AND s.gender='F' AND E.netWorth>1000000)
- b. i. (SELECT name  
FROM MovieStar)  
EXCEPT  
(SELECT name  
FROM MovieExec)
- ii. SELECT name  
FROM MovieStar  
WHERE name NOT IN  
(SELECT name  
FROM MovieExec)
4. a. SELECT AVG(speed)  
FROM Desktop
- b. SELECT AVG(price)  
FROM ComputerProduct C, Laptop L  
WHERE C.model=L.model AND L.weight<2
- c. SELECT AVG(price)  
FROM ComputerProduct  
WHERE manufacturer='Dell'
- d. SELECT AVG(price)  
FROM Laptop  
GROUP BY speed
- e. SELECT manufacturer  
FROM ComputerProduct  
GROUP BY manufacturer  
HAVING COUNT(model)>=3
5. Topic not covered in class ☹