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CS143
HW#2

1)

- a)

```
SELECT person-name
FROM Work
WHERE salary < 20000
```
- b) $\pi_{\text{person-name}}(\sigma_{\text{salary} < 20000} \text{Work})$
- c) No, there might be duplicates in the SQL one

2)

- a)

```
SELECT person-name
FROM Work
GROUP BY person-name
HAVING SUM(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
GROUP BY person-name
HAVING SUM(salary) > (SELECT MAX(salary)
                      FROM Employee e, Work w
                      WHERE e.person-name = w.person-name
                         AND city = 'Los Angeles' )
```

- b)

```
SELECT manager-name
FROM Manage m, ( SELECT person-name, SUM(salary) total
                  FROM Work
                  GROUP BY person-name) s
WHERE m.manager-name = s.person-name AND s.person-name AND
      s.total > SOME( SELECT total
                      FROM s
                      WHERE s.person-name = m.person-name)
```

```

SELECT manager-name
FROM Manage m
WHERE EXISTS ( SELECT *
                FROM (SELECT person-name, SUM(salary) total
                      FROM Work
                      GROUP BY person-name) s1,
                      (SELECT person-name, SUM(salary) total
                      FROM Work
                      GROUP BY person-name) s2,
                WHERE m.manager-name=s1.person-name AND
                      m.person-name = s2.person-name AND
                      s1.total>s2.total
              )

```

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(speed)
FROM Laptop l, ComputerProduct c
WHERE l.model = c.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)
- a) `INSERT INTO ComputerProduct VALUES('HP', 1200,1000);`
`INSERT INTO Desktop VALUES(1200, '1.2GHz', '256MB', '80GB');`
- c) `DELETE FROM Desktop`
`WHERE model IN(SELECT model`
`FROM ComputerProduct`
`WHERE manufacturer='IBM' AND price<1000);`
`DELETE FROM ComputerProduct`
`WHERE manufacturer='IBM' AND price<1000 AND model NOT IN (`
`SELECT model`
`FROM laptop);`
- d) `UPDATE Laptop`
`SET weight=weight+1`
`WHERE model IN(SELECT model`
`FROM ComputerProduct`
`WHERE manufacturer='gateway');`
- 6)
- a) `(SELECT sid`
`FROM Enroll`
`GROUP BY sid)`
`EXCEPT`
`(SELECT sid`
`FROM Enroll`
`WHERE dept!='CS')`
- b) `SELECT sid`
`FROM Enroll`
`WHERE dept='CS'`
`GROUP BY sid`
`HAVING COUNT(cnum) = (SELECT COUNT(*)`
`FROM Enroll`
`GROUP BY dept, cnum`
`)`
- c) It is not possible to do part(a) using count
 I did used COUNT for part(b)