1.

a)

- The 3rd SELCECT statement is finding a time range Bob's salary didn't change and the first time interval overlaps, but doesn't completely contain the second time interval. It's being used as a mechanism to coalesce the maximal time interval overwhich Bob's salary was unchanged.

- The 4th SELECT statement is finding all time ranges that are contained within another interval over which Bob's salary didn't change.

b)

- START

- Iteration 1 (5,25), (8,28), (30,35), (29,36)

- Iteration 2 (5,28), (30,35), (29,36)

- Iteration 3 (5,28), (30,35), (29,36)

- DONE

- tuple (30,35) will be removed in the delete statement at the end of the algorithm

2.

a)

Initial table

---------------

Emp Dept T

--- (NO CHANGE TO JAKE'S ENTRIES) ---

Kate Ship {(20,25),...,(20,30),...,(29,25),...,(29,30)}

Kate Accounting {(UC, 30),...,(UC,35)}

b)

SELECT SNAPSHOT Emp FROM company;

Emp

Jake

Kate

SELECT Emp FROM company;

Emp T

Jake {(5,10),...,(5,15),...,(UC,10),...,(UC,15)}

Kate {(20,25),...,(20,25),...,(UC,30),...,(UC,35)}

3.

Initial table

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Name Drug VST VET TST TET

Melanie Proventil 2009-08-01 now 2009-08-02 uc

After Insert

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Name Drug VST VET TST TET

Melanie Proventil 2009-08-01 now 2009-08-02 uc

Doodle Vicosin 2009-09-15 now 2009-09-25 uc

After Update - Retroactive Update

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Name Drug VST VET TST TET

Melanie Proventil 2009-08-01 now 2009-08-02 2009-09-25

Doodle Vicosin 2009-09-15 now 2009-09-25 uc

Melanie Proventil 2009-08-01 2009-10-08 2009-09-25 uc

4.

a) SELECT Name, Drug, VALID(P)

FROM Prescription(Name, Drug)(PERIOD) AS P;

b) SELECT SNAPSHOT P1.Name

FROM Prescription(Name, Drug)(PERIOD) AS P1,

Prescription(Name, Drug)(PERIOD) AS P2

WHERE P1.Name=P2.Name AND P1.Drug<>P2.Drug AND

VALID(P1)=VALID(P2) AND

CAST(VALID(P1) AS INTERVAL MONTH) > INTERVAL '6' MONTH AND

VALID(P1) OVERLAPS DATE '2012-10-19';

c) SELECT SNAPSHOT BEGIN(TRANSACTION(P2))

FROM Prescription AS P1 P2

WHERE P1.Name='Melanie' AND P2.Name='Melanie' AND

VALID(P1) OVERLAPS DATE '2009-09-10' AND

VALID(P2) OVERLAPS DATE '2009-09-10' AND

TRANSACTION(P1) MEETS TRANSACTION(P2) AND

BEGIN(TRANSACTION(P1)) = DATE '2009-09-14';