DB GHW4

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CS-GY 6083 - B

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Q1

a)

```
create or replace procedure wc_raise_sal(base in number) as
    yow number;
    rate number;
begin
    for r in (select empno, hiredate, sal from wc_emp ) loop
        yow := floor(months_between(sysdate, r.hiredate) /12);
        if yow >= 15 then
            rate := 1.2;
        elsif yow >= 10 then
            rate := 1.15;
        elsif yow >= 5 then
            rate := 1.1;
        else
            rate := 1;
        end if;
        update wc_emp
        set sal = sal + base * rate
        where empno = r.empno;
    end loop;
end;
```

b)

EMPNO	EFNAME	SAL	HIREDATE
7369	CHARLES	2400	08-OCT-01
7499	GRAYSON	4800	12-DEC-01
7521	MATTHEW	3750	14-DEC-01
7566	NICHOLAS	8925	22-JAN-02
7698	BLAKE	8550	20-FEB-02
7782	KENT	7350	31-MAR-02
7844	WILLIAM	4500	30-JUN-02
7654	CHRIS	3750	20-JUL-02
7839	MARTIN	15000	08-SEP-02
7900	LEBRON	2850	24-SEP-02
7902	CHRISTIAN	9000	24-SEP-02
7934	MIKE	3900	14-NOV-02
7788	DEVIN	9000	08-FEB-08
7876	JOHN	3300	13-MAR-08

Download CSV

14 rows selected.

EMPNO	EFNAME	SAL	HIREDATE
7369	CHARLES	2412	08-OCT-01
7499	GRAYSON	4812	12-DEC-01
7521	MATTHEW	3762	14-DEC-01
7566	NICHOLAS	8937	22-JAN-02
7698	BLAKE	8562	20-FEB-02
7782	KENT	7362	31-MAR-02
7844	WILLIAM	4512	30-JUN-02
7654	CHRIS	3762	20-JUL-02
7839	MARTIN	15012	08-SEP-02
7900	LEBRON	2862	24-SEP-02
7902	CHRISTIAN	9012	24-SEP-02
7934	MIKE	3912	14-NOV-02
7788	DEVIN	9011.5	08-FEB-08
7876	JOHN	3311.5	13-MAR-08

Download CSV

14 rows selected.

Q2

a)

The columns suitable of creating bitmap indexes are gender, marital_status and race. These columns only have several values and have low cardinality.

Gender	Bitmap value
Male	0000000011111111
Female	1111111100000000

marital_status	Bitmap value
single	1110000011100000
married	0001001000010010
divorced	0000100000001000
Widow or Widower	0000010000000101

race	Bitmap value
Asian	1001010010010100
Black	0010100100101001
White	0100001001000010

b)

Marital status is either single or married

single OR married: 1110000011100000 OR 0001001000010010 = 1111001011110010

NOT Asian: NOT 1001010010010100 = 0110101101101011

female AND (NOT Asian) AND (single OR married) = 1111111100000000 AND

1111001011110010 AND

0110101101101011

= 0110001000000000

Patient IDs : 10002, 10003, 10007

c)

```
SELECT patient_id from wc_patient where gender = 'F' AND (race != 'A' ) AND
(marital_status = 'S' OR marital_status ='M');
```

PATIENT_ID
10002
10003
10007

Download CSV
3 rows selected.

d)

```sql
CREATE BITMAP INDEX idx_gender ON wc_patient(gender);

CREATE BITMAP INDEX idx_marital_status ON wc_patient(marital_status);

CREATE BITMAP INDEX idx_race ON wc_patient(race);
```