



Problem 1:

```
--Finding jobs having 'MANAG' in column job_title
SELECT * FROM jobs
WHERE UPPER(job_title) LIKE '%MANAG%';
--No manufacturing manager found, hence need to insert
--Use 'MA_MAN' as job_code based on existing naming convention
--Einstein is priceless, therefore no min_salary or max_salary
INSERT INTO jobs
VALUES('MA_MAN','Manufacturing Manager',NULL,NULL);
--Verify new entry in table jobs
SELECT * FROM jobs
WHERE job_id = 'MA_MAN';
--Verify whether department 'Manufacturing' exists
SELECT department_id, department_name
FROM departments
WHERE UPPER(department_name) LIKE '%MANUF%';
--Department 'Manufacturing' exists (ID=170)
--Use 'MA_MAN' job_id for insert into table employees
--Use 'MAX(employee_ID) + 1' as next employee_ID
INSERT INTO employees
VALUES((SELECT MAX(employee_id)+1 FROM employees),'Albert','Einstein',
'AEinstein@relativity.com','415.333.4444','25-AUG-1932','MA_MAN',
NULL,NULL,NULL,(SELECT department_id FROM departments
WHERE UPPER(department_name) = 'MANUFACTURING'));
```



```
Run SQL Command Line

SQL> --Finding jobs having 'MANAG' in column job_title
SQL> SELECT * FROM jobs
2 WHERE UPPER(job_title) LIKE '%MANAG%';

JOB_ID      JOB_TITLE      MIN_SALARY  MAX_SALARY
-----
FI_MGR      Finance Manager      8200        16000
AC_MGR      Accounting Manager    8200        16000
SA_MAN      Sales Manager        10000       20000
PU_MAN      Purchasing Manager    8000        15000
ST_MAN      Stock Manager         5500        8500
MK_MAN      Marketing Manager     9000        15000

6 rows selected.

SQL> --No manufacturing manager found, hence need to insert
SQL> --Use 'MA_MAN' as job_code based on existing naming convention
SQL> --Einstein is priceless, therefore no min_salary or max_salary
SQL> INSERT INTO jobs
2 VALUES('MA_MAN','Manufacturing Manager',NULL,NULL);

1 row created.

SQL> --Verify new entry in table jobs
SQL> SELECT * FROM jobs
2 WHERE job_id = 'MA_MAN';

JOB_ID      JOB_TITLE      MIN_SALARY  MAX_SALARY
-----
MA_MAN      Manufacturing Manager

SQL> --Verify whether department 'Manufacturing' exists
SQL> SELECT department_id, department_name
2 FROM departments
3 WHERE UPPER(department_name) LIKE '%MANUF%';

DEPARTMENT_ID  DEPARTMENT_NAME
-----
170 Manufacturing

SQL> --Department 'Manufacturing' exists (ID=170)
SQL> --Use 'MA_MAN' job_id for insert into table employees
SQL> --Use 'MAX(employee_id) + 1' as next employee_id
SQL> INSERT INTO employees
2 VALUES((SELECT MAX(employee_id)+1 FROM employees),'Albert','Einstein',
3 'AEinstein@relativity.com','415.333.4444','25-AUG-1932','MA_MAN',
4 NULL,NULL,NULL,(SELECT department_id FROM departments
5 WHERE UPPER(department_name) = 'MANUFACTURING'));

1 row created.
```



```
--Verifying the employee insert  
SELECT *  
FROM employees  
WHERE UPPER(last_name) = 'EINSTEIN';
```

Select Run SQL Command Line

```
SQL> --Verifying the employee insert  
SQL> SELECT *  
2 FROM employees  
3 WHERE UPPER(last_name) = 'EINSTEIN';
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER |
|-------------|------------|-----------|--------------------------|--------------|
| 207 | Albert | Einstein | AEinstein@relativity.com | 415.333.4444 |

Select Run SQL Command Line

| PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|--------------|-----------|--------|--------|----------------|------------|---------------|
| 415.333.4444 | 25-AUG-32 | MA_MAN | | | | 170 |



Problem 2:

```
SELECT jh.*, j.min_salary FROM job_history jh  
INNER JOIN jobs j ON j.job_id = jh.job_id  
ORDER BY jh.employee_id, jh.job_id;
```

```
DELETE FROM job_history  
WHERE job_id IN  
(  
    SELECT job_id  
    FROM jobs  
    WHERE min_salary >= 10000  
);
```

```
SELECT jh.*, j.min_salary FROM job_history jh  
INNER JOIN jobs j ON j.job_id = jh.job_id  
ORDER BY jh.employee_id, jh.job_id;
```



```
Run SQL Command Line

SQL> SELECT jh.*, j.min_salary FROM job_history jh
2 INNER JOIN jobs j ON j.job_id = jh.job_id
3 ORDER BY jh.employee_id, jh.job_id;

EMPLOYEE_ID START_DAT END_DATE JOB_ID DEPARTMENT_ID MIN_SALARY
-----
101 21-SEP-89 27-OCT-93 AC_ACCOUNT 110 4200
101 28-OCT-93 15-MAR-97 AC_MGR 110 8200
102 13-JAN-93 24-JUL-98 IT_PROG 60 4000
114 24-MAR-98 31-DEC-99 ST_CLERK 50 2000
122 01-JAN-99 31-DEC-99 ST_CLERK 50 2000
176 01-JAN-99 31-DEC-99 SA_MAN 80 10000
176 24-MAR-98 31-DEC-98 SA_REP 80 6000
200 01-JUL-94 31-DEC-98 AC_ACCOUNT 90 4200
200 17-SEP-87 17-JUN-93 AD_ASST 90 3000
201 17-FEB-96 19-DEC-99 MK_REP 20 4000

10 rows selected.

SQL>
SQL> DELETE FROM job_history
2 WHERE job_id IN
3 (
4 SELECT job_id
5 FROM jobs
6 WHERE min_salary >= 10000
7 );

1 row deleted.

SQL>
SQL> SELECT jh.*, j.min_salary FROM job_history jh
2 INNER JOIN jobs j ON j.job_id = jh.job_id
3 ORDER BY jh.employee_id, jh.job_id;

EMPLOYEE_ID START_DAT END_DATE JOB_ID DEPARTMENT_ID MIN_SALARY
-----
101 21-SEP-89 27-OCT-93 AC_ACCOUNT 110 4200
101 28-OCT-93 15-MAR-97 AC_MGR 110 8200
102 13-JAN-93 24-JUL-98 IT_PROG 60 4000
114 24-MAR-98 31-DEC-99 ST_CLERK 50 2000
122 01-JAN-99 31-DEC-99 ST_CLERK 50 2000
176 24-MAR-98 31-DEC-98 SA_REP 80 6000
200 01-JUL-94 31-DEC-98 AC_ACCOUNT 90 4200
200 17-SEP-87 17-JUN-93 AD_ASST 90 3000
201 17-FEB-96 19-DEC-99 MK_REP 20 4000

9 rows selected.
```



Problem 3:

Part 1:

```
CREATE TABLE jobs_bkp AS  
SELECT * FROM jobs;  
SELECT * FROM jobs_bkp;
```

```
SQL> CREATE TABLE jobs_bkp AS  
2  SELECT * FROM jobs;  
  
Table created.
```

```
SQL> SELECT * FROM jobs_bkp;  
  
JOB_ID      JOB_TITLE      MIN_SALARY  MAX_SALARY  
-----  
AD_PRES     President      20000       40000  
AD_VP       Administration Vice President  15000       30000  
AD_ASST     Administration Assistant      3000        6000  
FI_MGR      Finance Manager      8200       16000  
FI_ACCOUNT  Accountant      4200        9000  
AC_MGR      Accounting Manager      8200       16000  
AC_ACCOUNT  Public Accountant      4200        9000  
SA_MAN      Sales Manager    10000       20000  
SA_REP      Sales Representative  6000       12000  
PU_MAN      Purchasing Manager  8000       15000  
PU_CLERK    Purchasing Clerk   2500        5500  
ST_MAN      Stock Manager     5500        8500  
ST_CLERK    Stock Clerk       2000        5000  
SH_CLERK    Shipping Clerk    2500        5500  
IT_PROG     Programmer       4000       10000  
MK_MAN      Marketing Manager  9000       15000  
MK_REP      Marketing Representative  4000        9000  
HR_REP      Human Resources Representative  4000        9000  
PR_REP      Public Relations Representative  4500       10500  
  
19 rows selected.
```



Part 2:

```
ALTER TABLE jobs_bkp  
ADD last_modified DATE;  
DESC jobs_bkp;
```

```
SQL> ALTER TABLE jobs_bkp  
2 ADD last_modified DATE;  
  
Table altered.  
  
SQL> DESC jobs_bkp;  
Name                                     Null?      Type  
-----  
JOB_ID                                  NOT NULL   VARCHAR2(10)  
JOB_TITLE                               NOT NULL   VARCHAR2(35)  
MIN_SALARY                               NOT NULL   NUMBER(6)  
MAX_SALARY                               NOT NULL   NUMBER(6)  
LAST_MODIFIED                           NOT NULL   DATE
```

Part 3:

```
UPDATE jobs_bkp  
SET last_modified = sysdate;  
SELECT * FROM jobs_bkp;
```

```
SQL> UPDATE jobs_bkp  
2 SET last_modified = sysdate;  
  
19 rows updated.
```



Run SQL Command Line

```
SQL> SELECT * FROM jobs_bkp;
```

| JOB_ID | JOB_TITLE | MIN_SALARY | MAX_SALARY | LAST_MODI |
|------------|---------------------------------|------------|------------|-----------|
| AD_PRES | President | 20000 | 40000 | 06-AUG-20 |
| AD_VP | Administration Vice President | 15000 | 30000 | 06-AUG-20 |
| AD_ASST | Administration Assistant | 3000 | 6000 | 06-AUG-20 |
| FI_MGR | Finance Manager | 8200 | 16000 | 06-AUG-20 |
| FI_ACCOUNT | Accountant | 4200 | 9000 | 06-AUG-20 |
| AC_MGR | Accounting Manager | 8200 | 16000 | 06-AUG-20 |
| AC_ACCOUNT | Public Accountant | 4200 | 9000 | 06-AUG-20 |
| SA_MAN | Sales Manager | 10000 | 20000 | 06-AUG-20 |
| SA_REP | Sales Representative | 6000 | 12000 | 06-AUG-20 |
| PU_MAN | Purchasing Manager | 8000 | 15000 | 06-AUG-20 |
| PU_CLERK | Purchasing Clerk | 2500 | 5500 | 06-AUG-20 |
| ST_MAN | Stock Manager | 5500 | 8500 | 06-AUG-20 |
| ST_CLERK | Stock Clerk | 2000 | 5000 | 06-AUG-20 |
| SH_CLERK | Shipping Clerk | 2500 | 5500 | 06-AUG-20 |
| IT_PROG | Programmer | 4000 | 10000 | 06-AUG-20 |
| MK_MAN | Marketing Manager | 9000 | 15000 | 06-AUG-20 |
| MK_REP | Marketing Representative | 4000 | 9000 | 06-AUG-20 |
| HR_REP | Human Resources Representative | 4000 | 9000 | 06-AUG-20 |
| PR_REP | Public Relations Representative | 4500 | 10500 | 06-AUG-20 |

19 rows selected.



Part 4

```
UPDATE jobs_bkp
SET min_salary = min_salary * 1.1,
max_salary = max_salary * 1.15,
last_modified = sysdate
WHERE min_salary < (SELECT AVG(min_salary) FROM jobs_bkp);
```

```
SQL> UPDATE jobs_bkp
2 SET min_salary = min_salary * 1.1,
3 max_salary = max_salary * 1.15,
4 last_modified = sysdate
5 WHERE min_salary < (SELECT AVG(min_salary) FROM jobs_bkp);

12 rows updated.
```

```
SELECT job_id, job_title, min_salary, max_salary,
TO_CHAR(last_modified, 'dd/mm/yyyy hh:mi:ss am') date_time_updated
FROM jobs_bkp;
```

```
SQL> SELECT job_id, job_title, min_salary, max_salary,
2 TO_CHAR(last_modified, 'dd/mm/yyyy hh:mi:ss am') date_time_updated
3 FROM jobs_bkp;
```

| JOB_ID | JOB_TITLE | MIN_SALARY | MAX_SALARY | DATE_TIME_UPDATED |
|------------|---------------------------------|------------|------------|------------------------|
| AD_PRES | President | 20000 | 40000 | 12/08/2020 12:17:29 pm |
| AD_VP | Administration Vice President | 15000 | 30000 | 12/08/2020 12:17:29 pm |
| AD_ASST | Administration Assistant | 3300 | 6900 | 12/08/2020 12:23:43 pm |
| FI_MGR | Finance Manager | 8200 | 16000 | 12/08/2020 12:17:29 pm |
| FI_ACCOUNT | Accountant | 4620 | 10350 | 12/08/2020 12:23:43 pm |
| AC_MGR | Accounting Manager | 8200 | 16000 | 12/08/2020 12:17:29 pm |
| AC_ACCOUNT | Public Accountant | 4620 | 10350 | 12/08/2020 12:23:43 pm |
| SA_MAN | Sales Manager | 10000 | 20000 | 12/08/2020 12:17:29 pm |
| SA_REP | Sales Representative | 6600 | 13800 | 12/08/2020 12:23:43 pm |
| PU_MAN | Purchasing Manager | 8000 | 15000 | 12/08/2020 12:17:29 pm |
| PU_CLERK | Purchasing Clerk | 2750 | 6325 | 12/08/2020 12:23:43 pm |
| ST_MAN | Stock Manager | 6050 | 9775 | 12/08/2020 12:23:43 pm |
| ST_CLERK | Stock Clerk | 2200 | 5750 | 12/08/2020 12:23:43 pm |
| SH_CLERK | Shipping Clerk | 2750 | 6325 | 12/08/2020 12:23:43 pm |
| IT_PROG | Programmer | 4400 | 11500 | 12/08/2020 12:23:43 pm |
| MK_MAN | Marketing Manager | 9000 | 15000 | 12/08/2020 12:17:29 pm |
| MK_REP | Marketing Representative | 4400 | 10350 | 12/08/2020 12:23:43 pm |
| HR_REP | Human Resources Representative | 4400 | 10350 | 12/08/2020 12:23:43 pm |
| PR_REP | Public Relations Representative | 4950 | 12075 | 12/08/2020 12:23:43 pm |

```
19 rows selected.
```