# Task 4 done by Yergesh Bakytzhan

**1) Создайте копию таблицы employees посредством запроса. Назовите emp2.**

```
CREATE TABLE emp2(
  employee_id    NUMBER(6)
, first_name     VARCHAR2(20)
, last_name      VARCHAR2(25)
    CONSTRAINT emp2_last_name_nn  NOT NULL
, email          VARCHAR2(25)
    CONSTRAINT emp2_email_nn  NOT NULL
, phone_number   VARCHAR2(20)
, hire_date      DATE
    CONSTRAINT emp2_hire_date_nn  NOT NULL
, job_id         VARCHAR2(10)
    CONSTRAINT     emp2_job_nn  NOT NULL
, salary         NUMBER(8,2)
, commission_pct NUMBER(2,2)
, manager_id     NUMBER(6)
, department_id  NUMBER(4)
, CONSTRAINT emp2_salary_min
    CHECK (salary > 0)
, CONSTRAINT emp2_email_uk
    UNIQUE (email) );
```

SQL Worksheet

```
CREATE TABLE emp2(
   employee_id    NUMBER(6)
 , first_name     VARCHAR2(20)
 , last_name      VARCHAR2(25)
      CONSTRAINT emp2_last_name_nn  NOT NULL
 , email          VARCHAR2(25)
      CONSTRAINT emp2_email_nn  NOT NULL
 , phone_number   VARCHAR2(20)
 , hire_date      DATE
      CONSTRAINT emp2_hire_date_nn  NOT NULL
 , job_id         VARCHAR2(10)
      CONSTRAINT     emp2_job_nn  NOT NULL
 , salary         NUMBER(8,2)
 , commission_pct NUMBER(2,2)
 , manager_id     NUMBER(6)
 , department_id  NUMBER(4)
 , CONSTRAINT emp2_salary_min
      CHECK (salary > 0)
 , CONSTRAINT emp2_email_uk
      UNIQUE (email) );
```

```
Table created.
```

**INSERT INTO emp2 (employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id, department_id)**

**SELECT * FROM employees**

SQL Worksheet

```
INSERT INTO emp2 (employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id, department_id)
    SELECT * FROM employees
```

```
107 row(s) inserted.
```

**SELECT * FROM emp2**

SQL Worksheet

```
SELECT * FROM emp2
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 |
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-06 | IT_PROG | 9000 | - | 102 | 60 |
| 104 | Bruce | Ernst | BERNST | 590.423.4568 | 21-MAY-07 | IT_PROG | 6000 | - | 103 | 60 |
| 105 | David | Austin | DAUSTIN | 590.423.4569 | 25-JUN-05 | IT_PROG | 4800 | - | 103 | 60 |
| 106 | Valli | Pataballa | VPATABAL | 590.423.4560 | 05-FEB-06 | IT_PROG | 4800 | - | 103 | 60 |
| 107 | Diana | Lorentz | DLORENTZ | 590.423.5567 | 07-FEB-07 | IT_PROG | 4200 | - | 103 | 60 |

**2) Обновите данные в таблице emp2 по полю employee_id = 100. Измените зарплату на 100000 в копии таблицы и зафиксируйте транзакцию.**

**UPDATE emp2 SET salary = 100000 WHERE employee_id = 100;**

**SELECT * FROM emp2 WHERE employee_id = 100;**

SQL Worksheet

```
UPDATE emp2 SET salary = 100000 WHERE employee_id = 100;
SELECT * FROM emp2 WHERE employee_id = 100;
```

1 row(s) updated.

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 100000 | - | - | 90 |

**3) Удалите все записи с тестовой таблицы, а потом восстановите обратно.**

**DELETE FROM emp2;**

SQL Worksheet

```
1  DELETE FROM emp2;
2
```

```
107 row(s) deleted.
```

**ROLLBACK;**

**SELECT * FROM emp2;**

SQL Worksheet

```
1  ROLLBACK;
2  SELECT * FROM emp2;
```

```
Statement processed.
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 |
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-06 | IT_PROG | 9000 | - | 102 | 60 |
| 104 | Bruce | Ernst | BERNST | 590.423.4568 | 21-MAY-07 | IT_PROG | 6000 | - | 103 | 60 |
| 105 | David | Austin | DAUSTIN | 590.423.4569 | 25-JUN-05 | IT_PROG | 4800 | - | 103 | 60 |
| 106 | Valli | Pataballa | VPATABAL | 590.423.4560 | 05-FEB-06 | IT_PROG | 4800 | - | 103 | 60 |
| 107 | Diana | Lorentz | DLORENTZ | 590.423.5567 | 07-FEB-07 | IT_PROG | 4200 | - | 103 | 60 |
| 108 | Nancy | Greenberg | NGREENBE | 515.124.4569 | 17-AUG-02 | FI_MGR | 12008 | - | 101 | 100 |

**4) Удалите только данные по employee_id = 106, и зафиксируйте транзакцию.**

**DELETE FROM emp2 WHERE employee_id = 106;**

**SELECT * FROM emp2;**

SQL Worksheet

```
1  DELETE FROM emp2 WHERE employee_id = 106;
2  SELECT * FROM emp2;
```

1 row(s) deleted.

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 |
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-06 | IT_PROG | 9000 | - | 102 | 60 |
| 104 | Bruce | Ernst | BERNST | 590.423.4568 | 21-MAY-07 | IT_PROG | 6000 | - | 103 | 60 |
| 105 | David | Austin | DAUSTIN | 590.423.4569 | 25-JUN-05 | IT_PROG | 4800 | - | 103 | 60 |
| 107 | Diana | Lorentz | DLORENTZ | 590.423.5567 | 07-FEB-07 | IT_PROG | 4200 | - | 103 | 60 |

**5) Удалите все записи с таблицы emp2, где заплата больше чем 10000.**

**DELETE FROM emp2 WHERE salary > 10000;**

**SELECT * FROM emp2;**

SQL Worksheet

```
1  DELETE FROM emp2 WHERE salary > 10000;
2  SELECT * FROM emp2;
```

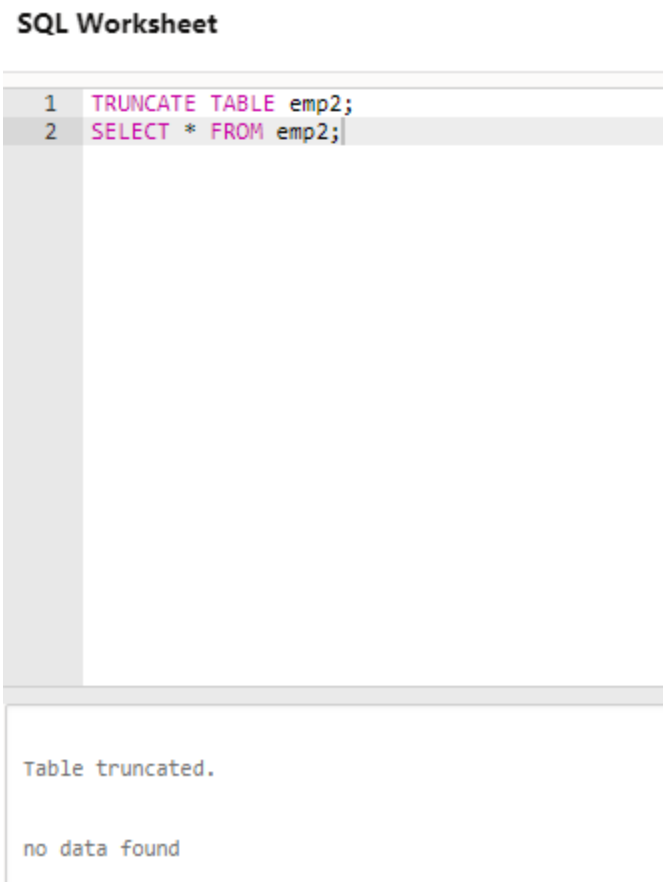
15 row(s) deleted.

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-06 | IT_PROG | 9000 | - | 102 | 60 |
| 104 | Bruce | Ernst | BERNST | 590.423.4568 | 21-MAY-07 | IT_PROG | 6000 | - | 103 | 60 |
| 105 | David | Austin | DAUSTIN | 590.423.4569 | 25-JUN-05 | IT_PROG | 4800 | - | 103 | 60 |
| 107 | Diana | Lorentz | DLORENTZ | 590.423.5567 | 07-FEB-07 | IT_PROG | 4200 | - | 103 | 60 |
| 109 | Daniel | Faviet | DFAVIET | 515.124.4169 | 16-AUG-02 | FI_ACCOUNT | 9000 | - | 108 | 100 |
| 110 | John | Chen | JCHEN | 515.124.4269 | 28-SEP-05 | FI_ACCOUNT | 8200 | - | 108 | 100 |
| 111 | Ismael | Sciarra | ISCIARRA | 515.124.4369 | 30-SEP-05 | FI_ACCOUNT | 7700 | - | 108 | 100 |
| 112 | Jose Manuel | Urman | JMURMAN | 515.124.4469 | 07-MAR-06 | FI_ACCOUNT | 7800 | - | 108 | 100 |

**6) Очистите полностью таблицу**

**TRUNCATE TABLE emp2;**

**SELECT * FROM emp2;**




**7) Удалите таблицу.**

**DROP TABLE emp2**

SQL Worksheet

```
1  DROP TABLE emp2
```

```
Table dropped.
```

**8. Сделайте запрос, выбирающий сотрудников (таблица employees) с зарплатой более 9000.**

## SELECT * FROM employees WHERE salary > 9000

SQL Worksheet

```
1  SELECT * FROM employees WHERE salary > 9000
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 |
| 108 | Nancy | Greenberg | NGREENBE | 515.124.4569 | 17-AUG-02 | FI_MGR | 12008 | - | 101 | 100 |
| 114 | Den | Raphaely | DRAPHEAL | 515.127.4561 | 07-DEC-02 | PU_MAN | 11000 | - | 100 | 30 |
| 145 | John | Russell | JRUSSEL | 011.44.1344.429268 | 01-OCT-04 | SA_MAN | 14000 | .4 | 100 | 80 |
| 146 | Karen | Partners | KPARTNER | 011.44.1344.467268 | 05-JAN-05 | SA_MAN | 13500 | .3 | 100 | 80 |
| 147 | Alberto | Errazuriz | AERRAZUR | 011.44.1344.429278 | 10-MAR-05 | SA_MAN | 12000 | .3 | 100 | 80 |
| 148 | Gerald | Cambrault | GCAMBRAU | 011.44.1344.619268 | 15-OCT-07 | SA_MAN | 11000 | .3 | 100 | 80 |
| 149 | Eleni | Zlotkey | EZLOTKEY | 011.44.1344.429018 | 29-JAN-08 | SA_MAN | 10500 | .2 | 100 | 80 |
| 150 | Peter | Tucker | PTUCKER | 011.44.1344.129268 | 30-JAN-05 | SA_REP | 10000 | .3 | 145 | 80 |

**9. Сделайте запрос из задания 8 подзапросом, и отфильтруйте по имени (first_name = ‘John’).**

**SELECT * FROM employees WHERE salary IN (SELECT salary FROM employees WHERE salary>9000 ) AND first_name = 'John'**

SQL Worksheet

```
1  SELECT * FROM employees WHERE salary IN (SELECT salary FROM employees WHERE salary>9000 )  AND  first_name = 'John'
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 145 | John | Russell | JRUSSEL | 011.44.1344.429268 | 01-OCT-04 | SA_MAN | 14000 | .4 | 100 | 80 |

**10. Преобразуйте запрос из задания 8 в запрос с использованием CTE (Common Table Expression) WITH. Таким образом, чтобы в первом запросе выбирались сотрудники с зарплатой более 9000, а во втором - накладывался фильтр на имя, как в задении 9.**

**with emp1 as (SELECT * FROM employees WHERE salary>9000), emp2 as (SELECT first_name FROM employees WHERE first_name = 'John') SELECT * FROM emp1,emp2**

SQL Worksheet

```
1  with emp1 as (SELECT * FROM employees WHERE salary>9000), emp2 as (SELECT first_name FROM employees WHERE  first_name = 'John') SELECT * FROM emp1,emp2
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID | FIRST_NAME |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 | John |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 | John |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 | John |
| 108 | Nancy | Greenberg | NGREENBE | 515.124.4569 | 17-AUG-02 | FI_MGR | 12008 | - | 101 | 100 | John |
| 114 | Den | Raphaely | DRAPHEAL | 515.127.4561 | 07-DEC-02 | PU_MAN | 11000 | - | 100 | 30 | John |
| 145 | John | Russell | JRUSSEL | 011.44.1344.429268 | 01-OCT-04 | SA_MAN | 14000 | .4 | 100 | 80 | John |
| 146 | Karen | Partners | KPARTNER | 011.44.1344.467268 | 05-JAN-05 | SA_MAN | 13500 | .3 | 100 | 80 | John |
| 147 | Alberto | Errazuriz | AERRAZUR | 011.44.1344.429278 | 10-MAR-05 | SA_MAN | 12000 | .3 | 100 | 80 | John |
| 148 | Gerald | Cambrault | GCAMBRAU | 011.44.1344.619268 | 15-OCT-07 | SA_MAN | 11000 | .3 | 100 | 80 | John |
| 149 | Eleni | Zlotkey | EZLOTKEY | 011.44.1344.429018 | 29-JAN-08 | SA_MAN | 10500 | .2 | 100 | 80 | John |
| 150 | Peter | Tucker | PTUCKER | 011.44.1344.129268 | 30-JAN-05 | SA_REP | 10000 | .3 | 145 | 80 | John |

**11. Сделайте запрос по таблице employees, где в фильтре должны указать salary больше чем средняя зарплата по всем(employees).**

**SELECT * FROM employees WHERE salary>(SELECT AVG(salary) FROM employees)**

SQL Worksheet

```
1  SELECT * FROM employees WHERE salary>(SELECT AVG(salary) FROM employees)
```

| EMPLOYEE_ID | FIRST_NAME | LAST_NAME | EMAIL | PHONE_NUMBER | HIRE_DATE | JOB_ID | SALARY | COMMISSION_PCT | MANAGER_ID | DEPARTMENT_ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Steven | King | SKING | 515.123.4567 | 17-JUN-03 | AD_PRES | 24000 | - | - | 90 |
| 101 | Neena | Kochhar | NKOCHHAR | 515.123.4568 | 21-SEP-05 | AD_VP | 17000 | - | 100 | 90 |
| 102 | Lex | De Haan | LDEHAAN | 515.123.4569 | 13-JAN-01 | AD_VP | 17000 | - | 100 | 90 |
| 103 | Alexander | Hunold | AHUNOLD | 590.423.4567 | 03-JAN-06 | IT_PROG | 9000 | - | 102 | 60 |
| 108 | Nancy | Greenberg | NGREENBE | 515.124.4569 | 17-AUG-02 | FI_MGR | 12008 | - | 101 | 100 |
| 109 | Daniel | Faviet | DFAVIET | 515.124.4169 | 16-AUG-02 | FI_ACCOUNT | 9000 | - | 108 | 100 |
| 110 | John | Chen | JCHEN | 515.124.4269 | 28-SEP-05 | FI_ACCOUNT | 8200 | - | 108 | 100 |
| 111 | Ismael | Sciarra | ISCIARRA | 515.124.4369 | 30-SEP-05 | FI_ACCOUNT | 7700 | - | 108 | 100 |
| 112 | Jose Manuel | Urman | JMURMAN | 515.124.4469 | 07-MAR-06 | FI_ACCOUNT | 7800 | - | 108 | 100 |

**12. Пронумеруйте строки по всей таблице стран (countries) с сортировкой по названию страны (country_name).**

**SELECT country_id, country_name, row_number() over (order by country_name) as row_name FROM countries**

SQL Worksheet

```
SELECT country_id, country_name, row_number() over (order by country_name) as row_name FROM countries
```

| COUNTRY_ID | COUNTRY_NAME | ROW_NAME |
|---|---|---|
| AR | Argentina | 1 |
| AU | Australia | 2 |
| BE | Belgium | 3 |
| BR | Brazil | 4 |
| CA | Canada | 5 |
| CN | China | 6 |
| DK | Denmark | 7 |
| EG | Egypt | 8 |
| FR | France | 9 |

**13. Пронумеруйте строки по таблице сотрудников (employees) с секционированием по идентификатору отдела (department_id) и сортировкой по имени (first_name). Выведите поля department_id, first_name и секционированные данные.**

**SELECT department_id, first_name, row_number() over (order by first_name DESC) as row_name, ntile(5) over (order by department_id) as ntile_department FROM employees**

SQL Worksheet

```
SELECT department_id, first_name, row_number() over (order by first_name DESC) as row_name, ntile(5) over (order by department_id) as ntile_department FROM employees
```

| DEPARTMENT_ID | FIRST_NAME | ROW_NAME | NTILE_DEPARTMENT |
|---|---|---|---|
| 10 | Jennifer | 65 | 1 |
| 20 | Michael | 39 | 1 |
| 20 | Pat | 31 | 1 |
| 30 | Den | 86 | 1 |
| 30 | Alexander | 103 | 1 |
| 30 | Karen | 54 | 1 |
| 30 | Guy | 77 | 1 |
| 30 | Shelli | 17 | 1 |
| 30 | Sigal | 16 | 1 |
| 40 | Susan | 10 | 1 |
| 50 | Winston | 1 | 1 |