Ibrahim Johar Farooqi
23K-0074
BAI-5A

Database Lab - Lab 03
In-Lab & Post-Lab Tasks

Q1)

Worksheet   Query Builder

```
--couldn't use "employees" due to name already in use hence 'employees1"
create table employees1
(    emp_id number primary key,
     emp_name varchar(100),
     salary number(10,2) constraint checking_salary check (salary > 20000),
     dept_id number,
     constraint foreignkey_emp_dept foreign key (dept_id) references departments(department_id)
);
```

Script Output ×

Task completed in 0.056 seconds
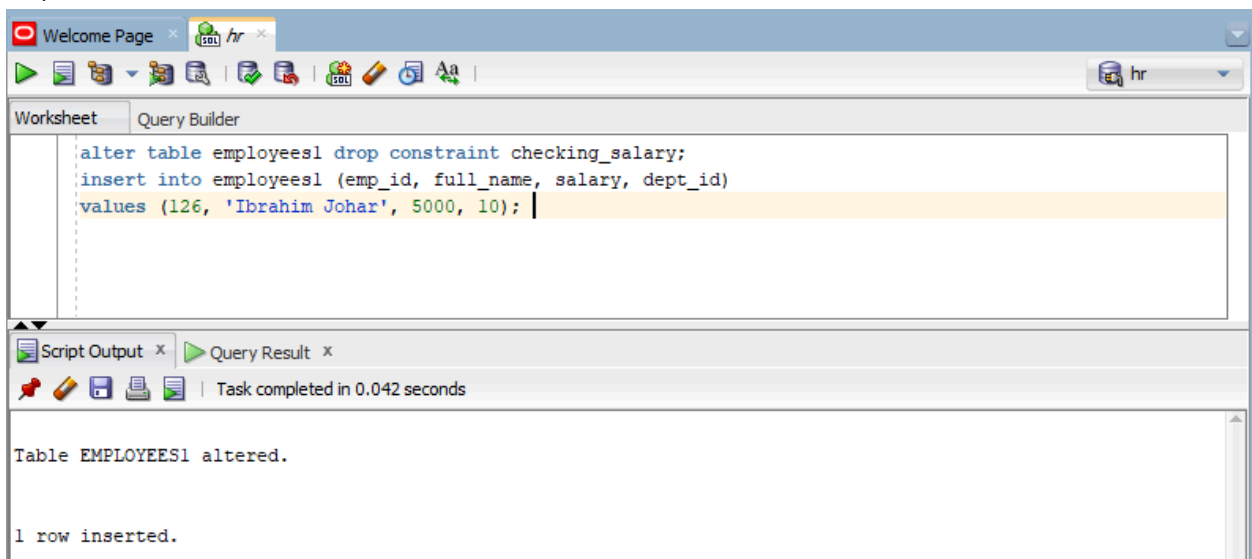
```
Table EMPLOYEES1 created.
```

Q2)

Worksheet   Query Builder

```
alter table employees1 rename column emp_name to full_name;
```

Script Output ×   Query Result ×

Task completed in 0.052 seconds

```
Table EMPLOYEES1 altered.
```

Q3)


```sql
alter table employees1 drop constraint checking_salary;
insert into employees1 (emp_id, full_name, salary, dept_id)
values (126, 'Ibrahim Johar', 5000, 10);
```
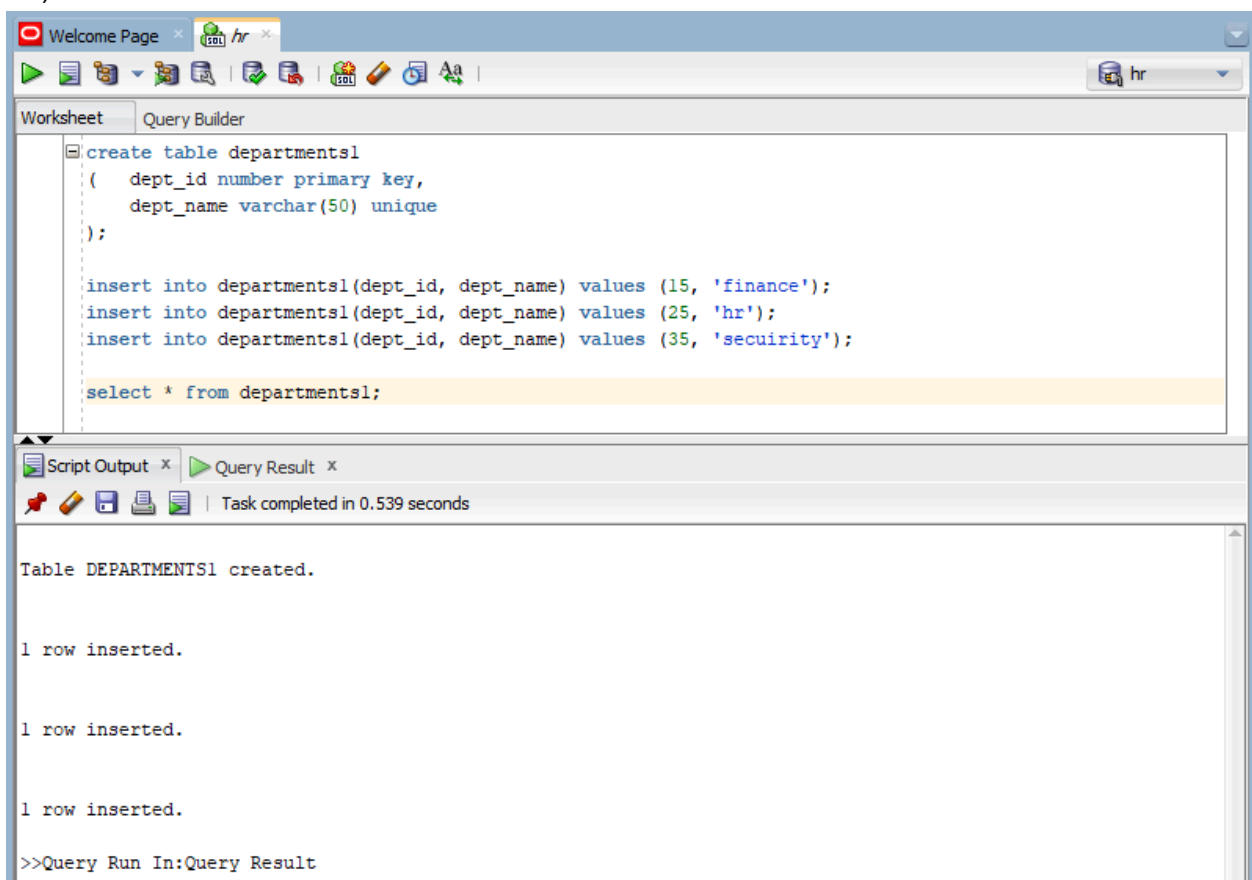
Script Output × ▷ Query Result ×

Task completed in 0.042 seconds

```
Table EMPLOYEES1 altered.


1 row inserted.
```

Q4)


```sql
create table departments1
(   dept_id number primary key,
    dept_name varchar(50) unique
);

insert into departments1(dept_id, dept_name) values (15, 'finance');
insert into departments1(dept_id, dept_name) values (25, 'hr');
insert into departments1(dept_id, dept_name) values (35, 'secuirity');

select * from departments1;
```

Script Output × ▷ Query Result ×

Task completed in 0.539 seconds

```
Table DEPARTMENTS1 created.


1 row inserted.


1 row inserted.


1 row inserted.

>>Query Run In:Query Result
```
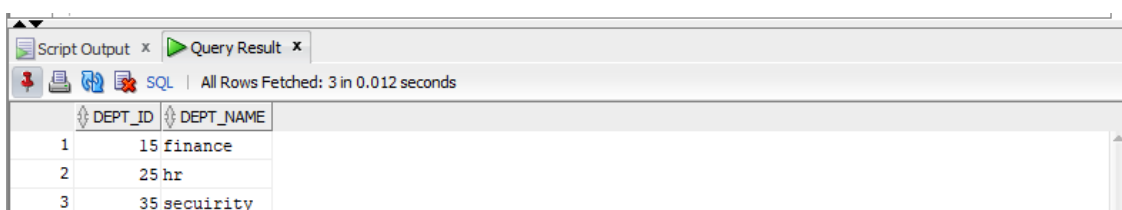
Script Output × ▷ Query Result ×

SQL | All Rows Fetched: 3 in 0.012 seconds

	DEPT_ID	DEPT_NAME
1	15	finance
2	25	hr
3	35	secuirity

Q5)

```sql
alter table employees1
add constraint fk_emp_dept
  foreign key (dept_id)
  references departments1(dept_id);

select constraint_name, constraint_type, status
from user_constraints
where table_name = 'employees1';
```

Script Output | **Query Result**

SQL | All Rows Fetched: 3 in 0.029 seconds

	CONSTRAINT_NAME	CONSTRAINT_TYPE	STATUS
1	SYS_C007156	P	ENABLED
2	FOREIGNKEY_EMP_DEPT	R	ENABLED
3	FK_EMP_DEPT	R	ENABLED

Q6)

```sql
alter table employees1 add bonus number(6,2) default 1000;
```

Script Output

Task completed in 0.032 seconds

```
Table EMPLOYEES1 altered.
```

Q7)

```sql
alter table employees1 add city varchar(20) default 'karachi';
alter table employees1 add age number;

alter table employees1 add constraint check_age check(age > 18);
```

Script Output

Task completed in 0.052 seconds

```
Table EMPLOYEES1 altered.


Table EMPLOYEES1 altered.


Table EMPLOYEES1 altered.
```

```
select * from employees1;
```

Script Output ×   Query Result ×
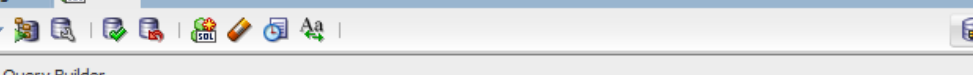
SQL | All Rows Fetched: 1 in 0.003 seconds

	EMP_ID	FULL_NAME	SALARY	DEPT_ID	BONUS	CITY	AGE
1	126	Ibrahim Johar	5000	10	1000	karachi	(null)

Q8)

Welcome Page ×   hr ×

Worksheet   Query Builder

```
delete from employees1 where emp_id in (1,3);
```

Script Output ×

| Task completed in 0.034 seconds

```
0 rows deleted.
```

Q9)

Welcome Page ×   hr ×

Worksheet   Query Builder

```
alter table employees1 modify (full_name varchar(20), city varchar(20));
```

Script Output ×

| Task completed in 0.035 seconds

```
Table EMPLOYEES1 altered.
```

Q10)

Welcome Page ×   hr ×

Worksheet   Query Builder

```
alter table employees1 add email varchar(100);
alter table employees1 add constraint unique_emp_email unique(email);
```

Script Output ×

| Task completed in 0.043 seconds

```
Table EMPLOYEES1 altered.


Table EMPLOYEES1 altered.
```

Q11)


```sql
alter table employees1 add constraint unq_emp_bonus unique(bonus);
insert into employees1 values (221, 'Ahmed', 30000, 10, 500, 'karachi', 19, 'ahmed@gmail.com');
select emp_id, full_name, dept_id, bonus, city, age, email from employees1 where emp_id = 221;
```

Script Output × Query Result 1 ×

All Rows Fetched: 1 in 0.002 seconds

	EMP_ID	FULL_NAME	DEPT_ID	BONUS	CITY	AGE	EMAIL
1	221	Ahmed	10	500	karachi	19	ahmed@gmail.com


```sql
alter table employees1 add constraint unq_emp_bonus unique(bonus);
--insert 1st entry
insert into employees1 values (221, 'Ahmed', 30000, 10, 500, 'karachi', 19, 'ahmed@gmail.com');
select emp_id, full_name, dept_id, bonus, city, age, email from employees1 where emp_id = 221;
--try to insert 2nd entry
insert into employees1 values (222, 'Ali', 32000, 10, 500, 'karachi', 21, 'ali@gmail.com');
```

Script Output × Query Result 1 ×

Task completed in 0.04 seconds

```
1 row inserted.


Error starting at line : 6 in command -
insert into employees1 values (222, 'Ali', 32000, 10, 500, 'karachi', 21, 'ali@gmail.com')
Error report -
ORA-00001: unique constraint (HR.UNQ_EMP_BONUS) violated
```

Q12)


```sql
alter table employees1 add dob date;
```

Script Output × Query Result 1 ×

Task completed in 0.035 seconds

```
Table EMPLOYEES1 altered.
```

Worksheet   Query Builder

```
alter table employees1 add dob date;

alter table employees1 add constraint check_emp_age check (dob <= date '2007-01-01');
```

Script Output ×   Query Result 1 ×

Task completed in 0.029 seconds

```
Table EMPLOYEES1 altered.


Error starting at line : 3 in command -
alter table employees1 add constraint check_emp_age check (dob <= add_months(sysdate, -12*18))
Error report -
ORA-02436: date or system variable wrongly specified in CHECK constraint
02436. 00000 -  "date or system variable wrongly specified in CHECK constraint"
*Cause:    An attempt was made to use a date constant or system variable,
           such as USER, in a check constraint that was not completely
           specified in a CREATE TABLE or ALTER TABLE statement.  For
           example, a date was specified without the century.
*Action:   Completely specify the date constant or system variable.
           Setting the event 10149 allows constraints like "a1 > '10-MAY-96'",
           which a bug permitted to be created before version 8.

Table EMPLOYEES1 altered.
```

Q13)

Worksheet   Query Builder

```
insert into employees1(emp_id, full_name, salary, dept_id, dob)
values(203, 'baby ali', 31000, 15, date '2009-01-01');
```

Script Output ×   Query Result 1 ×

Task completed in 0.025 seconds

```
Error starting at line : 1 in command -
insert into employees1(emp_id, full_name, salary, dept_id, dob)
values(203, 'baby ali', 31000, 15, date '2009-01-01')
Error report -
ORA-02290: check constraint (HR.CHECK_EMP_AGE) violated
```

Q14)

Worksheet   Query Builder

```sql
alter table employees1 drop constraint fk_emp_dept;
alter table employees1 drop constraint foreignkey_emp_dept;

insert into employees1 values(209, 'ethan khan', 28000, 999, 510, 'karachi', 25, 'ethan@hotmail.com', date '2000-01-01');
```

Script Output ×

Task completed in 0.016 seconds

```
Table EMPLOYEES1 altered.


Error starting at line : 3 in command -
insert into employees1 values(209, 'ethan khan', 28000, 999, 510, 'karachi', 25, 'ethan@hotmail.com')
Error at Command Line : 3 Column : 13
Error report -
SQL Error: ORA-00947: not enough values
00947. 00000 -  "not enough values"
*Cause:
*Action:

Error starting at line : 3 in command -
insert into employees1 values(209, 'ethan khan', 28000, 999, 510, 'karachi', 25, 'ethan@hotmail.com', date '2000-01-01')
Error report -
ORA-02291: integrity constraint (HR.FOREIGNKEY_EMP_DEPT) violated - parent key not found


Error starting at line : 2 in command -
alter table employees1 drop constraint foreign_emp_dept
Error report -
ORA-02443: Cannot drop constraint  - nonexistent constraint
02443. 00000 -  "Cannot drop constraint  - nonexistent constraint"
*Cause:    alter table drop constraint <constraint_name>
*Action:   make sure you supply correct constraint name.

Table EMPLOYEES1 altered.


1 row inserted.
```

```sql
select * from employees1;
```

Script Output ×   Query Result ×

SQL | All Rows Fetched: 3 in 0.003 seconds

	EMP_ID	FULL_NAME	SALARY	DEPT_ID	BONUS	CITY	AGE	EMAIL	DOB
1	126	Ibrahim Johar	5000	10	1000	karachi	(null)	(null)	(null)
2	221	Ahmed	30000	10	500	karachi	19	ahmed@gmail.com	(null)
3	209	ethan khan	28000	999	510	karachi	25	ethan@hotmail.com	01-JAN-00

```sql
alter table employees1 add constraint fk_emp_dept foreign key (dept_id) references departments1(dept_id) enable novalidate;
```

Script Output ×   Query Result ×

Task completed in 0.034 seconds
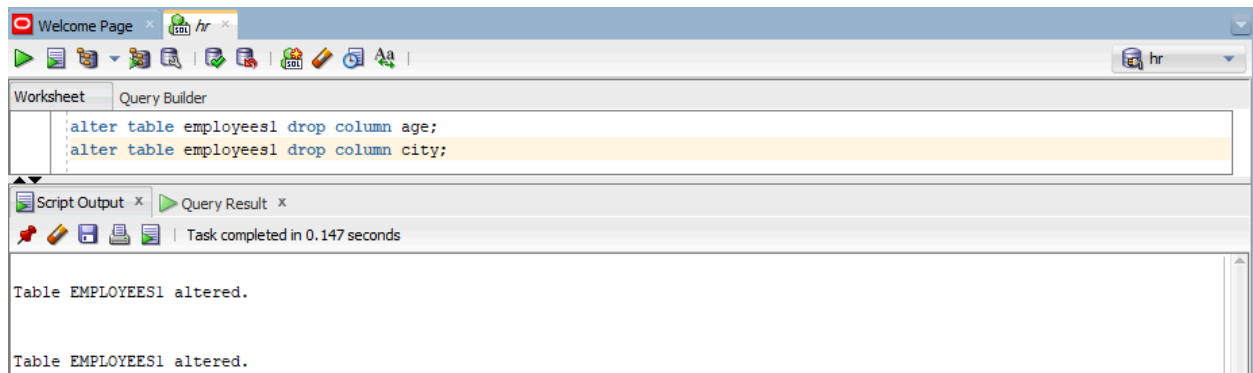
```
Table EMPLOYEES1 altered.
```

```sql
insert into employees1 values(210, 'rehan khan', 29000, 999, 490, 'karachi', 25, 'rehan@hotmail.com', date '2000-01-01');
```

Script Output ×   Query Result ×

Task completed in 0.024 seconds

```
Table EMPLOYEES1 altered.


Error starting at line : 10 in command -
insert into employees1 values(210, 'rehan khan', 29000, 999, 490, 'karachi', 25, 'rehan@hotmail.com', date '2000-01-01')
Error report -
ORA-02291: integrity constraint (HR.FK_EMP_DEPT) violated - parent key not found
```

Q15)

Worksheet   Query Builder

```
alter table employees1 drop column age;
alter table employees1 drop column city;
```

Script Output ×   Query Result ×

Task completed in 0.147 seconds

```
Table EMPLOYEES1 altered.


Table EMPLOYEES1 altered.
```

Q16)

Worksheet   Query Builder
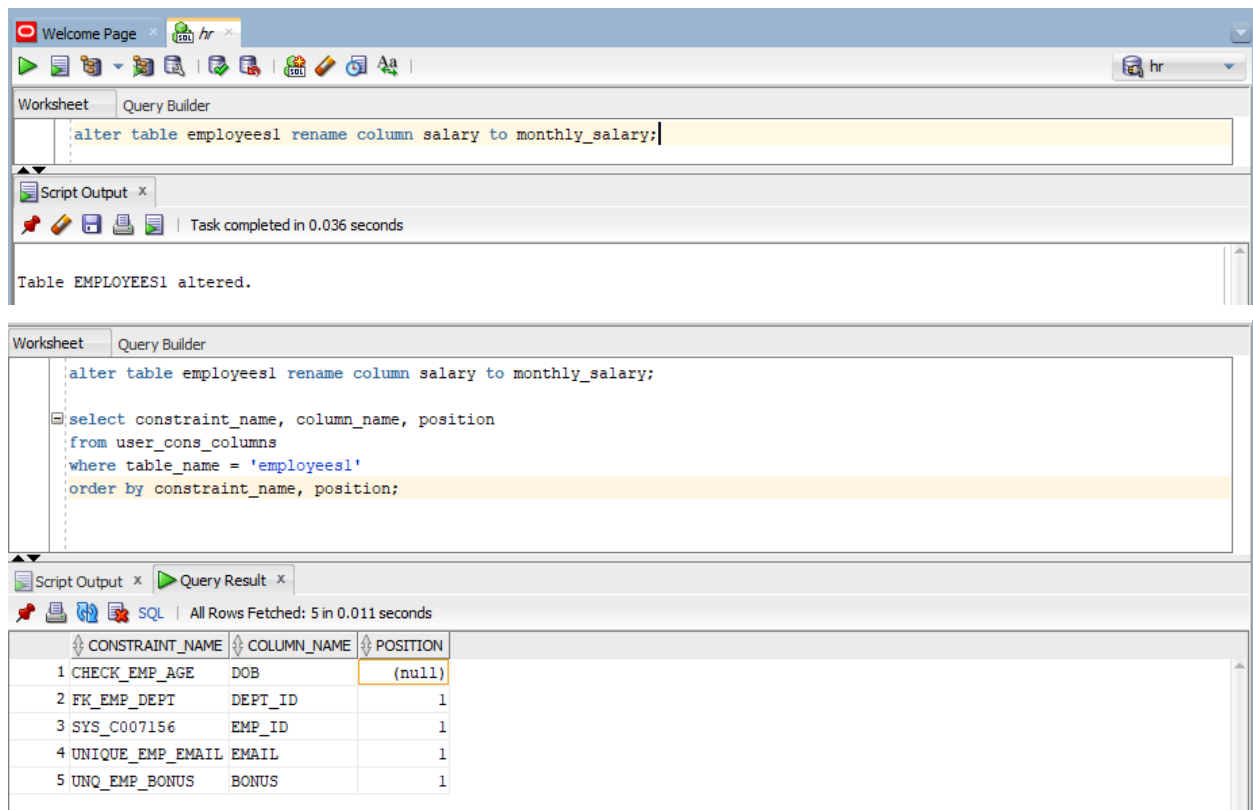
```
select dept_id, emp_id, full_name from employees1 order by dept_id;
```

Script Output ×   Query Result ×

SQL | All Rows Fetched: 3 in 0.003 seconds

	DEPT_ID	EMP_ID	FULL_NAME
1	10	126	Ibrahim Johar
2	10	221	Ahmed
3	999	209	ethan khan

Q17)

Worksheet   Query Builder

```
alter table employees1 rename column salary to monthly_salary;
```

Script Output ×

Task completed in 0.036 seconds

```
Table EMPLOYEES1 altered.
```
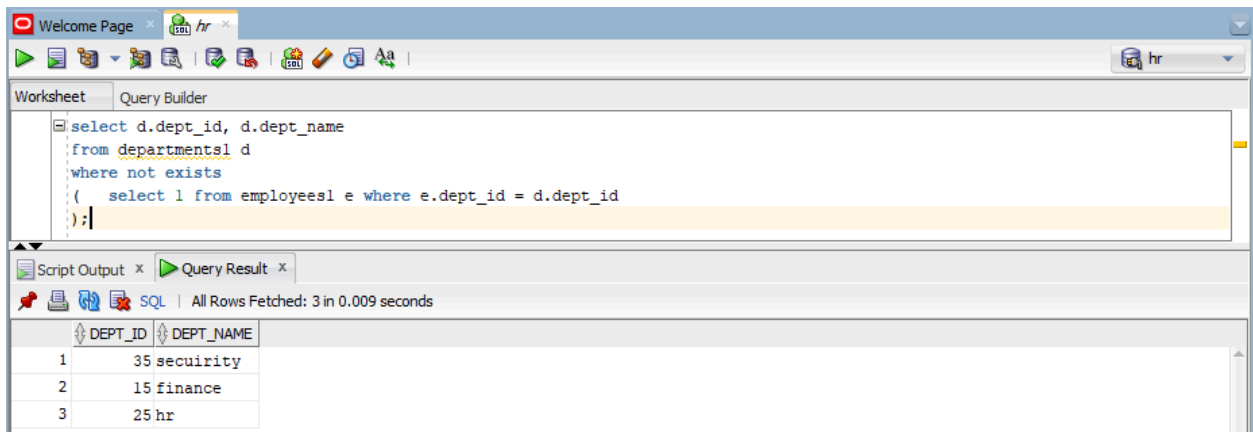
Worksheet   Query Builder

```
alter table employees1 rename column salary to monthly_salary;

select constraint_name, column_name, position
from user_cons_columns
where table_name = 'employees1'
order by constraint_name, position;
```

Script Output ×   Query Result ×

SQL | All Rows Fetched: 5 in 0.011 seconds
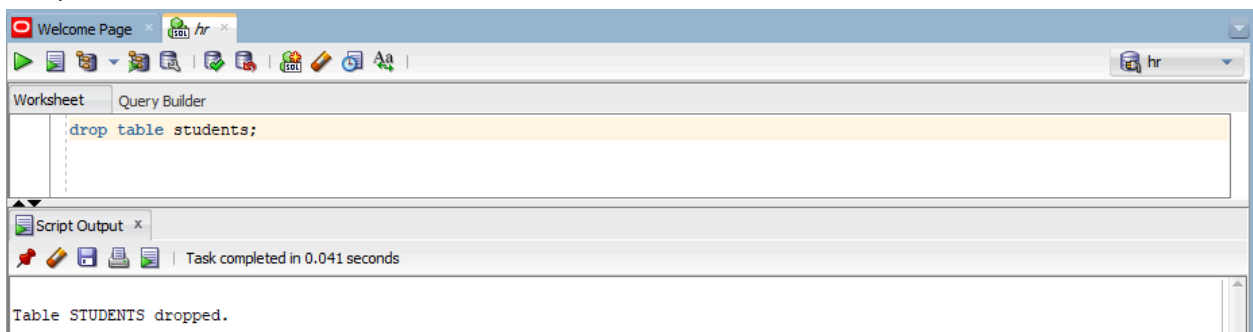
	CONSTRAINT_NAME	COLUMN_NAME	POSITION
1	CHECK_EMP_AGE	DOB	(null)
2	FK_EMP_DEPT	DEPT_ID	1
3	SYS_C007156	EMP_ID	1
4	UNIQUE_EMP_EMAIL	EMAIL	1
5	UNQ_EMP_BONUS	BONUS	1

Q18)

```
select d.dept_id, d.dept_name
from departments1 d
where not exists
(   select 1 from employees1 e where e.dept_id = d.dept_id
);
```

Script Output ×   Query Result ×

SQL | All Rows Fetched: 3 in 0.009 seconds

	DEPT_ID	DEPT_NAME
1	35	secuirity
2	15	finance
3	25	hr

Q19)
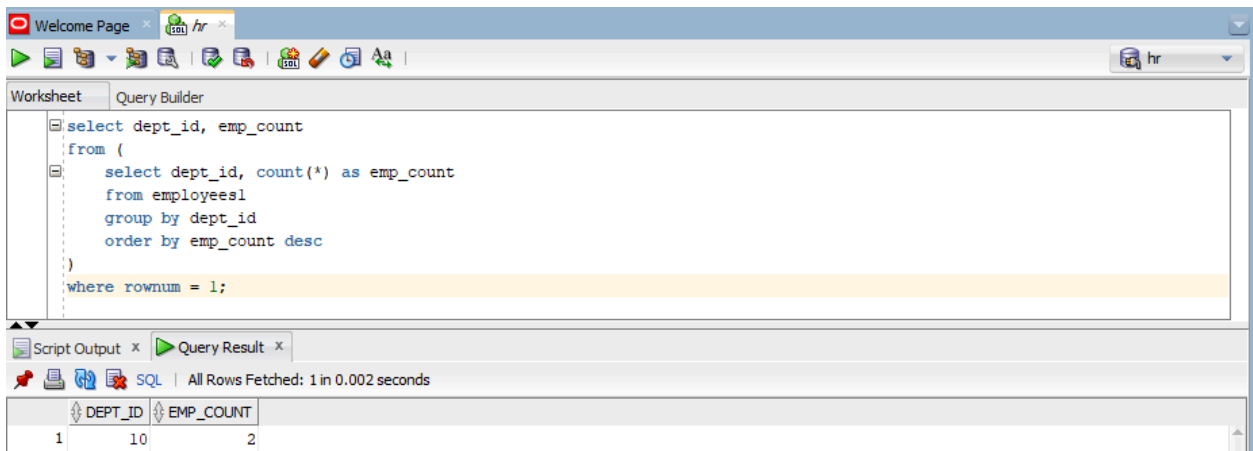
```
drop table students;
```

Script Output ×

Task completed in 0.041 seconds

Table STUDENTS dropped.

Q20)

```
select dept_id, emp_count
from (
    select dept_id, count(*) as emp_count
    from employees1
    group by dept_id
    order by emp_count desc
)
where rownum = 1;
```

Script Output ×   Query Result ×

SQL | All Rows Fetched: 1 in 0.002 seconds

	DEPT_ID	EMP_COUNT
1	10	2