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

Q1)

The screenshot shows the SQL Developer interface with the 'Query Builder' tab active. The SQL editor contains the following code:

```
--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)  
);
```

Below the editor, the 'Script Output' tab shows the message: 'Table EMPLOYEES1 created.' and 'Task completed in 0.056 seconds'.

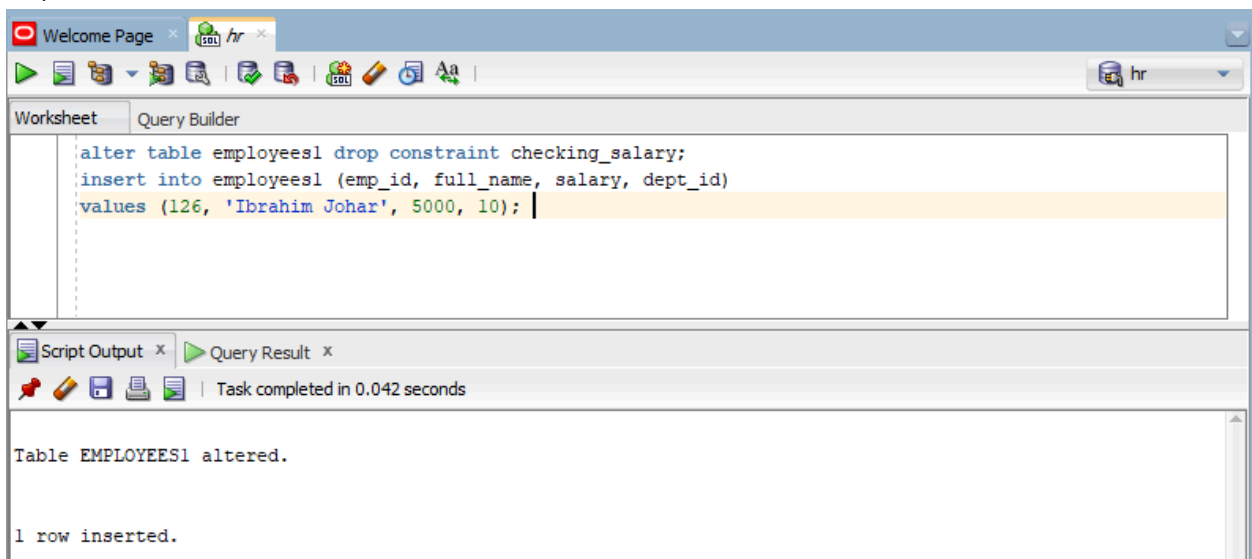
Q2)

The screenshot shows the SQL Developer interface with the 'Query Builder' tab active. The SQL editor contains the following code:

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

Below the editor, the 'Script Output' tab shows the message: 'Table EMPLOYEES1 altered.' and 'Task completed in 0.052 seconds'. The 'Query Result' tab is also visible but empty.

Q3)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL script:

```
alter table employees1 drop constraint checking_salary;
insert into employees1 (emp_id, full_name, salary, dept_id)
values (126, 'Ibrahim Johar', 5000, 10);
```

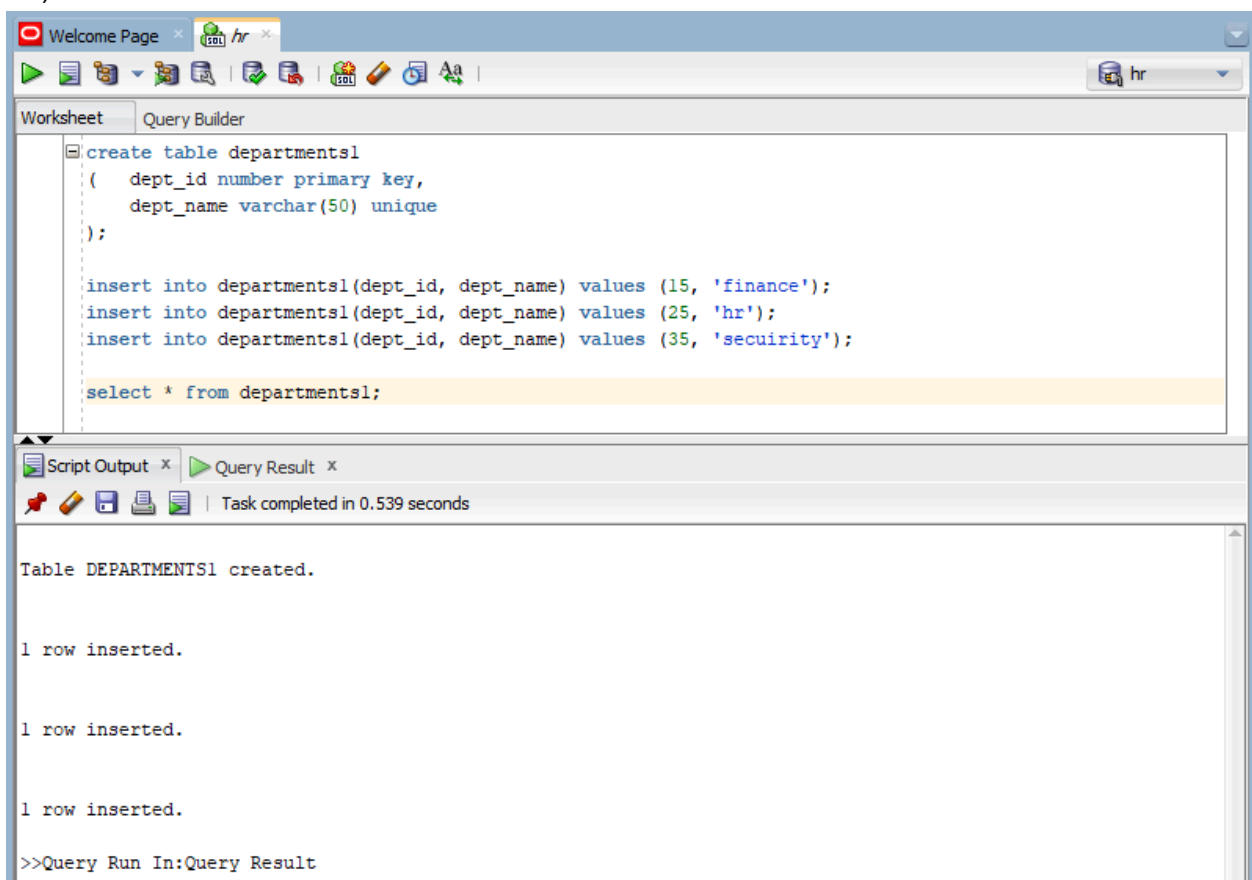
The 'Script Output' tab is also visible, showing the execution results:

```
Table EMPLOYEES1 altered.

1 row inserted.
```

The task completed in 0.042 seconds.

Q4)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL script:

```
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, 'securirty');

select * from departments1;
```

The 'Script Output' tab is also visible, showing the execution results:

```
Table DEPARTMENTS1 created.

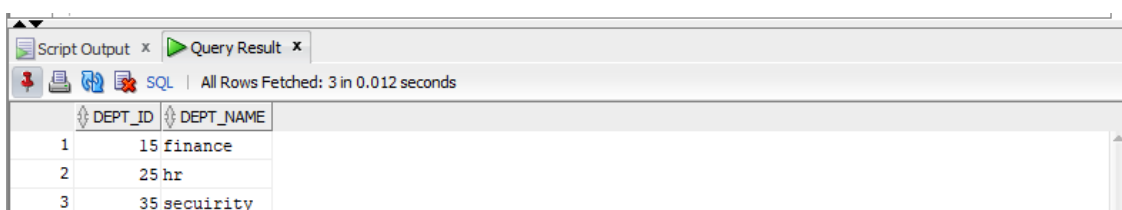
1 row inserted.

1 row inserted.

1 row inserted.

>>Query Run In:Query Result
```

The task completed in 0.539 seconds.



The screenshot shows the 'Query Result' tab, displaying the results of the query 'select * from departments1;'. The results are shown in a table with 3 rows and 2 columns: DEPT_ID and DEPT_NAME.

DEPT_ID	DEPT_NAME
15	finance
25	hr
35	securirty

All Rows Fetched: 3 in 0.012 seconds

Q5)

The screenshot shows the SQL Developer interface with the 'Query Builder' tab active. The SQL editor contains the following code:

```
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';
```

Below the editor, the 'Query Result' tab shows the output of the second query. It displays a table with three columns: CONSTRAINT_NAME, CONSTRAINT_TYPE, and STATUS. The results are as follows:

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

Q6)

The screenshot shows the SQL Developer interface with the 'Query Builder' tab active. The SQL editor contains the following code:

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

Below the editor, the 'Script Output' tab shows the message: 'Table EMPLOYEES1 altered.' and 'Task completed in 0.032 seconds'.

Q7)

The screenshot shows the SQL Developer interface with the 'Query Builder' tab active. The SQL editor contains the following code:

```
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);
```

Below the editor, the 'Script Output' tab shows the message: 'Table EMPLOYEES1 altered.' and 'Task completed in 0.052 seconds'.

```
select * from employees1;
```

Script Output x Query Result x

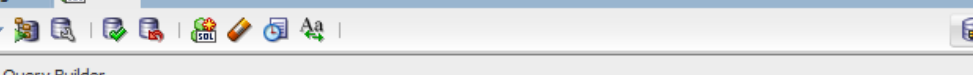
SQL | All Rows Fetched: 1 in 0.003 seconds

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

Q8)

The screenshot shows the Oracle SQL Developer environment. The top toolbar includes icons for Welcome Page, HR schema, and various development tools. The 'Worksheet' tab is active, displaying the SQL statement: `delete from employees1 where emp_id in (1,3);`. The 'Script Output' tab at the bottom shows the result: '0 rows deleted.' and 'Task completed in 0.034 seconds'.

Q9)



The screenshot shows the SQL Developer application window. The top toolbar contains various icons for file operations, editing, and execution. The main workspace is divided into two tabs: "Worksheet" and "Query Builder". The "Worksheet" tab is active, displaying the following SQL statement:

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

Below the worksheet, the "Script Output" tab is visible, showing the execution result:

```
Table EMPLOYEES1 altered.
```

At the bottom of the "Script Output" tab, a status bar indicates "Task completed in 0.035 seconds".

Q10)

Welcome Page x SQL hr x
 Query Builder

```

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

 Script Output x
 Task completed in 0.043 seconds
 Table EMPLOYEES1 altered.

 Table EMPLOYEES1 altered.

Q11)

The screenshot shows the SQL Developer interface with a script window containing the following SQL commands:

```
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;
```

The script was executed successfully, and the results are displayed in the 'Query Result 1' window. The status bar indicates '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

The screenshot shows the SQL Developer interface with a script window containing the following SQL commands:

```
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');
```

The script was executed, but it failed at the final insert statement. The status bar indicates '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)

The screenshot shows the SQL Developer interface with a script window containing the following SQL command:

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

The script was executed successfully. The status bar indicates 'Task completed in 0.035 seconds'.

Table EMPLOYEES1 altered.

Welcome Page x hr x

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 x Query Result 1 x

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 "al > '10-MAY-96'", which a bug permitted to be created before version 8.

Table EMPLOYEES1 altered.

Q13)

Welcome Page x hr x

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 x Query Result 1 x

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)

The screenshot shows the SQL Developer interface with a script in the 'Script Output' pane. The script contains three SQL statements:

```
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');
```

The output shows the first two statements executed successfully, but the third statement failed with the following error:

```
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:
```

The error indicates that the insert statement is missing values for the last two columns (email and date).

The screenshot shows the SQL Developer interface with a query result in the 'Query Result' pane. The query is:

```
select * from employees1;
```

The result shows three rows of data:

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

The script in the 'Script Output' pane shows the following statement:

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

The output shows the statement executed successfully:

```
Table EMPLOYEES1 altered.
```

The screenshot shows the SQL Developer interface with a script in the 'Script Output' pane. The script contains the following SQL statement:

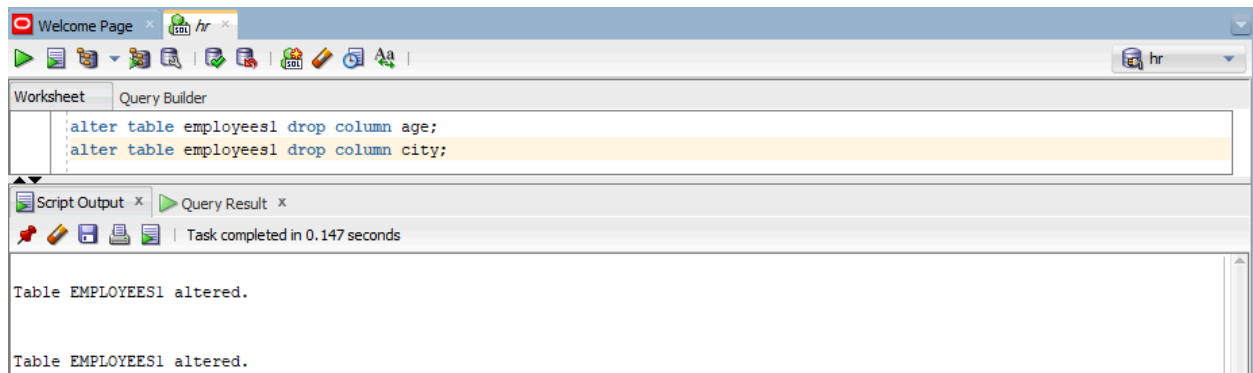
```
insert into employees1 values(210, 'rehan khan', 29000, 999, 490, 'karachi', 25, 'rehan@hotmail.com', date '2000-01-01');
```

The output shows the statement failed with the following error:

```
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
```

The error indicates that the insert statement is violating the foreign key constraint because the parent key (dept_id) is not found in the referenced table.

Q15)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL script:

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

The 'Script Output' tab shows the execution results:

Table EMPLOYEES1 altered.

Table EMPLOYEES1 altered.

Task completed in 0.147 seconds

Q16)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL script:

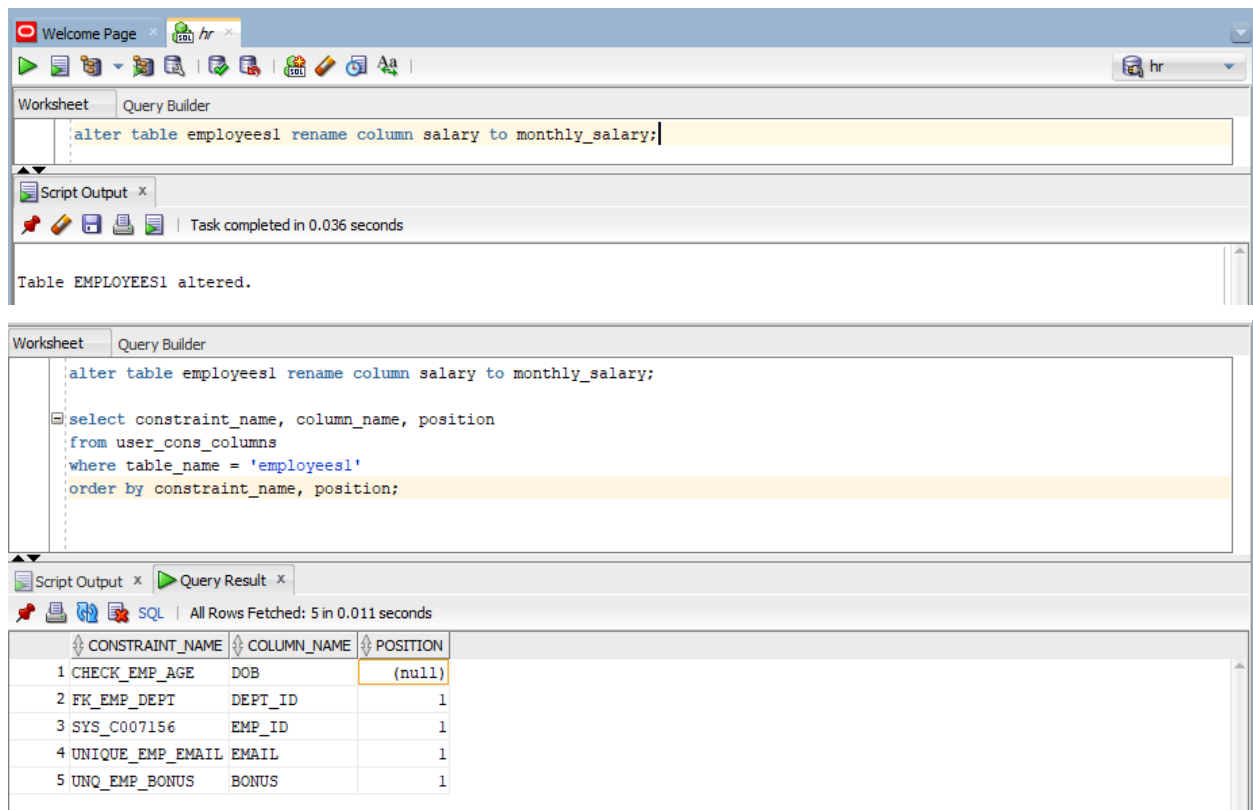
```
select dept_id, emp_id, full_name from employees1 order by dept_id;
```

The 'Query Result' tab shows the execution results:

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

All Rows Fetched: 3 in 0.003 seconds

Q17)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL script:

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

The 'Script Output' tab shows the execution results:

Table EMPLOYEES1 altered.

Task completed in 0.036 seconds

The 'Query Builder' tab is active, displaying the following SQL script:

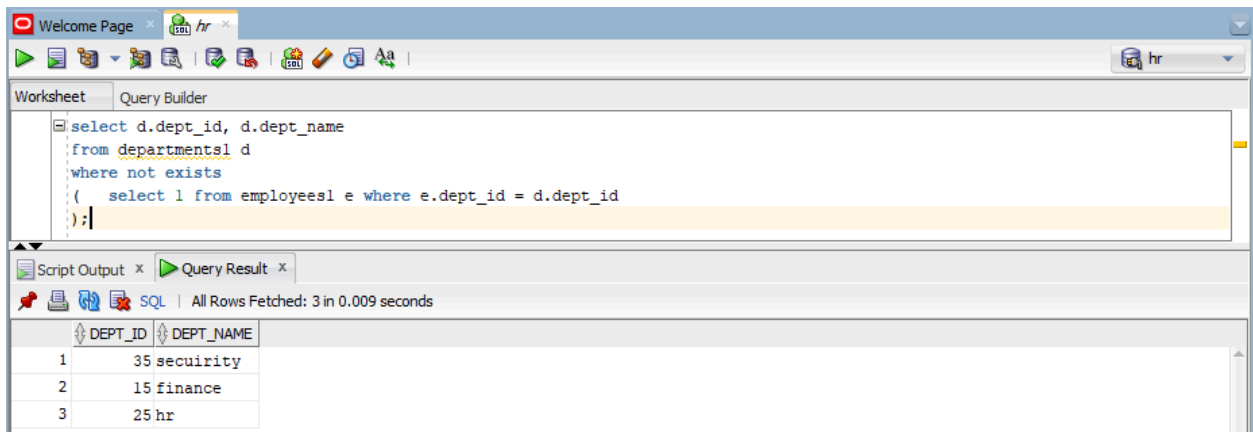
```
alter table employees1 rename column salary to monthly_salary;
select constraint_name, column_name, position
from user_cons_columns
where table_name = 'employees1'
order by constraint_name, position;
```

The 'Query Result' tab shows the execution results:

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

All Rows Fetched: 5 in 0.011 seconds

Q18)



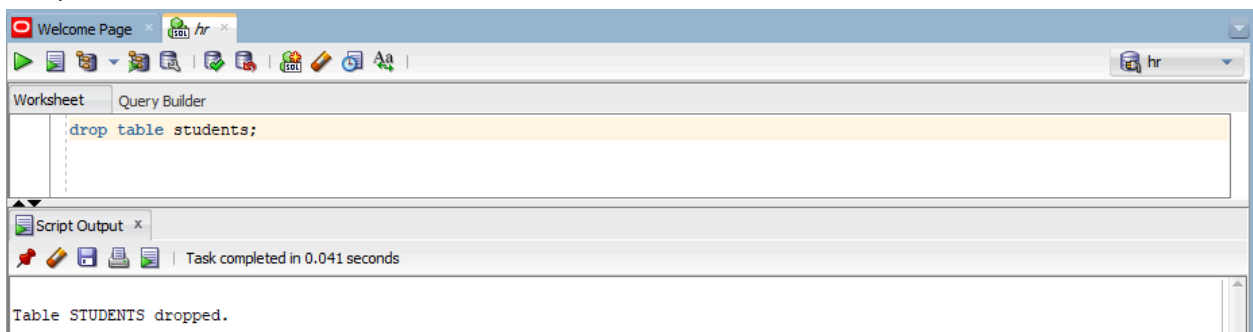
The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL query:

```
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
);
```

The 'Query Result' tab shows the results of the query, indicating 'All Rows Fetched: 3 in 0.009 seconds'. The results are displayed in a table with two columns: DEPT_ID and DEPT_NAME.

DEPT_ID	DEPT_NAME
1	35 security
2	15 finance
3	25 hr

Q19)



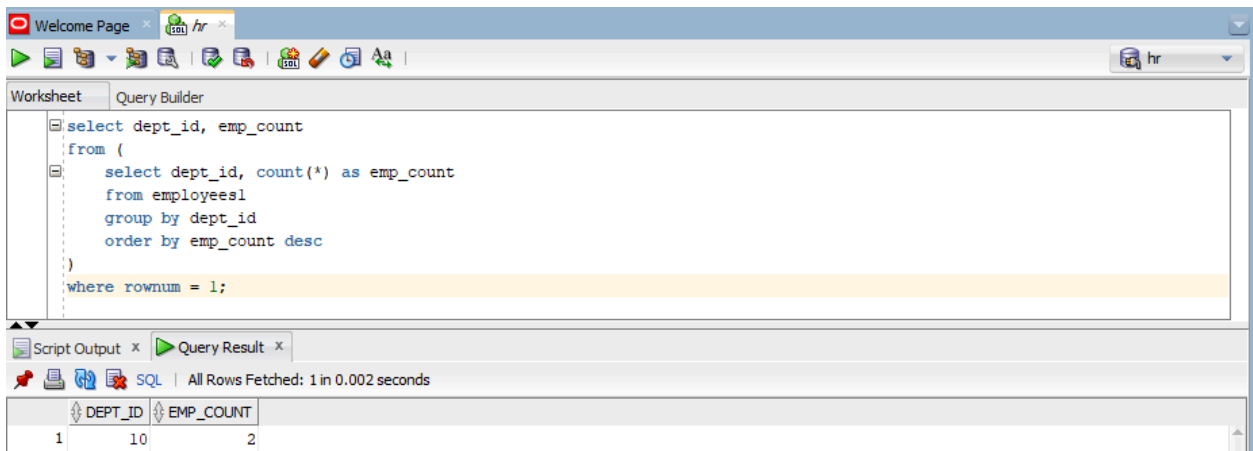
The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL query:

```
drop table students;
```

The 'Script Output' tab shows the results of the query, indicating 'Task completed in 0.041 seconds'. The output message is:

Table STUDENTS dropped.

Q20)



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL query:

```
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;
```

The 'Query Result' tab shows the results of the query, indicating 'All Rows Fetched: 1 in 0.002 seconds'. The results are displayed in a table with two columns: DEPT_ID and EMP_COUNT.

DEPT_ID	EMP_COUNT
1	10