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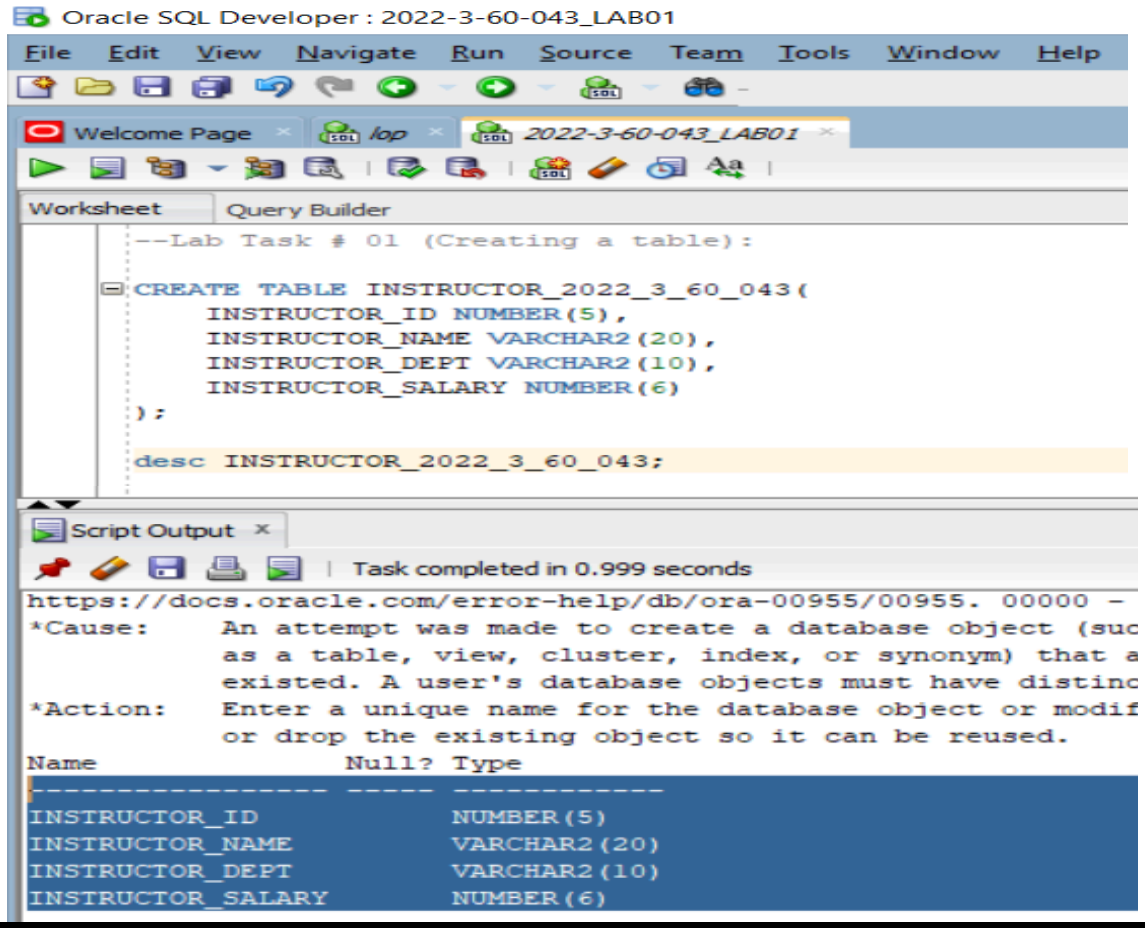
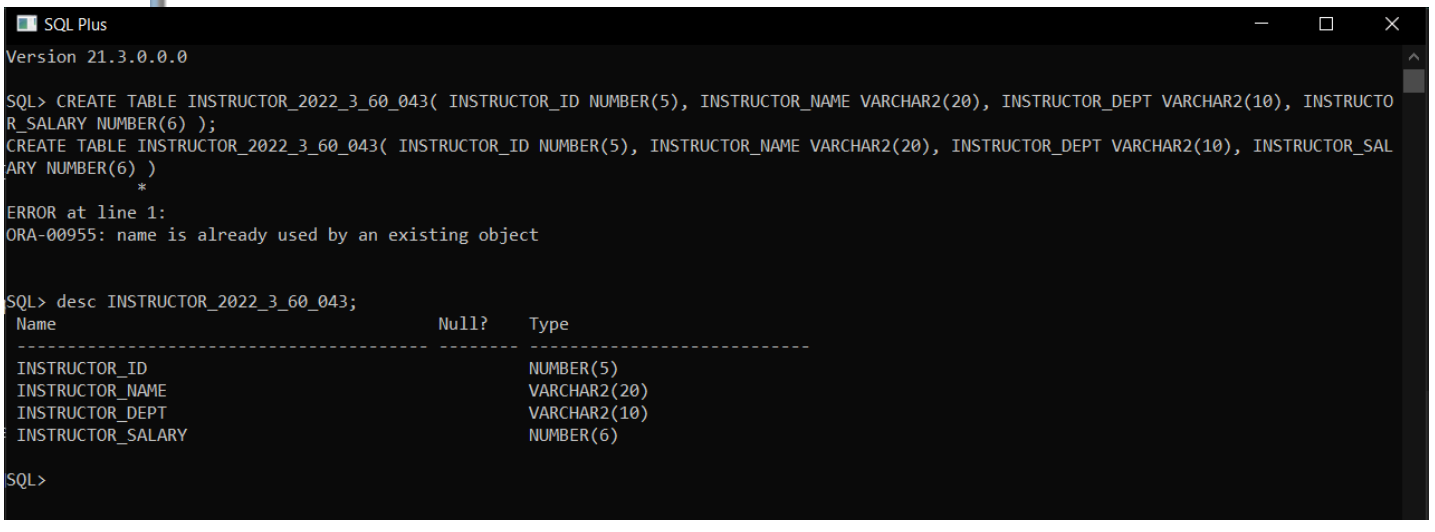
ID:2022-3-60-043
Section:7
CSE 302: LAB 01 (Exercise - Offline)
Course Instructor: Mahmuda Rawnak Jahan

Lab Task # 01 (Creating a table):

1.(a). Write SQL statement to create a table 'instructor_your_student_id' which has 4 attributes – i) id (number)
ii) name (text)
iii) dept_name (text)
iv) salary (number)

Answer=>





1.(b). Write SQL statement to create a table ‘course_your_student_id’ which has 4 attributes – i) course_id (text)
ii) title (text)
iii) dept_name (text)
iv) credits (number)

Answer:

```
SQL Plus

SQL> CREATE TABLE course_2022_3_60_043 (    course_id VARCHAR2(50),      title VARCHAR2(100),        dept_name VARCHAR2(100),     credits NUMBER(3)
  );

Table created.

SQL> desc  course_2022_3_60_043;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 COURSE_ID                                          VARCHAR2(50)
 TITLE                                              VARCHAR2(100)
 DEPT_NAME                                          VARCHAR2(100)
 CREDITS                                            NUMBER(3)

SQL>
```

SQL Worksheet

```
1  CREATE TABLE course_2022_3_60_043 (
2      course_id VARCHAR2(50),
3      title VARCHAR2(100),
4      dept_name VARCHAR2(100),
5      credits NUMBER(3)
6  );
7
8  desc  course_2022_3_60_043;
9
```

TABLE COURSE_2022_3_60_043

Column	Null?	Type
COURSE_ID	-	VARCHAR2(50)
TITLE	-	VARCHAR2(100)
DEPT_NAME	-	VARCHAR2(100)
CREDITS	-	NUMBER(3,0)

Lab Task # 02 (Inserting data into a table):

2.(a). Write SQL statements to insert following records into ‘instructor_your_student_id’

table:

ID	*name*	*dept_name*	*salary*
10101	Srinivasan	Comp. Sci.	65000
12121	Wu	Finance	90000
15151	Mozart	Music	40000
22222	Einstein	Physics	95000
32343	El Said	History	60000
33456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
83821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000

Answer:

SQL Worksheet

```
1   CREATE TABLE INSTRUCTOR_2022_3_60_043( INSTRUCTOR_ID NUMBER(5), INSTRUCTOR_NAME VARCHAR2(20), INSTRUCTOR_DEPT VARCHAR2(10), INSTRUCTOR_SALARY NUMBER(6) );
2
3   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (10101, 'Srinivasan', 'Comp. Sci.', 65000);
4   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (12121, 'Wu', 'Finance', 90000);
5   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (15151, 'Mozart', 'Music', 40000);
6   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (22222, 'Einstein', 'Physics', 95000);
7   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (32343, 'El Said', 'History', 60000);
8   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (33456, 'Gold', 'Physics', 87000);
9   INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (45565, 'Katz', 'Comp. Sci.', 75000);
10  INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (58583, 'Califieri', 'History', 62000);
11  INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (76543, 'Singh', 'Finance', 80000);
12  INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (76766, 'Crick', 'Biology', 72000);
13  INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (83821, 'Brandt', 'Comp. Sci.', 92000);
14  INSERT INTO INSTRUCTOR_2022_3_60_043 (INSTRUCTOR_ID, INSTRUCTOR_NAME, INSTRUCTOR_DEPT, INSTRUCTOR_SALARY) VALUES (98345, 'Kim', 'Elec. Eng.', 80000);
15  SELECT * FROM INSTRUCTOR_2022_3_60_043;
```

SQL Worksheet

INSTRUCTOR_ID	INSTRUCTOR_NAME	INSTRUCTOR_DEPT	INSTRUCTOR_SALARY
10101	Srinivasan	Comp. Sci.	65000
12121	Wu	Finance	90000
15151	Mozart	Music	40000
22222	Einstein	Physics	95000
32343	El Said	History	60000
33456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
83821	Brandt	Comp. Sci.	92000

98345	Kim	Elec. Eng.	80000
10101	Srinivasan	Comp. Sci.	65000
12121	Wu	Finance	90000
15151	Mozart	Music	40000
22222	Einstein	Physics	95000
32343	El Said	History	60000
33456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
83821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000

SQL Plus

```
 CREDITS                                           NUMBER(3)
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (10101, 'Srinivasan', 'Comp. Sci.', 65000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (12121, 'Wu', 'Finance', 90000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (15151, 'Mozart', 'Music', 40000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (22222, 'Einstein', 'Physics', 95000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (32343, 'El Said', 'History', 60000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (33456, 'Gold', 'Physics', 87000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (45565, 'Katz', 'Comp. Sci.', 75000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (58583, 'Califieri', 'History', 62000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (76543, 'Singh', 'Finance', 80000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (76766, 'Crick', 'Biology', 72000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (83821, 'Brandt', 'Comp. Sci.', 92000);
1 row created.
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (98345, 'Kim', 'Elec. Eng.', 80000);
1 row created.
SQL>
```

```
SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (83821, 'Brandt', 'Comp. Sci.', 92000);

1 row created.

SQL> INSERT INTO INSTRUCTOR_2022_3_60_043 VALUES (98345, 'Kim', 'Elec. Eng.', 80000);

1 row created.

SQL> SELECT * FROM INSTRUCTOR_2022_3_60_043;

INSTRUCTOR_ID INSTRUCTOR_NAME      INSTRUCTOR INSTRUCTOR_SALARY
------------- -------------------- ---------- -----------------
        10101 Srinivasan           Comp. Sci.             65000
        12121 Wu                   Finance                90000
        15151 Mozart               Music                  40000
        22222 Einstein             Physics                95000
        32343 El Said              History                60000
        33456 Gold                 Physics                87000
        45565 Katz                 Comp. Sci.             75000
        58583 Califieri            History                62000
        76543 Singh                Finance                80000
        76766 Crick                Biology                72000
        83821 Brandt               Comp. Sci.             92000

INSTRUCTOR_ID INSTRUCTOR_NAME      INSTRUCTOR INSTRUCTOR_SALARY
------------- -------------------- ---------- -----------------
        98345 Kim                  Elec. Eng.             80000

12 rows selected.

SQL>
```

2.(b). Write SQL statements to insert the following records into 'course_your_student_id'

table:

course_id	title	dept_name	credits
BIO-101	Intro. to Biology	Biology	4
BIO-301	Genetics	Biology	4
BIO-399	Computational Biology	Biology	3
CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
EE-181	Intro. to Digital Systems	Elec. Eng.	3
FIN-201	Investment Banking	Finance	3
HIS-351	World History	History	3
MU-199	Music Video Production	Music	3
PHY-101	Physical Principles	Physics	4

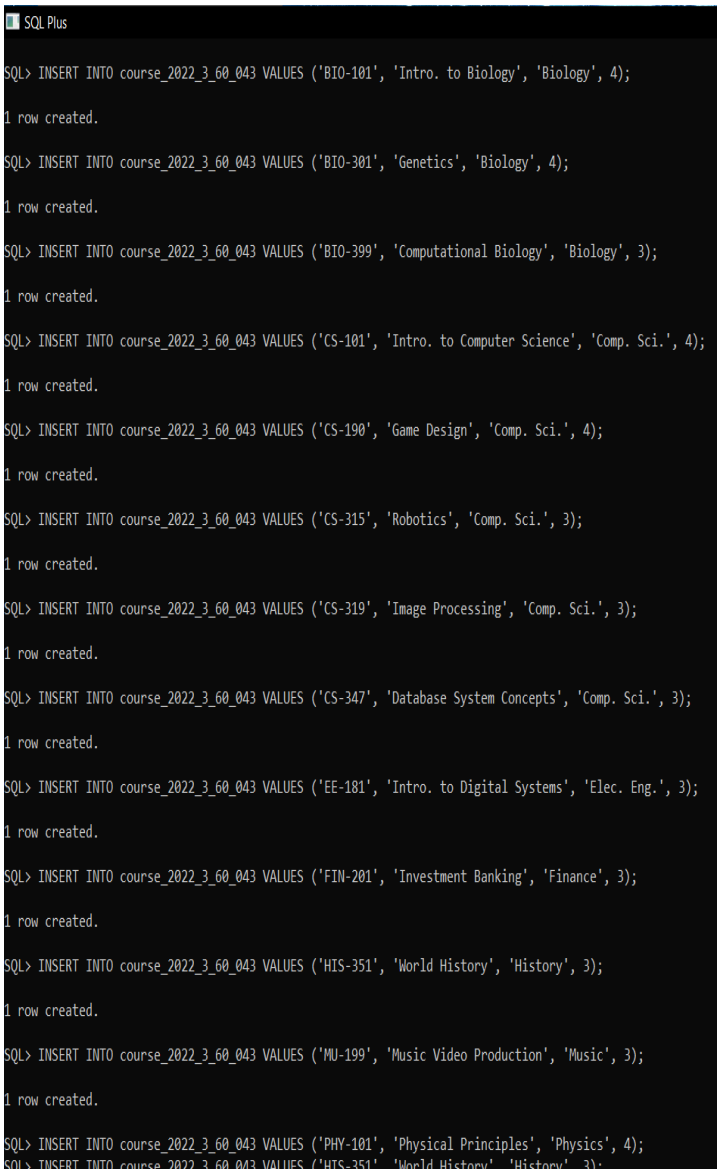
Answer:

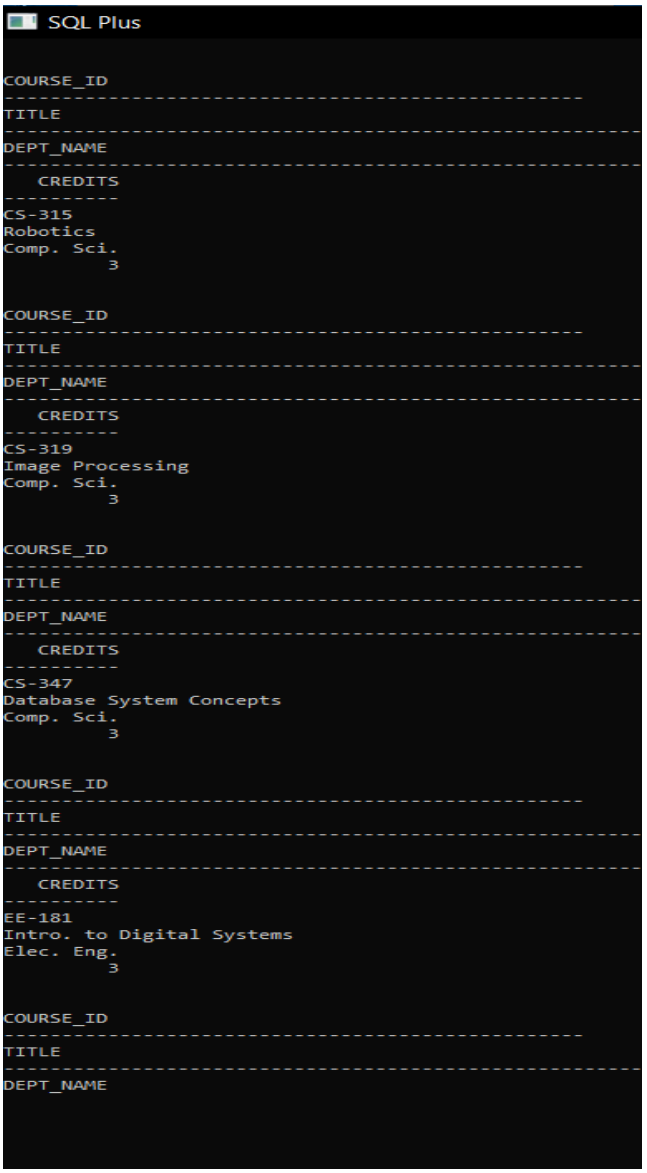
SQL Worksheet

```
CREATE TABLE course_2022_3_60_043 (
    course_id VARCHAR2(50),
    title VARCHAR2(100),
    dept_name VARCHAR2(100),
    credits NUMBER(3)
);

INSERT INTO course_2022_3_60_043 VALUES ('BIO-101', 'Intro. to Biology', 'Biology', 4);
INSERT INTO course_2022_3_60_043 VALUES ('BIO-301', 'Genetics', 'Biology', 4);
INSERT INTO course_2022_3_60_043 VALUES ('BIO-399', 'Computational Biology', 'Biology', 3);
INSERT INTO course_2022_3_60_043 VALUES ('CS-101', 'Intro. to Computer Science', 'Comp. Sci.', 4);
INSERT INTO course_2022_3_60_043 VALUES ('CS-190', 'Game Design', 'Comp. Sci.', 4);
INSERT INTO course_2022_3_60_043 VALUES ('CS-315', 'Robotics', 'Comp. Sci.', 3);
INSERT INTO course_2022_3_60_043 VALUES ('CS-319', 'Image Processing', 'Comp. Sci.', 3);
INSERT INTO course_2022_3_60_043 VALUES ('CS-347', 'Database System Concepts', 'Comp. Sci.', 3);
INSERT INTO course_2022_3_60_043 VALUES ('EE-181', 'Intro. to Digital Systems', 'Elec. Eng.', 3);
INSERT INTO course_2022_3_60_043 VALUES ('FIN-201', 'Investment Banking', 'Finance', 3);
INSERT INTO course_2022_3_60_043 VALUES ('HIS-351', 'World History', 'History', 3);
INSERT INTO course_2022_3_60_043 VALUES ('MU-199', 'Music Video Production', 'Music', 3);
INSERT INTO course_2022_3_60_043 VALUES ('PHY-101', 'Physical Principles', 'Physics', 4);

SELECT*from COURSE_2022_3_60_043;
```

COURSE_ID	TITLE	DEPT_NAME	CREDITS
BIO-101	Intro. to Biology	Biology	4
BIO-301	Genetics	Biology	4
BIO-399	Computational Biology	Biology	3
CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
EE-181	Intro. to Digital Systems	Elec. Eng.	3
FIN-201	Investment Banking	Finance	3
HIS-351	World History	History	3
MU-199	Music Video Production	Music	3
PHY-101	Physical Principles	Physics	4

BIO-301	Genetics	Biology	4
BIO-399	Computational Biology	Biology	3
CS-101	Intro. to Computer Science	Comp. Sci.	4
CS-190	Game Design	Comp. Sci.	4
CS-315	Robotics	Comp. Sci.	3
CS-319	Image Processing	Comp. Sci.	3
CS-347	Database System Concepts	Comp. Sci.	3
EE-181	Intro. to Digital Systems	Elec. Eng.	3
FIN-201	Investment Banking	Finance	3
HIS-351	World History	History	3
MU-199	Music Video Production	Music	3
PHY-101	Physical Principles	Physics	4

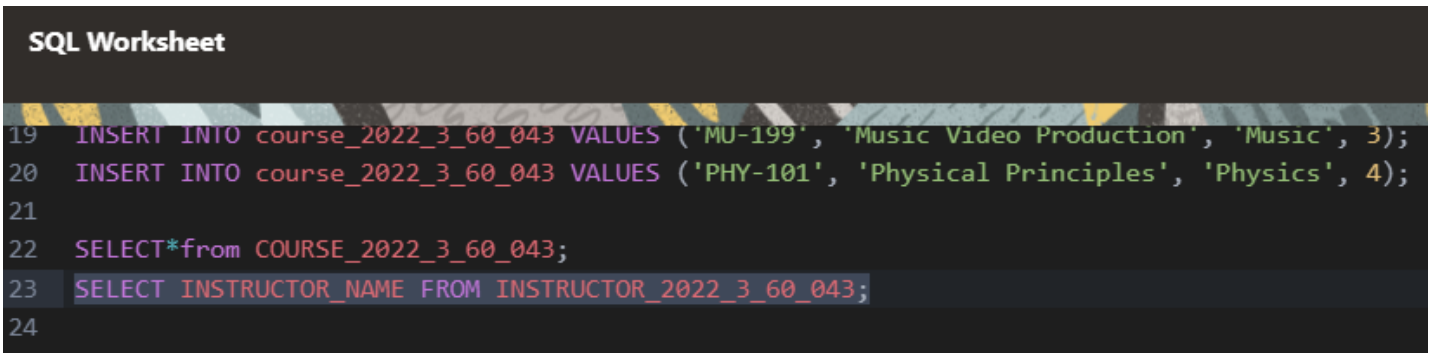




Lab Task # 03 (Writing Queries):

I. Show instructor name only.

Answer:



INSTRUCTOR_NAME
Srinivasan
Wu
Mozart
Einstein
El Said
Gold
Katz
Califieri
Singh
Crick
Brandt
Kim
Srinivasan
Wu
Mozart

```
SQL> SELECT INSTRUCTOR_NAME FROM INSTRUCTOR_2022_3_60_043;

INSTRUCTOR_NAME
--------------------
Srinivasan
Wu
Mozart
Einstein
El Said
Gold
Katz
Califieri
Singh
Crick
Brandt

INSTRUCTOR_NAME
--------------------
Kim

12 rows selected.

SQL>
```

II. Show course id and title only.

Answer:

```
--3.1
SELECT INSTRUCTOR_NAME FROM INSTRUCTOR_2022_3_60_043;
```

SQL Worksheet

COURSE_ID	TITLE
BIO-101	Intro. to Biology
BIO-301	Genetics
BIO-399	Computational Biology
CS-101	Intro. to Computer Science
CS-190	Game Design
CS-315	Robotics
CS-319	Image Processing
CS-347	Database System Concepts
EE-181	Intro. to Digital Systems
FIN-201	Investment Banking
HIS-351	World History
MU-199	Music Video Production
PHY-101	Physical Principles
BIO-101	Intro. to Biology
BIO-301	Genetics

SQL Plus

```
Kim

12 rows selected.

SQL> SELECT course_id, title FROM course_2022_3_60_043;

COURSE_ID
--------------------------------------------------
TITLE
--------------------------------------------------
BIO-101
Intro. to Biology

BIO-301
Genetics

BIO-399
Computational Biology


COURSE_ID
--------------------------------------------------
TITLE
--------------------------------------------------
CS-101
Intro. to Computer Science

CS-190
Game Design

CS-315
Robotics


COURSE_ID
--------------------------------------------------
TITLE
--------------------------------------------------
CS-319
Image Processing

CS-347
Database System Concepts

EE-181
Intro. to Digital Systems
```

III. Find instructor name and department of the instructor with id = 22222.

Answer:

```
--3.3
SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
FROM INSTRUCTOR_2022_3_60_043
WHERE INSTRUCTOR_ID = 22222;
```

```
SQL> SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
  2  FROM INSTRUCTOR_2022_3_60_043
  3  WHERE INSTRUCTOR_ID = 22222;

INSTRUCTOR_NAME      INSTRUCTOR
-------------------- ----------
Einstein             Physics

SQL>
```

IV. Find course title and credits of the courses offered by ‘Comp. Sci.’ department.

Answer:

```
--3.4
SELECT title, credits
FROM course_2022_3_60_043
WHERE dept_name = 'Comp. Sci.';
```

```
SQL Plus
Einstein                  Physics

SQL> SELECT title, credits
  2  FROM course_2022_3_60_043
  3  WHERE dept_name = 'Comp. Sci.';

TITLE
------------------------------------
   CREDITS
----------
Intro. to Computer Science
         4

Game Design
         4

Robotics
         3


TITLE
------------------------------------
   CREDITS
----------
Image Processing
         3

Database System Concepts
         3


SQL>
```

SQL Worksheet

```
28  SELECT title, credits
29  FROM course_2022_3_60_043
30  WHERE dept_name = 'Comp. Sci.';
31
```

TITLE	CREDITS
Intro. to Computer Science	4
Game Design	4
Robotics	3
Image Processing	3
Database System Concepts	3
Intro. to Computer Science	4
Game Design	4
Robotics	3
Image Processing	3
Database System Concepts	3

V. Find name and department of instructors who have a salary more than 70000.

Answer:

```
--3.5
SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
FROM INSTRUCTOR_2022_3_60_043
WHERE INSTRUCTOR_SALARY > 70000;
```

```
SQL Plus

SQL> SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
  2  FROM INSTRUCTOR_2022_3_60_043
  3  WHERE INSTRUCTOR_SALARY > 70000;

INSTRUCTOR_NAME       INSTRUCTOR
--------------------- ----------
Wu                    Finance
Einstein              Physics
Gold                  Physics
Katz                  Comp. Sci.
Singh                 Finance
Crick                 Biology
Brandt                Comp. Sci.
Kim                   Elec. Eng.

8 rows selected.

SQL>
```

VI. Find course title of the courses which are not less than 4 credits.

Answer:

```
--3.6
SELECT title
FROM course_2022_3_60_043
WHERE credits >= 4;
```

```
SQL Plus
SQL> SELECT title
  2  FROM course_2022_3_60_043
  3  WHERE credits >= 4;

TITLE
------------------------------------
Intro. to Biology
Genetics
Intro. to Computer Science
Game Design
Physical Principles

SQL>
```

VII. Find the name and department of instructors who have a salary in between 80000 and 100000 (bounds are inclusive).

Answer:

```
--3.7
SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
FROM INSTRUCTOR_2022_3_60_043
WHERE INSTRUCTOR_SALARY BETWEEN 80000 AND 100000;
```

```
SQL> SELECT INSTRUCTOR_NAME, INSTRUCTOR_DEPT
  2  FROM INSTRUCTOR_2022_3_60_043
  3  WHERE INSTRUCTOR_SALARY BETWEEN 80000 AND 100000;

INSTRUCTOR_NAME      INSTRUCTOR
-------------------- ----------
Wu                   Finance
Einstein             Physics
Gold                 Physics
Singh                Finance
Brandt               Comp. Sci.
Kim                  Elec. Eng.

6 rows selected.

SQL>
```

VIII. Find course titles and credits of the courses not offered by ‘Comp. Sci.’department.

Answer:

```
--3.8
SELECT title, credits
FROM course_2022_3_60_043
WHERE dept_name <> 'Comp. Sci.';
```

```
SQL> SELECT title, credits
  2  FROM course_2022_3_60_043
  3  WHERE dept_name <> 'Comp. Sci.';

TITLE
------------------------------------
   CREDITS
---------
Intro. to Biology
         4

Genetics
         4

Computational Biology
         3


TITLE
------------------------------------
   CREDITS
---------
Intro. to Digital Systems
         3
```

SQL Worksheet

```
31  SELECT title, credits
32  FROM course_2022_3_60_043
33  WHERE dept_name <> 'Comp. Sci.';
34
```

TITLE	CREDITS
Intro. to Biology	4
Genetics	4
Computational Biology	3
Intro. to Digital Systems	3
Investment Banking	3
World History	3
Music Video Production	3
Physical Principles	4
Intro. to Biology	4
Genetics	4
Computational Biology	3
Intro. to Digital Systems	3
Investment Banking	3

IX. Display all records of the instructor table.

```
--3.9
SELECT * FROM INSTRUCTOR_2022_3_60_043;
```

SQL Plus

```
SQL> SELECT * FROM INSTRUCTOR_2022_3_60_043;

INSTRUCTOR_ID INSTRUCTOR_NAME       INSTRUCTOR INSTRUCTOR_SALARY
------------- --------------------- ---------- -----------------
        10101 Srinivasan            Comp. Sci.              65000
        12121 Wu                    Finance                 90000
        15151 Mozart                Music                   40000
        22222 Einstein              Physics                 95000
        32343 El Said               History                 60000
        33456 Gold                  Physics                 87000
        45565 Katz                  Comp. Sci.              75000
        58583 Califieri             History                 62000
        76543 Singh                 Finance                 80000
        76766 Crick                 Biology                 72000
        83821 Brandt                Comp. Sci.              92000

INSTRUCTOR_ID INSTRUCTOR_NAME       INSTRUCTOR INSTRUCTOR_SALARY
------------- --------------------- ---------- -----------------
        98345 Kim                   Elec. Eng.              80000
```

X. Find all courses (display all columns) which are offered by ‘Biology’ department and credits are not 4.

Answer:

```
--3.10
SELECT *
FROM course_2022_3_60_043
WHERE dept_name = 'Biology' AND credits <> 4;
```

```
SQL> SELECT *
  2  FROM course_2022_3_60_043
  3  WHERE dept_name = 'Biology' AND credits <> 4;

COURSE_ID
----------------------------------------------
TITLE
----------------------------------------------
DEPT_NAME
----------------------------------------------
   CREDITS
----------
BIO-399
Computational Biology
Biology
         3
```

SQL Worksheet

```
27  SELECT course_id, title FROM course_2022_3_60_043;
28  SELECT title, credits
29  FROM course_2022_3_60_043
30  WHERE dept_name = 'Comp. Sci.';
31  SELECT *
32  FROM course_2022_3_60_043
33  WHERE dept_name = 'Biology' AND credits <> 4;
34
35
36
37
```

COURSE_ID	TITLE	DEPT_NAME	CREDITS
BIO-399	Computational Biology	Biology	3
BIO-399	Computational Biology	Biology	3