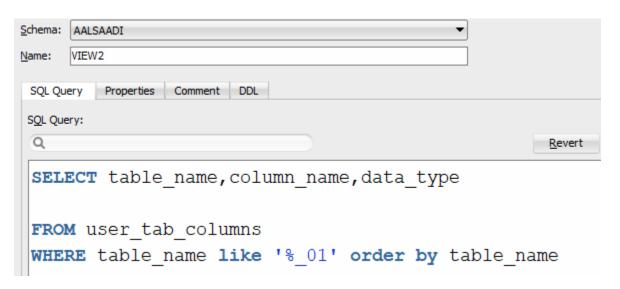
Exone-02_Alsaadi_A

Task 1

i) Ahmad Al Saadi, 01-26-2020



ii) Ahmad Al Saadi, 01-26-2020

```
191 --Ahmad Al Saadi
192 select * from employee 01; -- For Task 2 screenshot deliverable
193
Script Output X Query Result X Query Result 1 X
🔱 🖺 🙀 📚 SQL | All Rows Fetched: 6 in 0.045 seconds

⊕ EMPLOYEE_EMAIL

                                 1 jpsmith03@blueboyjobs.com Joshua Smith
                                                    Francisco Pena
   2 skgomez@blueboyjobs.com
                                 Susana Gomez
                                                    (null)
   3 lnissa01@blueboyjobs.com
                                                    skgomez@blueboyjobs.com
                                 Lucy Issa
   4 jgconnelly@blueboyjobs.com James G. Connelly (null)
   5 fwpena2@blueboyjobs.com
                                 Franciso W. Pena Oscar Wellington, III
   6 gkurdim@gbl.com
                                 George Kurdim
                                                    Rebecca Stalling
```

ii) Ahmad Al Saadi, 01-26-2020

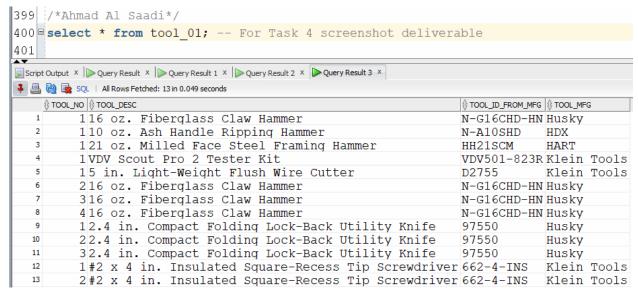
Task 3

```
307 /*Ahmad Al Saadi*/
308 select * from job_01; -- For Task 3 screenshot deliverable
309
310
Script Output × Query Result × Query Result 1 × Query Result 2 ×
 3 🚇 🙀 🔯 SQL | All Rows Fetched: 5 in 0.043 seconds

    JOB_DESC

                                                1 Replace carpet in Room 302 of George B... UH Sugarland 26-JAN-20 Pending
                                                                                  26-JAN-20
   2 Disable electrical outlets in floor of... (null) 19-JAN-20 In Progress 19-JAN-20
   Repair wallpaper damage on interior wa... (null)
                                                            19-JAN-20 Pending
                                                                                 19-JAN-20
   4 Replace wall switch at entrance door i... (null)
                                                            20-JAN-20 In Progress 20-JAN-20
                                                          20-JAN-20 In Progress 20-JAN-20
   5 Cover disabled electrical outlets in f... (null)
```

iii) Ahmad Al Saadi, 01-26-2020



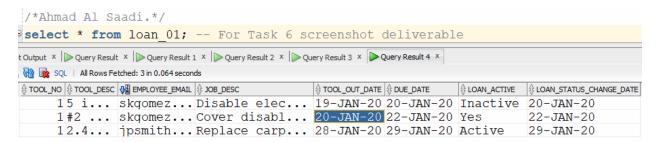
iv)Ahmad Al Saadi, 01-26-2020

Task 5

The tool_no field is used to specify the instance of a tool entry. The same tool may entered multiple times into the tool_01 table, so the field helps differentiate them.

The tool_no field cannot be the primary key for the tool_01 table, because the same tool entry instance may and indeed in our case exist for multiple different tools.

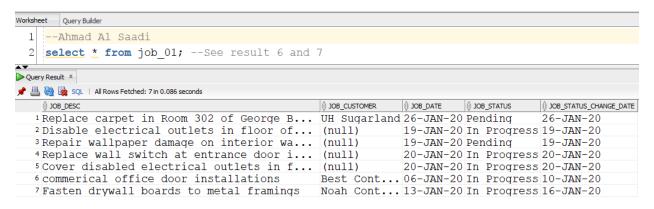
Task 6



v)Ahmad Al Saadi, 01-26-2020

```
p/* Best Contractor Services is going to have a job involving commerical office door
installations.*/
pinsert into job 01 values('commerical office door installations', 'Best Contractor Services',
'06-Jan-2020', 'In Progress', '10-Jan-2020');
F/* Noah Contractor Services is going to have a job involving fastening drywall boards to
metal framings.*/
pinsert into job 01 values ('Fasten drywall boards to metal framings', Noah Contractor Services,
'13-Jan-2020', 'In Progress', '16-Jan-2020');
무/*The hammer by Dewalt is popular and is expected to be used for commeircal
office door installations by Best Contractor Services and fasten drywall boards to
metal framings by Noah Contractor Services two different clients in Houston. */
 insert into tool 01
values(1, '22 oz. Steel Checkered Face Hammer', 'rdb-5541', 'Dewalt');
p/*The screw driver by Hilti is also popular and may be used by
for job involving fatening drywall boards to metal framings by Noah Contractor
Services. */
 insert into tool 01
values(1, 'SD 4500 Drywall Screw Driver', 'gsh-5541', 'Hilti');
```

ii) Data scenarios explaining jobs to be done and tools to be used



iii) We verify that our jobs have been inserted correctly

```
insert into loan_01
evalues(1, '22 oz. Steel Checkered Face Hammer', 'george@bcs.com', 'commerical office door install '06-Jan-2020', '10-Jan-2020', 'Active', '10-Jan-2020');

=/*Noah from Noah Contractor services wants to use the same hammer that
was previously checked out by George. He proceeds his reservation, and the data entry clerk sets the change date for the reservation status based on anticipated return of tool by George from BCS, which is January 10. */
einsert into reserve_01 values('noah@ncs.com', '22 oz. Steel Checkered Face Hammer', 'Fasten drywall boards to metal framings', 'Yes', '10-Jan-2020');

=/* On January 10 2020, George returns the Dewalt Hammer. This means George's loan must be updated to inactive. This is done by referencing his email and job description. */
update loan_01
set loan_active ='Inactive', loan_status_change_date = '10-Jan-2020'
where employee_email = 'george@bcs.com' and job_desc = 'commercial office door installations';
```

iv) Data scenario for hammer loan to employee George, reservation for same hammer by different employee, and updating loan status when first employee returns the hammer.

```
--Ahmad Al Saadi
select * from reserve 01
where job desc = 'Fasten drywall boards to metal framings'
and employee email = 'noah@ncs.com';
y Result X D Query Result 1 X Query Result 2 X D Query Result 3 X D Query Result 4 X Query Result 5 X Query Result 6 X
SQL | All Rows Fetched: 1 in 0.051 seconds
RESERVE_ACTIVE RESERVE_STATUS_CHANGE_DATE

⊕ JOB_DESC

noah@... 22 oz. Steel Checkered Face Hammer Fasten dr... Yes
v) After inserting into reserve_01 table, we verify the reservation went through
--Ahmad Al Saadi
select * from loan 01
where loan active = 'Inactive'
and job desc = 'commerical office door installations'
and tool desc = '22 oz. Steel Checkered Face Hammer';
/ Result × | Query Result 1 × | Query Result 2 × | Query Result 3 × | Query Result 4 × | Query Result 5 × | Query Result 6 ×
SQL | All Rows Fetched: 1 in 0.048 seconds

⊕ JOB_DESC

     122 oz. S... george@bcs.com.commeric...06-JAN-2010-JAN-20Inactive10-JAN-20
```

vi) We verify that our update script worked properly as loan is "Inactive"

Ahmad Al Saadi 01/26/2020 CIS 4338-01

```
p/* Noah from NCS is informed his hammer is now available. Instead of picking it up on January
^{	extstyle 1}10, Noah decides to wait until January 13. This creates an active hold in the system. */
pinsert into hold 01 values(1, '22 oz. Steel Checkered Face Hammer', 'noah@ncs.com', 'Fasten
 drywall boards to metal framings',
'10-Jan-2020', '13-Jan-2020', 'Active', '13-Jan-2020');
\phi/* Because the dewalt hammer is physically back in the library, we must cancel any reservation
 associated with it. In this case, we cancel the reservation made previously by Noah
 from NCS. */
 update reserve 01
 set reserve_active = 'No', reserve_status_change_date = '10-Jan-2020'
 where employee email = 'noah@ncs.com' and job desc = 'Fasten drywall boards to metal framings';
vii) Data Scenario for returning tool that has a reservation on it, creating a hold until the next requested user picks it up, and
cancelling the reservation as a hold is in effect.
--Ahmad Al Saadi
 select * from hold 01
where job desc = 'Fasten drywall boards to metal framings'
and tool desc = '22 oz. Steel Checkered Face Hammer';
y Result 🗴 🕟 Query Result 1 🗴 🕟 Query Result 2 🗴 🕟 Query Result 3 🗴 🖟 Query Result 4 🗴 🖟 Query Result 5 🗴 🕏 Query Result 6 🗴
🙀 🅦 SQL | All Rows Fetched: 1 in 0.05 seconds
$ TOOL_NO $ TOOL_DESC $ €MPLOYEE_EMAIL $ JOB_DESC
                                                     ♦ HOLD_DATE
♦ EXPIRE_DATE
♦ HOLD_ACTIVE
♦ HOLD_STATUS_CHANGE_DATE
      122 oz. S... noah@ncs.com Fasten d... 10-JAN-20 13-JAN-20 Active 13-JAN-20
```

viii)Confirmation that hold query executed correctly

Task 8

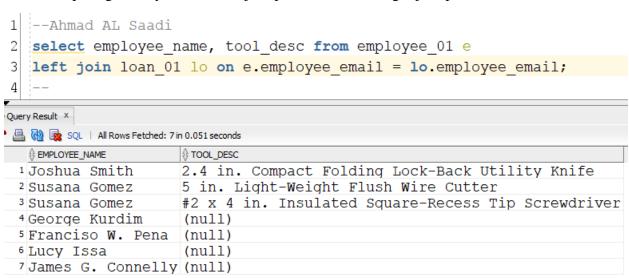
ix) employee join loan

x) loan join employee

We see that employee join loan returns same results as loan join employee, therefore A join B returns same result set as B join A.

Task 9

"Inner Join" will return the same as "Join" that we saw in Task 8. We examine different Outer Joins, comparing side by side the left join possibilities, the right join possibilities.



xi) Employee Left Join Loan

xii) Loan Left Join Employee

We see that Employee Left Join Loan gives us all employees with equivalent email in both tables, even if they did not use any tools. Loan Left Join Employee, on the other hand, gives us all tools checked out even If there is yet an employee associated with it.

xiii) Employee Right Join Loan

xiv) Loan Right Join Employee

We see that Employee Right Join Loan gives us all tools checked out even if there is yet an associated employee. We also see that Loan Right Join Employee gives us all employees even if there has not been any tool loaned out to them. If we compare this with our Left Join result sets, we can conclude the following:

• A Left Join B = B Right Join A

```
1 -- Ahmad AL Saadi
2 select employee name, tool desc from employee 01 e
3 full join loan 01 lo on e.employee email = lo.employee email;
4
Query Result X
🕨 📇 🙌 嶳 SQL | All Rows Fetched: 8 in 0.052 seconds
  Joshua Smith 2.4 in. Compact Folding Lock-Back Utility Knife
                  #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 <sup>2</sup> Susana Gomez
                     5 in. Light-Weight Flush Wire Cutter
 <sup>3</sup> Susana Gomez
 4 Lucy Issa
                    (null)
 5 James G. Connelly (null)
 6 Franciso W. Pena (null)
 George Kurdim (null)
 8 (null)
                     22 oz. Steel Checkered Face Hammer
```

xv) Employee Full Join Loan

```
5 -- Ahmad Al Saadi
6 select employee name, tool desc from loan 01 lo
7 full join employee 01 e on lo.employee email = e.employee email;
8
Query Result X
🚇 🙀 🗽 SQL | All Rows Fetched: 8 in 0.051 seconds
Joshua Smith 2.4 in. Compact Folding Lock-Back Utility Knife
 2 Susana Gomez #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 3 Susana Gomez 5 in. Light-Weight Flush Wire Cutter
 <sup>4</sup>Lucy Issa
                   (null)
 5 James G. Connelly (null)
 6 Franciso W. Pena (null)
 7 George Kurdim (null)
                   22 oz. Steel Checkered Face Hammer
 8 (null)
```

xvi) Loan Full Join Employee

We first note that Full Join result set is the same regardless of table order. We also see that full joins gives us a union of both tables for the specified ON condition, allowing nulls for each of the columns selected.

```
8 --Ahmad Al Saadi
 9 select employee name, tool desc from employee 01
10 cross join loan 01;
11
▶ Query Result ×
🏲 📇 🙀 🗽 SQL | All Rows Fetched: 24 in 0.052 seconds
1 Joshua Smith 2.4 in. Compact Folding Lock-Back Utility Knife
 <sup>2</sup> Susana Gomez 2.4 in. Compact Folding Lock-Back Utility Knife
 3 Lucy Issa
                   2.4 in. Compact Folding Lock-Back Utility Knife
  4 James G. Connelly 2.4 in. Compact Folding Lock-Back Utility Knife
 5 Franciso W. Pena 2.4 in. Compact Folding Lock-Back Utility Knife
 6 George Kurdim 2.4 in. Compact Folding Lock-Back Utility Knife
 <sup>7</sup> Joshua Smith
                    5 in. Light-Weight Flush Wire Cutter
 8 Susana Gomez
                    5 in. Light-Weight Flush Wire Cutter
                    5 in. Light-Weight Flush Wire Cutter
 9 Lucy Issa
 10 James G. Connelly 5 in. Light-Weight Flush Wire Cutter
 11 Franciso W. Pena 5 in. Light-Weight Flush Wire Cutter
 12 George Kurdim 5 in. Light-Weight Flush Wire Cutter
 Joshua Smith #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 14 Susana Gomez #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 15 Lucy Issa
                    #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 16 James G. Connelly #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 17 Franciso W. Pena #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 18 George Kurdim #2 x 4 in. Insulated Square-Recess Tip Screwdriver
 19 Joshua Smith
                    22 oz. Steel Checkered Face Hammer
 20 Susana Gomez
                    22 oz. Steel Checkered Face Hammer
                    22 oz. Steel Checkered Face Hammer
 21 Lucy Issa
 22 James G. Connelly 22 oz. Steel Checkered Face Hammer
 23 Franciso W. Pena 22 oz. Steel Checkered Face Hammer
 24 George Kurdim 22 oz. Steel Checkered Face Hammer
```

xvii) Employee Cross Join Loan

We see that the cross join produces every possible combination between the selected columns, independent of relationships and conditions. We get the same output regardless of table order for the Cross Join.

The full join on the other hand, requires that at least one common record between the tables to warrant an outputted row.