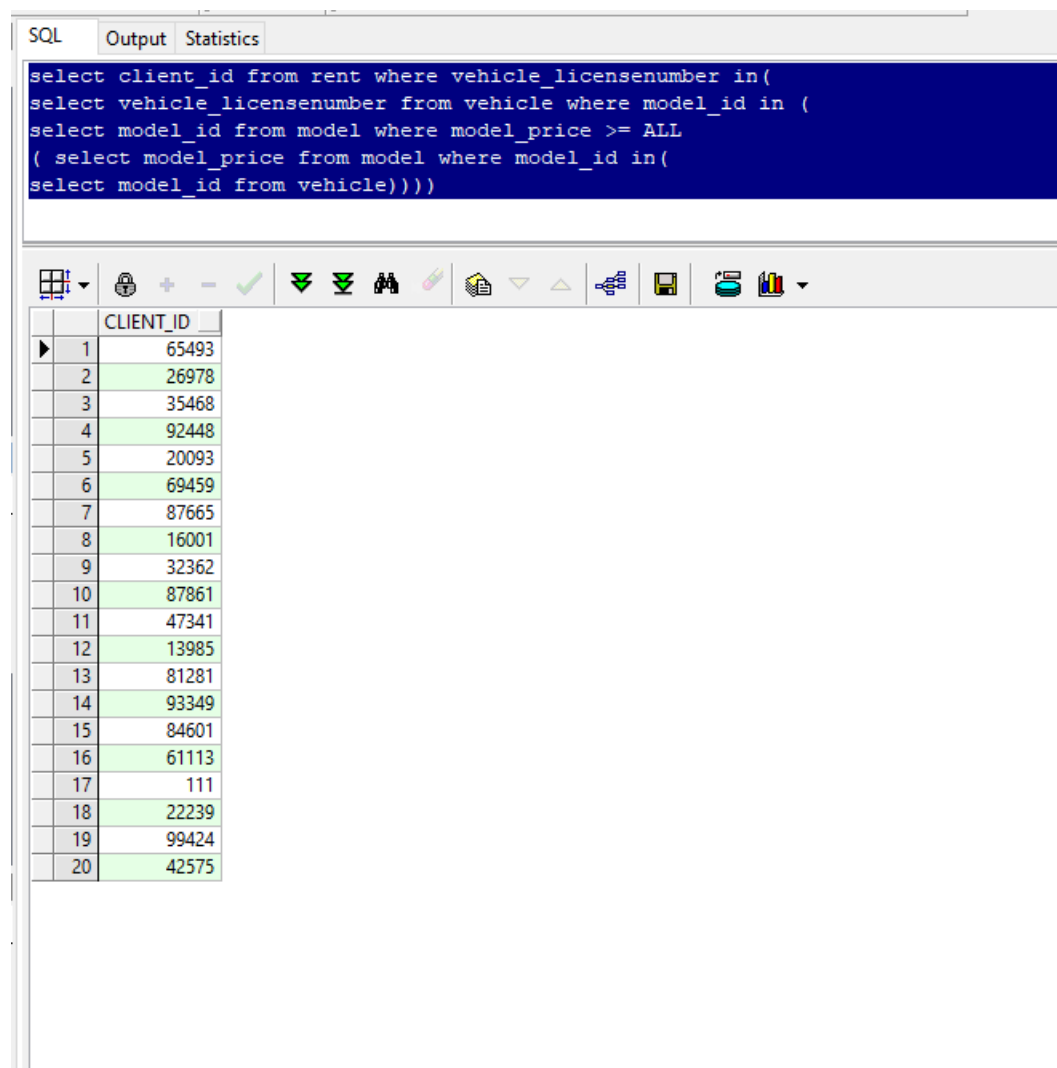


דו"ח פרויקט טיולים השכרת רכב שלבים 2 3 4:

שאלות שלב 4:

שאלת הבחירה את כל הלקוחות ששילמו את המחיר הגבוה ביותר על הרכב שהם שכרו:

```
select client_id from rent where vehicle_licensenum in(
select vehicle_licensenum from vehicle where model_id in (
select model_id from model where model_price >= ALL
( select model_price from model where model_id in(
select model_id from vehicle))))
```



The screenshot shows a SQL query execution window with three tabs: SQL, Output, and Statistics. The SQL tab is active, displaying the query. Below the query is a toolbar with various icons. The Output tab shows the results of the query in a table format.

	CLIENT_ID
1	65493
2	26978
3	35468
4	92448
5	20093
6	69459
7	87665
8	16001
9	32362
10	87861
11	47341
12	13985
13	81281
14	93349
15	84601
16	61113
17	111
18	22239
19	99424
20	42575

שאלת הבחירה רק את הלקוחות שביצעו השכרה וששילמו עליה:

```
select client_name, client_phonenr from client where client_id in(
select client_id from rent where rent_id in(
(select rent_id from report where report_ispaid = 'Y')))
```



```
having count(*) > 1)
```

The screenshot shows the Oracle SQL Developer interface. The top pane displays several SQL queries. The bottom pane shows a table named 'AGENT_NAME' with 21 rows. The status bar at the bottom indicates '21 rows selected in 1.766 seconds (more...)'. A toolbar with various icons is located between the SQL editor and the table view.

```
SQL      Output  Statistics

select model_id from model where model_price >= ALL
(select model_price from model where model_id in(
select model_id from vehicle)))

select client_name, client_phonenr from client where client_id in(
select client_id from rent where rent_id in(
(select rent_id from report where report_ispaid = 'Y')))

select agent_name from agent
where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 1)

select a.agent_id, c.client_id from
agent_rating a, client c, (select agent_id, client_id from rent) r
where a.agent_id = r.agent_id and c.client_id = r.client_id and a.city_id = c.city_id

update agent_rating
```

	AGENT_NAME
1	Lee
2	Alex
3	Pelvic
4	Will
5	Annie
6	Cole
7	Adrien
8	Marina
9	Orlando
10	Daniel
11	James
12	Lee
13	Morgan
14	Ray
15	yaakov
16	Janice
17	Albert
18	Julianne
19	Beverley
20	Jeroen
21	Cameron

13:1 0:01 SYSTEM@XE 21 rows selected in 1.766 seconds (more...)

השאלתה הבאה בוחרת את כל התז של סוכן ולקוח שהיו באותה עסקה וגם גרים באותה עיר:

```
select a.agent_id, c.client_id from
agent a, client c, (select agent_id, client_id from rent) r
```

```
where a.agent_id = r.agent_id and c.client_id = r.client_id and
a.city_id = c.city_id
```

SQL Output Statistics

```
select agent_name from agent
where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 1)

select a.agent_id, c.client_id from
agent a, client c, (select agent_id, client_id from rent) r
where a.agent_id = r.agent_id and c.client_id = r.client_id and a.city_id = c.city_id

update agent_rating
set agent_salary = agent_salary + 1000 where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 10) and agent_salary < 5000

update agent_rating
set report_ispaid = 'Y' where client_id in(
select client_id from rent where rent_id in(
```

	AGENT_ID	CLIENT_ID
1	32374	99297
2	7	88157
3	6	88792
4	91753	52432
5	29621	34618
6	32374	73324
7	6	52852
8	99835	94974
9	96931	20488
10	6	111
11	25287	15723
12	65682	15631
13	98599	78797
14	82338	62896
15	32932	97544
16	65285	73396
17	83871	54244
18	17339	19557
19	49477	13985
20	6	36852
21	49477	43835

20:1 SYSTEM@XE 21 rows selected in 0.047 seconds (more...)

שאלות עדכון:

נרצה להוסיף 1000 שח למשכורות של כל הסוכנים שביצעו יותר מ7 השכרות והמשכורת שלהם נמוכה מ15000:

השאלה:

```
update agent
set agent_salary = agent_salary + 1000 where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 7) and agent_salary < 15000
```

לפני העדכון:

SQL	Output	Statistics																																																																																																																																																																								
<pre> where agent_id in(select agent_id from rent group by agent_id having count(*) > 1) select a.agent_id, c.client_id from agent a, client c, (select agent_id, client_id from rent) r where a.agent_id = r.agent_id and c.client_id = r.client_id and a.city_id = c.city_id select * from agent update agent set agent_salary = agent_salary + 1000 where agent_id in(select agent_id from rent group by agent_id having count(*) > 7) and agent_salary < 15000 update agent set report_ispaid = 'Y' where client_id in(select client_id from rent where rent_id in((select rent_id from report where report_ispaid = 'N'))) and agent_name = 'meir' </pre>																																																																																																																																																																										
<table border="1"> <thead> <tr> <th></th> <th>AGENT_ID</th> <th>AGENT_NAME</th> <th>AGENT_HIREYEAR</th> <th>AGENT_SALARY</th> <th>DEPARTMENT_ID</th> <th>CITY_ID</th> <th>SPECIALIZATION</th> </tr> </thead> <tbody> <tr><td>1</td><td>6</td><td>yaakov</td><td>...</td><td>2015</td><td>20000.00</td><td>1</td><td>1</td></tr> <tr><td>2</td><td>7</td><td>meir</td><td>...</td><td>2019</td><td>18000.00</td><td>1</td><td>2</td></tr> <tr><td>3</td><td>8</td><td>daniel</td><td>...</td><td>2015</td><td>25000.00</td><td>2</td><td>1</td></tr> <tr><td>4</td><td>9</td><td>bat sheva</td><td>...</td><td>2018</td><td>13000.00</td><td>3</td><td>8</td></tr> <tr><td>5</td><td>73237</td><td>Kylie</td><td>...</td><td>2018</td><td>25972.49</td><td>21</td><td>116</td></tr> <tr><td>6</td><td>58234</td><td>Thelma</td><td>...</td><td>2008</td><td>10223.16</td><td>21</td><td>699</td></tr> <tr><td>7</td><td>67788</td><td>Wallace</td><td>...</td><td>2007</td><td>23639.29</td><td>3</td><td>286</td></tr> <tr><td>8</td><td>43839</td><td>Terri</td><td>...</td><td>2015</td><td>12612.42</td><td>31</td><td>292</td></tr> <tr><td>9</td><td>36148</td><td>Bridget</td><td>...</td><td>2020</td><td>20203.61</td><td>41</td><td>628</td></tr> <tr><td>10</td><td>65285</td><td>Russell</td><td>...</td><td>2001</td><td>35490.73</td><td>2</td><td>216</td></tr> <tr><td>11</td><td>67718</td><td>Meredith</td><td>...</td><td>2017</td><td>14380.36</td><td>3</td><td>1</td></tr> <tr><td>12</td><td>87483</td><td>Humberto</td><td>...</td><td>2017</td><td>11446.91</td><td>3</td><td>642</td></tr> <tr><td>13</td><td>99835</td><td>Ray</td><td>...</td><td>2021</td><td>7651.68</td><td>3</td><td>262</td></tr> <tr><td>14</td><td>23484</td><td>Julianne</td><td>...</td><td>2021</td><td>37409.95</td><td>6</td><td>698</td></tr> <tr><td>15</td><td>33256</td><td>James</td><td>...</td><td>2018</td><td>6667.37</td><td>11</td><td>116</td></tr> <tr><td>16</td><td>31194</td><td>Larenz</td><td>...</td><td>2014</td><td>36793.66</td><td>31</td><td>731</td></tr> <tr><td>17</td><td>37792</td><td>Charlton</td><td>...</td><td>2006</td><td>37575.99</td><td>41</td><td>119</td></tr> <tr><td>18</td><td>48819</td><td>Sissy</td><td>...</td><td>2020</td><td>39772.20</td><td>3</td><td>172</td></tr> <tr><td>19</td><td>99923</td><td>Geoff</td><td>...</td><td>2020</td><td>5940.09</td><td>5</td><td>388</td></tr> <tr><td>20</td><td>22231</td><td>Chet</td><td>...</td><td>2001</td><td>28967.68</td><td>11</td><td>849</td></tr> </tbody> </table>				AGENT_ID	AGENT_NAME	AGENT_HIREYEAR	AGENT_SALARY	DEPARTMENT_ID	CITY_ID	SPECIALIZATION	1	6	yaakov	...	2015	20000.00	1	1	2	7	meir	...	2019	18000.00	1	2	3	8	daniel	...	2015	25000.00	2	1	4	9	bat sheva	...	2018	13000.00	3	8	5	73237	Kylie	...	2018	25972.49	21	116	6	58234	Thelma	...	2008	10223.16	21	699	7	67788	Wallace	...	2007	23639.29	3	286	8	43839	Terri	...	2015	12612.42	31	292	9	36148	Bridget	...	2020	20203.61	41	628	10	65285	Russell	...	2001	35490.73	2	216	11	67718	Meredith	...	2017	14380.36	3	1	12	87483	Humberto	...	2017	11446.91	3	642	13	99835	Ray	...	2021	7651.68	3	262	14	23484	Julianne	...	2021	37409.95	6	698	15	33256	James	...	2018	6667.37	11	116	16	31194	Larenz	...	2014	36793.66	31	731	17	37792	Charlton	...	2006	37575.99	41	119	18	48819	Sissy	...	2020	39772.20	3	172	19	99923	Geoff	...	2020	5940.09	5	388	20	22231	Chet	...	2001	28967.68	11	849
	AGENT_ID	AGENT_NAME	AGENT_HIREYEAR	AGENT_SALARY	DEPARTMENT_ID	CITY_ID	SPECIALIZATION																																																																																																																																																																			
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7	67788	Wallace	...	2007	23639.29	3	286																																																																																																																																																																			
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11	67718	Meredith	...	2017	14380.36	3	1																																																																																																																																																																			
12	87483	Humberto	...	2017	11446.91	3	642																																																																																																																																																																			
13	99835	Ray	...	2021	7651.68	3	262																																																																																																																																																																			
14	23484	Julianne	...	2021	37409.95	6	698																																																																																																																																																																			
15	33256	James	...	2018	6667.37	11	116																																																																																																																																																																			
16	31194	Larenz	...	2014	36793.66	31	731																																																																																																																																																																			
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18	48819	Sissy	...	2020	39772.20	3	172																																																																																																																																																																			
19	99923	Geoff	...	2020	5940.09	5	388																																																																																																																																																																			
20	22231	Chet	...	2001	28967.68	11	849																																																																																																																																																																			
<div> 24:1 SYSTEM@XE 20 rows selected in 0.078 seconds (more...) </div>																																																																																																																																																																										
<div> AB </div>																																																																																																																																																																										

```
update agent
set agent_salary = agent_salary + 1000 where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 7) and agent_salary < 15000
```

```
update agent
set report_ispaid = 'Y' where client_id in(
select client_id from rent where rent_id in(
(select rent_id from report where report_ispaid = 'N'))
and agent_name = 'meir'
```

26:1 SYSTEM@XE 39 rows updated in 0.016 seconds

ואכן, לאחר העדכון נראה שלבת שבע למשל נוספו 1000 שח למשכורת:

SQL Output Statistics

```

where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 1)

select a.agent_id, c.client_id from
agent a, client c, (select agent_id, client_id from rent) r
where a.agent_id = r.agent_id and c.client_id = r.client_id and a.city_id = c.city_id

select * from agent

update agent
set agent_salary = agent_salary + 1000 where agent_id in(
select agent_id from rent
group by agent_id
having count(*) > 7) and agent_salary < 15000

update agent
set report_ispaid = 'Y' where client_id in(
select client_id from rent where rent_id in(
(select rent_id from report where report_ispaid = 'N')))
and agent_name = 'meir'

```

	AGENT_ID	AGENT_NAME	AGENT_HIREYEAR	AGENT_SALARY	DEPARTMENT_ID	CITY_ID	SPECIALIZATION
1	6	yaakov	...	2015	20000.00	1	1
2	7	meir	...	2019	18000.00	1	2
3	8	daniel	...	2015	25000.00	2	1
4	9	bat sheva	...	2018	14000.00	3	8
5	73237	Kylie	...	2018	25972.49	21	116
6	58234	Thelma	...	2008	11223.16	21	699
7	67788	Wallace	...	2007	23639.29	3	286
8	43839	Terri	...	2015	13612.42	31	292
9	36148	Bridget	...	2020	20203.61	41	628
10	65285	Russell	...	2001	35490.73	2	216
11	67718	Meredith	...	2017	15380.36	3	1
12	87483	Humberto	...	2017	12446.91	3	642
13	99835	Ray	...	2021	8651.68	3	262
14	23484	Julianne	...	2021	37409.95	6	698
15	33256	James	...	2018	7667.37	11	116
16	31194	Larenz	...	2014	36793.66	31	731
17	37792	Charlton	...	2006	37575.99	41	119
18	48819	Sissy	...	2020	39772.20	3	172
19	99923	Geoff	...	2020	6940.09	5	388
20	22231	Chet	...	2001	28967.68	11	849

24:1 SYSTEM@XE 20 rows selected in 0.063 seconds (more...)

שאילתת עדכון:

השכרה 212 נשמרה בטעות כשולמה, נרצה לעדכן בדוח שההשכרה שמספרה 212 לא שולמה:

השאילתת:

```

update report
set report_ispaid = 'N' where rent_id = 212

```

לפני העדכון:

select * from report

update report
set report_ispaid = 'N' where rent_id = 212

	REPORT_ID	REPORT_RETURNMODE	REPORT_ISPAID	RENT_ID
1	311	OKAY	Y	212
2	312	OKAY	Y	212
3	313	OKAY	Y	211
4	414	OKAY	Y	314

select * from report

update agent
set report_ispaid = 'N' where rent_id = 212

	REPORT_ID	REPORT_RETURNMODE	REPORT_ISPAID	RENT_ID
1	311	OKAY	Y	212
2	312	OKAY	Y	212
3	313	OKAY	Y	211
4	414	OKAY	Y	314

לאחר העדכון:

select * from report

update report
set report_ispaid = 'N' where rent_id = 212

	REPORT_ID	REPORT_RETURNMODE	REPORT_ISPAID	RENT_ID
1	311	OKAY	N	212
2	312	OKAY	N	212
3	313	OKAY	Y	211
4	414	OKAY	Y	314

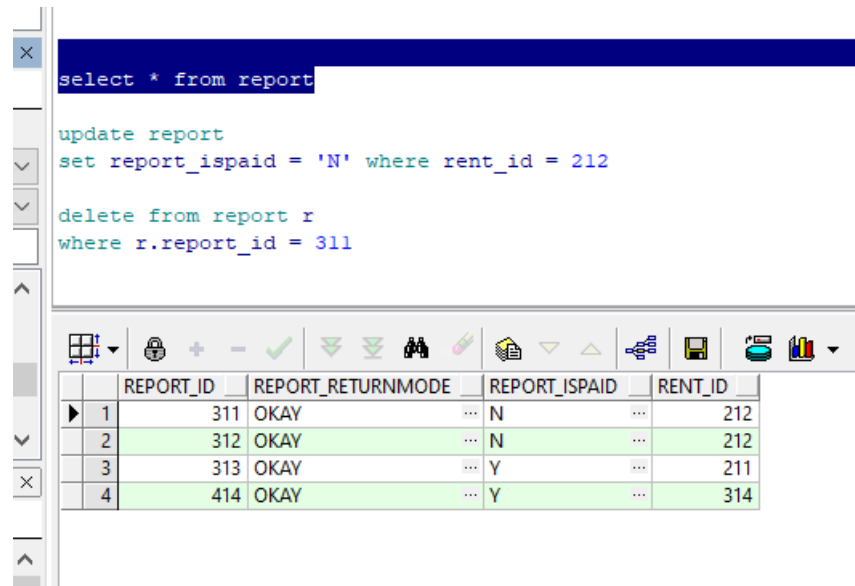
שאליות מחיקה:

ישנם שני דוחות על השכרה מספר 212, נרצה למחוק אחד מהם:

השאלית:

```
delete from report r
where r.report_id = 311
```

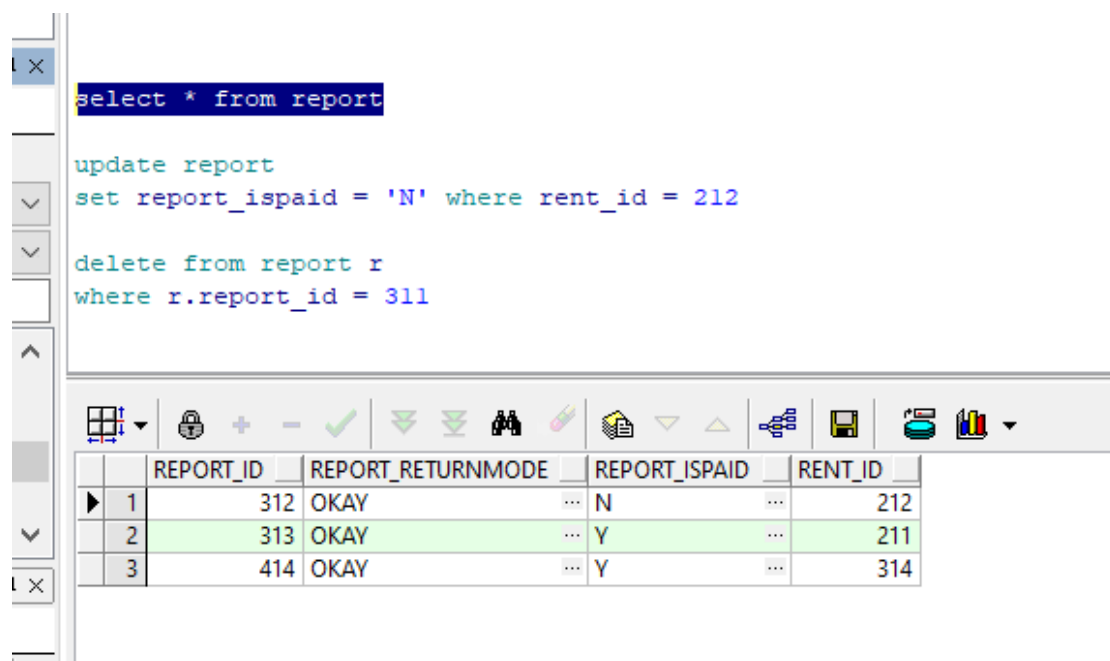
לפני המחיקה:



The screenshot shows a database management tool interface. The top pane contains three SQL queries: a SELECT statement, an UPDATE statement, and a DELETE statement. The bottom pane displays a table with the following data:

	REPORT_ID	REPORT_RETURNMODE	REPORT_ISPAID	RENT_ID
1	311	OKAY	N	212
2	312	OKAY	N	212
3	313	OKAY	Y	211
4	414	OKAY	Y	314

לאחר המחיקה:



The screenshot shows the same database management tool interface after the deletion operation. The top pane contains the same three SQL queries. The bottom pane displays the table after the deletion of the row with REPORT_ID 311:

	REPORT_ID	REPORT_RETURNMODE	REPORT_ISPAID	RENT_ID
1	312	OKAY	N	212
2	313	OKAY	Y	211
3	414	OKAY	Y	314

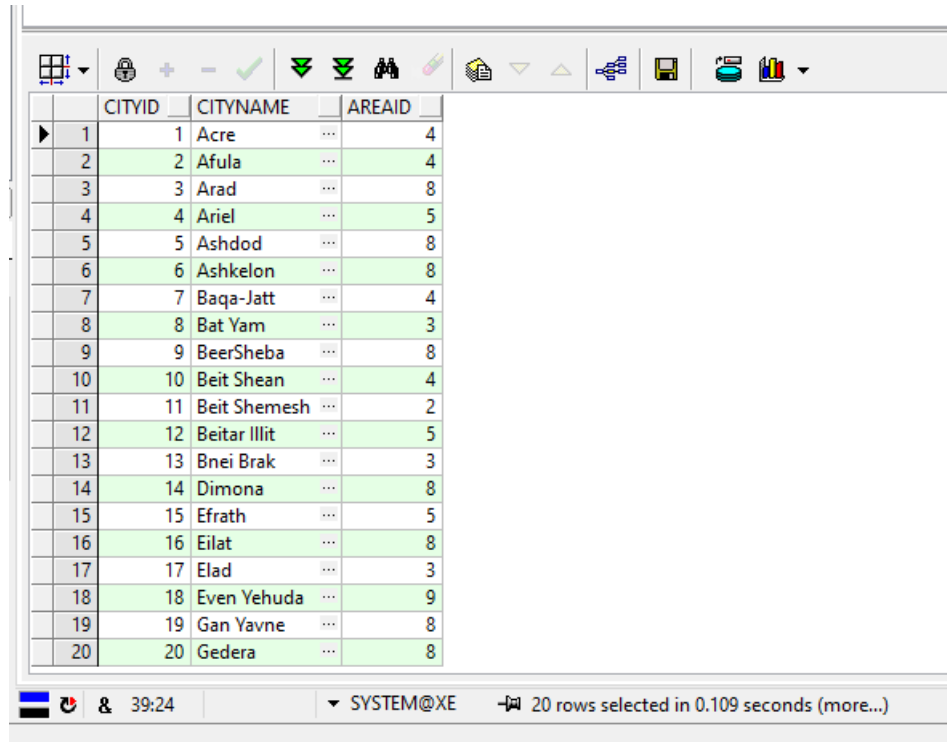
שאלת מחיקה:

נרצה למחוק את העיר ערד מרשימת הערים כיוון שהארגון אינו עובד בעיר זו יותר:

השאלתה:

```
delete from city c  
where c.cityname= 'Arad'
```

לפני המחיקה:



	CITYID	CITYNAME	AREAID
1	1	Acre	4
2	2	Afula	4
3	3	Arad	8
4	4	Ariel	5
5	5	Ashdod	8
6	6	Ashkelon	8
7	7	Baqa-Jatt	4
8	8	Bat Yam	3
9	9	BeerSheba	8
10	10	Beit Shean	4
11	11	Beit Shemesh	2
12	12	Beitar Illit	5
13	13	Bnei Brak	3
14	14	Dimona	8
15	15	Efrath	5
16	16	Eilat	8
17	17	Elad	3
18	18	Even Yehuda	9
19	19	Gan Yavne	8
20	20	Gedera	8

39:24 SYSTEM@XE 20 rows selected in 0.109 seconds (more...)

לאחר המחיקה:

```

select * from city

update report
set report_ispaid = 'N' where rent_id = 212

delete from city c
where c.cityname= 'Arad'

```

	CITYID	CITYNAME	AREAID
1	1	Acre	4
2	2	Afula	4
3	4	Ariel	5
4	5	Ashdod	8
5	6	Ashkelon	8
6	7	Baqa-Jatt	4
7	8	Bat Yam	3
8	9	BeerSheba	8
9	10	Beit Shean	4
10	11	Beit Shemesh	2
11	12	Beitar Illit	5
12	13	Bnei Brak	3
13	14	Dimona	8
14	15	Efrath	5
15	16	Eilat	8
16	17	Elad	3
17	18	Even Yehuda	9
18	19	Gan Yavne	8
19	20	Gedera	8
20	21	Givat Shmuel	3

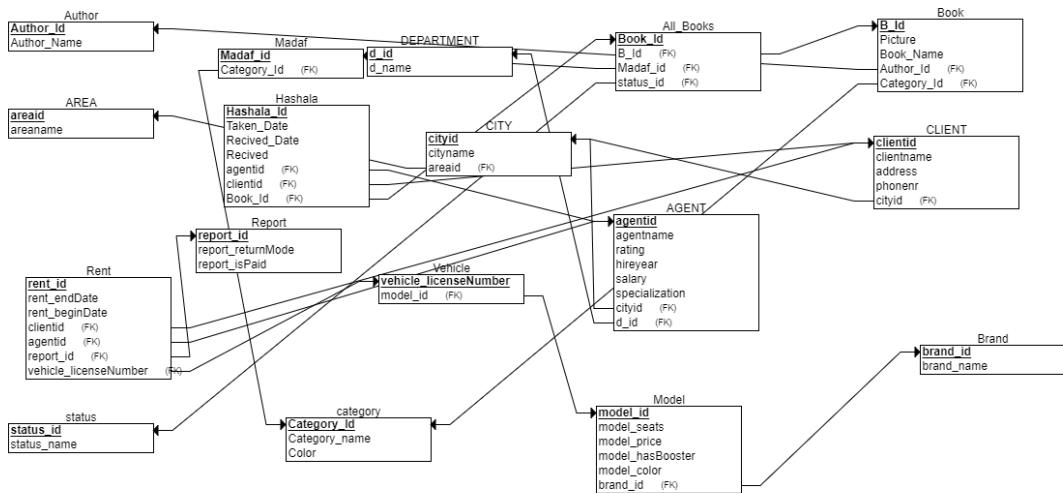
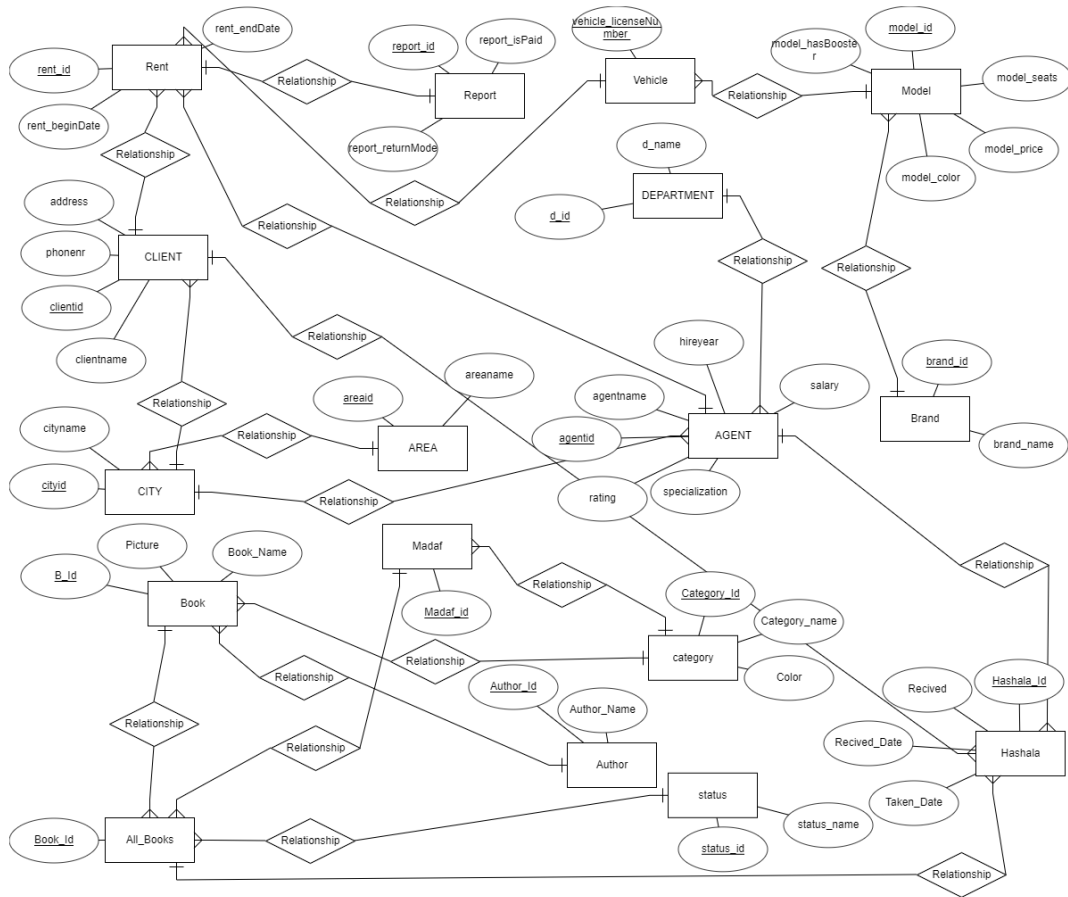
SYSTEM@XE 20 rows selected in 0.063 se

ABC AB "AB"

שלב 2:

מטלה 5:

חיבור בין שני האגפים השכרת רכב וספרייה הישיות עיר, סוכן, מחלקה, אזור ולקוח אוחדו משני האגפים כל אחת לישות אחת. לישות סוכן הוספנו תכונה התמחות, על מנת להבדיל בין סוכן השכרת רכב לבין עובד ספרייה.



```
CREATE TABLE Author
(
  Author_Name INT NOT NULL,
  Author_Id INT NOT NULL,
  PRIMARY KEY (Author_Id)
);
```

```
CREATE TABLE DEPARTMENT
(
  d_name INT NOT NULL,
  d_id INT NOT NULL,
  PRIMARY KEY (d_id)
);
```

```
CREATE TABLE AREA
(
  areaname INT NOT NULL,
  areaid INT NOT NULL,
  PRIMARY KEY (areaid)
);
```

```
CREATE TABLE CITY
(
  cityid INT NOT NULL,
  cityname INT NOT NULL,
  areaid INT NOT NULL,
  PRIMARY KEY (cityid),
  FOREIGN KEY (areaid) REFERENCES AREA(areaid)
);
```

```
CREATE TABLE AGENT
(
  agentname INT NOT NULL,
  rating INT NOT NULL,
  agentid INT NOT NULL,
  hireyear INT NOT NULL,
  salary INT NOT NULL,
  specialization INT NOT NULL,
  cityid INT NOT NULL,
  d_id INT NOT NULL,
```

```
PRIMARY KEY (agentid),  
FOREIGN KEY (cityid) REFERENCES CITY(cityid),  
FOREIGN KEY (d_id) REFERENCES DEPARTMENT(d_id)  
);
```

```
CREATE TABLE CLIENT  
(  
    clientname INT NOT NULL,  
    address INT NOT NULL,  
    phonenr INT NOT NULL,  
    clientid INT NOT NULL,  
    cityid INT NOT NULL,  
    PRIMARY KEY (clientid),  
    FOREIGN KEY (cityid) REFERENCES CITY(cityid)  
);
```

```
CREATE TABLE Report  
(  
    report_id INT NOT NULL,  
    report_returnMode INT NOT NULL,  
    report_isPaid INT NOT NULL,  
    PRIMARY KEY (report_id)  
);
```

```
CREATE TABLE Brand  
(  
    brand_name INT NOT NULL,  
    brand_id INT NOT NULL,  
    PRIMARY KEY (brand_id)  
);
```

```
CREATE TABLE status  
(  
    status_name INT NOT NULL,  
    status_id INT NOT NULL,  
    PRIMARY KEY (status_id)  
);
```

```
CREATE TABLE category  
(  
    Category_Id INT NOT NULL,  
    Category_name INT NOT NULL,  
    Color INT NOT NULL,  
    PRIMARY KEY (Category_Id)  
);
```

```
CREATE TABLE Madaf  
(  
    Madaf_id INT NOT NULL,  
    Category_Id INT NOT NULL,  
    PRIMARY KEY (Madaf_id),  
    FOREIGN KEY (Category_Id) REFERENCES category(Category_Id)  
);
```

```
CREATE TABLE Book
```

```
(
  Picture INT NOT NULL,
  Book_Name INT NOT NULL,
  B_Id INT NOT NULL,
  Author_Id INT NOT NULL,
  Category_Id INT NOT NULL,
  PRIMARY KEY (B_Id),
  FOREIGN KEY (Author_Id) REFERENCES Author(Author_Id),
  FOREIGN KEY (Category_Id) REFERENCES category(Category_Id)
);
```

CREATE TABLE Model

```
(
  model_seats INT NOT NULL,
  model_price INT NOT NULL,
  model_id INT NOT NULL,
  model_hasBooster INT NOT NULL,
  model_color INT NOT NULL,
  brand_id INT NOT NULL,
  PRIMARY KEY (model_id),
  FOREIGN KEY (brand_id) REFERENCES Brand(brand_id)
);
```

CREATE TABLE All_Books

```
(
  Book_Id INT NOT NULL,
  B_Id INT NOT NULL,
  Madaf_id INT NOT NULL,
  status_id INT NOT NULL,
  PRIMARY KEY (Book_Id),
  FOREIGN KEY (B_Id) REFERENCES Book(B_Id),
  FOREIGN KEY (Madaf_id) REFERENCES Madaf(Madaf_id),
  FOREIGN KEY (status_id) REFERENCES status(status_id)
);
```

CREATE TABLE Hashala

```
(
  Hashala_Id INT NOT NULL,
  Taken_Date INT NOT NULL,
  Recived_Date INT NOT NULL,
  Recived INT NOT NULL,
  agentid INT NOT NULL,
  clientid INT NOT NULL,
  Book_Id INT NOT NULL,
  PRIMARY KEY (Hashala_Id),
  FOREIGN KEY (agentid) REFERENCES AGENT(agentid),
  FOREIGN KEY (clientid) REFERENCES CLIENT(clientid),
  FOREIGN KEY (Book_Id) REFERENCES All_Books(Book_Id)
);
```

CREATE TABLE Vehicle

```
(
  vehicle_licenseNumber INT NOT NULL,
  model_id INT NOT NULL,
  PRIMARY KEY (vehicle_licenseNumber),
```

```

FOREIGN KEY (model_id) REFERENCES Model(model_id)
);

CREATE TABLE Rent
(
    rent_endDate INT NOT NULL,
    rent_beginDate INT NOT NULL,
    rent_id INT NOT NULL,
    clientid INT NOT NULL,
    agentid INT NOT NULL,
    report_id INT NOT NULL,
    vehicle_licenseNumber INT NOT NULL,
    PRIMARY KEY (rent_id),
    FOREIGN KEY (clientid) REFERENCES CLIENT(clientid),
    FOREIGN KEY (agentid) REFERENCES AGENT(agentid),
    FOREIGN KEY (report_id) REFERENCES Report(report_id),
    FOREIGN KEY (vehicle_licenseNumber) REFERENCES Vehicle(vehicle_licenseNumber)
);

```

מהלך האינטגרציה:

נבחר את כל הרשומות שנמצאות בישות עיר של האגף ספרייה ולא נמצאות באגף השכרת רכב, אם
אכן קיימות כאלה – נכניס אותן לישות עיר של האגף השכרת רכב:

```

select * from client a where a.clientid not in(select client_id from
client1);

insert into client1 t (t.client_id, t.client_name, t.client_phonenr,
t.client_address, t.city_id)
select s.clientid, s.clientname, s.phonenr, s.address, s.cityid
from client s
      where s.clientid not in (select client_id from client1);

```

נבחר את כל הרשומות שנמצאות בישות מחלקה של האגף ספרייה ולא נמצאות באגף השכרת רכב,
גילינו שאין כאלה ולכן נמשיך הלאה:

```

select * from department a where a.d_id not in(select department_id
from department1);

```


SQL Output Statistics

```

select a.agent_id, c.client_id from
agent a, client c, (select agent_id, client_id from rent) r
where a.agent_id = r.agent_id and c.client_id = r.client_id and a.city_id = c.city_id

```

	AGENT_ID	CLIENT_ID
1	32374	99297
2	7	88157
3	6	88792
4	91753	52432
5	29621	34618
6	32374	73324
7	6	52852
8	99835	94974
9	96931	20488
10	6	111
11	25287	15723
12	65682	15631
13	98599	78797
14	82338	62896
15	32932	97544
16	65285	73396
17	83871	54244
18	17339	19557
19	49477	13985
20	6	36852
21	49477	43835
22	66121	92863

SYSTEM@XE 22 rows selected in 0.141 seconds (more...)

אילוצים:

הוספנו ערך דיפולטיבי עבור עמודת השם:

Type owner Name

	Name	Virtual	Type	Nullable	Default/Expr.	Storage	Comments
▶	CITYID	<input type="checkbox"/>	NUMBER(3)	<input type="checkbox"/>	...		
	CITYNAME	<input type="checkbox"/>	VARCHAR2(200)	<input type="checkbox"/>	'moshe'		
	AREAD	<input type="checkbox"/>	NUMBER(3)	<input type="checkbox"/>	...		
*		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	...		

```

alter table model
add constraint check_model_seats

```

```

check ( model_seats > 4 );

```

```

alter table model
add constraint chek_C

```

```

check (city_name != 'Acre' );

```

שלב 3:

מטלה 6:

שאלות:

```
select a.report_id, a.report_returnmode
from report a
where a.report_ispaid = 'Y'
order by a.report_id
```

לפני יצירת האינדקס:

The screenshot shows the SQL Developer interface. The SQL window contains the following code:

```
select a.report_id, a.report_returnmode
from report a
where a.report_ispaid = 'Y'
order by a.report_id

create index indx_r
on report(report_ispaid)

select author_name, category_name
from book natural join author natural join category
order by book_name

select agent_name, client_name, author_name
from agent natural join author natural join client
```

The Results window displays the output of the first query:

	REPORT_ID	REPORT_RETURNMODE
1	311	OKAY
2	312	OKAY
3	313	OKAY
4	414	OKAY

The status bar at the bottom indicates: 4 rows selected in 0.437 seconds.

האינדקס:

```
create index indx_r
on report(report_ispaid)
```

לאחר יצירת האינדקס:

SQL Output Statistics

```

select a.report_id, a.report_returnmode
from report a
where a.report_ispaid = 'Y'
order by a.report_id

create index indx_r
on report(report_ispaid)

select author_name, category_name
from book natural join author natural join category
order by book_name

select agent_name, client_name, author_name
from agent natural join author natural join client

```

	REPORT_ID	REPORT_RETURNMODE
1	311	OKAY
2	312	OKAY
3	313	OKAY
4	414	OKAY

SYSTEM@XE 4 rows selected in 0.078 seconds

```

select author_name, category_name
from book natural join author natural join category
order by book_name

```

SQL Window - select author_name, category_name from book natural join author natural join category order by b ...

SQL Output Statistics

```

select author_name, category_name
from book natural join author natural join category
order by book_name

```

	AUTHOR_NAME	CATEGORY_NAME
1	...	גדולי ישראל
2	...	גדולי ישראל
3	...	גדולי ישראל
4	...	גדולי ישראל
5	...	גדולי ישראל
6	...	גדולי ישראל
7	...	גדולי ישראל
8	...	גדולי ישראל
9	...	גדולי ישראל
10	...	גדולי ישראל
11	...	גדולי ישראל
12	...	גדולי ישראל
13	...	פעוטות
14	...	פעוטות
15	...	גדולי ישראל
16	...	פעוטות
17	...	גדולי ישראל
18	...	פעוטות

SYSTEM@XE 18 rows selected in 0.063 seconds (more...)

```

select agent_name, client_name, author_name

```

```

from agent natural join author natural join client
order by agent_name

```

SQL Window - select agent_name, client_name, author_name from agent natural join author natural join client o ...

SQL Output Statistics

```

select agent_name, client_name, author_name
from agent natural join author natural join client
order by agent_name

```

	AGENT_NAME	CLIENT_NAME	AUTHOR_NAME
1	bat sheva	Miko	
2	bat sheva	Suzi	
3	bat sheva	Fionnula	
4	bat sheva	Davy	
5	bat sheva	Lloyd	
6	bat sheva	Glenn	
7	bat sheva	Bonnie	
8	bat sheva	Stanley	
9	bat sheva	Clay	
10	bat sheva	Brendan	
11	bat sheva	Orlando	
12	bat sheva	Humberto	
13	bat sheva	Fats	
14	bat sheva	Emilio	
15	bat sheva	Bridget	
16	bat sheva	Malcolm	
17	bat sheva	Tobey	
18	bat sheva	Suzanne	

0:01 SYSTEM@XE 18 rows selected in 1.891 seconds (more...)

```

select book_name
from book natural join all_books
where book_name != '
עריטת המבוק';

```

SQL Output Statistics

```

select book name
from book natural join all_books
where book name != 'עריטת המבוק';

```

	BOOK_NAME
1	מקהלה במטבח
2	התפילין החמים
3	שלושה צדיקים מאי אחד
4	והאיש משה א
5	עם חכם ובנו ב
6	הקושיה והתרוץ
7	ה"אור החיים" הקדוש
8	בדור תהפוכות
9	רבי אליהו חיים מייזל
10	רבנו משה סופר
11	הדב החמדן
12	בדרכי אבותינו ד
13	פרח מטה אהרן
14	עכשיו הוא אוהב את כולם
15	אדיר התורה ג
16	נדרו של הפני יהושע
17	בדרכי אבותינו א
18	ה"אור החיים" הקדוש
19	שירת הבקר
20	עם חכם ובנו ב

שאלת מחיקה:

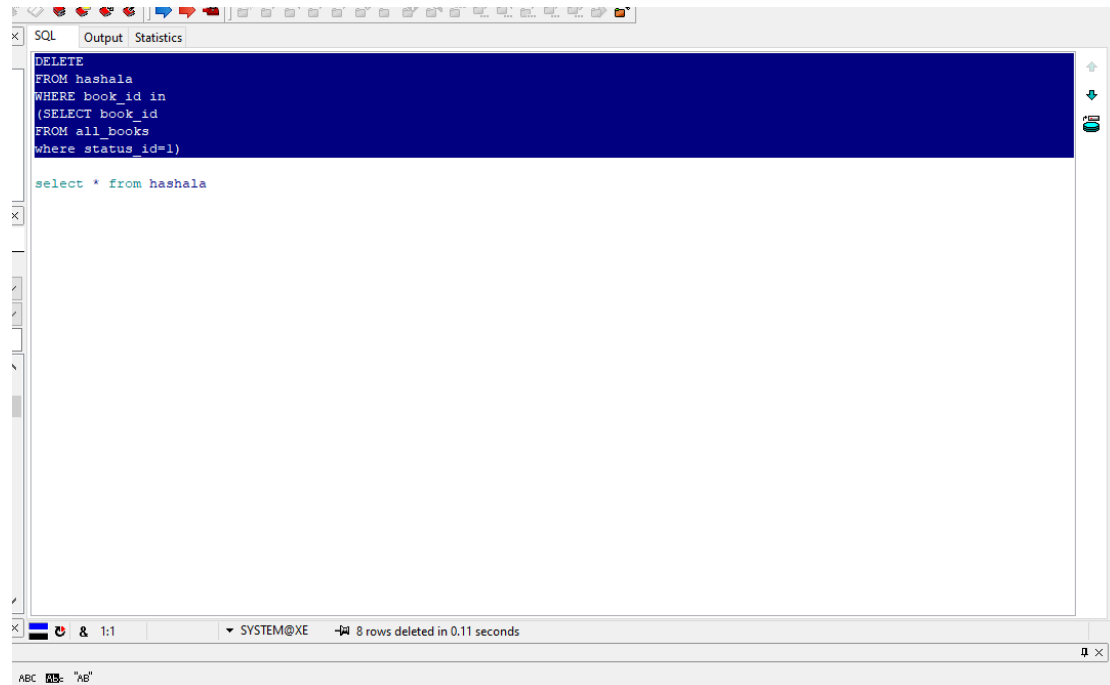
```

DELETE
FROM hashala
WHERE book_id in
(SELECT book_id
FROM all_books

```

```
where status_id=1)
```

לפני המחיקה:



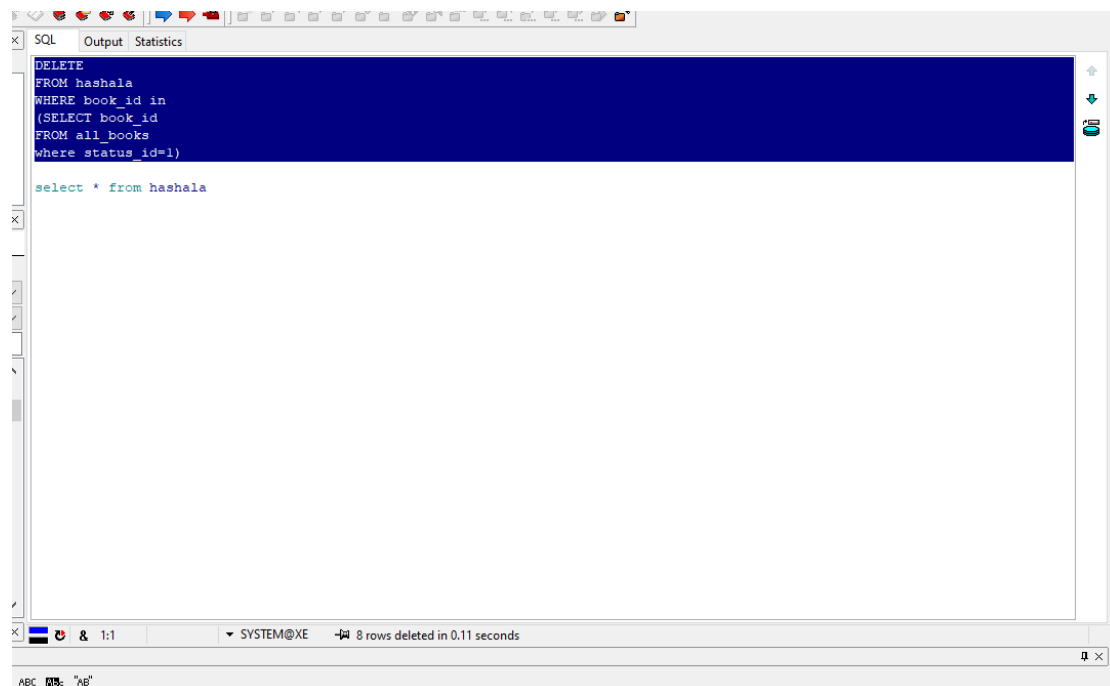
The screenshot shows the SQL Developer interface. The SQL tab is active, displaying the following SQL statement:

```
DELETE
FROM hashala
WHERE book_id in
(SELECT book_id
FROM all_books
where status_id=1)

select * from hashala
```

The status bar at the bottom indicates: "SYSTEM@XE" and "8 rows deleted in 0.11 seconds".

לאחר המחיקה:



The screenshot shows the SQL Developer interface, identical to the previous one. The SQL tab is active, displaying the same SQL statement:

```
DELETE
FROM hashala
WHERE book_id in
(SELECT book_id
FROM all_books
where status_id=1)

select * from hashala
```

The status bar at the bottom indicates: "SYSTEM@XE" and "8 rows deleted in 0.11 seconds".

עדכון:

```
update rent r
set r.rent_begindate = to_date('07-06-2016','dd-mm-yyyy')
where rent_id=31682
```

The screenshot shows a SQL IDE interface. The top pane contains the following SQL code:

```
select book_name
from book_natural join all_books
where book_name != 'עריסת המלכות';

select * from rent

update rent r
set r.rent_begindate = to_date('07-06-2016','dd-mm-yyyy')
where rent_id=31682

DELETE
FROM hashala
WHERE book_id in
```

The bottom pane displays a table with 12 rows and 7 columns. The status bar at the bottom indicates "12 rows selected in 0.422 seconds (more...)".

	RENT_ID	RENT_BEGINDATE	RENT_ENDDATE	CLIENT_ID	AGENT_ID	VEHICLE_LICENSENUMBER
1	83629	24/10/2009	29/11/2004	32362	48819	34781111
2	31682	26/05/2020	09/04/2009	93216	49732	69181511
3	16812	04/02/2003	26/07/2005	99297	32374	67428652
4	87956	23/06/2012	24/04/2012	11579	97261	63722518
5	99844	12/10/2012	11/08/2008	64147	34594	16
6	95447	18/07/2002	18/09/2013	87861	69417	34781111
7	37379	06/05/2000	09/05/2010	95963	29621	73784175
8	54515	15/09/2013	16/10/2004	62826	74937	29845241
9	93781	09/05/2016	12/12/2010	68484	98974	71945123
10	19113	19/05/2002	06/06/2004	80452	69417	91944651
11	96483	17/03/2003	31/08/2008	28266	32932	41879417
12	94392	08/02/2008	01/02/2014	86242	29621	22999597

לאחר העדכון:

```

select book_name
from book natural join all_books
where book_name != 'עריסת הנמבוק';

select * from rent

update rent r
set r.rent_begindate = to_date('07-06-2016','dd-mm-yyyy')
where rent_id=31682

DELETE
FROM hashala
WHERE book_id in

```

	RENT_ID	RENT_BEGINDATE	RENT_ENDDATE	CLIENT_ID	AGENT_ID	VEHICLE_LICENSENUMBER
1	83629	24/10/2009	29/11/2004	32362	48819	34781111
2	31682	07/06/2016	09/04/2009	93216	49732	69181511
3	16812	04/02/2003	26/07/2005	99297	32374	67428652
4	87956	23/06/2012	24/04/2012	11579	97261	63722518
5	99844	12/10/2012	11/08/2008	64147	34594	16
6	95447	18/07/2002	18/09/2013	87861	69417	34781111
7	37379	06/05/2000	09/05/2010	95963	29621	73784175
8	54515	15/09/2013	16/10/2004	62826	74937	29845241
9	93781	09/05/2016	12/12/2010	68484	98974	71945123
10	19113	19/05/2002	06/06/2004	80452	69417	91944651
11	96483	17/03/2003	31/08/2008	28266	32932	41879417
12	94392	08/02/2008	01/02/2014	86242	29621	22999597

SYSTEM@XE 12 rows selected in 0.156 seconds (more...)

ABC "AB"

4	87956	23/06/2012	24/04/2012	11579	97261	63722518
5	99844	12/10/2012	11/08/2008	64147	34594	16
6	95447	18/07/2002	18/09/2013	87861	69417	34781111

שלב 3:

מטלה 7:

מבטים:

נרצה לקבל מבט על הסוכנים וזמני ההשכרות שביצעו:

```

--view
create view details_agent_rent
(agent_name,agent_id,rent_id,rentBeginDate, rentEndDate)
as
select agent_name, agent_id, rent_id,rent_BeginDate, rent_EndDate
from agent natural join rent

```



```
SQL Window - --view create view details_agent_rent (agent_name,agent_id,rent_id,rentBeginDate, rentEndDate) a ...
SQL Output Statistics
--view
create view details_agent_rent
(agent_name,agent_id,rent_id,rentBeginDate, rentEndDate)
as
select agent_name, agent_id, rent_id,rent_BeginDate, rent_EndDate
from agent natural join rent
```

שאלות על המבט:
נבחר מתוך המבט רק את פרטי הסוכנים שביצעו השכרות החל מ-2018 והלאה:

```
--query
select a.agent_name, a.agent_id, a.rent_id,a.rentBeginDate
from details_agent_rent a
where a.rentBeginDate > to_date('1-1-2018', 'dd-mm-YYYY')
order by a.rent_id
```

```
SQL Window - --view create view details_agent_rent (agent_name,agent_id,rent_id,rentBeginDate, rentEndDate) a ...
SQL Output Statistics
--view
create view details_agent_rent
(agent_name,agent_id,rent_id,rentBeginDate, rentEndDate)
as
select agent_name, agent_id, rent_id,rent_BeginDate, rent_EndDate
from agent natural join rent

--query
select a.agent_name, a.agent_id, a.rent_id,a.rentBeginDate
from details_agent_rent a
where a.rentBeginDate > to_date('1-1-2018', 'dd-mm-YYYY')
order by a.rent_id
```

	AGENT_NAME	AGENT_ID	RENT_ID	RENTBEGINDATE
1	yaakov	6	211	07/07/2020
2	bat sheva	9	212	02/01/2021
3	yaakov	6	314	09/10/2020
4	meir	7	1896	15/05/2018
5	Terri	43839	2758	23/08/2018
6	Meredith	67718	2827	21/01/2020
7	Oded	65682	3155	26/07/2020
8	Beverley	42414	3179	25/11/2020
9	Terri	43839	3352	06/03/2020
10	Buffy	36383	3779	12/09/2020
11	Morgan	32374	4113	11/09/2019
12	Stephen	22414	4758	06/06/2020
13	Ernest	95296	4792	12/05/2019
14	Demi	83126	5232	25/11/2018
15	Mae	83871	5321	26/07/2019
16	Jean-Claude	55519	5762	19/08/2018
17	Jamie	23932	6354	12/07/2019

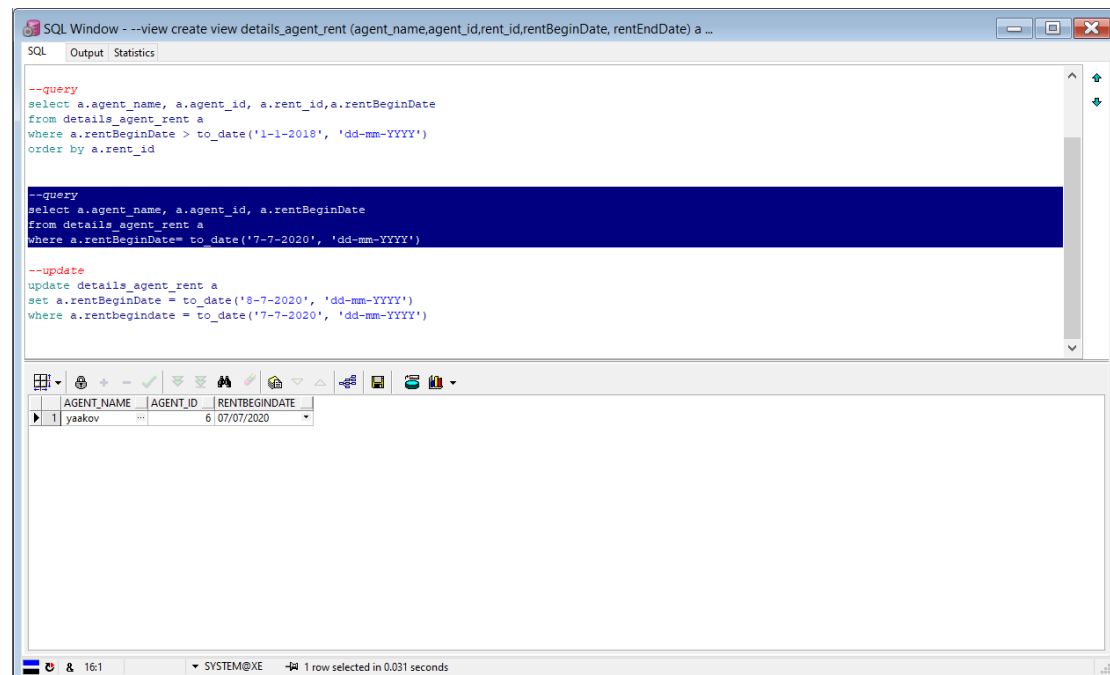
נבצע עדכון:
לפני העדכון, נבחר את ההשכרות שבוצעו בתאריך המוזכר, אך מדובר בטעות כיוון שבתאריך זה הייתה חופשה לעובדים וכל ההשכרות בוצעו יום למחרת:

```
--query
select a.agent_name, a.agent_id, a.rentBeginDate
```

```

from details_agent_rent a
where a.rentBeginDate= to_date('7-7-2020', 'dd-mm-YYYY')

```



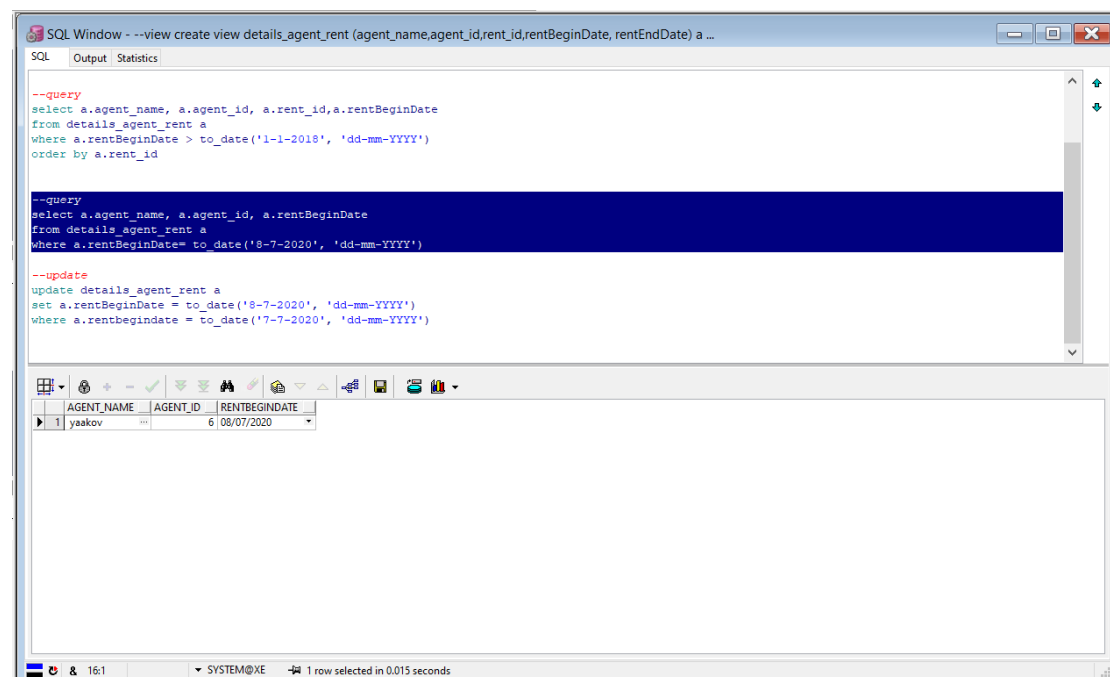
לכן, נעדכן את תאריך ההשכרה ליום למחרת:

```

--update
update details_agent_rent a
set a.rentBeginDate = to_date('8-7-2020', 'dd-mm-YYYY')
where a.rentbeginDate = to_date('7-7-2020', 'dd-mm-YYYY')

```

לאחר העדכון:



העדכון התבצע גם על הטבלה, כיוון שהמבט שיצרנו לא מורכב מאילוצים שמונעים ממנו לעדכן את טבלת המקור:

The screenshot shows the SQL Developer interface. At the top, there are tabs for 'SQL', 'Output', and 'Statistics'. The 'SQL' tab is active, displaying the following query:

```
select agent_name, agent_id, a.rent_BeginDate
from rent a natural join agent
where a.rent_BeginDate= to_date('8-7-2020', 'dd-mm-YYYY')
```

Below the query, the 'Output' tab is active, showing a table with the results of the query. The table has three columns: 'AGENT_NAME', 'AGENT_ID', and 'RENT_BEGINDATE'. There is one row of data:

	AGENT_NAME	AGENT_ID	RENT_BEGINDATE
1	yaakov	6	08/07/2020

שאלתת מחיקה:

נרצה למחוק מהמבט את ההשכרות שבוצעו ע"י סוכן מסויים והוחזרו בתאריך מסויים, כיוון שסוכן זה פוטר באותו יום, והשכרותיו הועברו לסוכן אחר:

לפני המחיקה:

```
--query
select a.agent_id, a.rentBeginDate
from details_agent_rent a
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and
agent_id = 87325
```

SQL Window - --view create view details_agent_rent (agent_name,agent_id,rent_id,rentBeginDate, rentE

SQL Output Statistics

```

from details_agent_rent a
where a.rentBeginDate= to_date('8-7-2020', 'dd-mm-YYYY')

--update
update details_agent_rent a
set a.rentBeginDate = to_date('8-7-2020', 'dd-mm-YYYY')
where a.rentbegindate = to_date('7-7-2020', 'dd-mm-YYYY')

--query
select a.agent_id, a.rentBeginDate
from details_agent_rent a
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and agent_id = 87325

--delete
delete from details_agent_rent A
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and agent_id = 87325

```

AGENT_ID RENTBEGINDATE

1	87325	15/10/2002
---	-------	------------

לאחר המחיקה:

```

--delete
delete from details_agent_rent A
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and
agent_id = 87325

--query
select a.agent_id, a.rentBeginDate
from details_agent_rent a
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and agent_id = 87325

--delete
delete from details_agent_rent A
where a.rentenddate = to_date('19-04-2011', 'dd-mm-YYYY') and agent_id = 87325

```

AGENT_ID RENTBEGINDATE

מבט על הספרים:

נרצה לקבל מבט על הספרים והקטגוריה שלהם:

```

create view details_book_category
as select b_id, category_id, book_name, category_name, author_id
from book natural join category

```

```
SQL Window - create view details_book_category as select b_id, category_id, book_name, category_name, author_...
SQL Output Statistics
create view details_book_category
as select b_id, category_id, book_name, category_name, author_id
from book natural join category
|
```

נרצה לשלוף מהמבט את כל הנתונים אודות הספרים שהם בקטגוריית פעוטות, ולסדר אותם על פי שם הספר:

```
--query
select * from details_book_category
where category_name = 'פעוטות'
order by book_name
```


SQL

Output

Statistics

create view details_book_category
as select b_id, category_id, book_name, category_name, author_id
from book natural join category

--query
select * from details_book_category
where category_name = 'פעוטות'
order by book_name



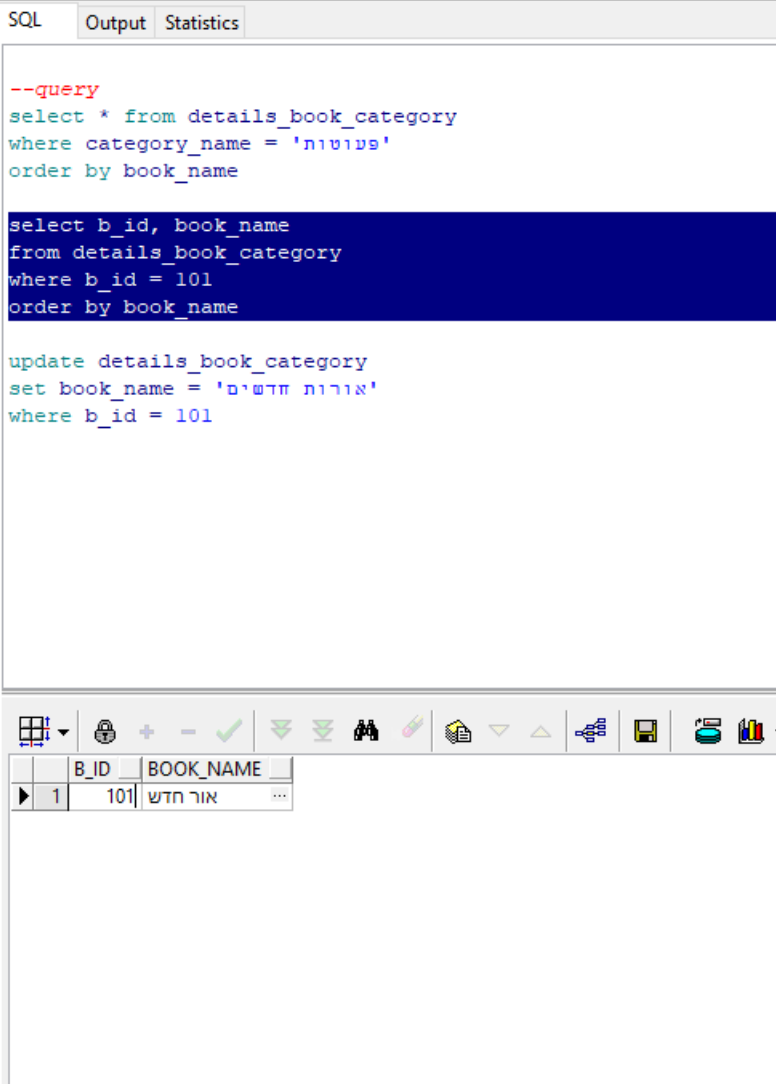
	B_ID	CATEGORY_ID	BOOK_NAME	CATEGORY_NAME	AUTHOR_ID
1	101	1	אור חדש	פעוטות	52
2	87	1	אור של מצוה	פעוטות	50
3	98	1	אליעזר העליון	פעוטות	57
4	82	1	בבי וצבי כבר לא רבים	פעוטות	46
5	95	1	בזכות כיבוד אב	פעוטות	55
6	56	1	הדב החמדן	פעוטות	31
7	62	1	הקושיה והתרוץ	פעוטות	35
8	92	1	התפילין החמים	פעוטות	52
9	53	1	לילה של מתמיד	פעוטות	28
10	80	1	לכבוד שבת וחג	פעוטות	44
11	84	1	מיכאל הזהר	פעוטות	47
12	55	1	מעשה טוב	פעוטות	30
13	85	1	מקהלה במטבח	פעוטות	48
14	58	1	נדרו של הפני יהושע	פעוטות	28
15	64	1	עולם של גדיים	פעוטות	36
16	59	1	עכשיו הוא אוהב את כולם	פעוטות	33
17	54	1	שירת הבקר	פעוטות	29
18	57	1	תפוח זהב	פעוטות	32

שם הספר שמספר 101 נשמר בטעות כ"אור חדש" במקום "אורות חדשים", נרצה לעדכן זאת:

```
select b_id, book_name
from details_book_category
```

```
where b_id = 101
order by book_name
```

לפני העדכון:



The screenshot shows a SQL IDE interface with three tabs: SQL, Output, and Statistics. The SQL tab is active, displaying three SQL statements. The first statement is a query to select all records from the details_book_category table where the category_name is 'פעוטות', ordered by book_name. The second statement is a query to select the b_id and book_name for the record where b_id is 101, ordered by book_name. The third statement is an update query to set the book_name to 'אורות חדשים' for the record where b_id is 101. Below the SQL editor is a toolbar with various icons for query execution and editing. At the bottom, a results table is displayed with two columns: B_ID and BOOK_NAME. The table contains one row with B_ID 101 and BOOK_NAME 'אור חדש'.

```
--query
select * from details_book_category
where category_name = 'פעוטות'
order by book_name

select b_id, book_name
from details_book_category
where b_id = 101
order by book_name

update details_book_category
set book_name = 'אורות חדשים'
where b_id = 101
```

	B_ID	BOOK_NAME
1	101	אור חדש

שאילתת העדכון:

```
update details_book_category
set book_name = 'אורות חדשים'
where b_id = 101
```

לאחר העדכון:

SQL Output Statistics

```
--query
select * from details_book_category
where category_name = 'טעות'
order by book_name

select b_id, book_name
from details_book_category
where b_id = 101
order by book_name

update details_book_category
set book_name = 'אורות חדשים'
where b_id = 101
```

	B_ID	BOOK_NAME
▶ 1	101	אורות חדשים ...

העדכון התבצע גם על הטבלה, כיוון שהמבט שיצרנו מורכב רק מאילוצים שמאפשרים לו לעדכן את טבלת המקור:

SQL Output Statistics

```
select b_id, book_name
from book natural join category
where b_id = 101
order by book_name
```

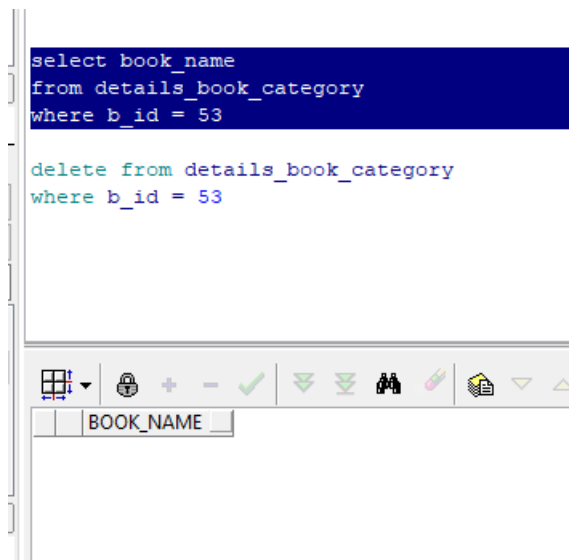
	B_ID	BOOK_NAME
▶ 1	101	אורות חדשים ...

שאילתת מחיקה:

נרצה למחוק את הספר לילה של מתמיד שמספרו 53 כיוון שהוא נאסר להפצה:

```
delete from details_book_category
where b_id = 53
```

לאחר המחיקה:



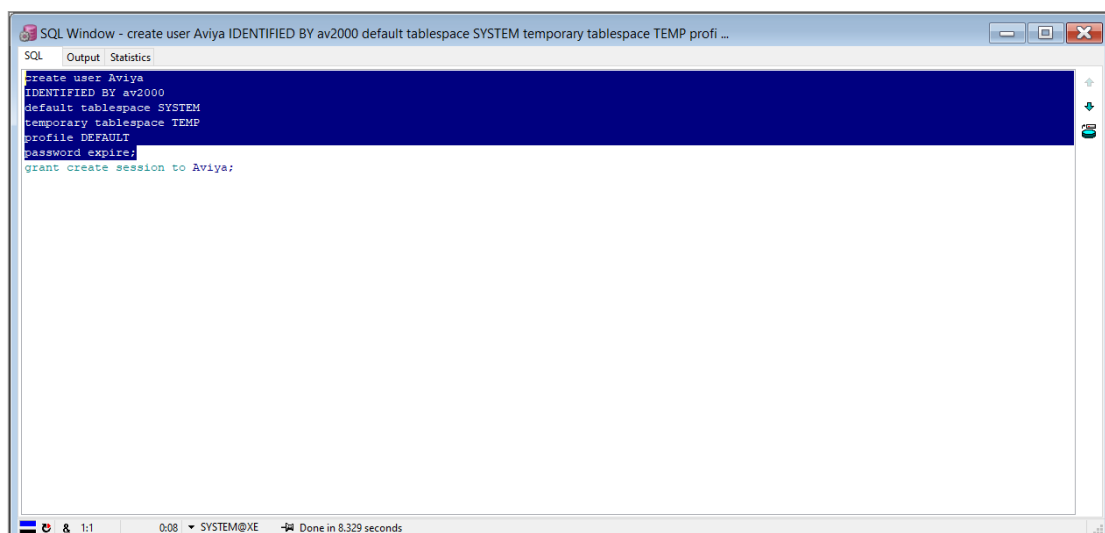
נבצע grant:

נתינת הרשאה:

ניצור את המשתמש אביה:

```
create user Aviya
IDENTIFIED BY av2000
default tablespace SYSTEM
temporary tablespace TEMP
profile DEFAULT
password expire;
grant create session to Aviya;

grant all on rent to Aviya;
grant select on agent to Aviya;
```



ניתן לו הרשאת גישה:

The screenshot shows an SQL Window titled "SQL Window - create user Aviya IDENTIFIED BY av2000 default tablespace SYSTEM temporary tablespace TEMP profi ...". The window has three tabs: "SQL", "Output", and "Statistics". The "SQL" tab is active, displaying the following SQL commands:

```
create user Aviya
IDENTIFIED BY av2000
default tablespace SYSTEM
temporary tablespace TEMP
profile DEFAULT
password expire;
grant create session to Aviya;
```

The status bar at the bottom indicates the user is "SYSTEM@XE" and the operation is "Done in 0.078 seconds".

ניתן לו הרשאת גישה לטבלאות שנבחר:

The screenshot shows the same SQL Window as before, but with additional SQL commands entered:

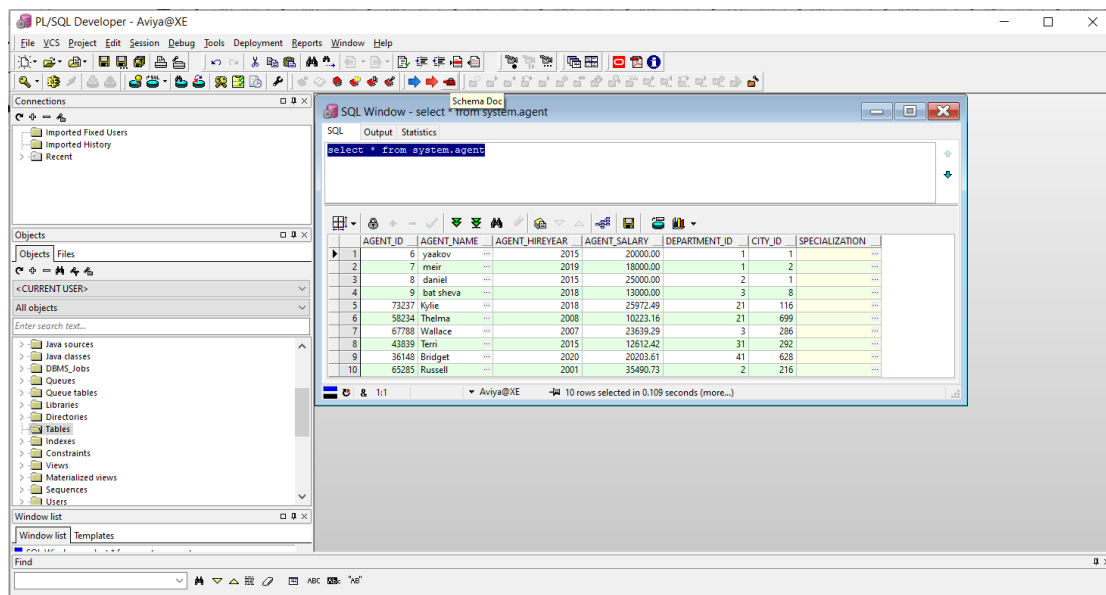
```
grant all on rent to Aviya;
grant select on agent to Aviya;
```

The status bar at the bottom indicates the user is "SYSTEM@XE" and the operation is "Done in 0.031 seconds".

Below the SQL editor, there is a "Grant" tab. The "Grant" sub-tab is active, showing the results of the grant operation:

(no result set)

נראה שאכן אביה קיבלה את ההרשאה ויש לה גישה לטבלה:



נבצע עדכון לטבלה השכרה ע"י המשתמש אביה:

לפני העדכון:

SQL

Output















Statistics

select * from system.rent


update system.rent

SET rent_begindate = to_date('19-07-2011', 'dd-mm-YYYY')

WHERE rent_id = 83629

	RENT_ID	RENT_BEGINDATE	RENT_ENDDATE	CLIENT_ID	AGENT_ID	VEHICLE_LICENSENUMBER
1	83629	24/10/2009	29/11/2004	32362	48819	34781111
2	31682	26/05/2020	09/04/2009	93216	49732	69181511
3	16812	04/02/2003	26/07/2005	99297	32374	67428652
4	87956	23/06/2012	24/04/2012	11579	97261	63722518
5	99844	12/10/2012	11/08/2008	64147	34594	16
6	95447	18/07/2002	18/09/2013	87861	69417	34781111
7	37379	06/05/2000	09/05/2010	95963	29621	73784175
8	54515	15/09/2013	16/10/2004	62826	74937	29845241
9	93781	09/05/2016	12/12/2010	68484	98974	71945123
10	19113	19/05/2002	06/06/2004	80452	69417	91944651
11	96483	17/03/2003	31/08/2008	28266	32932	41879417
12	94392	08/02/2008	01/02/2014	86242	29621	22999597
13	56712	23/01/2012	12/10/2006	13489	8	18
14	29657	24/04/2003	19/07/2005	93812	23932	59282125
15	12676	13/10/2015	20/11/2016	72579	99835	11
16	56922	19/02/2003	27/12/2011	56622	98482	84456489
17	85321	09/04/2017	10/12/2005	76672	83126	75443212
18	85618	01/09/2013	07/02/2020	81148	95296	14419582
19	48969	08/08/2002	11/05/2012	84119	77497	87145958
20	98311	22/03/2011	01/06/2017	79424	71864	67263928
21	81922	14/09/2007	15/11/2010	88157	7	58987191
22	86185	27/06/2003	31/12/2007	99424	47969	12684866
23	23458	28/07/2005	29/01/2014	79249	48137	85648914
24	15186	12/09/2018	08/03/2004	49877	44478	96766481
25	79933	14/04/2019	01/11/2000	76529	98599	22999597
26	62914	16/02/2000	25/01/2007	95075	6	39853517
27	97425	19/03/2010	05/12/2001	26123	72682	12684866
28	56134	31/07/2008	27/10/2014	98342	26284	51683638
29	89643	17/04/2020	09/09/2006	85202	49732	34781111
30	15713	09/09/2006	25/02/2019	84941	49477	98347945

 1:1

Aviya@XE

30 rows selected in 0.39 seconds (more...)

קוד העדכון:

```
update system.rent
SET rent_begindate = to_date('19-07-2011', 'dd-mm-YYYY')
WHERE rent_id = 83629
```

נראה שהעדכון אכן בוצע:

SQL

Output

Statistics

```
select * from system.rent

update system.rent
SET rent_begindate = to_date('19-07-2011', 'dd-mm-YYYY')
WHERE rent_id = 83629
```

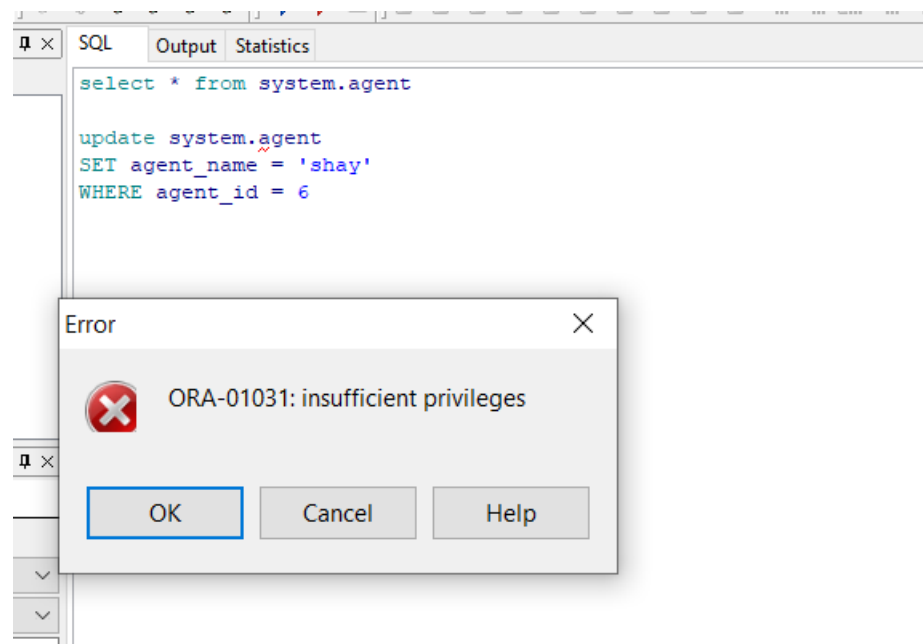
	RENT_ID	RENT_BEGINDATE	RENT_ENDDATE	CLIENT_ID	AGENT_ID	VEHICLE_LICENSENUMBER
1	83629	19/07/2011	29/11/2004	32362	48819	34781111
2	31682	26/05/2020	09/04/2009	93216	49732	69181511
3	16812	04/02/2003	26/07/2005	99297	32374	67428652
4	87956	23/06/2012	24/04/2012	11579	97261	63722518
5	99844	12/10/2012	11/08/2008	64147	34594	16
6	95447	18/07/2002	18/09/2013	87861	69417	34781111
7	37379	06/05/2000	09/05/2010	95963	29621	73784175
8	54515	15/09/2013	16/10/2004	62826	74937	29845241
9	93781	09/05/2016	12/12/2010	68484	98974	71945123
10	19113	19/05/2002	06/06/2004	80452	69417	91944651
11	96483	17/03/2003	31/08/2008	28266	32932	41879417
12	94392	08/02/2008	01/02/2014	86242	29621	22999597
13	56712	23/01/2012	12/10/2006	13489	8	18
14	29657	24/04/2003	19/07/2005	93812	23932	59282125
15	12676	13/10/2015	20/11/2016	72579	99835	11
16	56922	19/02/2003	27/12/2011	56622	98482	84456489
17	85321	09/04/2017	10/12/2005	76672	83126	75443212
18	85618	01/09/2013	07/02/2020	81148	95296	14419582
19	48969	08/08/2002	11/05/2012	84119	77497	87145958
20	98311	22/03/2011	01/06/2017	79424	71864	67263928
21	81922	14/09/2007	15/11/2010	88157	7	58987191
22	86185	27/06/2003	31/12/2007	99424	47969	12684866
23	23458	28/07/2005	29/01/2014	79249	48137	85648914
24	15186	12/09/2018	08/03/2004	49877	44478	96766481
25	79933	14/04/2019	01/11/2000	76529	98599	22999597
26	62914	16/02/2000	25/01/2007	95075	6	39853517
27	97425	19/03/2010	05/12/2001	26123	72682	12684866
28	56134	31/07/2008	27/10/2014	98342	26284	51683638
29	89643	17/04/2020	09/09/2006	85202	49732	34781111
30	15713	09/09/2006	25/02/2019	84941	49477	98347945
31	77131	18/03/2002	24/06/2010	62362	32932	12998387
32	29863	24/02/2016	05/06/2018	69714	87483	44849415
33	19834	01/11/2015	21/03/2003	15243	69417	83623371
34	94167	31/03/2016	08/04/2018	61694	39662	85648914
35	12243	25/04/2004	12/03/2014	27947	84241	51969257

1:1

Aviya@XE

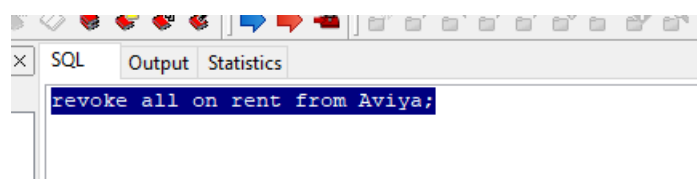
35 rows selected in 0.063 seconds (more...)

נססה לבצע פעולה עבורה לא ניתנה הרשאת גישה על הטבלה:

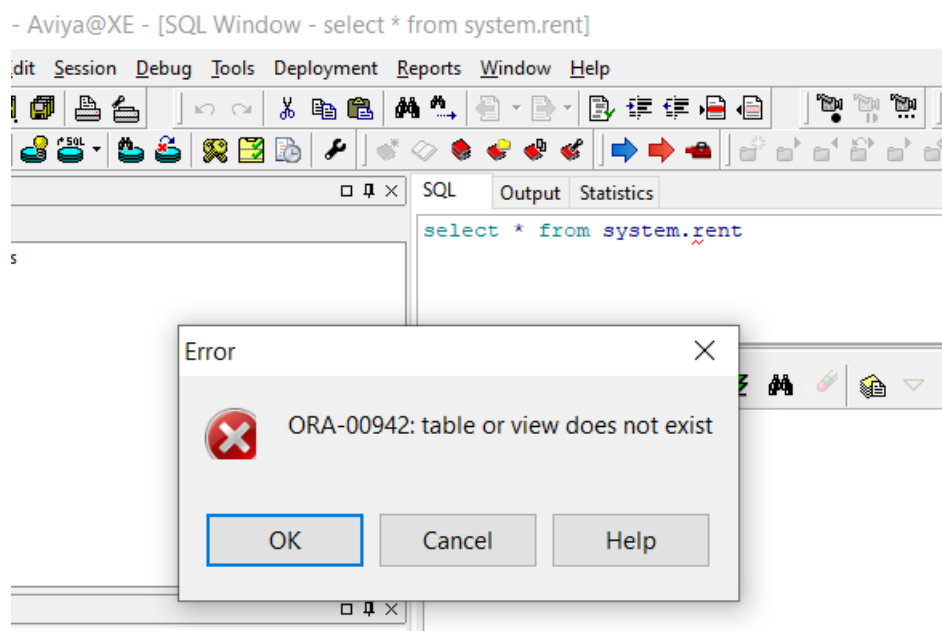


הפעולה אכן בלתי אפשרית עבור המשתמש אביה.

נבצע revoke:



ואכן ההרשאה בוטלה:



שלב 4:

מטלה 8:

שאלות עם פרמטרים:

השאלתה:

נרצה לקבל פרטים על הספרים מקטגוריה מסוימת בלבד:

```
select b_id, book_name, b_id, category_id, book_name, category_name,
author_id
from book natural join category
where category_name = &<name="category" list= " ' , 'ילדים', 'פעוטות'
'גדולי ישראל'>
order by category_name
```

התבקשנו לבחור מרשימת הקטגוריות:

The screenshot shows a database application interface. At the top, there are tabs for 'SQL', 'Output', and 'Statistics'. The 'SQL' tab is active, displaying the following query:

```
select b_id, book_name, b_id, category_id, book_name, category_name, author_id
from book natural join category
where category_name = &<name="category" list= " ' , 'ילדים', 'פעוטות'
'גדולי ישראל'>
order by category_name
```

Below the query, the 'Output' tab shows a table with the following columns: B_ID, BOOK_NAME, B_ID, CATEGORY_ID, BOOK_NAME, CATEGORY_NAME, and AUTHOR_ID. The table contains 18 rows of data, with the first row being: 1, 53, לילה של מתמיד, 53, 1, לילה של מתמיד, 28.

A 'Variables' dialog box is open in the foreground, showing a list of variables. The 'Name' column contains 'category' and the 'Value' column contains a list of category names: 'פעוטות', 'ילדים', and 'גדולי ישראל'. The 'category' variable is selected, and its value is 'פעוטות'.

ואכן, בחרנו ב'פעוטות' וקיבלנו:

SQL

Output

Statistics

```
select b_id, book_name, b_id, category_id, book_name, category_name, author_id
from book natural join category
where category_name = &<name="category" list= " 'פעוטות', 'ילדים', 'ישראלי גדולי' ">
order by category_name
```

	B_ID	BOOK_NAME	B_ID	CATEGORY_ID	BOOK_NAME	CATEGORY_NAME	AUTHOR_ID
▶ 1	53	לילה של מתמיד	53	1	לילה של מתמיד	פעוטות	28
2	54	שירת הבקר	54	1	שירת הבקר	פעוטות	29
3	55	מעשה טוב	55	1	מעשה טוב	פעוטות	30
4	56	הדב החמדן	56	1	הדב החמדן	פעוטות	31
5	57	תפוח זהב	57	1	תפוח זהב	פעוטות	32
6	58	נדרו של הפני יהושע	58	1	נדרו של הפני יהושע	פעוטות	28
7	59	עכשיו הוא אוהב את כולם	59	1	עכשיו הוא אוהב את כולם	פעוטות	33
8	62	הקושיה והתרוץ	62	1	הקושיה והתרוץ	פעוטות	35
9	64	עולם של גדיים	64	1	עולם של גדיים	פעוטות	36
10	80	לכבוד שבת וחג	80	1	לכבוד שבת וחג	פעוטות	44
11	82	בבי וצבי כבר לא רבים	82	1	בבי וצבי כבר לא רבים	פעוטות	46
12	84	למיכאל הזהר	84	1	למיכאל הזהר	פעוטות	47
13	85	מקהלה במטבח	85	1	מקהלה במטבח	פעוטות	48
14	87	אור של מצוה	87	1	אור של מצוה	פעוטות	50
15	92	התפילין החמים	92	1	התפילין החמים	פעוטות	52
16	95	בזכות כיבוד אב	95	1	בזכות כיבוד אב	פעוטות	55
17	98	אליעזר העליון	98	1	אליעזר העליון	פעוטות	57
18	101	אורות חדשים	101	1	אורות חדשים	פעוטות	52

שאלתה נוספת עם פרמטר:

נרצה לקבל את שמות הסוכנים והלקוחות שביצעו השאלת ספר ואת שם הסופר, אך רק לסוכנים שמשכורתם גדולה מסכום מסויים ולכן נוסיף פרמטר עבור הסכום:

```
select agent_name, client_name, author_name, agent_salary
from agent natural join author natural join client
where agent_salary >= &<name="salary" type="float" default="10000">
order by agent_name
```

הפרמטר הינו ערך המשכורת ולו ערך ברירת מחדל שערכו 10000:

SQLOutputStatistics

```
select agent_name, client_name, author_name, agent_salary
from agent natural join author natural join client
where agent_salary >= &<name="salary" type="float" default="10000">
order by agent_name
```

Variables

Name	Value
salary	10000

OKCancelClear

















השארנו את ערך ברירת המחדל ואכן קיבלנו תוצאה:

SQL



Output

Statistics


```
select agent_name, client_name, author_name, agent_salary
from agent natural join author natural join client
where agent_salary >= &<name="salary" type="float" default="10000">
order by agent_name
```

	AGENT_NAME	CLIENT_NAME	AUTHOR_NAME	AGENT_SALARY
▶ 1	bat sheva	Miko		13000.00
2	bat sheva	Suzi		13000.00
3	bat sheva	Fionnula		13000.00
4	bat sheva	Davy		13000.00
5	bat sheva	Lloyd		13000.00
6	bat sheva	Glenn		13000.00
7	bat sheva	Bonnie		13000.00
8	bat sheva	Stanley		13000.00
9	bat sheva	Clay		13000.00
10	bat sheva	Brendan		13000.00
11	bat sheva	Orlando		13000.00
12	bat sheva	Humberto		13000.00
13	bat sheva	Fats		13000.00
14	bat sheva	Emilio		13000.00
15	bat sheva	Bridget		13000.00
16	bat sheva	Malcolm		13000.00
17	bat sheva	Tobey		13000.00
18	bat sheva	Suzanne		13000.00
19	bat sheva	Ashton		13000.00
20	bat sheva	Embeth		13000.00
21	bat sheva	Rhett		13000.00
22	bat sheva	Kirk		13000.00
23	bat sheva	Geraldine		13000.00
24	bat sheva	Dom		13000.00
25	bat sheva	Jaime		13000.00
26	bat sheva	Roy		13000.00
27	bat sheva	Trick		13000.00
28	bat sheva	Ani		13000.00
29	bat sheva	Julie		13000.00
30	bat sheva	Latin		13000.00
31	bat sheva	Angelina		13000.00
32	bat sheva	Reese		13000.00
33	bat sheva	Dabney		13000.00
34	bat sheva	Lonnie		13000.00
35	bat sheva	Kiefer		13000.00

  & 5:1

▼ SYSTEM@XE

 35 rows selected in 0.313 seconds (more...)

שאילתה נוספת:

נרצה לקבל את מספרי ההשכרות ואת מצב ההחזרה של הרכב ונוסיף צ'ק בוקס עבור האם שולם או לא:

```

select t.report_id, t.report_returnmode
from report t
where t.report_ispaid = &<name="is paid" checkbox="report_ispaid,">
order by t.report_id;

```

SQL Output Statistics

```
select t.report_id, t.report_returnmode
from report t
where t.report_ispaid = &<name="is paid" checkbox="report_ispaid,">
order by t.report_id;
```

	REPORT_ID	REPORT_RETURNMODE
1	311	OKAY
2	312	OKAY
3	313	OKAY
4	414	OKAY

Variables

Name	Value
is paid	<input checked="" type="checkbox"/>

OK Cancel Clear

שאלתה נוספת:

נרצה לקבל את פרטי הספר ולמיין עפ"י עמודה מסויימת:

```
select *
from book
&<name="sort" list="b_id, book_name, category_id"
prefix = " order by "
suffix = " Desc ">
```

המשתמש בוחר ע"י פרמטר איזו עמודה הוא מעוניין למיין:

בחרנו למיין עפ"י id של הספר:

SQL Output Statistics

```
select *  
from book  
&<name="sort" list="b_id, book_name, category_id"  
prefix = " order by "  
suffix = " Desc ">
```

	B_ID	BOOK_NAME	PICTURE	AUT
1	163	ר' אייזל חרין	...	...
2	162	תלמידי הבעש"ט בארץ ישראל	...	...
3	161	מנהיג של דור ב	...	...
4	159	זה האיש	...	...
5	158	חומת אש	...	...
6	157	אור ממערב	...	...
7	156	גדולי ישראל בשחרותם	...	...
8	155	'אדירי התורה ז	...	...
9	154	'אדירי התורה ד	...	...
10	153	באר מים חיים	...	...

Variables

Name	Value
sort	b_id

OK Cancel Clear














ואכן קיבלנו את התוצאה ממוינת עפ"י id של הספר, בסדר יורד:

SQL


Output

Statistics

select *
from book
&<name="sort" list="b_id, book_name, category_id"
prefix = " order by "
suffix = " Desc ">

	B_ID	BOOK_NAME	PICTURE	AUTHOR_ID	CATEGORY_ID
1	163	ר' אייזל חריף	...	100	4
2	162	תלמידי הבעש"ט בארץ ישראל	...	99	4
3	161	מנהיג של דור ב	...	94	4
4	159	זה האיש	...	98	4
5	158	חומת אש	...	97	4
6	157	אור ממערב	...	96	4
7	156	גדולי ישראל בשחרותם	...	95	4
8	155	'אדירי התורה ז	...	43	4
9	154	'אדירי התורה ד	...	43	4
10	153	באר מים חיים	...	55	4
11	152	ר' אריה	...	94	4
12	151	החכם צבי	...	93	4
13	150	גאון הדורות	...	92	4
14	149	מעילוי של שמואל	...	91	4
15	148	מרן החיד"א הקדוש	...	90	4
16	147	רבי ישראל סלנטר	...	89	4
17	146	יהושע שופטים	...	88	4
18	145	אור במזרח	...	87	4
19	144	זהרי חמה	...	86	4
20	143	"ה"לב שמחה	...	85	4
21	142	"ה"אור החיים" הקדוש	...	84	4
22	141	אדמו"רי בעלזא	...	73	4
23	140	ספורים קטנים על אנשים גדולים 1000	...	83	4
24	139	"אגדת ה"סבא	...	82	4
25	138	שמואל הנביא	...	65	4
26	137	'גדולי ישראל בילדותם -ב	...	73	4
27	136	כך התגלה הבעל שם טוב הקדוש	...	81	4
28	134	יונה הנביא	...	72	4
29	133	דרכי נעם	...	74	4
30	132	שלושת הרועים	...	79	4

 1:1

SYSTEM@XE

30 rows selected in 0.047 seconds (more...)

דוחות:

דוח:

נרצה את ממוצע המשכורות במחלקות בהן הממוצע גדול או שווה לזה של מחלקה 1:

```
SELECT    department_id , AVG(agent_salary)
FROM agent
GROUP BY department_id
HAVING    AVG(agent_salary) >= (SELECT AVG(agent_salary) FROM agent
WHERE department_id = 1)
```

SQL Layout Options

```
SELECT department_id , AVG(agent_salary)
FROM agent
GROUP BY department_id
HAVING AVG(agent_salary) >= (SELECT AVG(agent_salary) FROM agent WHERE department_id = 1)
```

Agents' salaries by department

Department Id	Avg(agent Salary)
1	18522.88
6	20404.338
11	18523.4452941176
2	27328.8175
21	19466.724
31	20146.8226666667
5	20185.72125
61	18716.5377777778
41	20566.3683333333
3	21244.0990909091

6:1 SYSTEM@XE 10 rows selected in 1.688 seconds

SQL Layout Options

Auto Update

Item	Description	Style	Header	Align	Format	Break	Sum
<input checked="" type="checkbox"/> Report Title	Agents' salaries by depar	Blue Table		Center			
<input checked="" type="checkbox"/> Variables				Center			
<input checked="" type="checkbox"/> Tabular Tables				Center			
<input checked="" type="checkbox"/> Form Tables				Center			
<input checked="" type="checkbox"/> Default Field				Center			
<input checked="" type="checkbox"/> DEPARTMENT_ID				Center			
<input checked="" type="checkbox"/> AVG(AGENT_SALA				Center			

דוח:

נרצה לראות דוח עם ההשכרות הראשונות שבוצעו בארגון, ומשכורותיהם של הסוכנים שביצעו אותן:

```
select rent_id, agent_name, agent_salary
from rent natural join agent
where rent_id < 10
order by rent_id
```

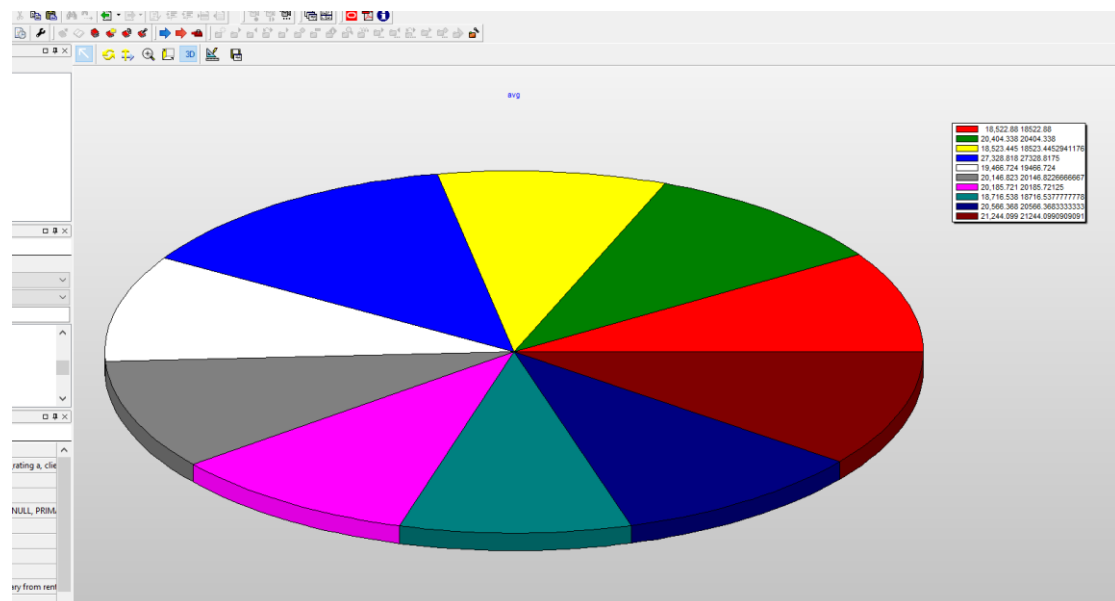
Item	Description	Style	Header	Align	Format	Break	Sum
Report Title			Center				
Variables			Center				
Tabular Tables			Center				
Form Tables			Center				
Default Field			Center				

Rent Id	Agent Name	Agent Salary
1	Cameron	38126.06
2	Morgan	15082.02
3	James	36557.11
4	Adrien	32441.34
5	Jim	9256.48
6	Julianne	37409.95
7	Bradley	7880.34
8	James	36557.11
9	Geena	35970.61

גרף:

נרצה לראות גרף עם ממוצעי המשכורות במחלקות בהן הממוצע גדול או שווה לזה של מחלקה 1:

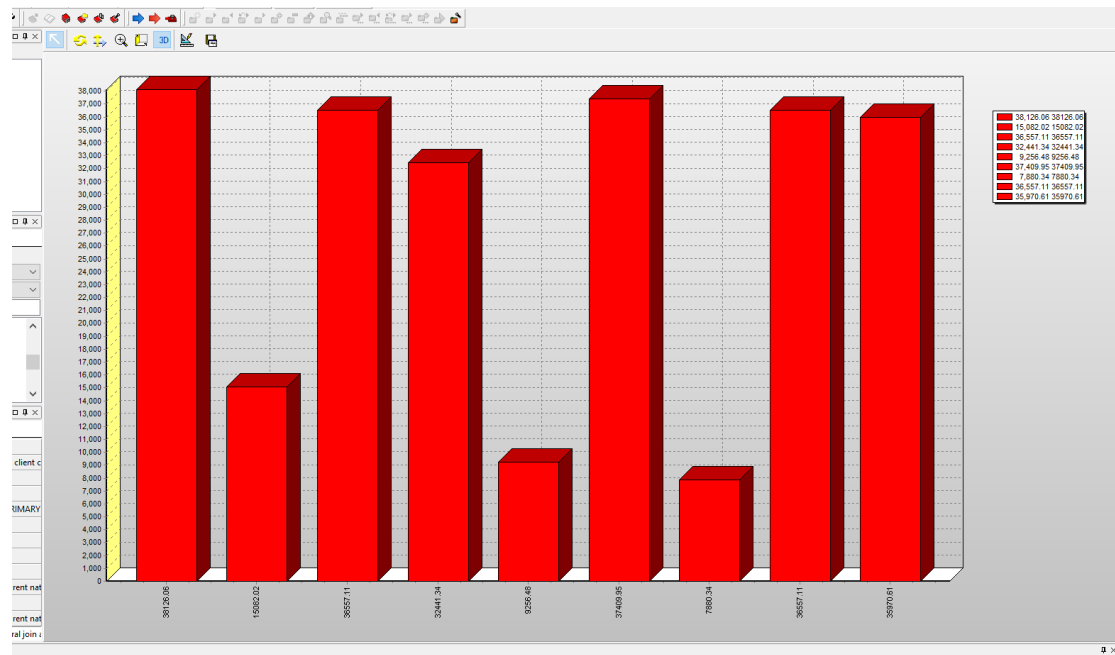
```
SELECT department_id , AVG(agent_salary)
FROM agent
GROUP BY department_id
HAVING AVG(agent_salary) >= (SELECT AVG(agent_salary) FROM agent
WHERE department_id = 1)
```



גרף:

נרצה לראות בגרף את המשכורות של הסוכנים שביצעו את ההשכרות הראשונות שבוצעו בארגון:

```
select rent_id, agent_name, agent_salary
from rent natural join agent
where rent_id < 10
order by rent_id
```



שלב 4:

מטלה 9:

1. פרוצדורות:

1.1 הדפסת הסוכן/ים שסגר הכי הרבה עסקאות:

הפרוצדורה מדפיסה את הסוכן הכי טוב שביצע הכי הרבה עסקאות רכב או שביצע הכי הרבה השאלות ספרים. הפרוצדורה לא לוקחת בחשבון סוכן שביצע גם השכרות רכב וגם השאלות ספרים בחישוב הסוכן המוצלח.

הקוד:

```
create or replace procedure best_agent is
cursor bext_agents is(
select agent_id from agent where agent_id in(
select agent_id from (
select agent_id, count(*) as deals
from rent natural join agent
group by agent_id)
where deals =(select max (num_deels)
from( select agent_id, count(*) as num_deels
from rent natural join agent
group by agent_id))
```

```

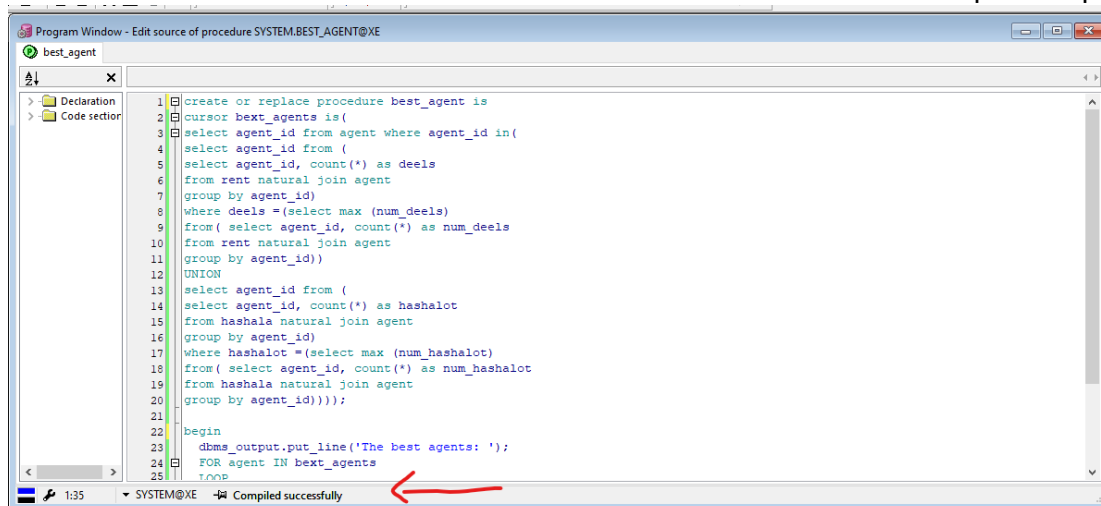
UNION
select agent_id from (
select agent_id, count(*) as hashalot
from hashala natural join agent
group by agent_id)
where hashalot =(select max (num_hashalot)
from( select agent_id, count(*) as num_hashalot
from hashala natural join agent
group by agent_id)))));

begin
  dbms_output.put_line('The best agents: ');
  FOR agent IN bext_agents
  LOOP
    dbms_output.put_line('agent id: ' || agent.agent_id);
  END LOOP;

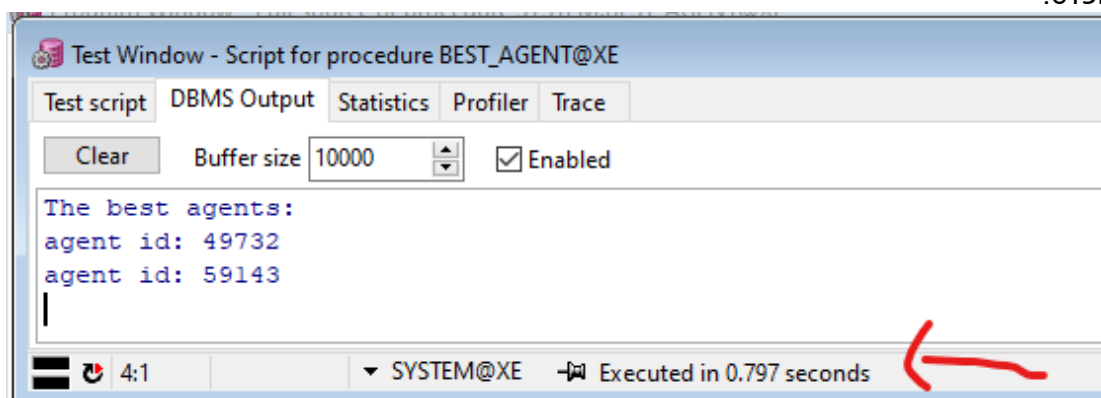
end;

```

הקוד עובר קומפילציה:



הפלט:



1.2 הפרוצדורה מקבלת כקלט author_id ומדפיסה את כל הספרים שהוא חיבר.

הקוד:

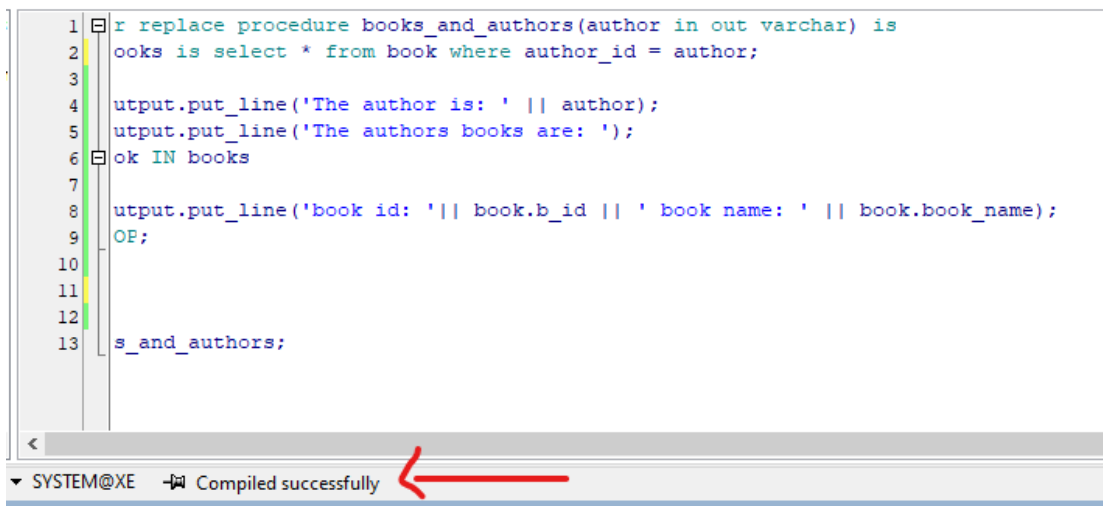

```

create or replace procedure books_and_authors(author in out varchar)
is
cursor books is select * from book where author_id = author;
begin
    dbms_output.put_line('The author is: ' || author);
    dbms_output.put_line('The authors books are: ');
    FOR book IN books
    LOOP
        dbms_output.put_line('book id: ' || book.b_id || ' book name: ' ||
book.book_name);
    END LOOP;

end books_and_authors;

```

הקוד עובר קומפילציה:



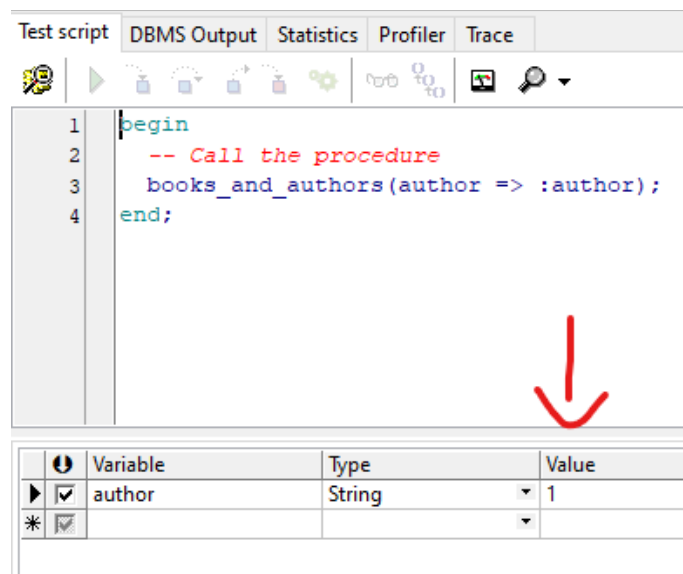
```

1  r replace procedure books_and_authors(author in out varchar) is
2  ooks is select * from book where author_id = author;
3
4  utput.put_line('The author is: ' || author);
5  utput.put_line('The authors books are: ');
6  ok IN books
7
8  utput.put_line('book id: ' || book.b_id || ' book name: ' || book.book_name);
9  OF;
10
11
12
13  s_and_authors;

```

SYSTEM@XE Compiled successfully

הקלט:



Test script DBMS Output Statistics Profiler Trace

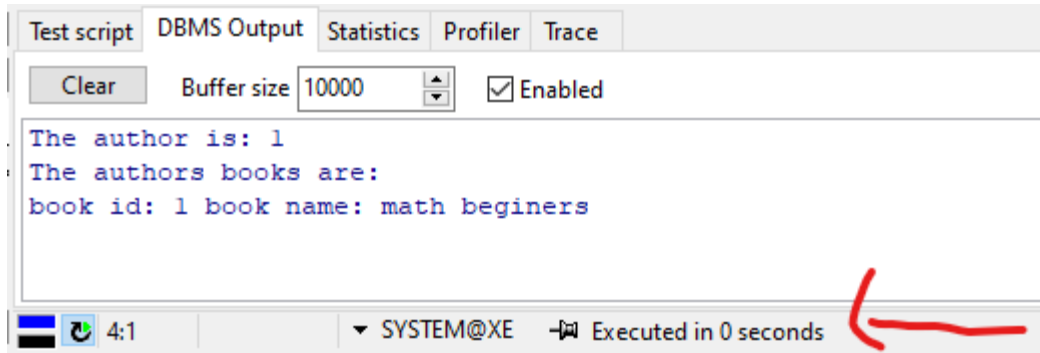
```

1  begin
2      -- Call the procedure
3      books_and_authors(author => :author);
4  end;

```

Variable	Type	Value
author	String	1

הפלט:



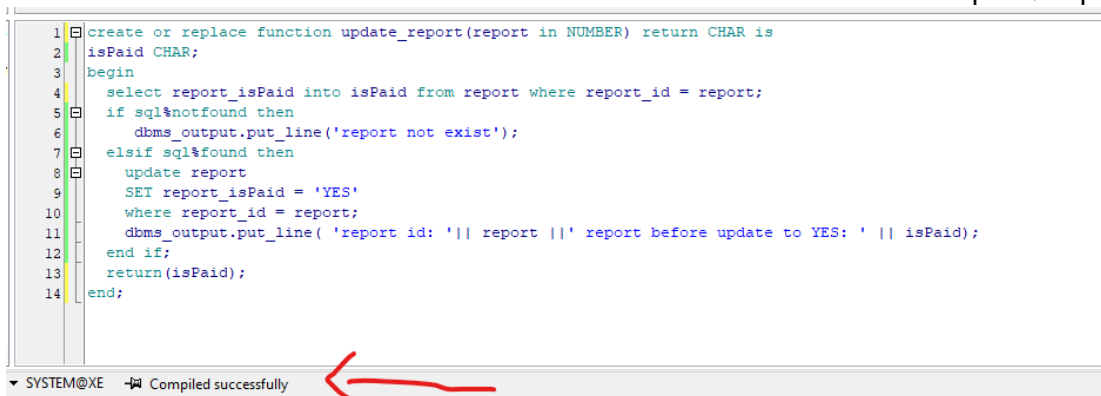
2. פונקציות

2.1 הפונקציה מקבלת report_id, מחזירה את report_isPaid שלו, ומשנה את report_isPaid שלו ל'YES'.

הקוד:

```
create or replace function update_report(report in NUMBER) return
CHAR is
isPaid CHAR;
begin
  select report_isPaid into isPaid from report where report_id =
report;
  if sql%notfound then
    dbms_output.put_line('report not exist');
  elsif sql%found then
    update report
      SET report_isPaid = 'YES'
    where report_id = report;
    dbms_output.put_line( 'report id: ' || report || ' report before
update to YES: ' || isPaid);
  end if;
  return(isPaid);
end;
```

הקוד עובר קומפילציה:



הקלט והreturn value של התוכנית:

Test script DBMS Output Statistics Profiler Trace

```

1 begin
2   -- Call the function
3   :result := update_report(report => :report);
4 end;

```

Variable	Type	Value
result	String	N
report	Float	312

ההדפסות וזמן הריצה:

Test script DBMS Output Statistics Profiler Trace

Clear Buffer size 10000 ☒ Enabled

report id: 312 report before update to YES: N

2:1 0:03 SYSTEM@XE Executed in 3.438 seconds

2.2 הפונקציה מקבלת vehicle_id והנחה ומחזירה את המחיר הרכב לאחר ההנחה.
הקוד:

```

create or replace function calculates_discount(licensenum in
number, discount in number) return number is
  price number;
  vehicle_model model.model_id%type;

begin
  select model_id into vehicle_model from vehicle where
vehicle_licensenum = licensenum;
  update model
    SET model_price = model_price - (model_price * discount / 100)
    where model_id = vehicle_model;
  select model_price into price from model where model_id =
vehicle_model;

  return(price);
end;

```

הקוד עובר קומפילציה:

```

1 create or replace function calculates_discount(license number in number, discount in number) return number is
2 price number;
3 vehicle_model model.model_id%type;
4
5 begin
6 select model_id into vehicle_model from vehicle where vehicle_license number = license number;
7 update model
8 SET model_price = model_price - (model_price * discount / 100)
9 where model_id = vehicle_model;
10 select model_price into price from model where model_id = vehicle_model;
11
12 return(price);
13 end;

```

SYSTEM@XE Compiled successfully

הקלט והreturn value:

Test script DBMS Output Statistics Profiler Trace

```

1 begin
2 -- Call the function
3 :result := calculates_discount(license number => :license number,
4                               discount => :discount);
5 end;

```

Variable	Type	Value
result	Float	6400
license number	Float	111
discount	Float	20

זמן הריצה:

Test script DBMS Output Statistics Profiler Trace

Clear Buffer size 10000 ☒ Enabled

1:1 0:01 SYSTEM@XE Executed in 1.453 seconds

3. טריגרים:

3.1 טריגר שמדפיס שהיה עדכון בכל פעם שמעדכנים את areaidn בטבלה city.

יצירת הטריגר:

Template Wizard

Trigger

Name: print_update_city

Fires: after

Event: update

Table or view: city

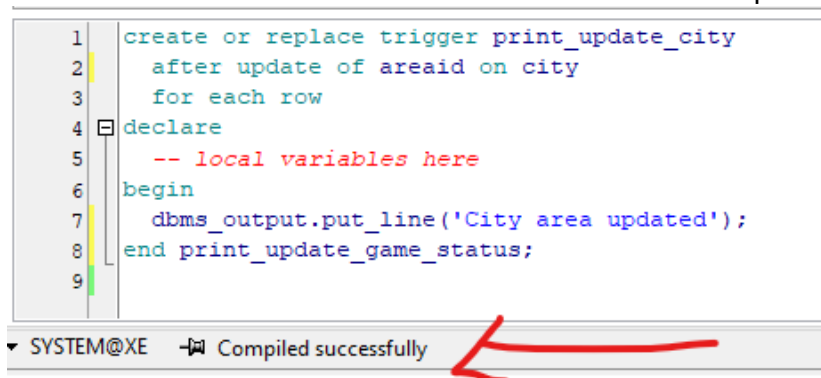
Statement level? ☐

OK Cancel

הקוד:

```
create or replace trigger print_update_city
  after update of areaid on city
  for each row
declare
  -- local variables here
begin
  dbms_output.put_line('City area updated');
end print_update_game_status;
```

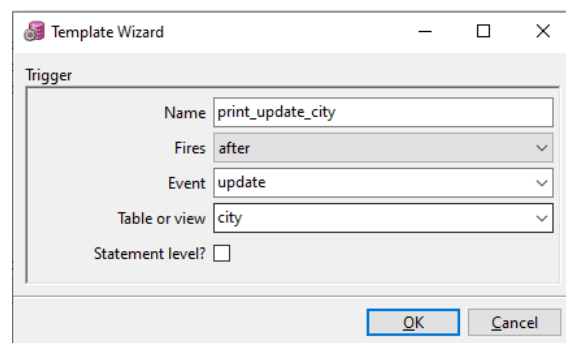
הקוד עובר קומפילציה:



...

3.2 טריגר שמדפיס בכל פעם שסוכן נוסף בהצלחה לטבלת agent.

יצירת הטריגר:




הקוד:

```
create or replace trigger insert_agent
  after insert on agent
  for each row
declare

begin
  dbms_output.put_line(:new.agent_id || ' successfully added');
end insert_agent;
```

הקוד עובר קומפילציה:

```
1 create or replace trigger insert_agent
2   after insert on agent
3   for each row
4   declare
5
6   begin
7     dbms_output.put_line(:new.agent_id || ' successfully added');
8   end insert_agent;
```

SYSTEM@XE  Compiled successfully

