

אג' חונכית



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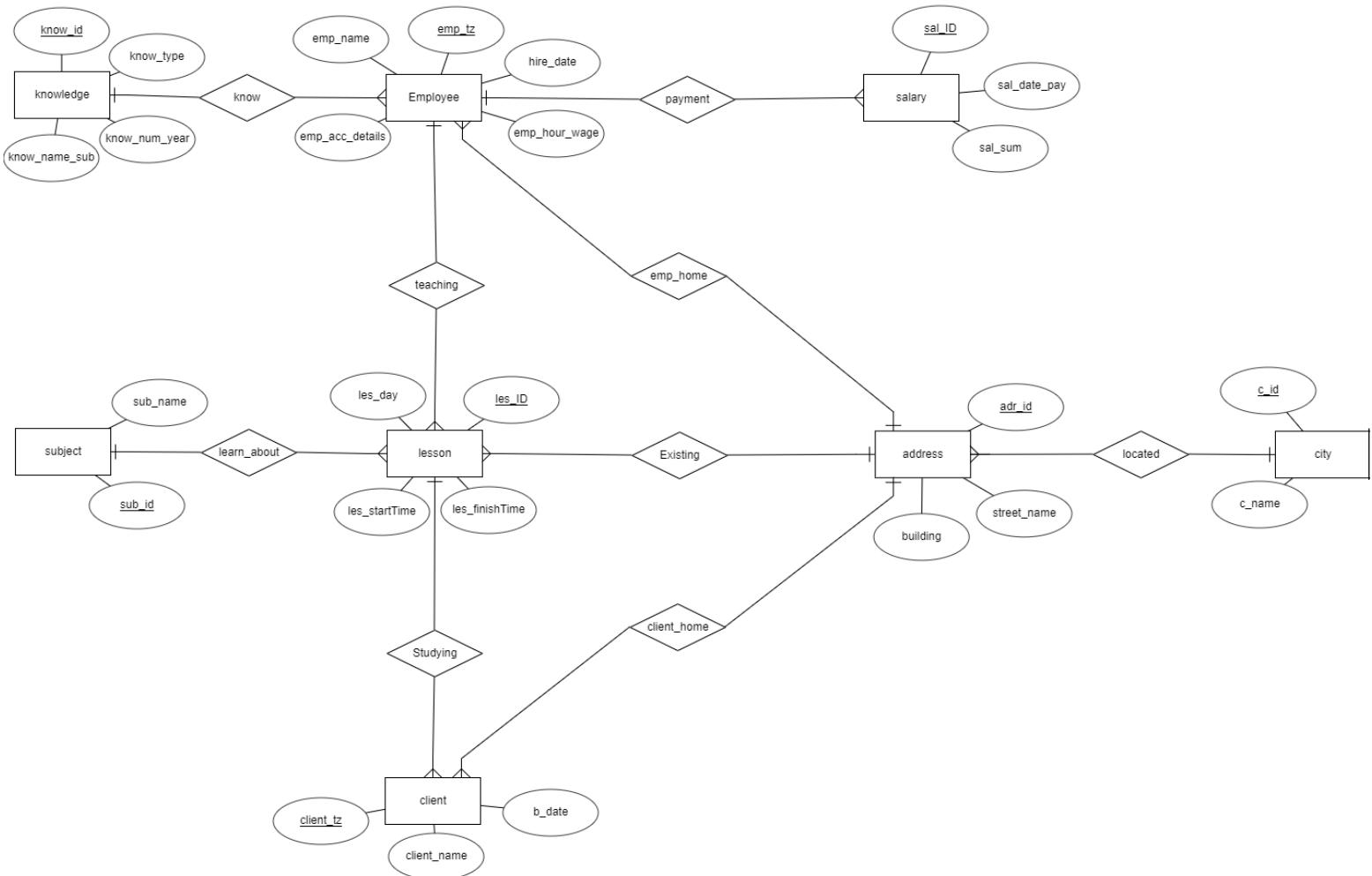
שלב 1:

הגדרת האגף:

במתנ"ס עירוני קיימ אגף האחראי על מתן חונכחות לתלמידים המתקשימים מבחינה לימודית וריגשית.

החונכחות מתקיימת בשעות הבוקר והצהרים על הנושאים הנלמדים בכיתה על מנת לעזור לתלמיד להשתלב ולהבין בראווי את החומר הנלמד.

תרשים ERD:





ישוות:

נבדוק שכל היטבלאות מנורמלות ברמת 3NF כל שדה שלא מוגדר כמפתח ראשי תלוי אך ורק במפתח ראשי (PK).

Employee - מדריך: ישוט זו מייצגת את המדריך החונך קבוצת ילדים במסגרת תוכנית החונכות.

- emp_tz- תעודת זהות של המדריך.
- emp_name- שם הפרט של המדריך.
- emp_acc_details- שם הבנק שבו קיימ חשבון למדריך.
- hire_date- תאריך שבו התחיל המדריך לעבוד בחונכות.
- emp_hour_wage- מהו הסכום הבסס אותו מקבל המדריך עבור שעת חונכות אחת.

כל התוכנות תלויות בת.ז של המדריך,
ואין תלות נוספת בין התוכנות השונות שאינן מפותחות.

Knowledge - ידע: השכלה אותה רכש המדריך המכשירה אותו לchnוך תלמידים.

- know_id- מספר סידורי המופיע רמת השכלה כלשהו. (1-תואר ראשון, 2-תואר שני, 3-השכלה תיכונית)
- know_num_year- מספר שנים ליום.
- know_type- סוג השכלה. (B.A, M.A, HIGH-SCHOOL)
- know_sub_name- סוג ההתמחות. (1-מתמטיקה, 2-פיזיקה, 3-אנגלית, 4-היסטוריה, 5-מחשבים, 6-ביולוגיה)

כל התוכנות תלויות במספר הסידורי של רמת ההשכלה,
ואין תלות נוספת בין התוכנות השונות שאינן מפותחות.

Salary - משכורת: ישוט זו מייצגת את המשכורת אותה מקבל המדריך בסוף החודש על מנת שיעורי החונכות.

- ID_sal- מספר סידוריழהה למשכורת. (מספר קבלה)
- sum_sal- סכום המשכורת.
- date_pay- תאריך התשלום.

כל התוכנות תלויות במספר הסידורי של המשכורת,



ואין תלות נוספת בין התכונות השונות שאינם מפותחות.

תלמיד-Client: ישות זו מייצגת את תלמיד המקבל חונכות.

- client_tz- תעודת זהות של התלמיד.
- client_name- שם התלמיד.
- b_date- תאריך הלידה של התלמיד.

כל התכונות תלויות בת.ז של התלמיד,
ואין תלות נוספת בין התכונות השונות שאינם מפותחות.

עיר- City: ישות זו מייצגת עיר.

- id_c- מספר סידורי המיצג את העיר.
- c_name- שם העיר.

כל התכונות תלויות במספר הסידורי של העיר.
ואין תלות נוספת בין התכונות השונות שאינם מפותחות.

כתובת-Address: ישות זו מייצגת כתובת בעיר.

- adr_id- מיקוד הכתובת.
- street_name- שם הרחוב בתחום העיר.
- Building- מספר הבניין ברחוב.

כל התכונות תלויות במיקוד,
ואין תלות נוספת בין התכונות השונות שאינם מפותחות.

מדריך- Lesson: ישות זו מייצגת את המדריך החונך קבוצת ילדים במסגרת תוכנית החונכות.

- ID_les – מספר סידורי המאפיין את השיעור.
- les_startTime – שעת תחילת השיעור. numeric(4,2) שניות.דקות()



• les_finishTime - שעת סיום השיעור. ((4,2) numeric שעות. דקות)

• les_day - תאריך היום שבו התקיים השיעור.

כל התכונות תלויות במספר הסידורי של השיעור,
ואין תלות נוספת בין התכונות השונות שאינן מפותחות.

Subject- נושא: ישות זו מייצגת את הנושא הנלמד בשיעור.

• id_sub- מספר סידורי המאפיין את המקצועות. (0- מתמטיקה, 1- אנגלית, 2- פיזיקה, 4- ספרות)

• name_sub- שם הנושא הנלמד. (מתמטיקה, אנגלית, פיזיקה, ספרות וכו')

כל התכונות תלויות במספר הסידורי של הנושא,
ואין תלות נוספת בין התכונות השונות שאינן מפותחות.

קשרים:

כל הקשרים הם מסוג one-> many.

• Know- בכל תחום ידע יש במה מדריכים שיודעים אותו.

• Teaching- לכל מדריך יש במה שיעורים שמלמד אותם.

• learn_about- לכל נושא יש במה שיעורים שלומדים אותו.

• Studying- בכל שיעור יש במה תלמידים שלומדים אותו.

• Payment- לכל מדריך יש במה משכורות חודשיות.

• Located- בכל עיר יש במה בתיבות שקיימות בה.

• Emp_home- בכל בתיבת יש במה מדריכים שగרים בה.

• client_home- בכל בתיבת יש במה תלמידים שגרים בה.

• Existing- בכל בתיבת יש במה שיעורים שמתקיימים בה.



רשימת הטבלאות:

City(**c_id**, **c_name**).

Address(**adr_id**, street_name, building, **c_id**).

Knowledge(**know_id**, know_num_year, know_type, know_name_sub).

Employee(**emp_tz**, emp_name, emp_acc_details, hire_date, emp_hour_wage, **adr_id**, **know_id**).

Subject(**sub_id**, sub_name).

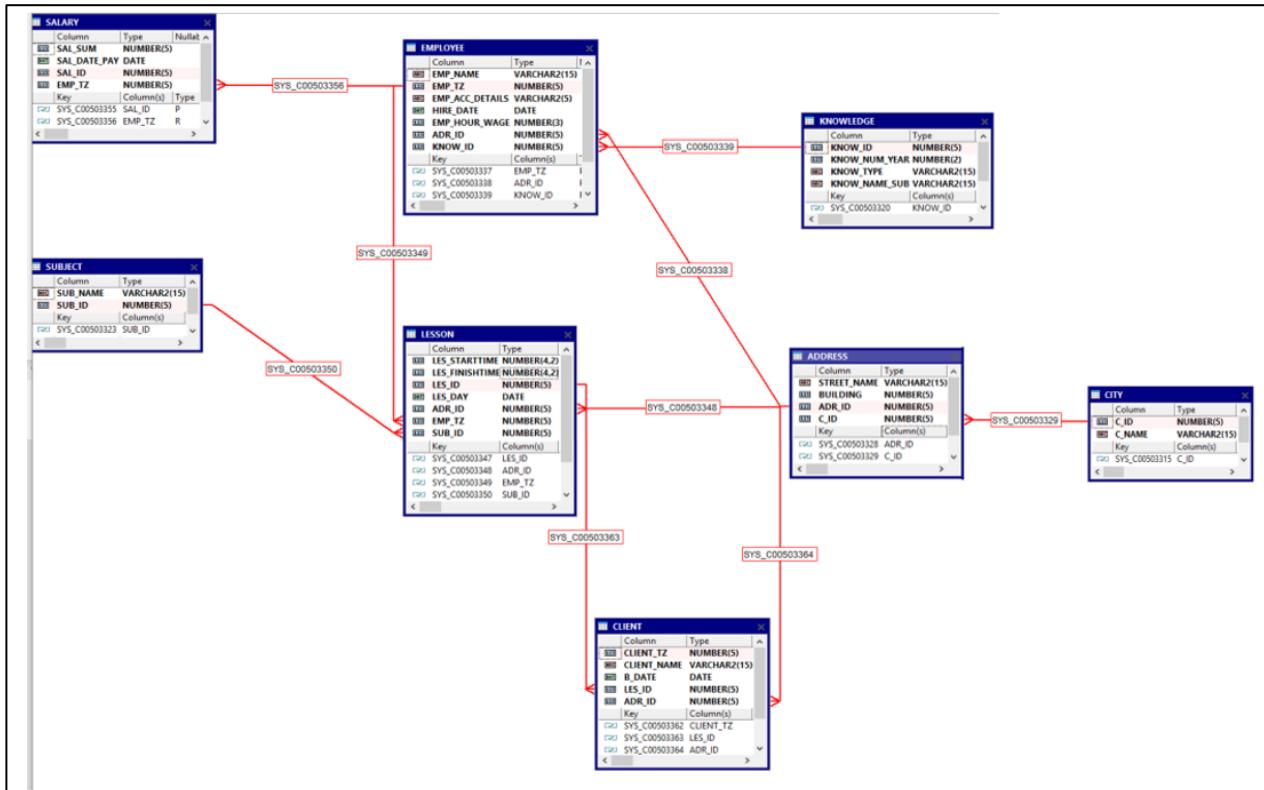
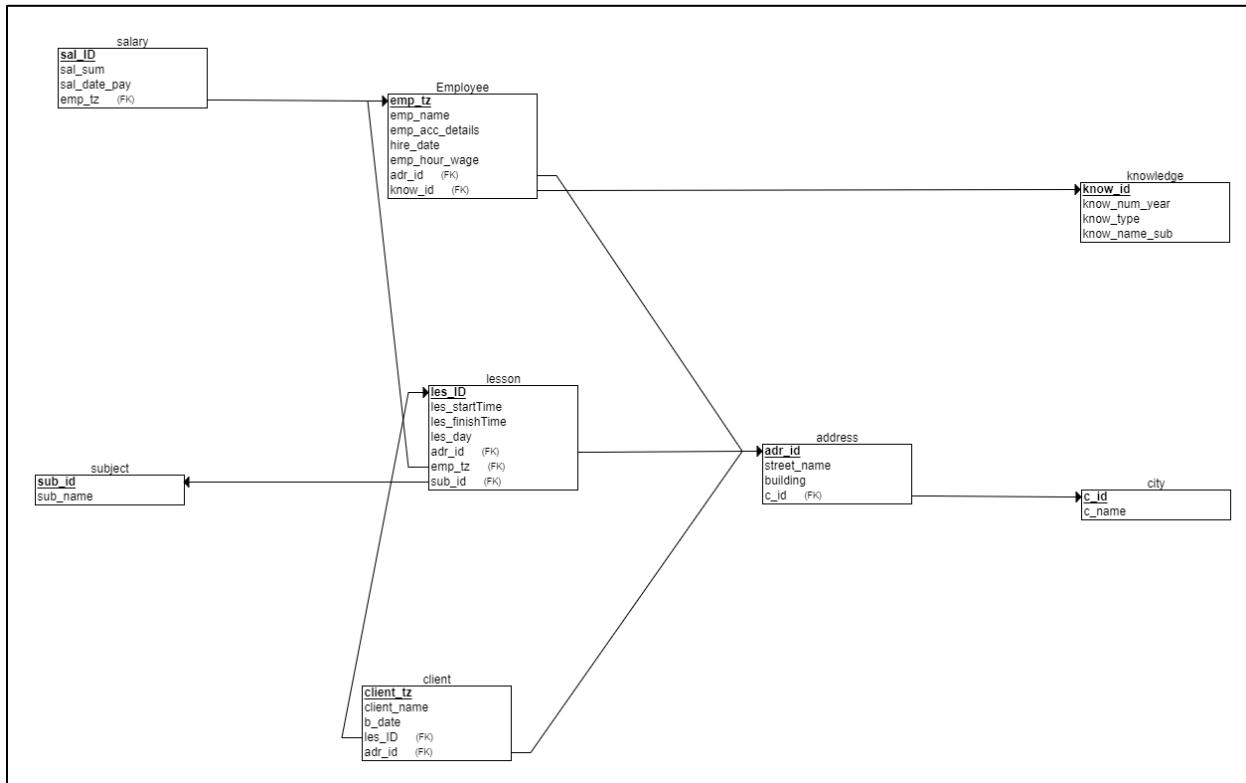
Lesson(**les_ID**, les_startTime, les_finishTime, les_day, **adr_id**, **emp_tz**, **sub_id**).

Salary (**sal_ID**, sal_sum, sal_date_pay, **emp_tz**).

client(**client_tz**, client_name, b_date, **les_ID**, **adr_id**).

Foreign key-רifer key
Primary key-ראשי key

תרשים:DSD





CREATE TABLE:

```

CREATE TABLE city
(
    c_id NUMERIC(5) NOT NULL,
    c_name VARCHAR(15) NOT NULL,
    PRIMARY KEY (c_id)
);

CREATE TABLE knowledge
(
    know_id NUMERIC(5) NOT NULL,
    know_num_year NUMERIC(2) NOT NULL,
    know_type VARCHAR(15) NOT NULL,
    know_name_sub VARCHAR(15) NOT NULL,
    PRIMARY KEY (know_id)
);

CREATE TABLE subject
(
    sub_name VARCHAR(15) NOT NULL,
    sub_id NUMERIC(5) NOT NULL,
    PRIMARY KEY (sub_id)
);

CREATE TABLE address
(
    street_name VARCHAR(15) NOT NULL,
    building NUMERIC(5) NOT NULL,
    adr_id NUMERIC(5) NOT NULL,
    c_id NUMERIC(5) NOT NULL,
    PRIMARY KEY (adr_id),
    FOREIGN KEY (c_id) REFERENCES city(c_id)
);

CREATE TABLE Employee
(
    emp_name VARCHAR(15) NOT NULL,
    emp_tz NUMERIC(5) NOT NULL,
    emp_acc_details VARCHAR(15) NOT NULL,
    hire_date DATE NOT NULL,
    emp_hour_wage NUMERIC(3) NOT NULL,
    adr_id NUMERIC(5) NOT NULL,
    know_id NUMERIC(5) NOT NULL,
)
```



```

PRIMARY KEY (emp_tz),
FOREIGN KEY (adr_id) REFERENCES address(adr_id),
FOREIGN KEY (know_id) REFERENCES knowledge(know_id)
);

```

```

CREATE TABLE lesson
(
les_startTime NUMERIC(4,2) NOT NULL,
les_finishTime NUMERIC(4,2) NOT NULL,
les_ID NUMERIC(5) NOT NULL,
les_day DATE NOT NULL,
adr_id NUMERIC(5) NOT NULL,
emp_tz NUMERIC(5) NOT NULL,
sub_id NUMERIC(5) NOT NULL,
PRIMARY KEY (les_ID),
FOREIGN KEY (adr_id) REFERENCES address(adr_id),
FOREIGN KEY (emp_tz) REFERENCES Employee(emp_tz),
FOREIGN KEY (sub_id) REFERENCES subject(sub_id)
);

```

```

CREATE TABLE salary
(
sal_sum NUMERIC(5,1) NOT NULL,
sal_date_pay DATE NOT NULL,
sal_ID NUMERIC(5) NOT NULL,
emp_tz NUMERIC(5) NOT NULL,
PRIMARY KEY (sal_ID),
FOREIGN KEY (emp_tz) REFERENCES Employee(emp_tz)
);

```

```

CREATE TABLE client
(
client_tz NUMERIC(5) NOT NULL,
client_name VARCHAR(15) NOT NULL,
b_date DATE NOT NULL,
les_ID NUMERIC(5) NOT NULL,
adr_id NUMERIC(5) NOT NULL,
PRIMARY KEY (client_tz),
FOREIGN KEY (les_ID) REFERENCES lesson(les_ID),
FOREIGN KEY (adr_id) REFERENCES address(adr_id)
);

```

פקודת :INSERT

SQL Output Statistics

```

insert into city values(2,'tel_aviv');
insert into city values(3,'Haifa');

insert into address values('Herzl', 45, 1, 1);
insert into address values('Ben_Gurion', 97, 2, 3);
insert into address values('Jabotinsky', 35, 3, 2);

insert into subject values('math',1);
insert into subject values('Physics',2);
insert into subject values('English',3);

insert into knowledge values(1, 15, 'BA', 'math');
insert into knowledge values(2, 15, 'MA', 'Physics');
insert into knowledge values(3, 15, 'SC', 'English');

insert into employee values('moshe', 1, 'dscnt', '24-MAY-20', 35, 1, 1);
insert into employee values('david', 2, 'mzrch', '18-APR-20', 65, 2, 2);
insert into employee values('avia', 3, 'plm', '23-APR-20', 30, 3, 3);

insert into lesson values(11.50, 12.50, 1, '02-MAY-20', 1, 1, 1);
insert into lesson values(15.00, 18.00, 2, '10-JUN-20', 2, 2, 2);
insert into lesson values(12.00, 14.50, 3, '17-JUN-20', 3, 3, 3);

insert into salary values(5000,'10-MAR-20', 1, 1);
insert into salary values(5000,'10-MAR-20', 2, 2);
insert into salary values(5000,'10-MAR-20', 3, 3);

insert into client values(1, 'dani', '04-DEC-03', 1, 1);
insert into client values(2, 'shaul', '26-SEP-03', 1, 2);
insert into client values(3, 'rina', '19-NOV-03', 3, 3);

```

select * from CITY t		select * from SUBJECT t		select * from ADDRESS t		select * from SALARY t		select * from KNOWLEDGE t		select * from LESSON t		select * from CLIENT t	



Import txt:

Data from Textfile Data to Oracle

General
 Owner: Table: SALARY
 Commit every...: 0
 Overwrite duplicates Delete records
 Ignore duplicates Truncate table

Fields
 Field1: SAL_SUM (NUMBER)
 Field2: SAL_DATE_PAY (DATE)
 Field3: SAL_ID (NUMBER)
 Field4: EMP_TZ (NUMBER)

Field: SAL_SUM (NUMBER) Fieldtype: Number

 SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

1	2	3	4
6000	10/02/2020	4	1
5500	10/02/2020	5	2
3500	10/02/2020	6	3

nemirovs@labdbwin 3 records imported in 0.016 seconds

select * from SALARY t				
	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_TZ
▶ 1	5000	10/03/2020	1	1
2	5000	10/03/2020	2	2
3	5000	10/03/2020	3	3
4	6000	10/02/2020	4	1
5	5500	10/02/2020	5	2
6	3500	10/02/2020	6	3

Data from Textfile Data to Oracle

General
 Owner: Table: CITY
 Commit every...: 0
 Overwrite duplicates Delete records
 Ignore duplicates Truncate table

Fields
 Field1: C_ID (NUMBER)
 Field2: C_NAME (VARCHAR2)

Field: C_ID (NUMBER) Fieldtype: Number

 SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

1	2
4	ashkelon
5	arad
6	tzfat

nemirovs@labdbwin 3 records imported in 0.032 seconds

select * from CITY t	
C_ID	C_NAME
1	jerusalem
2	tel_aviv
3	Haifa
4	ashkelon
5	arad
6	tzfat

Data from Textfile Data to Oracle

General
 Owner: Table: SUBJECT
 Commit every...: 0
 Overwrite duplicates Delete records
 Ignore duplicates Truncate table

Fields
 Field1: SUB_ID (NUMBER)
 Field2: SUB_NAME (VARCHAR2)

Field: SUB_ID (NUMBER) Fieldtype: Number

 SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

1	2
1	history
2	computers
3	biology

nemirovs@labdbwin 3 records imported in 0.015 seconds

select * from SUBJECT t	
SUB_NAME	SUB_ID
math	1
Physics	2
English	3
history	4
computers	5
biology	6



Import excel:

Data from ODBC Data to Oracle

General

Owner: CLIENT Table: CLIENT

Commit every...: 0 Overwrite duplicates Ignore duplicates Delete records Truncate table

Initializing Script:

Finalizing Script:

Fields

adr_ID -> ADR_ID
les_ID -> LES_ID
b_date -> B_DATE
name -> CLIENT_NAME
tz -> CLIENT_TZ

Field: ADR_ID Fieldtype: Number Create SQL

SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

adr_ID	les_ID	b_date	name	tz
2.0	2.0	2013-05-02	shani	4.0
3.0	2.0	2013-07-03	reni	5.0
1.0	2.0	2012-08-25	gabi	6.0

Import Import to Script Close nemirovs@labeledwin 3 records imported in 0.14 seconds Help

select * from EMPLOYEE t

EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID
dani	4	dscnt	02/10/2020	35	4	1
sharit	5	dscnt	24/12/2018	65	1	2
esti	6	plm	07/04/2018	35	6	1
moshe	1	dscnt	24/05/2020	35	1	1
david	2	mzrch	18/04/2020	65	2	2
avia	3	plm	23/04/2020	30	3	3

Data from ODBC Data to Oracle

General

Owner: EMPLOYEE Table: EMPLOYEE

Commit every...: 0 Overwrite duplicates Ignore duplicates Delete records Truncate table

Initializing Script:

Finalizing Script:

Fields

know_ID -> KNOW_ID
adr_ID -> ADR_ID
hour_wage -> EMP_HOUR_WAGE
hire_date -> HIRE_DATE
acc_detail -> EMP_ACC_DETAILS
tz -> EMP_TZ
emp_name -> EMP_NAME

Field: EMP_NAME Fieldtype: String Create SQL

SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

know_ID	adr_ID	hour_wage	hire_date	acc_detail	tz	emp_name
1.0	4.0	35.0	2020-10-02	dscnt	4.0	dani
2.0	1.0	65.0	2018-12-24	dscnt	5.0	sharit
1.0	6.0	35.0	2018-04-07	plm	6.0	esti

Import Import to Script Close nemirovs@labeledwin 3 records imported in 0.187 seconds Help

select * from CLIENT t

CLIENT_TZ	CLIENT_NAME	B_DATE	LES_ID	ADR_ID
4	shani	02/05/2013	2	2
5	roni	03/07/2013	2	3
3	gabi	25/08/2012	2	1
4	1	04/12/2003	1	1
5	2	26/09/2003	1	2
6	3	19/11/2003	3	3

Data from ODBC Data to Oracle

General

Owner: ADDRESS Table: ADDRESS

Commit every...: 0 Overwrite duplicates Ignore duplicates Delete records Truncate table

Initializing Script:

Finalizing Script:

Fields

c_ID -> C_ID
adr_ID -> ADR_ID
building -> BUILDING
street_name -> STREET_NAME

Field: STREET_NAME Fieldtype: String Create SQL

SQL function: additional Oracle processing, for example: substr(#, 1, 20)

Result Preview

c_ID	adr_ID	building	street_name
2.0	4.0	78.0	vradim
3.0	5.0	43.0	shoshanim
3.0	6.0	67.0	rashi

Import Import to Script Close nemirovs@labeledwin 3 records imported in 0.016 seconds Help

select * from ADDRESS t

STREET_NAME	BUILDING	ADR_ID	C_ID
Herzl	45	1	1
Ben_Gurion	97	2	3
Jabotinsky	35	3	2
vradim	78	4	2
shoshanim	43	5	3
rashi	67	6	3



Data generator:

ADDRESS

Owner	Table	Number of records
NEMIROVS	ADDRESS	10..20

Name	Type	Size	Data
STREET_NAME	VARCHAR2	15	Address1
BUILDING	NUMBER	5	Random(1, 50)
ADR_ID	NUMBER	5	Sequence(7, 1,)
C_ID	NUMBER	5	List(select c_id from city)

EMPLOYEE

Owner	Table	Number of records
NEMIROVS	EMPLOYEE	10..20

Name	Type	Size	Data
EMP_NAME	VARCHAR2	15	FirstName
EMP_TZ	NUMBER	5	Sequence(7, [1], [])
EMP_ACC_DETAILS	VARCHAR2	5	List('dscont', 'mzrach', 'plm')
HIRE_DATE	DATE		Random(01/01/2016, 01/04/2020)
EMP_HOUR_WAGE	NUMBER	3	List('30', '35', '65')
ADR_ID	NUMBER	5	List(select adr_id from address)
KNOW_ID	NUMBER	5	List(select know_id from knowledge)

LESSON

Owner	Table	Number of records
NEMIROVS	LESSON	10..20

Name	Type	Size	Data
LES_STARTTIME	NUMBER	4,2	Random(7, 17)
LES_FINISHTIME	NUMBER	4,2	Random(7, 17)
LES_ID	NUMBER	5	Sequence(4, ,)
LES_DAY	DATE		Random(01/01/2016, 01/05/2020)
ADR_ID	NUMBER	5	List(select adr_id from address)
EMP_TZ	NUMBER	5	List(select emp_tz from employee)
SUB_ID	NUMBER	5	List(select sub_id from subject)



```

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('554 Voight Driv', 45, 10, 2);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('4 Hookah Ave', 43, 11, 4);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('47 Osbourne Blv', 17, 12, 1);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('2 Oosterhout Dr', 49, 13, 5);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('97 Manning', 31, 14, 5);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('53 Courtney Ave', 3, 15, 1);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('68 Crimson Road', 28, 16, 6);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('99 Dearborn Dri', 37, 17, 1);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('74 Teng', 5, 18, 2);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('91st Street', 8, 19, 6);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('58 McCracken', 46, 20, 6);

insert into ADDRESS (STREET_NAME, BUILDING, ADR_ID, C_ID)
values ('81 Geoff Road', 24, 21, 6);

```

```

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Selma', 7, 'mzzad', to_date('20-11-2018', 'dd-mm-yyyy'), 30, 7, 2);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Giancarlo', 8, 'plm', to_date('27-06-2018', 'dd-mm-yyyy'), 30, 14, 1);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Wally', 9, 'dsent', to_date('27-10-2018', 'dd-mm-yyyy'), 30, 24, 2);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Nathan', 10, 'plm', to_date('25-08-2017', 'dd-mm-yyyy'), 30, 15, 2);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Machine', 11, 'mzrac', to_date('02-08-2018', 'dd-mm-yyyy'), 35, 12, 3);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Harrison', 12, 'plm', to_date('05-10-2018', 'dd-mm-yyyy'), 65, 23, 1);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Avril', 13, 'mzrac', to_date('04-07-2017', 'dd-mm-yyyy'), 30, 15, 3);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Lennie', 14, 'dsent', to_date('07-08-2018', 'dd-mm-yyyy'), 35, 23, 1);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Hillary', 15, 'plm', to_date('23-01-2019', 'dd-mm-yyyy'), 65, 16, 1);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Nancy', 16, 'mzrac', to_date('29-04-2016', 'dd-mm-yyyy'), 65, 12, 3);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Jessica', 17, 'dsent', to_date('03-03-2017', 'dd-mm-yyyy'), 65, 5, 3);

insert into EMPLOYEE (EMP_NAME, EMP_TZ, EMP_ACC_DETAILS, HIRE_DATE, EMP_HOUR_WAGE, ADR_ID, KNOW_ID)
values ('Bette', 18, 'dsent', to_date('23-04-2017', 'dd-mm-yyyy'), 30, 19, 2);

```

```

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (9.24, 7.70, 4, to_date('23-11-2016', 'dd-mm-yyyy'), 1, 24, 3);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (8.34, 7.66, 5, to_date('14-02-2016', 'dd-mm-yyyy'), 8, 9, 3);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (11.92, 11.78, 6, to_date('20-05-2019', 'dd-mm-yyyy'), 2, 22, 6);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (16.08, 12.74, 7, to_date('13-10-2019', 'dd-mm-yyyy'), 17, 3, 1);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (16.45, 7.92, 8, to_date('27-03-2020', 'dd-mm-yyyy'), 15, 22, 3);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (12.90, 10.53, 9, to_date('05-05-2017', 'dd-mm-yyyy'), 3, 24, 4);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (8.36, 12.23, 10, to_date('03-06-2016', 'dd-mm-yyyy'), 23, 5, 6);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (9.24, 15.84, 11, to_date('20-01-2016', 'dd-mm-yyyy'), 7, 6, 4);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (13.11, 11.08, 12, to_date('10-06-2016', 'dd-mm-yyyy'), 3, 20, 5);

insert into LESSON (LES_STARTTIME, LES_FINISHTIME, LES_ID, LES_DAY, ADR_ID, EMP_TZ, SUB_ID)
values (10.49, 9.46, 13, to_date('09-11-2017', 'dd-mm-yyyy'), 17, 8, 2);

```



SQL Output Statistics

```
select * from ADDRESS t
```

	STREET_NAME	BUILDING	ADR_ID	C_ID
► 1	Herz	45	1	1
2	Ben_Gurion	97	2	3
3	Jabotinsky	35	3	2
4	vradim	78	4	2
5	shoshanim	43	5	3
6	rashi	67	6	3
7	10 Maclsac Dri	17	7	3
8	706 Nivola Road	23	8	3
9	74 Sacramento R	5	9	1
10	854 Voight Driv	45	10	2
11	4 Hookah Ave	43	11	4
12	47 Osbourne Blv	17	12	1
13	2 Oosterhout Dr	49	13	5
14	97 Manning	31	14	5
15	53 Courtney Ave	3	15	1
16	68 Crimson Road	28	16	6
17	99 Dearborn Dri	37	17	1
18	74 Teng	5	18	2
19	91st Street	8	19	6
20	58 McCracken	46	20	6
21	81 Geoff Road	24	21	6
22	71 West Chester	40	22	2
23	722 Makowicz Dr	32	23	3
24	93 Brossard Roa	2	24	5

iSQL Output Statistics

```
select * from EMPLOYEE t
```

	EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID
► 1	dani	4	dscnt	02/10/2020	35	4	1
2	sharit	5	dscnt	24/12/2018	65	1	2
3	esti	6	plm	07/04/2018	35	6	1
4	moshe	1	dscnt	24/05/2020	35	1	1
5	david	2	mzrhc	18/04/2020	65	2	2
6	avia	3	plm	23/04/2020	30	3	3
7	Selma	7	mzrac	20/11/2018	30	7	2
8	Giancarlo	8	plm	27/06/2018	30	14	1
9	Wally	9	dscnt	27/10/2018	30	24	2
10	Nathan	10	plm	25/08/2017	30	15	2
11	Machine	11	mzrac	02/08/2018	35	12	3
12	Harrison	12	plm	05/10/2018	65	23	1
13	Avril	13	mzrac	04/07/2017	30	15	3
14	Lennie	14	dscnt	07/08/2018	35	23	1
15	Hilary	15	plm	23/01/2019	65	16	1
16	Nancy	16	mzrac	29/04/2016	65	12	3
17	Jessica	17	dscnt	03/03/2017	65	5	3
18	Bette	18	dscnt	23/04/2017	30	19	2
19	Mel	19	plm	29/12/2016	35	13	1
20	Rosie	20	dscnt	14/02/2020	65	20	3
21	Ramsey	21	mzrac	17/10/2019	30	13	3
22	Domingo	22	dscnt	16/09/2016	35	16	2
23	Sander	23	mzrac	17/04/2017	65	20	3
24	Elvis	24	plm	21/12/2019	30	16	2

SQL Output Statistics

```
select * from LESSON t
```

	LES_STARTTIME	LES_FINISHTIME	LES_ID	LES_DAY	ADR_ID	EMP_TZ	SUB_ID
► 1		11.50	12.50	1	02/05/2020	1	1
2		15.00	18.00	2	10/06/2020	2	2
3		12.00	14.50	3	17/06/2020	3	3
4		9.24	7.70	4	23/11/2016	1	24
5		8.34	7.66	5	14/02/2016	8	9
6		11.92	11.78	6	20/05/2019	2	22
7		16.08	12.74	7	13/10/2019	17	3
8		16.45	7.92	8	27/03/2020	15	22
9		12.90	10.53	9	05/05/2017	3	24
10		8.36	12.23	10	03/06/2016	23	5
11		9.24	15.54	11	20/01/2016	7	8
12		13.11	11.05	12	10/06/2016	3	20
13		10.49	9.46	13	09/11/2017	17	8

גיבוי:

User <CURRENT USER>

Oracle Export | SQL Inserts | PL/SQL Developer | Log

Drop tables Disable foreign key constraints
 Create tables Include storage
 Truncate tables Include privileges
 Delete records Commit every records (0 = never)
 Disable triggers Where clause
 Zip

Output file Z:\database\export_table.sql

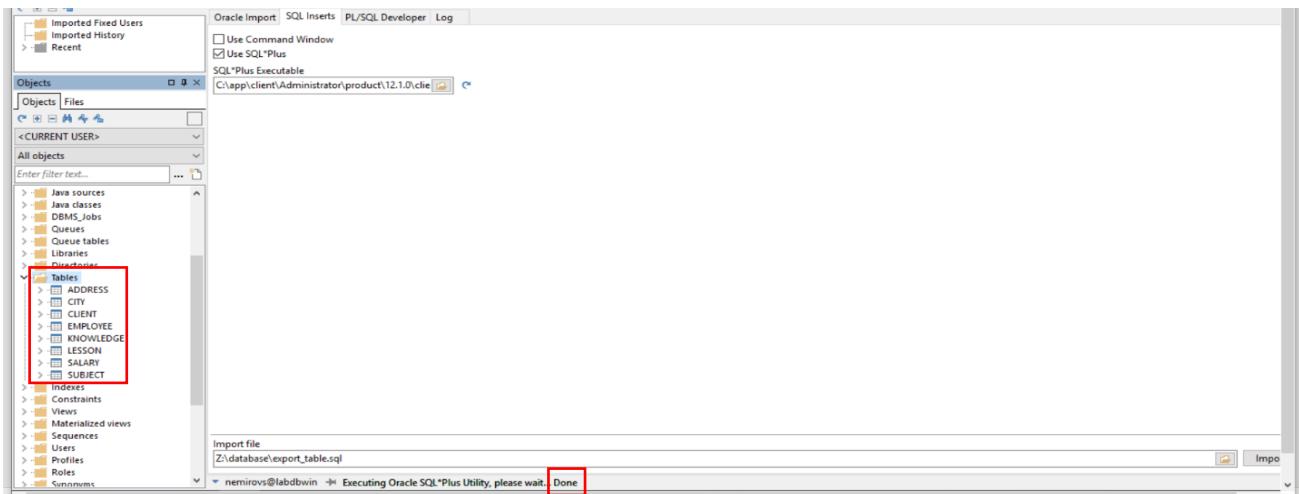
nemirovs@labdbwin → Exporting... Done

```
drop table client;
drop table lesson;
drop table subject;
drop table salary;
drop table employee;
drop table knowledge;
drop table address;
drop table city;
```

Drop client | Drop lesson | Drop subject | Drop salary | Drop employee | Drop knowledge |

nemirovs@labdbwin → Done in 0.015 seconds

שיהזור:





שלב 2:

אלגוריתם שיזור ERD:

ישויות ותכונות:

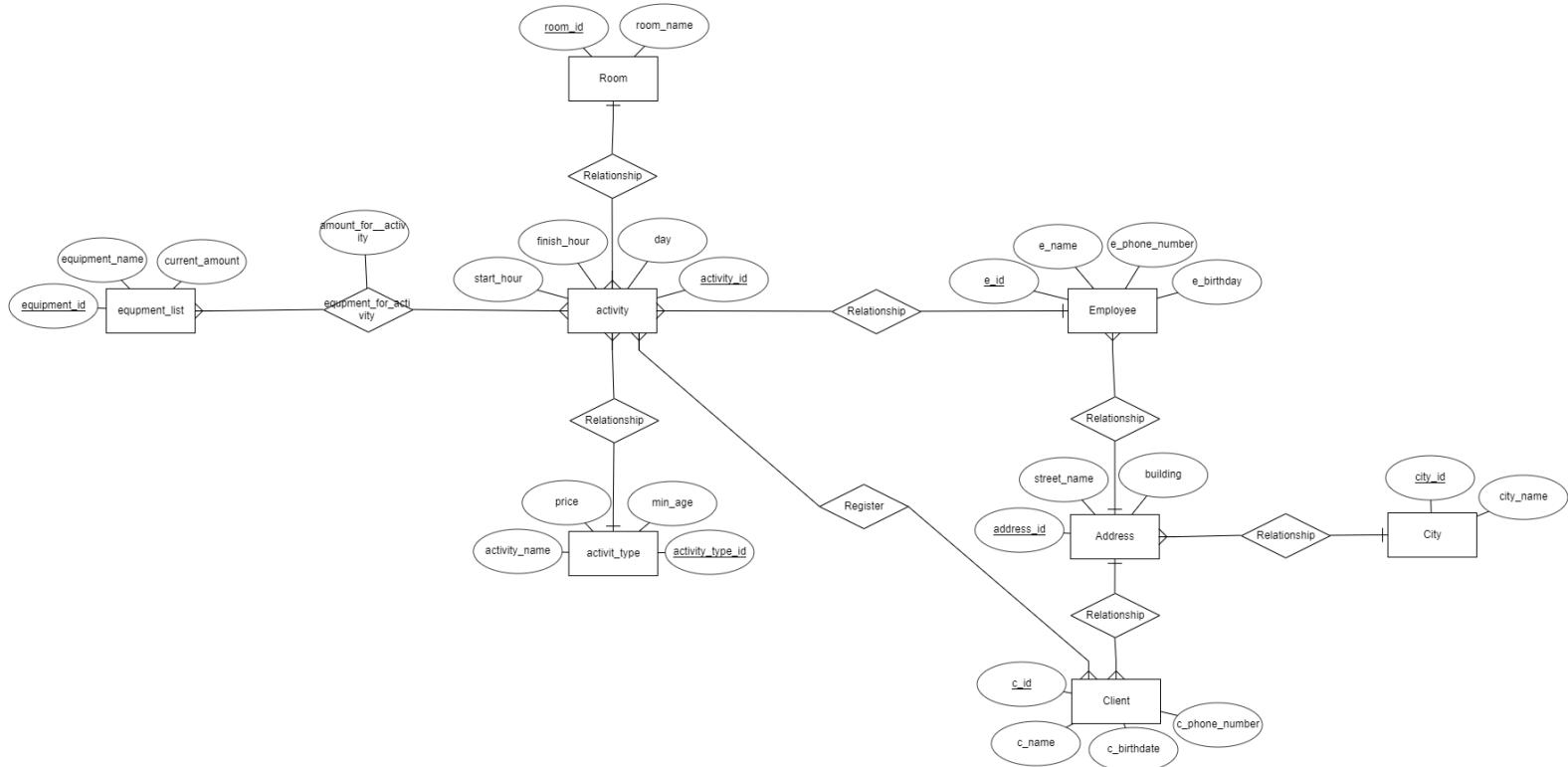
עבור כל טבלה בקובץ ה- create table יצרנו ישות. לכל ישות הוספנו את התכונות השיקות לה.

קשרים:

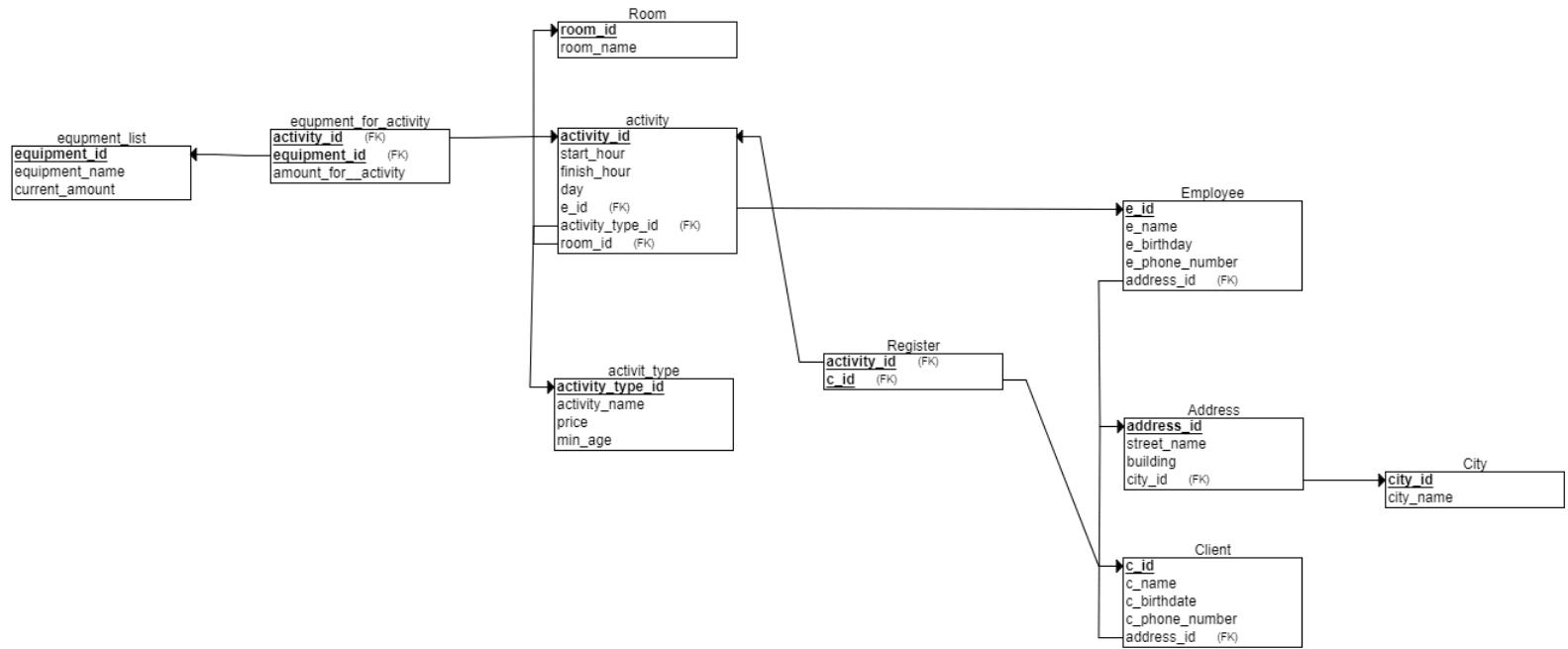
עבור כל מפתח זר יצרנו קשר בין הישות המכליה אותו לבין הישות אליה שיר המפתח. סוג הקשר:

- ✓ אם רק אחת מהישויות מכליה מפתח זר,
סוג הקשר- **יחיד לרבים**.
- ✓ אם קיימת טבלה ובה 2 מפתחות זרים המשמשים גם כключи ראשיים,
סוג הקשר- **רבים לרבים**,
טבלה זו מייצגת את הקשר.

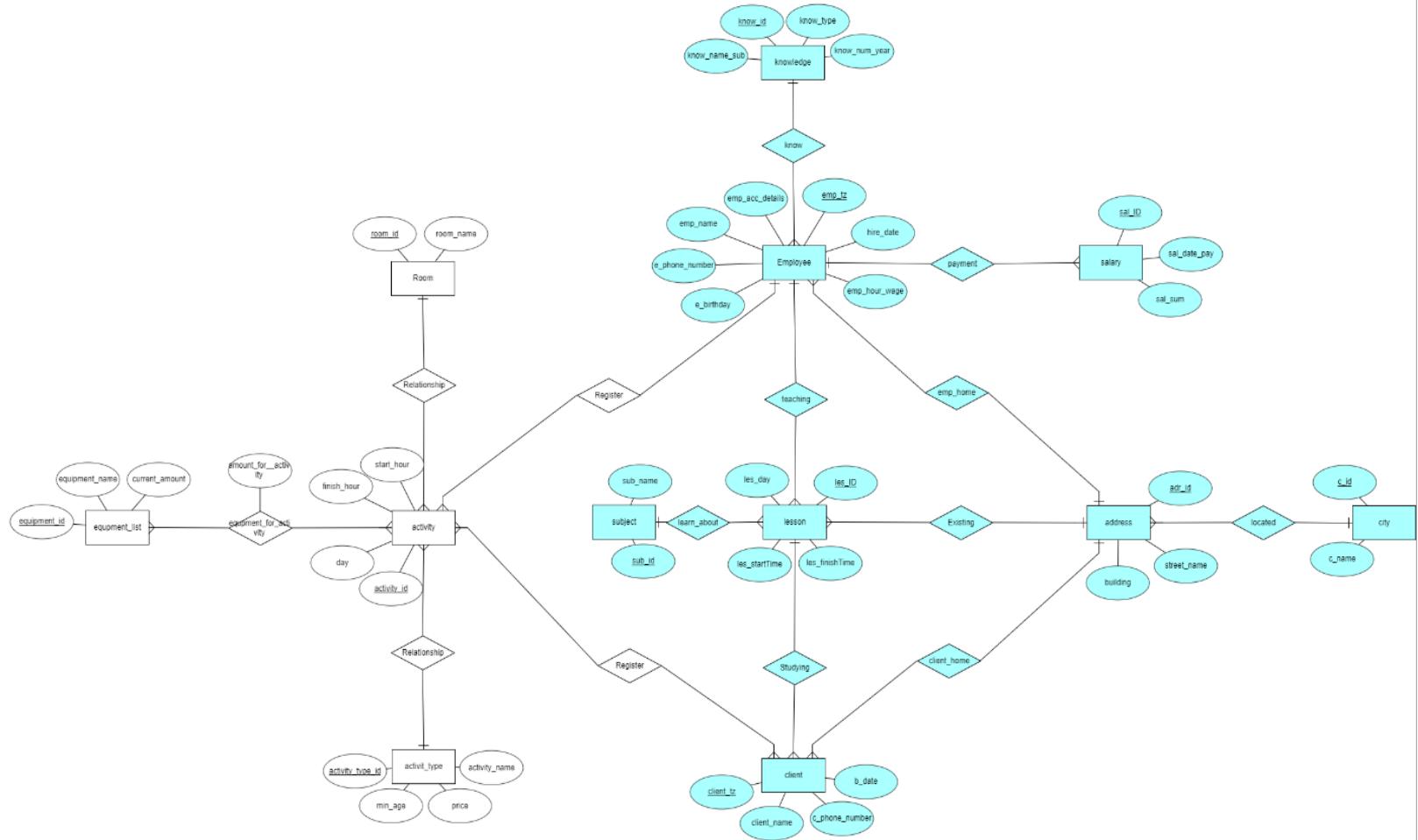
תרשים ERD - משחקיה:



תרשים - DSD - משகידה:



תרשים ERD משותף – חונכות + משלקיה:



תרשים DSD משותף:

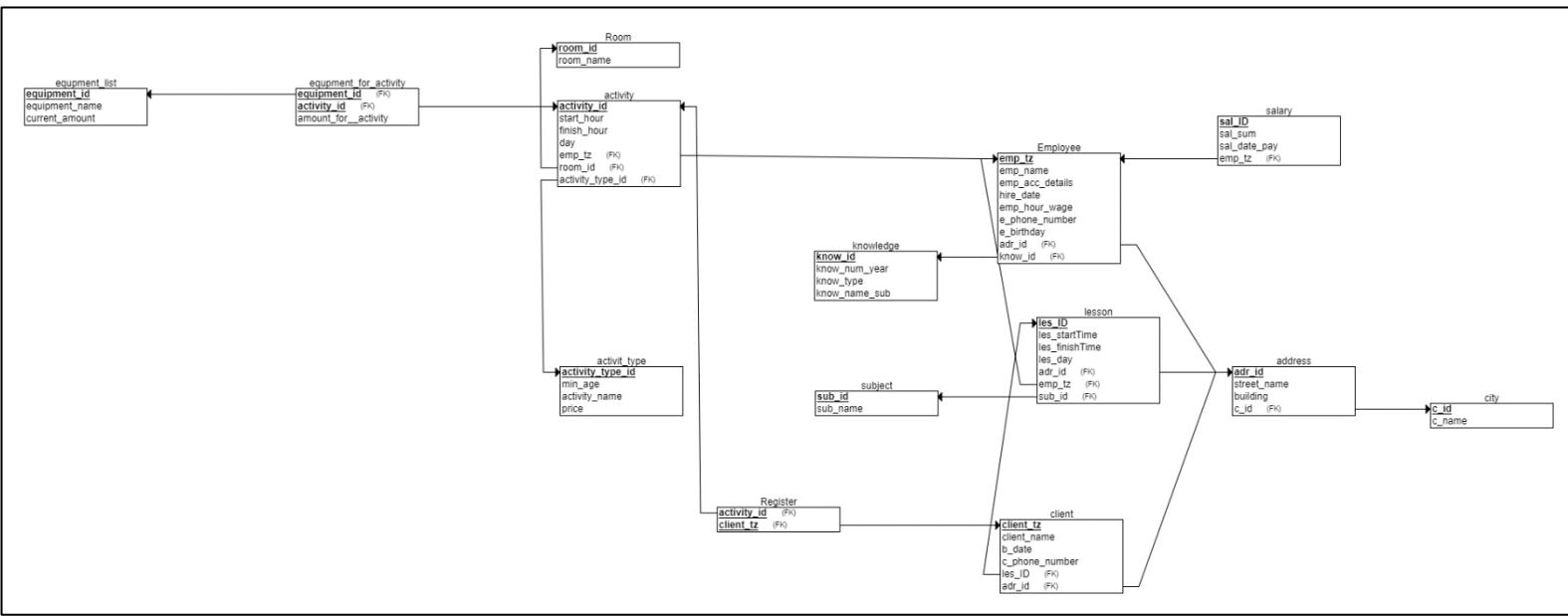
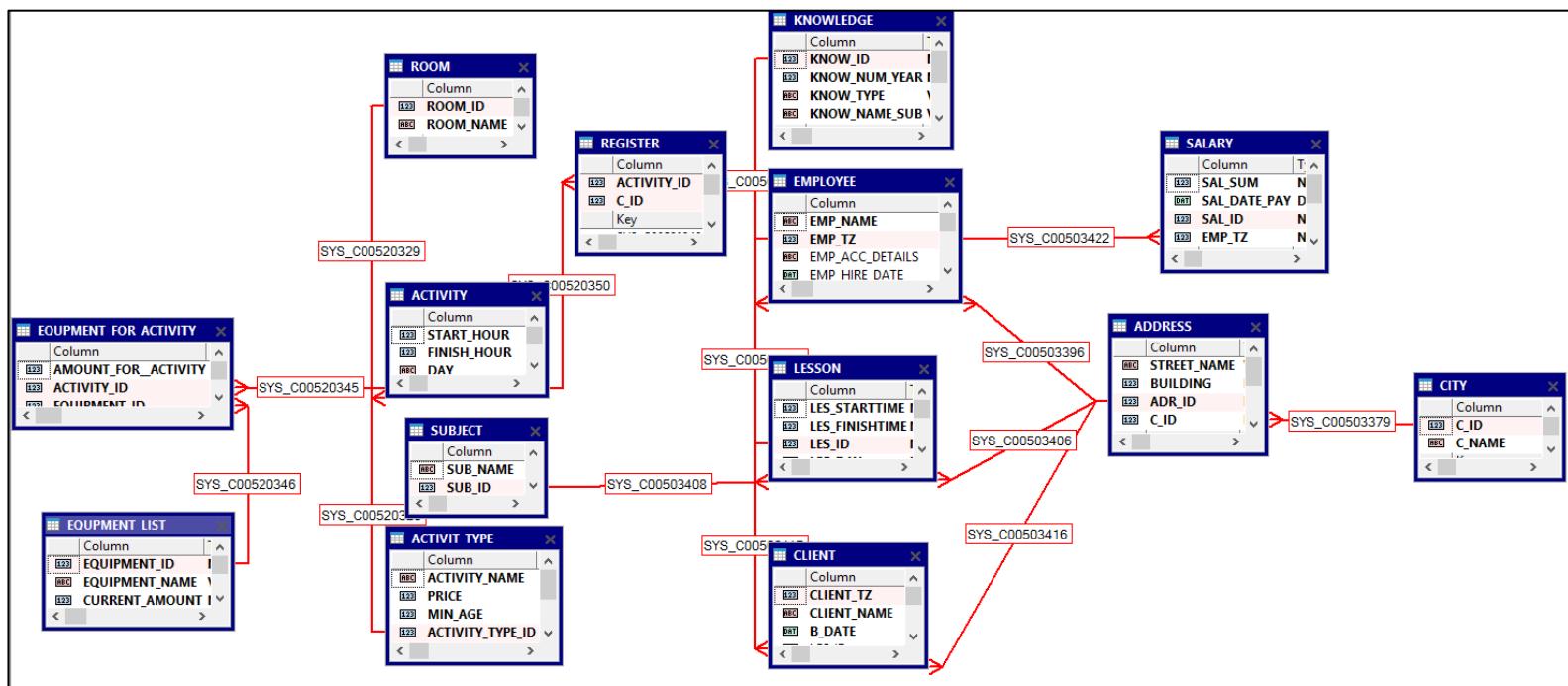


Diagram Windows משותף:





אלגוריתם ביצוע האינטגרציה:

```

sql.sql x
SQL Output Statistics
rename city to city_tmp;
rename address to address_tmp;
rename client to client_tmp;
rename employee to employee_tmp;

```

1. שינו את שם הטבלאות המשותפות ל-2 האגפים לשם זמני,
על ידי הפקודה `rename`.

2. לאחר שהשמות של הטבלאות המשותפות התפנו,
ניתן ליבא את הטבלאות מבל' שתהייה התנגשות.
ביצענו `import` לקובץ הגיבוי שקבענו.
וקיבלנו את הטבלאות של האג' במלואן.

ADDRESS				
	STREET_NAME	ADDRESS_ID	BUILDING	CITY_ID
1	rashi	1	9	2
2	yafe	2	200	1
3	disingof	3	67	3
4	ichilov	4	1	3
5	alenbi	5	54	3
6	aza	6	34	1
7	35 Mac Street	8	21	24
8	44 Crouse Road	9	191	63
9	26 Lawrence Road	10	105	42
10	81 Milton Road	11	223	32
11	72nd Street	12	203	52
12	41 Solidus	13	270	46
13	81st Street	7	284	13
14	40 Paymer Street	14	17	29
15	53 Hidalgo Street	15	152	52
16	79 Blackwell Road	16	99	59
17	89 Trejo Drive	17	209	12
18	40 McGoohan Blvd	18	187	31
19	57 Siers Street	19	54	34
20	67 Khan Blvd	20	253	50
21	7 Lapointe Street	21	44	34
22	34 Broadband Road	22	13	60
23	83rd Street	23	283	1
24	8 Stanton Road	24	273	28
25	29 Walsh Road	25	250	45
26	1 Kazem Ave	26	208	35

CLIENT				
	C_ID	C_NAME	C_BIRTHDATE	C_PHONE_NUMBER
1	300000128	Nanci	03/03/2006	52257904
2	300000130	Olga	02/06/1951	53229571
3	300000132	Freddy	22/05/1994	549321924
4	300000134	Jerome	05/04/1991	584447299
5	300000136	Stockard	15/02/1968	545609954
6	300000138	Rod	06/04/1959	580934221
7	300000140	Ernie	15/02/2000	546002438
8	300000142	Dianne	21/05/1986	546177548
9	300000144	Nikkie	07/04/1982	539300324
10	300000146	Jill	18/06/2007	527289403
11	300000148	Seann	02/03/1993	53354269
12	300000150	Franz	02/05/1978	58936330
13	300000152	Jena	02/08/1959	527094375
14	300000154	Cherry	01/03/1950	585345472
15	300000156	Gilberto	10/09/1958	531741281
16	300000158	Hope	05/01/1982	58778483
17	300000160	Naomi	01/10/1974	531407585
18	300000162	Rachael	05/02/1969	52112835
19	300000164	Hank	12/12/1995	526139969
20	300000166	Bryan	05/03/1964	527652766
21	300000168	Buddy	21/08/1969	543716275
22	300000170	Anita	08/03/1981	521060322
23	300000172	Claire	03/04/1992	533654831
24	300000174	Rod	13/09/1999	53429128
25	300000176	Brendan	29/05/2014	581216950

EMPLOYEE				
	E_ID	E_NAME	E_PHONE_NUMBER	E_BIRTHDATE
1	200000040	Hookah	53895635	07/07/2057
2	200000042	Affie	535203876	12/11/1994
3	200000044	Bradley	543513863	24/06/1998
4	200000046	Bob	549151298	04/02/1983
5	200000048	Giancarlo	544778213	16/08/1998
6	200000050	Jimmie	532221999	16/06/1999
7	200000052	Celia	586645191	14/06/1997
8	200000054	Isabella	539571570	02/11/1990
9	200000056	Lesley	522066124	03/06/1996
10	200000058	Geraldine	537708968	18/07/2069
11	200000060	Julianne	531705030	24/01/2058
12	200000062	Edie	545400640	28/04/2067
13	200000064	Judd	539773923	14/10/1972
14	200000066	Campbell	52540707	06/08/1998
15	200000068	Lynn	528421827	08/11/1999
16	200000070	Sylvester	54621583	27/02/2054
17	200000072	Julianne	534515720	01/02/2000
18	200000074	Dee	548216963	27/03/2033
19	200000076	Lorraine	523777076	04/09/1993
20	200000078	Miki	529023845	30/08/1996
21	200000080	Ted	581301085	19/04/2065
22	200000082	Sisay	523509544	08/10/1993
23	200000084	Mekhi	589436203	13/11/1998
24	200000086	Dar	54713145	27/02/1995
25	200000088	Bret	581876481	04/03/1988

EQUIPMENT_LIST		
	EQUIPMENT_ID	EQUIPMENT_NAME
1	4	Xphir
2	5	Fhufun
3	6	Ayctp
4	7	Sowwpk
5	8	Kqjpkc
6	9	Pdngrz
7	10	Lymynn
8	11	Vkjyjja
9	12	Onxwg
10	13	Unveog
11	14	Gilgl
12	15	Prugus
13	16	Mprcie
14	17	Egjlu
15	18	Vjbbase
16	19	Gwlbby
17	20	Sjzur
18	21	Odfje
19	22	Gefdkk
20	23	Jxovjk
21	24	Xqsdjl
22	25	Tquemus
23	26	Xsfwam
24	27	Sejar
25	28	Lmznjh

CITY		
	CITY_ID	CITY_NAME
1	1	Jerusalem
2	2	Betheshem
3	3	Tel Aviv
4	4	Arlington
5	5	Ohita
6	6	Oakland
7	7	Torino
8	8	Oyten
9	9	Melbourne
10	10	West Lafayette
11	11	Darmstadt
12	12	4n
13	13	Pasiley
14	14	Bridiane
15	15	Cedar Rapids
16	16	Fe
17	17	Obfelden
18	18	Kagale
19	19	Green bay
20	20	Kanazava
21	21	Franckraham
22	22	Ehning
23	23	Campinas
24	24	South Hadley
25	25	Dearborn

ROOM		
	ROOM_ID	ROOM_NAME
1	1	Zn
2	2	5 Ho
3	3	6 K
4	4	7 Fr
5	5	8 Ag
6	6	9 O
7	7	10 Lr
8	8	11 Aks
9	9	12 S
10	10	13 Cf
11	11	14 Fr
12	12	15 Ag
13	13	16 Sa
14	14	17 Fr
15	15	18 N
16	16	19 Fe
17	17	20 Pd
18	18	21 Cm
19	19	22 Yb
20	20	23 Hz
21	21	24 Tc
22	22	25 Cu
23	23	26 Na
24	24	27 Lu
25	25	28 V

REGISTER		
	ACTIVITY_ID	C_ID
1	31	30000024
2	49	107
3	22	104
4	36	111
5	44	112
6	23	114
7	31	102
8	21	107
9	25	115
10	40	112
11	100	102
12	37	109
13	29	110
14	45	105
15	24	112
16	48	31
17	26	60
18	20	101
19	15	102
20	17	103
21	25	104

EQUIPMENT_FOR_ACTIVITY		
	AMOUNT_FOR_ACTIVITY	ACTIVITY_ID
1	30	112
2	49	20
3	22	104
4	36	111
5	44	112
6	23	114
7	31	102
8	21	107
9	25	115
10	40	112
11	100	102
12	37	109
13	29	110
14	45	105
15	24	112
16	48	31
17	26	60
18	20	101
19	15	102
20	17	103
21	25	104

3. על מנת שנוכל לאחד את הטבלאות לטבלה אחת גודלה,
נאצנו לבצע שינויים והוספה שונות בטבלאות TMP.

NEMIROVS.CITY_TMP@LABDBWIN

General Columns Keys Checks Indexes Privileges Triggers

Name	Virtual	Type	Nullable	Default/Expr.	Generated	On Null	Storage	Comments
C_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		
C_NAME	<input type="checkbox"/>	VARCHAR2(20)	<input type="checkbox"/>	<input type="checkbox"/>		
*	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

NEMIROVS.EMPLOYEE_TMP@LABDBWIN NEMIROVS.ADDRESS_TMP@LABDBWIN

General Columns Keys Checks Indexes Privileges Triggers

Name	Virtual	Type	Nullable	Default/Expr.	Generated	On Null	Storage	Comments
STREET_NAME	<input type="checkbox"/>	VARCHAR2(20)	<input type="checkbox"/>	<input type="checkbox"/>		...
BUILDING	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
ADR_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
C_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
*	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		...

Command Window NEMIROVS.CLIENT_TMP@LABDBWIN

General Columns Keys Checks Indexes Privileges Triggers

Name	Virtual	Type	Nullable	Default/Expr.	Generated	On Null	Storage	Comments
CLIENT_TZ	<input type="checkbox"/>	NUMBER(9)	<input type="checkbox"/>	<input type="checkbox"/>		...
CLIENT_NAME	<input type="checkbox"/>	VARCHAR2(20)	<input type="checkbox"/>	<input type="checkbox"/>		...
B_DATE	<input type="checkbox"/>	DATE	<input type="checkbox"/>	<input type="checkbox"/>		...
LES_ID	<input type="checkbox"/>	NUMBER(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
ADR_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
CLIENT_PHONE_NUMBER	<input type="checkbox"/>	NUMBER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
*	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		...

NEMIROVS.CITY_TMP@LABDBWIN NEMIROVS.CLIENT_TMP@LABDBWIN NEMIROVS.EMPLOYEE_TMP@LABDBWIN

General Columns Keys Checks Indexes Privileges Triggers

Name	Virtual	Type	Nullable	Default/Expr.	Generated	On Null	Storage	Comments
EMP_NAME	<input type="checkbox"/>	VARCHAR2(20)	<input type="checkbox"/>	<input type="checkbox"/>		...
EMP_TZ	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
EMP_ACC_DETAILS	<input type="checkbox"/>	VARCHAR2(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
HIRE_DATE	<input type="checkbox"/>	DATE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
EMP_HOUR_WAGE	<input type="checkbox"/>	NUMBER(3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
ADR_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>	<input type="checkbox"/>		...
KNOW_ID	<input type="checkbox"/>	NUMBER(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
EMP_PHONE_NUMBER	<input type="checkbox"/>	NUMBER(5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
EMP_BIRTHDATE	<input type="checkbox"/>	DATE	<input checked="" type="checkbox"/>	<input type="checkbox"/>		...
*	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		...



4. הוסףנו לטיולאות רק את המפתחות שלא קיימות בבסיס הנתונים שלנו,
על ידי שאלתה שבה סיננו את המפתחות זהים. =<

SQL		Output		Statistics																																																	
<pre>select * from city where CITY_ID not in (select C_ID from city_tmp);</pre>																																																					
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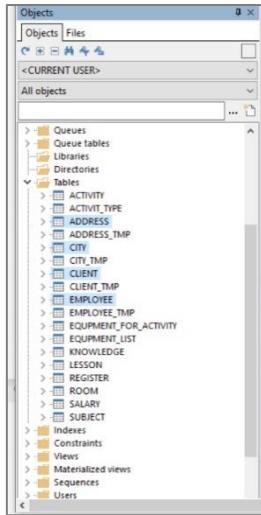
SQL Window		Output		Statistics	
<pre>insert into CITY_TMP(C_ID, C_NAME) select CITY_ID, CITY_NAME from CITY where CITY_ID not in (select C_ID from CITY_TMP); insert into ADDRESS_TMP(STREET_NAME, BUILDING, ADR_ID, C_ID) select STREET_NAME,BUILDING, ADDRESS_ID, CITY_ID from ADDRESS where ADDRESS_ID not in (select ADR_ID from ADDRESS_TMP); insert into EMPLOYEE_TMP(EMP_NAME, EMP_TZ, ADR_ID, EMP_PHONE_NUMBER, EMP_BIRTHDATE) select E_NAME, E_ID, ADDRESS_ID, E_PHONE_NUMBER, E_BIRTHDATE from EMPLOYEE where E_ID not in (select EMP_ID from EMPLOYEE_TMP); insert into CLIENT_TMP(CLIENT_TZ, CLIENT_NAME, B_DATE, ADR_ID, CLIENT_PHONE_NUMBER) select C_ID, C_NAME, C_BIRTHDATE, ADDRESS_ID, C_PHONE_NUMBER from CLIENT where C_ID not in (select CLIENT_TZ from CLIENT_TMP);</pre>					

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225	300000808	Darly	29/12/2016	28	531165170																																																																																																																																																																														
226	300000810	Dustin	31/07/1995	133	531278408																																																																																																																																																																														
227	300000812	Dave	07/04/2007	91	532217858																																																																																																																																																																														
228	300000814	Sinead	07/08/2002	3	583627857																																																																																																																																																																														
229	300000816	Harriet	29/04/1960	115	524801885																																																																																																																																																																														
230	1	dani	04/12/2003	1	1																																																																																																																																																																														
231	2	shaul	26/09/2003	1	2																																																																																																																																																																														
232	3	rina	19/11/2003	3	3																																																																																																																																																																														
233	4	shani	02/05/2013	2	2																																																																																																																																																																														
234	5	roni	02/07/2013	2	3																																																																																																																																																																														
235	6	gabi	25/08/2012	2	1																																																																																																																																																																														
236	19	Joshua	18/03/2020	233	82																																																																																																																																																																														
237	20	Holland	20/02/2020	48	204																																																																																																																																																																														

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<tr><td>82</td><td>Edgar</td><td>200000558</td><td></td><td>✓</td><td>76</td><td>76</td><td>532324896</td><td>16/05/1979</td><td>✓</td></tr> <tr><td>83</td><td>Mae</td><td>200000560</td><td></td><td>✓</td><td>118</td><td>118</td><td>53764859</td><td>06/11/1985</td><td>✓</td></tr> <tr><td>84</td><td>Jonatha</td><td>200000562</td><td></td><td>✓</td><td>74</td><td>74</td><td>549528757</td><td>13/08/2067</td><td>✓</td></tr> <tr><td>85</td><td>Kevin</td><td>200000564</td><td></td><td>✓</td><td>138</td><td>138</td><td>527363111</td><td>08/04/2051</td><td>✓</td></tr> <tr><td>86</td><td>Johnny</td><td>200000566</td><td></td><td>✓</td><td>29</td><td>29</td><td>538141244</td><td>21/06/1999</td><td>✓</td></tr> <tr><td>87</td><td>Albert</td><td>200000568</td><td></td><td>✓</td><td>149</td><td>149</td><td>585426823</td><td>15/09/1978</td><td>✓</td></tr> <tr><td>88</td><td>Nastasja</td><td>200000570</td><td></td><td>✓</td><td>66</td><td>66</td><td>530951363</td><td>31/07/2059</td><td>✓</td></tr> <tr><td>89</td><td>dani</td><td>4</td><td>dsnt</td><td>02/10/2020</td><td>✓</td><td>35</td><td>4</td><td>1</td><td>✓</td></tr> <tr><td>90</td><td>sharit</td><td>5</td><td>dsnt</td><td>24/12/2018</td><td>✓</td><td>65</td><td>1</td><td>2</td><td>✓</td></tr> <tr><td>91</td><td>esti</td><td>6</td><td>plm</td><td>07/04/2018</td><td>✓</td><td>35</td><td>6</td><td>1</td><td>✓</td></tr> <tr><td>92</td><td>mosti</td><td>1</td><td>dsnt</td><td>24/02/2020</td><td>✓</td><td>35</td><td>1</td><td>1</td><td>✓</td></tr> <tr><td>93</td><td>david</td><td>2</td><td>mzrch</td><td>18/04/2020</td><td>✓</td><td>65</td><td>2</td><td>2</td><td>✓</td></tr> <tr><td>94</td><td>viva</td><td>3</td><td>plm</td><td>23/04/2020</td><td>✓</td><td>30</td><td>3</td><td>3</td><td>✓</td></tr> <tr><td>95</td><td>foras</td><td>7</td><td>plm</td><td>20/11/2018</td><td>✓</td><td>30</td><td>7</td><td>2</td><td>✓</td></tr> <tr><td>96</td><td>Giancarlo</td><td>8</td><td>plm</td><td>27/06/2018</td><td>✓</td><td>30</td><td>14</td><td>1</td><td>✓</td></tr> <tr><td>97</td><td>Wally</td><td>9</td><td>dsnt</td><td>27/10/2018</td><td>✓</td><td>30</td><td>24</td><td>2</td><td>✓</td></tr> <tr><td>98</td><td>Nathan</td><td>10</td><td>plm</td><td>25/08/2017</td><td>✓</td><td>30</td><td>15</td><td>2</td><td>✓</td></tr> </tbody> 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71	Lenny	200000536		✓	86	86	582508883	19/09/1997	✓																																																																																																																																																																																																																																																																																																												
72	Wally	200000538		✓	68	68	547644538	02/01/2054	✓																																																																																																																																																																																																																																																																																																												
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74	Jodie	200000542		✓	114	114	537695488	29/05/1989	✓																																																																																																																																																																																																																																																																																																												
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78	Nikkis	200000550		✓	116	116	528114883	18/06/1987	✓																																																																																																																																																																																																																																																																																																												
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80	Oro	200000554		✓	136	136	531850827	07/03/1973	✓																																																																																																																																																																																																																																																																																																												
81	Jose	200000556		✓	43	43	531045611	27/01/2062	✓																																																																																																																																																																																																																																																																																																												
82	Edgar	200000558		✓	76	76	532324896	16/05/1979	✓																																																																																																																																																																																																																																																																																																												
83	Mae	200000560		✓	118	118	53764859	06/11/1985	✓																																																																																																																																																																																																																																																																																																												
84	Jonatha	200000562		✓	74	74	549528757	13/08/2067	✓																																																																																																																																																																																																																																																																																																												
85	Kevin	200000564		✓	138	138	527363111	08/04/2051	✓																																																																																																																																																																																																																																																																																																												
86	Johnny	200000566		✓	29	29	538141244	21/06/1999	✓																																																																																																																																																																																																																																																																																																												
87	Albert	200000568		✓	149	149	585426823	15/09/1978	✓																																																																																																																																																																																																																																																																																																												
88	Nastasja	200000570		✓	66	66	530951363	31/07/2059	✓																																																																																																																																																																																																																																																																																																												
89	dani	4	dsnt	02/10/2020	✓	35	4	1	✓																																																																																																																																																																																																																																																																																																												
90	sharit	5	dsnt	24/12/2018	✓	65	1	2	✓																																																																																																																																																																																																																																																																																																												
91	esti	6	plm	07/04/2018	✓	35	6	1	✓																																																																																																																																																																																																																																																																																																												
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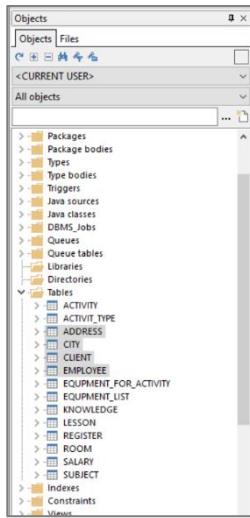


5. מחקנו את הטבלאות שיבנו,
ע"י הפקודה drop,
לאחר שביצעו את האיחוד.

SQL Window

```
SQL Output Statistics
rename city_tmp to city;
rename address_tmp to address;
rename client_tmp to client;
rename employee_tmp to employee;
```

6. החזרנו את שם הטבלה לשם המקורי,
לאחר שאיחדנו בה את נתוני 2 הטבלאות.





שלב 3:

שאילתת -SELECT :

:אגף 1

1. בשאלתא זו בדקנו כמה שיעורים מתקינים בכל מקצוע.

SQL Output Statistics	
<pre>select s.sub_name, count(*) from lesson l natural join subject s group by s.sub_name order by count(*)</pre>	

	SUB_NAME	COUNT(*)
1	computers	32
2	Physics	33
3	math	39
4	English	45
5	history	47
6	biology	55

2. בשאלתא זו בדקנו מהי המשכורת הממוצעת של כל עובד.

SQL Output Statistics	
<pre>select emp_tz, avg(s.sal_sum) from salary s natural join employee group by emp_tz;</pre>	

	EMP_TZ	AVG(S.SAL_SUM)
1	1	5190.666666666667
2	22	5381.666666666667
3	25	8991
4	30	4863.333333333333
5	34	6035
6	42	3406.5
7	43	5962
8	51	6422
9	54	5381.5
10	57	8359
11	78	7309.333333333333
12	83	5461
13	87	1500
14	91	4142.5
15	100	4663
16	123	5247.5
17	129	4440.5
18	138	6480
19	151	5483.25
20	152	8579
21	153	1911
22	167	6479.333333333333



אגף 2:

3. בשאלתא זו מצאנו את העובד שמספר הימי הראה פעילותות.

SQL Output Statistics	
<pre>select e_id, count(*) from activity a group by e_id having (count(a.activity_id))>=all(select count(*) from activity group by e_id)</pre>	
E_ID	COUNT(*)
20000054	5

כאן ניתן לראות שacky זהו העובד עם מספר הפעילות הרב ביותר.

SQL Output Statistics	
<pre>select e_id, count(*) from activity a group by e_id</pre>	
E_ID	COUNT(*)
22	5
23	2
45	2
43	2

4. בשאלתא זו הצגנו את כל שמות החדרים שמתקיימת בהן פעילותות מהשעה 14 בצהרים.

SQL Output Statistics	
<pre>select room_name, start_hour from activity natural join room where (activity.start_hour)>=14</pre>	
ROOM_NAME	START_HOUR
29 Ns	14
30 Lu	14
22 Crm	14
16 Fr	14
20 Pd	14
31 Lu	14
41 He	14
43 Mg	14
40 He	14
36 Ni	14
38 Rf	14
13 Cf	14
11 S	14
3 Zn	14
6 O	14
9 Lr	15
23 Yb	15
27 Tc	15
35 Ru	15
19 Fe	15
44 Mg	16
26 Tc	16
13 Fr	16
7 Lr	16
4 Zn	16
17 N	16
18 Fe	16



עדכון - UPDATE אגף 1

1. הצגת הנתונים לפני העדכון.
כל המדריכים-עובדים שיש להם השכלה תיכונית-SC.

	EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
1	3 avia	...	3 SC	English		30
2	11 Machine	...	3 SC	English		35
3	13 Avril	...	3 SC	English		30
4	16 Nancy	...	3 SC	English		65
5	17 Jessica	...	3 SC	English		65
6	20 Rosina	...	3 SC	English		65
7	21 Ramsey	...	3 SC	English		30
8	23 Sander	...	3 SC	English		65
9	25 Bernard	...	3 SC	English		30
10	26 Rony	...	3 SC	English		35
11	29 Cole	...	3 SC	English		65
12	31 Arnold	...	3 SC	English		65
13	32 Trey	...	3 SC	English		30
14	34 Crispin	...	3 SC	English		45
15	39 Jeroen	...	3 SC	English		35
16	45 Deborah	...	3 SC	English		45
17	50 Burton	...	3 SC	English		35
18	54 Sarah	...	3 SC	English		35
19	57 Milli	...	3 SC	English		35
20	59 Diamond	...	3 SC	English		45
21	60 Lauren	...	3 SC	English		65
22	63 Maury	...	3 SC	English		45
23	66 Sara	...	3 SC	English		30

ביצוע העדכון.
כל מדריך בעל השכלה תיכונית יקבל 65 לשעה.

	EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
1	3 avia	...	3 SC	English		65
2	11 Machine	...	3 SC	English		65
3	13 Avril	...	3 SC	English		65
4	16 Nancy	...	3 SC	English		65
5	17 Jessica	...	3 SC	English		65
6	20 Rosina	...	3 SC	English		65
7	21 Ramsey	...	3 SC	English		65
8	23 Sander	...	3 SC	English		65
9	25 Bernard	...	3 SC	English		65
10	26 Rony	...	3 SC	English		65
11	29 Cole	...	3 SC	English		65
12	31 Arnold	...	3 SC	English		65
13	32 Trey	...	3 SC	English		65
14	34 Crispin	...	3 SC	English		65
15	39 Jeroen	...	3 SC	English		65
16	45 Deborah	...	3 SC	English		65
17	50 Burton	...	3 SC	English		65
18	54 Sarah	...	3 SC	English		65
19	57 Milli	...	3 SC	English		65
20	59 Diamond	...	3 SC	English		65
21	60 Lauren	...	3 SC	English		65
22	63 Maury	...	3 SC	English		65
23	66 Sara	...	3 SC	English		65



אגד 2:

.2. הצגת הנתונים לפני העדכון.
.18. הנתונים אודות פעילות מס' 18.

SQL Output Statistics						
select * from ACTIVITY t where activity_id=18;						
START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
15	19	thursday	18	200000390	16	10

SQL Output Statistics						
update activity set room_id = 4 where activity_id=18;						

SQL Output Statistics						
select * from ACTIVITY t where activity_id=18;						
START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
15	19	thursday	18	200000390	16	4



מחיקה - DELETE

אגד 1

1. הצגת הנתונים לפני מחיקה

SQL	Output	Statistics
select * from LESSON t		
213	11.50	12.50
214	15.00	16.00
215	12.00	14.50
216	9.24	7.70
217	8.34	7.66
218	11.92	11.70
219	16.00	12.74
220	16.45	7.90
221	12.90	10.51
222	9.36	12.23
223	9.24	15.54
224	15.11	15.00
225	10.49	8.45
1	9.56	10.32
2	9.89	16.78
3	12.76	10.37
4	13.11	13.26
5	10.01	13.26
6	13.52	17.09
7	14.09	15.69
8	16.22	11.70
9	15.66	14.71
10	0.75	6.96
11	12.28	13.59
12	11.99	8.31
13	11.20	13.50
14	10.02	14.50
15	16.16	11.44
16	10.70	15.28

SQL	Output	Statistics
Delete From lesson where less_id not in(select distinct less_id from client where less_id is not NULL)		

SQL	Output	Statistics
select * from LESSON t		
131	11.50	12.50
132	15.00	16.00
133	12.00	14.50
134	9.24	7.70
135	16.00	12.74
136	16.45	7.90
137	12.90	10.51
138	13.11	11.05
1	9.56	10.32
2	9.89	16.78
3	13.52	17.09
4	10.01	13.26
5	14.09	15.69
6	16.22	11.70
7	15.66	14.71
8	0.75	6.96
9	12.28	13.59
10	11.99	8.31
11	11.20	13.50
12	10.02	14.50
13	16.16	11.44
14	10.70	15.28

אגד 2

2. הצגת הנתונים לפני מחיקה.

SQL	Output	Statistics
select * from EQUIPMENT_LIST t		
57	1 trampoline	10
58	2 ball	13
39	42 Mrdqj	15
38	41 Yzpor	16
13	16 Mprie	16
37	40 Umymqg	16
50	53 Kwtphx	16
9	8.99	23 16/04/2020
10	12.90	13.59
11	10.02	14.58
12	0.05	12.00
13	5.56	13.41
14	9.89	11.46
15	15.20	17.94
16	16.40	10.45
17	15.84	9.27
18	14.27	15.32
19	13.14	15.75
20	11.99	17.45
21	9.70	13.59

SQL	Output	Statistics
Delete from equipment_list e where e.current_amount<=10 and equipment_id not in (select equipment_id from equipment_for_activity)		

SQL	Output	Statistics
select * from EQUIPMENT_LIST t		
57	1 trampoline	10
39	42 Mrdqj	15
38	41 Yzpor	16
37	40 Umymqg	16
13	16 Mprie	16
50	53 Kwtphx	16
10	13 Unveg	18

ביצוע המחיקה.

מתקנו את הציג שכך מותן קטנה/שווה ל-10, ובנוסף בדקנו כי אין פעילות שימושת בצד זה.



:Index

:1 INDEX

לפני יצירת האינדקס:

```
SQL Output Statistics
select *
from ACTIVITY t
where t.activity_type_id=16
```

	START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
▶ 1	15	19	thursday	18 200000390	16	16	4
2	16	19	tuesday	36 200000162	16	16	14
3	12	13	sunday	82 200000554	16	16	10
4	13	14	sunday	83 200000554	16	16	10
5	14	15	sunday	84 200000554	16	16	10
6	15	16	sunday	85 200000554	16	16	10

⌚ 1:10 | NEMIROVS@labdbwin | 6 rows selected in 0.023 seconds

אחרי יצירת האינדקס:

```
SQL Output Statistics
select *
from ACTIVITY t
where t.activity_type_id=16

create index actv_typ_id
on ACTIVITY (ACTIVITY_TYPE_ID)
```

	START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
▶ 1	15	19	thursday	18 200000390	16	16	4
2	16	19	tuesday	36 200000162	16	16	14
3	12	13	sunday	82 200000554	16	16	10
4	13	14	sunday	83 200000554	16	16	10
5	14	15	sunday	84 200000554	16	16	10
6	15	16	sunday	85 200000554	16	16	10

⌚ 4:1 | NEMIROVS@labdbwin | 6 rows selected in 0.015 seconds

ניתן לראות כי הביצועים השתפאו ע"י השימוש באינדקס.



2 INDEX

לפני יצירת האינדקס:

	LES_STARTTIME	LES_FINISHTIME	LES_ID	LES_DAY	ADR_ID	EMP_TZ	SUB_ID
1	13.16	13.39	49	30/03/2020	143	1	3
2	14.33	14.09	59	19/04/2020	264	1	5
3	12.35	8.63	78	07/04/2020	122	1	3
4	13.40	16.41	90	30/03/2020	198	1	3
5	15.58	8.70	91	21/02/2020	161	1	6
6	12.14	9.09	106	07/01/2020	207	1	6
7	13.21	16.24	193	11/01/2020	1	1	5
8	16.11	13.27	207	27/04/2020	226	1	6
9	11.50	12.50	1	02/05/2020	1	1	1

אחרי יצירת האינדקס:

	LES_STARTTIME	LES_FINISHTIME	LES_ID	LES_DAY	ADR_ID	EMP_TZ	SUB_ID
1	13.16	13.39	49	30/03/2020	143	1	3
2	14.33	14.09	59	19/04/2020	264	1	5
3	12.35	8.63	78	07/04/2020	122	1	3
4	13.40	16.41	90	30/03/2020	198	1	3
5	15.58	8.70	91	21/02/2020	161	1	6
6	12.14	9.09	106	07/01/2020	207	1	6
7	13.21	16.24	193	11/01/2020	1	1	5
8	16.11	13.27	207	27/04/2020	226	1	6
9	11.50	12.50	1	02/05/2020	1	1	1

ניתן לראות כי הביצועים השתפרו ע"י השימוש באינדקס.



:3 INDEX

לפני יצירת האינדקס:

	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_TZ
1	6000	10/02/2020	4	1
2	5500	10/02/2020	5	2
3	5707	15/03/2020	7	5
4	9739	07/01/2020	8	6
5	7360	08/04/2020	9	7
6	9682	05/02/2020	10	8
7	9572	03/03/2020	13	11
8	9311	01/01/2020	16	14
9	7247	15/04/2020	17	15
10	5886	15/04/2020	18	16

אחרי יצירת האינדקס:

	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_TZ
1	6000	10/02/2020	4	1
2	5500	10/02/2020	5	2
3	5707	15/03/2020	7	5
4	9739	07/01/2020	8	6
5	7360	08/04/2020	9	7
6	9682	05/02/2020	10	8
7	9572	03/03/2020	13	11
8	9311	01/01/2020	16	14
9	7247	15/04/2020	17	15
10	5886	15/04/2020	18	16

ניתן לראות כי הביצועים השתפאו ע"י השימוש באינדקס.



:Commit

הצגת השכר השנתי עבור העובדים בעלי השכלה תיכונית:

```
update1.sql
SQL Output Statistics
select e.emp_tz, e.emp_name, know_id, k.know_type, k.know_name_sub, e.emp_hour_wage
from employee e natural join knowledge k
where k.know_type='SC';
```

EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
73	199 Israel	...	3 SC	English	35
49	139 Adrien	...	3 SC	English	65
50	146 Nigel	...	3 SC	English	65
47	135 Radney	...	3 SC	English	65
48	138 CeCe	...	3 SC	English	65
53	153 Sissy	...	3 SC	English	65
54	154 Tilda	...	3 SC	English	65
51	149 Larenz	...	3 SC	English	65

ביצוע עדכון

כך שכל עובד בעל השכלה תיכונית (know_type=3) יקבל שכר של 65 נט לשעה:

```
update1.sql
SQL Output Statistics
select e.emp_tz, e.emp_name ...
update employee
set emp_hour_wage=65
where know_id=3;
```

EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
73	199 Israel	...	3 SC	English	65
70	193 Jay	...	3 SC	English	65
71	194 Cameron	...	3 SC	English	65
58	167 Casey	...	3 SC	English	65
59	169 Martha	...	3 SC	English	65
56	163 Roy	...	3 SC	English	65
57	164 Glenn	...	3 SC	English	65
60	172 Rick	...	3 SC	English	65
63	176 Elizabeth	...	3 SC	English	65

הצגת ערכיו השכר לשעה לפי הטבלה

עבור המדריכים בעלי השכלה תיכונית לפני שהפעלנו את פקודת commit:

```
update1.sql
SQL Output Statistics
select e.emp_tz, e.emp_name, know_id, k.know_type, k.know_name_sub, e.emp_hour_wage
from employee e natural join knowledge k
where k.know_type='SC';
```

EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
73	199 Israel	...	3 SC	English	35
49	139 Adrien	...	3 SC	English	65
50	146 Nigel	...	3 SC	English	65
47	135 Radney	...	3 SC	English	65
48	138 CeCe	...	3 SC	English	65
53	153 Sissy	...	3 SC	English	65
54	154 Tilda	...	3 SC	English	65
51	149 Larenz	...	3 SC	English	65
52	150 Henry	...	3 SC	English	65
46	134 Mae	...	3 SC	English	65
40	117 Olympia	...	3 SC	English	65

ביצענו את הפקודה:

```
update1.sql
SQL Output Statistics
where k.know_type='SC';

update employee
set emp_hour_wage=65
where know_id=3;

commit;
```

השינויי התקבצו בטבלת העובדים

כך שכל העובדים בעלי השכלה תיכונית מקבלים שכר של 65 נט לשעה:

```
update1.sql
SQL Output Statistics
select e.emp_tz, e.emp_name ...
select e.emp_tz, e.emp_name ...
update employee
set emp_hour_wage=65
where know_id=3;

commit;
```

EMP_TZ	EMP_NAME	KNOW_ID	KNOW_TYPE	KNOW_NAME_SUB	EMP_HOUR_WAGE
73	199 Israel	...	3 SC	English	65
72	191 Elle	...	3 SC	English	65
71	194 Cameron	...	3 SC	English	65
70	193 Jay	...	3 SC	English	65
69	181 Christian	...	3 SC	English	65
68	188 Radney	...	3 SC	English	65
67	184 Gordon	...	3 SC	English	65
66	183 Adam	...	3 SC	English	65
65	182 Carl	...	3 SC	English	65



:Rollback

הצגת ערך בטבלה:

```
update2.sql
SQL Output Statistics
select * from ACTIVITY t where activity_id=18;
```

	START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
▶ 1	15	19	thursday	18	200000390	16	4

ביצוע שינוי בערך:

```
update2.sql
SQL Output Statistics
select * from ACTIVITY t where activity_id=18;
update activity
set room_id = 8
where activity_id=18;
```

	START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
▶ 1	15	19	thursday	18	200000390	16	8

ביצוע פקודה rollback:

```
update2.sql
SQL Output Statistics
select * from ACTIVITY t where activity_id=18;
update activity
set room_id = 8
where activity_id=18;
rollback;
```

	START_HOUR	FINISH_HOUR	DAY	ACTIVITY_ID	E_ID	ACTIVITY_TYPE_ID	ROOM_ID
▶ 1	15	19	thursday	18	200000390	16	4

הערך חזר לקדמותו לאחר ביצוע הפקודה.



:grant

הרשאה למשתמש naocohen

```
nemirovs@labdbwin - PL/SQL Developer - grant select ON LESSON TO ...
grant select ON LESSON TO ... x
SQL Output Statistics
grant select ON LESSON TO naocohen;
```

למשתמש naocohen

יש אפשרות לבצע פעולות על הטבלאות:

	LES_STARTTIME	LES_FINISHTIME	LES_ID	LES_DAY	ADR_ID	EMP_TZ	SUB_ID
► 1	9.56	10.32	14	28/03/2020 ▾	198	14	5
2	9.83	16.78	15	13/03/2020 ▾	166	14	1
3	12.76	10.37	16	14/03/2020 ▾	266	20	1
4	10.01	13.28	18	09/02/2020 ▾	194	9	4
5	13.52	17.09	19	06/01/2020 ▾	69	16	5
6	14.08	15.83	20	21/02/2020 ▾	198	16	4
7	16.22	11.70	21	27/01/2020 ▾	219	8	6
8	15.66	14.17	22	24/01/2020 ▾	179	7	3
9	8.75	8.98	23	16/04/2020 ▾	120	6	6
10	12.90	13.59	24	07/02/2020 ▾	104	7	2
11	10.02	14.58	27	27/04/2020 ▾	125	12	3
12	8.05	12.04	31	31/01/2020 ▾	54	7	6
13	9.58	13.41	33	18/03/2020 ▾	36	20	4
14	9.81	11.46	34	22/03/2020 ▾	247	11	4
15	15.20	17.94	35	19/04/2020 ▾	65	8	6
16	16.42	10.45	37	30/03/2020 ▾	206	20	1
17	15.09	9.21	38	27/03/2020 ▾	179	9	3
18	14.77	15.32	39	24/02/2020 ▾	6	9	1



:Revoke

nemirovs@labdbwin PL/SQL Developer - grant select ON LESSON TO ...

grant select ON LESSON TO ... X

SQL Output Statistics

```
revoke select ON LESSON FROM naocoohen;
```

ביטול הרשאה למשתמש naocoohen:

naocoehen@labdbwin PL/SQL Developer - select * from ne

select * from nemirovs.lesson X

SQL Output Statistics

```
select * from nemirovs.lesson
```

Error X

ORA-01031: insufficient privileges

OK Cancel Help

למשתמש naocoehen אין יכולת שוב לגשת לdatableות:



:Constraint

:Default

```
SQL Output Statistics
alter table employee
modify know_id
default 3
```

ברירת המחדל תהיה סוג השכלה 3 - תיכונית:

ניתן לראות כי האילוץ מופיע בהגדרות הטבלה:

Name	Virtual	Type	Nullable	Default/Expr.	Generated	On Null	Storage	Comments
EMP_NAME	<input type="checkbox"/>	VARCHAR2(20)	<input type="checkbox"/>			<input type="checkbox"/>		
EMP_TZ	<input type="checkbox"/>	NUMBER(9)	<input type="checkbox"/>			<input type="checkbox"/>		
EMP_ACC_DETAILS	<input type="checkbox"/>	VARCHAR2(5)	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
EMP_HIRE_DATE	<input type="checkbox"/>	DATE	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
EMP_HOUR_WAGE	<input type="checkbox"/>	NUMBER(3)	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
ADR_ID	<input type="checkbox"/>	NUMBER(5)	<input type="checkbox"/>			<input type="checkbox"/>		
KNOW_ID	<input type="checkbox"/>	NUMBER(5)	<input checked="" type="checkbox"/>	3		<input type="checkbox"/>		
EMP_PHONE_NUMBER	<input type="checkbox"/>	NUMBER(9)	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
EMP_BIRTHDATE	<input type="checkbox"/>	DATE	<input checked="" type="checkbox"/>			<input type="checkbox"/>		

בדיקה – יצרנועובד חדש מבלי להזין את ערך ההשכלה שלו (know_id) והערך הוזן אוטומטית ע"י האילוץ-ברירת מחדל:

```
SQL Output Statistics
alter table employee
modify know_id
default 3

insert into employee (emp_name, emp_tz, emp_acc_details, emp_hour_wage, adr_id)
values('israel', 199, 'dscnt', 35, 1)

select * from employee where emp_tz = 199
```

EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	EMP_HIRE_DATE	EMP_PHONE_NUMBER	EMP_BIRTHDATE
israel	199	dscnt	35	1	3			



:Check

SQL Output Statistics

```
alter table lesson
add constraint check_time
check(les_starttime > 8)
```

התנאי יבודק ששעת התחלת השיעור
תהייה לאחר השעה 8 בובוקר:

ניתן לראות כי האילוץ מופיע בהגדרות הטבלה:

NEMIROVS.LESSON@LABDBWIN

Name	Condition	Enabled	Deferrable	Deferred	Validated	Last change
CHECK_TIME	les_starttime > 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18/06/2020 04:14:08

SQL Output Statistics

```
alter table lesson
add constraint check_time
check(les_starttime > 8)

insert into lesson values(7, 9, 5, '13-may-2019', 1, 2, 3)
```

Error

ORA-02290: check constraint (NEMIROVS.CHECK_TIME) violated

OK Cancel Help

בדיקה- כאשר ניסינו לבצע הכנסה של נתון
שלא עמד באילוץ
קיבלנו שגיאה:



:UNIQUE

```
ALTER TABLE client ADD constraint unique_phone
unique (CLIENT_PHONE_NUMBER)
```

מספר הפלפון של התלמיד תהיה ייחודית:

CLIENT_ID	CLIENT_TZ	CLIENT_NAME	B_DATE	LES_ID	ADR_ID	CLIENT_PHONE_NUMBER
1	30000384	Dick	21/12/1974		110	534534772

מספר הפלפון 534534772 מופיע בטבלה client:

```
insert into client values(255, 'shel', '21-may-2020', 1, 1, 534534772)
```

Error

ORA-00001: unique constraint (NEMIROVS.UNIQUE_PHONE) violated

OK Cancel Help

בדיקה - ניסינו להוסיף תלמיד עם מספר הפלפון 534534772 וקיבלנו שגיאה:



:view

view_client :View1

יצרנו נקודת תצפית:

```
SQL Output Statistics
create view view_client as
select client_tz, client_name
from client
where adr_id=2

select * from VIEW_CLIENT t
```

	CLIENT_TZ	CLIENT_NAME
▶ 1	300000706	Pam
2	300000718	Gavin
3	300000788	Frederic
4	2	shaul
5	4	shani
6	300000010	Isabella

:Delete

ביצענו מחיקה על טבלת התצפית
המחיקה בוצעה:

```
SQL Output Statistics
delete from view_client
where client_tz =4;

select * from view_client
```

	CLIENT_TZ	CLIENT_NAME
▶ 1	300000706	Pam
2	300000718	Gavin
3	300000788	Frederic
4	2	shaul
5	300000010	Isabella

כפי שניתן לראות המטיצה התרביעה
גם בטבלת המקור שהוא client

```
SQL Output Statistics
select client_tz, client_name
from client
where adr_id=2
```

	CLIENT_TZ	CLIENT_NAME
▶ 1	300000706	Pam
2	300000718	Gavin
3	300000788	Frederic
4	2	shaul
5	300000010	Isabella

:Update

```
SQL Output Statistics
update view_client
set client_name='sha'
where client_tz < 10;

select * from view_client
```

ביצענו עדכון בטבלת התצפית

-העדכון בוצע:

```
SQL Output Statistics
select client_tz, client_name
from client
where adr_id=2
```

כפי שניתן לראות העדכון ה被执行
גם בטבלת המקור שהיא client::Insert

```
SQL Output Statistics
insert into view_client values(4, 'gai')
```

Error

ORA-01400: cannot insert NULL into ("NEMIROVS"."CLIENT"."B_DATE")

OK Cancel Help

לא ניתן לבצע הכנסה משום שחסרים ערכים על מנת
לבצע את הכנסה.מןני שהview לא מכיל את כל העמודות שבטבלה
המקורית.:Select

```
SQL Output Statistics
select *
from view_client
where client_tz > 10;
```

ביצענו שאליתה על התצפית והיא הוצאה כנדרש:



view_salary_emp :View2

יצרנו נקודת צפית:

SQL Output Statistics											
create view view_salary_emp as select s.emp_tz, s.sal_sum, s.sal_date_pay, s.sal_id, e.emp_name, e.emp_acc_details, e.emp_hire_date, e.emp_hour_wage, e.adr_id, e.know_id from salary s, employee e where S.EMP_TZ=E.EMP_TZ and s.sal_sum <5000 select * from view_salary_emp;											
	EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	
88	104	1567	21/04/2020	397	Denzel	mzrch	28/12/2019	45	21	1	
44	53	1586	23/01/2020	55	Jane	dscnt	13/12/2019	45	132	2	
33	40	1592	25/03/2020	207	Ahmad	mzrch	13/03/2020	35	45	2	
70	81	1604	20/02/2020	88	Rutger	mzrch	28/02/2020	65	229	3	
72	87	1616	06/02/2020	89	Olympia	plm	24/01/2020	45	138	2	
85	99	1616	18/03/2020	101	Jackson	dscnt	01/02/2020	45	227	1	
109	124	1626	28/02/2020	126	Pete	mzrch	02/02/2020	35	105	2	
156	178	1635	18/02/2020	358	Ed	mzrch	18/03/2020	35	169	1	
105	121	1637	28/04/2020	412	Vienna	plm	31/12/2019	35	92	1	
149	171	1659	08/03/2020	452	Radney	plm	01/12/2019	65	228	2	
42	52	1674	23/04/2020	433	Natacha	dscnt	14/04/2020	45	182	2	
47	55	1691	07/01/2020	57	Giancarlo	dscnt	07/01/2020	45	82	1	
6	2	1729	16/01/2020	443	david	mzrch	18/04/2020	65	2	2	
145	166	1775	16/02/2020	499	Jack	plm	16/12/2019	30	15	2	
143	162	1775	30/01/2020	215	Leelee	plm	18/04/2020	45	217	2	
43	53	1798	26/02/2020	393	Jane	dscnt	13/12/2019	45	132	2	
133	149	1800	21/02/2020	239	Larenz	plm	13/03/2020	65	58	3	
153	174	1821	06/01/2020	316	Armin	dscnt	11/01/2020	65	228	2	
66	77	1826	29/01/2020	79	Luis	plm	24/02/2020	35	253	2	
32	38	1850	29/05/2020	226	José	mzrch	24/01/2020	65	36	2	
134	151	1863	12/02/2020	436	Samantha	dscnt	09/03/2020	45	27	2	
172	198	1870	19/02/2020	200	Gaby	plm	25/12/2019	35	84	2	
104	120	1871	26/04/2020	380	Bill	dscnt	09/03/2020	65	35	3	

Select

ביצענו שאלתה על התצפית והיא ה壯עה כנדרש:

SQL Output Statistics											
select * from view_salary_emp where emp_acc_details='mzrch'											
	EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	
1	33	2108	14/04/2020	35	Fats	mzrch	06/02/2020	65	111	1	
2	41	3196	03/04/2020	43	Mili	mzrch	14/04/2020	45	123	1	
3	60	3453	07/03/2020	62	Lauren	mzrch	03/02/2020	65	273	3	
4	64	3788	13/01/2020	66	Cole	mzrch	03/02/2020	65	98	1	
5	66	3469	01/01/2020	68	Sara	mzrch	17/02/2020	65	267	3	
6	68	4480	16/03/2020	70	Nile	mzrch	20/04/2020	65	16	3	
7	72	3273	17/01/2020	74	Selma	mzrch	12/03/2020	35	247	2	
8	74	3901	13/01/2020	76	Jessica	mzrch	10/01/2020	45	19	2	
9	92	4347	17/04/2020	94	Gil	mzrch	10/04/2020	35	107	1	
10	100	2879	09/01/2020	102	Powers	mzrch	21/12/2019	65	88	3	
11	109	4630	02/02/2020	111	Toni	mzrch	07/03/2020	35	81	2	
12	119	2019	11/01/2020	121	Andra	mzrch	16/01/2020	65	176	1	
13	147	2996	06/03/2020	149	Donna	mzrch	02/02/2020	45	171	1	
14	178	3769	09/04/2020	180	Ed	mzrch	18/03/2020	35	169	1	
15	180	3930	13/02/2020	182	Goran	mzrch	13/12/2019	65	5	2	
16	182	2501	23/03/2020	184	Carl	mzrch	02/12/2019	65	267	3	
17	191	4317	28/02/2020	193	Christian	mzrch	02/12/2019	65	200	3	
18	58	2461	13/01/2020	204	Lance	mzrch	23/02/2020	65	193	2	
19	113	3000	29/01/2020	210	Boz	mzrch	25/03/2020	30	158	1	
20	176	4463	27/04/2020	212	Elizabeth	mzrch	13/04/2020	65	56	3	
21	38	3000	29/03/2020	226	Jose	mzrch	24/01/2020	65	36	2	
22	2	2370	10/04/2020	249	david	mzrch	18/04/2020	65	2	2	
23	60	4083	04/03/2020	263	Lauren	mzrch	03/02/2020	65	273	3	
24	191	4730	30/03/2020	275	Christian	mzrch	02/12/2019	65	200	3	
25	147	2402	22/03/2020	294	Donna	mzrch	02/02/2020	45	171	1	
26	104	3000	06/03/2020	309	Denzel	mzrch	28/12/2019	45	21	1	
27	63	3712	18/03/2020	311	Maury	mzrch	18/01/2020	65	141	3	



:Delete

הציג נתונים התצפיים לפני השינוי:

SQL Output Statistics												
select * from view_salary_emp												
EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACCT_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID			
06	104	156	21/04/2020	397	Dante	" march	26/1/2019	45	21	1		
44	53	158	23/01/2020	35	Jane	" dicat	13/1/2020	45	132	2		
59	40	159	25/01/2020	207	Ahmed	" march	13/5/2020	35	45	2		
70	81	160	20/02/2020	18	Roger	" march	26/03/2020	65	229	3		
72	87	161	20/02/2020	88	Olympia	" plm	24/1/2020	45	138	2		
85	99	161	18/01/2020	111	Jackson	" dicat	6/7/2020	45	227	1		
100	124	162	28/01/2020	16	Pete	" march	6/2/2020	35	122	2		
156	170	165	10/02/2020	156	Ed	" march	19/5/2020	35	159	1		
105	121	167	28/04/2020	412	Venna	" plm	27/1/2019	35	82	1		
168	171	169	08/03/2020	412	Rodney	" plm	6/1/2019	65	228	2		
42	51	169	12/04/2020	413	Nestha	" dicat	14/04/2020	45	116	2		
47	51	169	07/01/2020	37	Graciela	" dicat	6/7/2020	45	82	1		
6	7	174	16/01/2020	415	David	" march	19/5/2020	35	8	2		
145	169	175	16/02/2020	409	Jack	" plm	16/1/2019	35	15	2		
143	169	176	10/02/2020	215	Louise	" plm	19/04/2020	45	217	2		
43	51	176	16/02/2020	399	Jane	" dicat	13/1/2019	45	132	2		
133	149	176	20/01/2020	259	Loren	" plm	13/3/2020	65	18	3		
153	134	180	06/01/2020	316	Armen	" dicat	1/1/2020	65	210	2		
66	77	180	29/01/2020	79	Luis	" plm	24/03/2020	35	232	2		
52	38	180	24/01/2020	216	Irene	" march	24/01/2020	65	16	2		
154	151	186	12/02/2020	416	Samantha	" dicat	6/9/2020	45	17	2		
172	158	187	19/03/2020	200	Gassy	" plm	23/1/2019	35	84	2		
104	120	187	26/04/2020	300	Bill	" dicat	6/9/2020	65	35	3		
95	104	189	06/01/2020	308	Dengue	" march	28/1/2019	45	21	1		
156	151	191	27/01/2020	155	Sissy	" plm	14/03/2020	65	6	3		
27	30	194	24/01/2020	416	Doug	" march	27/03/2020	35	182	1		
97	113	197	29/01/2020	210	Baz	" march	29/3/2020	35	158	1		
76	41	198	12/04/2020	44	Marianne	" dicat	20/04/2020	35	150	1		
103	119	201	11/07/2020	111	Andrea	" march	16/05/2020	65	176	1		
151	173	204	27/02/2020	174	Rick	" dicat	24/03/2020	65	29	3		

ביצוע מחיקה

של כל המשכורות

שאוסףם קטן מ-1800

-המחיקה הটבצעה:

SQL Output Statistics												
delete from view_salary_emp												
where sal_sum<1000												
select * from view_salary_emp												
EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACCT_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID			
131	149	1801	21/02/2020	239	Lorenz	" plm	13/02/2020	45	59	3		
106	174	1801	06/01/2020	316	Armin	" dicat	11/01/2020	65	228	2		
68	77	1805	29/01/2020	79	Luis	" plm	24/02/2020	35	253	2		
31	38	1805	29/03/2020	226	Irene	" march	24/01/2020	65	36	2		
122	151	1805	12/02/2020	416	Samantha	" dicat	05/04/2020	45	27	2		
156	189	1820	19/02/2020	200	Gaby	" plm	25/12/2019	35	68	2		
94	120	1871	26/04/2020	300	Dill	" dicat	09/07/2020	45	35	3		
79	104	1889	06/03/2020	309	Denzel	" march	26/12/2019	45	21	1		
124	153	1911	25/01/2020	155	Sissy	" plm	14/02/2020	45	6	3		
26	30	1941	24/03/2020	456	Doug	" march	27/03/2020	35	162	1		
87	113	1972	29/01/2020	210	Baz	" march	25/03/2020	35	158	1		
14	42	1988	12/04/2020	44	Marianne	" dicat	26/01/2020	35	104	1		
99	119	2019	11/01/2020	121	Andrea	" march	16/01/2020	65	176	1		
136	172	2047	27/02/2020	174	Rick	" dicat	24/03/2020	65	29	3		
91	119	2081	04/02/2020	417	Andrea	" march	16/01/2020	65	176	1		
71	94	2082	22/04/2020	201	Davis	" dicat	20/07/2020	35	185	2		
20	32	2108	14/04/2020	35	Fay	" march	06/02/2020	65	111	1		
2	5	2125	15/01/2020	332	Shant	" dicat	13/12/2019	65	1	2		
99	40	2265	05/07/2020	51	Leibow	" dicat	05/07/2020	35	106	2		
5	2	2284	05/03/2020	494	David	" march	18/04/2020	45	2	2		
99	114	2286	10/03/2020	409	Thin	" plm	22/12/2019	65	23	3		
3	6	2300	12/01/2020	221	Edi	" plm	07/06/2018	35	6	1		
114	146	2311	04/04/2020	146	Sandra	" dicat	23/01/2020	45	4	2		
48	65	2301	12/03/2020	459	Mandy	" march	16/01/2020	65	141	9		
6	2	2370	10/04/2020	249	David	" march	16/04/2020	65	2	2		
57	71	2399	17/04/2020	480	Aida	" plm	26/04/2020	35	176	1		

המחיקה הটבצעה גם בטבלת המקור:

SQL Output Statistics												
select * from SALARY												
SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_TZ									
218	1801	21/02/2020	239	149								
289	1826	06/01/2020	316	174								
76	1826	29/01/2020	79	77								
206	1850	29/03/2020	226	38								
401	1865	12/02/2020	436	151								
184	1870	19/02/2020	200	198								
350	1871	26/04/2020	300	120								
283	1899	06/03/2020	309	104								
141	1911	25/01/2020	155	153								
418	1941	24/03/2020	456	30								
192	1972	29/01/2020	210	113								
43	1988	12/04/2020	44	42								
113	2019	11/01/2020	121	119								
159	2047	27/02/2020	174	172								
383	2081	04/02/2020	417	119								
185	2082	22/04/2020	201	94								
35	2108	14/04/2020	35	33								
305	2122	15/04/2020	392	5								
50	2203	03/03/2020	51	49								
452	2224	05/01/2020	494	2								
377	2262	28/03/2020	409	114								
201	2304	22/01/2020	221	6								
134	2311	03/04/2020	146	144								
420	2331	12/05/2020	459	63								
228	2370	10/04/2020	249	2								
438	2399	17/04/2020	480	71								
270	2402	22/03/2020	294	147								



:Update

הציג הנתונים לפני העדכו:

select * from view_salary_emp									
EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID
121	149	1800	21/02/2020	239	Lorenz	... plm	13/03/2020	65	
138	174	1821	06/01/2020	316	Armin	... dsct	11/01/2020	65	
60	77	1826	29/01/2020	79	Luis	... plm	24/02/2020	35	
31	38	1856	29/03/2020	226	Jose	... mzrzh	24/01/2020	65	
122	151	1863	12/02/2020	436	Samantha	... dsct	09/03/2020	45	
156	198	1870	19/02/2020	200	Gaby	... plm	25/12/2019	35	
94	120	1871	26/04/2020	380	Bill	... dsct	09/03/2020	65	
79	104	1894	06/03/2020	309	Denzel	... mzrzh	28/12/2019	45	
124	153	1911	25/01/2020	155	Sissy	... plm	14/02/2020	65	
26	30	1941	24/03/2020	456	Doug	... mzrzh	27/03/2020	30	
87	113	1973	29/01/2020	210	Boz	... mzrzh	25/03/2020	30	
34	42	1988	12/04/2020	44	Marianne	... dsct	20/01/2020	30	
93	119	2019	11/01/2020	121	Andrae	... mzrzh	16/01/2020	65	
136	177	2047	27/02/2020	174	Rick	... dsct	24/03/2020	65	
91	119	2081	04/02/2020	417	Andrae	... mzrzh	16/01/2020	65	

ביצענו עדכו
כך שכל משכורת
שסכמה קטן מ-2000
עדכן ל-3000
העדכו בוצע בתוצאות:

SQL Output Statistics									
update view_salary_emp									
set sal_sum=3000									
where sal_sum<2000;									
select * from view_salary_emp									
where sal_id=239 or sal_id=316 or sal_id=79 or sal_id=226 or sal_id=436 or sal_id=200									

EMP_TZ	SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_NAME	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID
1	38	3000	29/03/2020	226	Jose	... mzrzh	24/01/2020	65	36
2	77	3000	29/01/2020	79	Luis	... plm	24/02/2020	35	253
3	149	3000	21/02/2020	239	Lorenz	... plm	13/03/2020	65	58
4	151	3000	13/02/2020	436	Samantha	... dsct	09/03/2020	45	27
5	174	3000	06/01/2020	316	Armin	... dsct	11/01/2020	65	228
6	198	3000	19/02/2020	200	Gaby	... plm	25/12/2019	35	84

העדכו לא תבוצע בטבלה המקורית
השכר נשאר זהה גם במקרים של סכום קטן מ-2000:

SQL Output Statistics									
select * from SALARY t									
where sal_id=121 or sal_id=174 or sal_id=417 or sal_id=201 or sal_id=35									

SAL_SUM	SAL_DATE_PAY	SAL_ID	EMP_TZ
2108	14/04/2020	35	33
2019	11/01/2020	121	119
2047	27/02/2020	174	172
2082	22/04/2020	201	94
2081	04/02/2020	417	119



:Insert

לא ניתן לבצע הכנסה לtáבלה הבנויה מכמה טבלאות שונות.

SQL Output Statistics

```
insert into view_salary_emp
(emp_tz, sal_sum, sal_date_pay, sal_id, emp_name, emp_acc_details, emp_hire_date, emp_hour_wage, adr_id, know_id)
values(500, 5000,'07-may-2000', 400, 'dadi', 'mzrch', '07-may-2018', 35, 3, 3)
```

Error

ORA-01776: cannot modify more than one base table through a join view

OK Cancel Help



שלב 4:

שאילהה 1:

בשאילתא זו נקבל מידע על כל השיעורים שהתקיימו בנושא מסוים אותו יבחר המשתמש מຕוך LIST.

SQL Output Statistics

```
select * from lesson where
sub_id=&name="sub_id"
hint="enter id of subject"
type="integer"
list= "select sub_id from subject"
restricted="yes">
```

	LES_STARTTIME	LES_FINISHTIME	LES_ID	LES_DAY	ADR_ID	EMP_TZ	SUB_ID
1	9:83	16:78	15	13/03/2020	166	14	1
2	12:76	10:37	16	14/03/2020	266	20	1
3	16:42	10:45	37	30/03/2020	206	20	1
4	14:77	15:34	39	24/02/2020	6	9	1
5	8:66	9:58	46	31/01/2020	194	7	1
6	16:17	14:31	53	12/03/2020	64	8	1
7	11:13	9:00	57	19/04/2020	184	5	1
8	15:40	17:93	58	24/02/2020	179	2	1
9	15:47	12:33	63	06/04/2020	122	7	1
10	9:09	15:96	62	10/01/2020	57	20	1
11	16:95	10:86	92	01/01/2020	167	10	1
12	9:00	8:72	95	08/01/2020	155	4	1
13	14:37	13:19	99	31/01/2020	136	18	1
14	12:70	13:37	110	10/02/2020	193	14	1
15	8:63	16:77	116	03/01/2020	21	23	1
16	11:58	12:50	118	17/01/2020	206	3	1
17	12:78	8:78	134	27/04/2020	212	15	1
18	16:44	14:05	145	25/03/2020	163	8	1
19	15:32	14:15	173	11/01/2020	254	22	1
20	8:07	14:54	200	30/01/2020	75	11	1
21	16:55	15:27	203	22/03/2020	123	17	1
22	13:90	12:31	212	06/03/2020	16	9	1
23	11:50	12:50	1	02/05/2020	1	1	1
24	16:08	12:74	7	13/01/2019	17	3	1
25	11:01	14:61	228	10/01/2020	15	11	1
26	12:67	10:18	239	10/02/2020	189	19	1
27	14:69	14:43	240	19/02/2020	116	24	1
28	8:13	11:44	242	07/03/2020	241	22	1

פרמטר:

sub_id - מספר המציין את נושא השיעור הרצוי.

שאילהה 2:

בשאילתא זו נציג את כל העובדים שתאריך ההעסקה שלהם הוא בין התאריכים אותם יבחר המשתמש.

SQL Output Statistics

```
select * from employee where emp_hire_date
between_to_date(&name="date1" type="string" default="01/01/2000", 'dd/mm/yyyy')
AND to_date(&name="date2" type="string" default="01/01/2020", 'dd/mm/yyyy')
```

	EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	EMP_PHONE_NUMBER	EMP_BIRTHDATE
1	shant	5	dsent	24/12/2018	65	1	2		
2	esti	6	plm	07/04/2018	35	6	1		
3	Selma	7	mzrac	20/11/2018	30	7	2		
4	Giancarlo	8	plm	27/06/2018	30	14	1		
5	Wally	9	dsent	27/10/2018	30	24	2		
6	Nathan	10	plm	25/09/2017	30	15	2		
7	Machine	11	mzrac	02/08/2018	65	12	3		
8	Harrison	12	plm	05/10/2018	65	23	1		
9	Avril	13	mzrac	04/07/2017	65	15	3		
10	Lennie	14	dsent	07/08/2018	35	23	1		
11	Hilary	15	plm	23/01/2019	65	16	1		
12	Nancy	16	mzrac	29/04/2016	65	12	3		
13	Jessica	17	dsent	03/03/2017	65	5	3		
14	Bette	18	dsent	23/04/2017	30	19	2		
15	Mel	19	plm	29/12/2016	35	13	1		
16	Ramsey	21	mzrac	17/10/2019	65	13	3		
17	Domingo	22	dsent	16/09/2016	35	16	2		
18	Sander	23	mzrac	17/04/2017	65	20	3		
19	Elvis	24	plm	21/12/2019	30	16	2		
20	Rory	26	dsent	03/12/2019	65	102	3		
21	Penelope	43	mzrch	10/12/2019	30	128	2		
22	Val	51	dsent	22/12/2019	35	119	2		
23	Jane	53	dsent	13/12/2019	45	132	2		
24	Sarah	54	plm	01/01/2020	65	241	3		
25	Mili	57	dsent	17/12/2019	65	131	3		
26	Candice	70	mzrch	22/12/2019	45	1	2		
27	Wang	78	mzrch	09/12/2019	45	181	2		

פרמטרים:

- התאריך ההתחלתי.
- Data1
- התאריך הסופי.
- Data2
(קיימים ערכי ברירת מחדל).

**דוחות:****-Report Subject**

בדוח מוצג שם הנושא ומספר השיעורים שהתקיימו במקצוע זהה.
 (עם מידע זה ניתן לדעת מה רמת הביקוש של כל מקצוע).

שאילתך:

```
subject report.rep
SQL Layout Options
select sub_name, count(*)
from lesson natural join subject
group by sub_name
```

יצירת הדוח:

The screenshot shows the configuration of a report titled "subject report". The layout includes fields for "Report Title" (set to "subject report"), "Variables", "Tabular Tables", "Form Tables", "Default Field" (set to "SUB_NAME"), and "COUNT(*)" (set to "count of lesson"). The preview window shows a table with the following data:

subject report	
subject	count of lesson
Physics	16
biology	36
computers	26
math	28
history	22
English	28

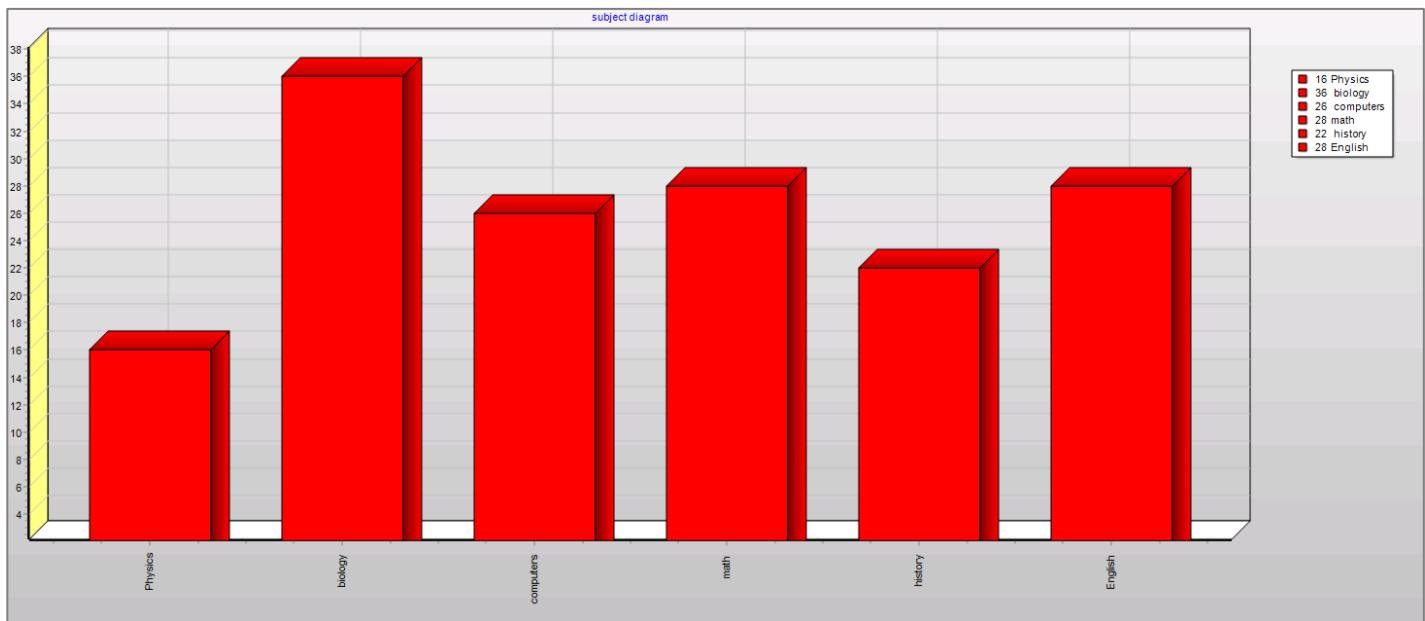


גרף:

הgraf מיצג את מספר השיעורים המתקיימים בכל מקצוע.

ציר X- מקצועות לימוד.

ציר Y- מספר השיעורים המתקיימים במקצוע.





:function

הfonקצייה מחזירה עבור קלט של מספר שעות עבודה ומספר זיהוי של עובד (hour_month, tz) את סכום המשכורות החודשית ומדפיסה למסך (FunctionResult) ובנוסף מדפיסה את כל המשכורות הקשורות במערכת השיכות לאוטו עובד. (תאריך וסכום .for loop ,dbms_output ,fetch ,%type ,cursor)

:function

```

Code section | Forloop
1 create or replace function salary_of_employee(hour_month in integer, tz in integer) return float is
2   FunctionResult float:=0;
3   cursor emp is select emp_hour_wage from employee where emp_tz=tz;
4   cursor salary_emp is select * from salary where emp_tz=tz;
5   hour_wage employee.emp_hour_wage%type;
6 begin
7   open emp;
8   fetch emp into hour_wage;
9   FunctionResult := hour_wage*hour_month;
10  dbms_output.put_line('tz: ' || tz );
11  dbms_output.put_line('salary: ' || FunctionResult);
12  dbms_output.put_line(' ');
13
14  for sal in salary_emp
15    loop
16      dbms_output.put_line(sal.sal_date_pay || ' ' || sal.sal_sum);
17    end loop;
18  close emp;
19  return(FunctionResult);
20 end salary_of_employee;

```

:test

```

Test script | DBMS Output | Statistics | Profiler | Trace
1 begin
2   -- Call the function
3   :result := salary_of_employee(hour_month => :hour_month,
4                                 tz => :tz);
5 end;

```

Variable	Type	Value
<input checked="" type="checkbox"/> result	Float	1200
<input checked="" type="checkbox"/> hour_month	Float	20
<input checked="" type="checkbox"/> tz	Float	1
* <input checked="" type="checkbox"/>		

:Output

```

Test script | DBMS Output | Statistics | Profiler | Trace
Clear Buffer size 10000 Enabled
ts: 1
salary: 1200
10-FEB-20 6000
10-MAR-20 3000
11-MAR-20 4572

```



:Procedure

ה프로그רadora מקבלת כתובת וסכום בונוס (addr, bonus)
 מוסיףה לשכר השנתי של העובדים הקיימים באותה כתובת את הבונוס (emp_hour_wage) (know_id)
 לפי רמת המשקל שלהם. (.dbms_output ,if elsif ,for loop ,cursor :ה프로그רadora מכילה)

```
P procedure_hour_wage
create or replace procedure procedure_hour_wage(addr in integer, bonus in integer) is
2   cursor employee_cursor is select * from employee where adr_id=addr for update;
3
4   begin
5     for emp in employee_cursor
6       loop
7         if emp.know_id=3 then --school
8           update employee
9             set emp_hour_wage=emp.emp_hour_wage + bonus*0.5
10            where current of employee_cursor;
11        elsif emp.know_id=1 then
12          update employee
13            set emp_hour_wage=emp.emp_hour_wage + bonus*1 --BA
14            where current of employee_cursor;
15        elsif emp.know_id=2 then
16          update employee
17            set emp_hour_wage=emp.emp_hour_wage + bonus*1.5 --MA
18            where current of employee_cursor;
19        end if;
20        dbms_output.put_line('emp: ' || emp.emp_name || ' get bonus');
21      end loop;
22    end procedure_hour_wage;
```

:Test

```
Test script DBMS Output Statistics Profiler Trace
1 begin
2   -- Call the procedure
3   procedure_hour_wage(addr => :addr,
4                       bonus => :bonus);
5 end;
```

Variable	Type	Value
addr	Float	1
bonus	Float	10

:Output

EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	EMP_PHONE_NUMBER	EMP_BIRTHDATE
moshe	... 1	dsnt	24/05/2020	60	1	1		
Rufus	... 200000342			60	1	1	545578000	30/09/2052
Candice	... 70	mzrch	22/12/2019	65	1	2		
sharit	... 5	dsnt	24/12/2018	65	1	2		
israel	... 199	dsnt		55	1	3		
Olympia	... 117	plm	30/03/2020	55	1	3		



:Trigger

הטריגר מתבצע לפני עדכון שכר שעתי של עובד.

כאשר השכר שהוזן נמוך מ-35 ש"ח ,

תודפס הודעה "שכר מינימום לשעה: 35 ש"ח"

והשכר השעתי ישאר כמו שהוא לפני פועלות העדכון.

```

1 create or replace trigger insert_employee_trigger
2 before update of emp_hour_wage on employee
3 for each row
4 declare
5 begin
6 if(:new.emp_hour_wage < 35) then
7     dbms_output.put_line('minimum wage for hour : 35');
8     :new.emp_hour_wage:=:old.emp_hour_wage;
9 end if;
10 end insert_employee_trigger;

```

:trigger

לפני העדכון:

SQL Output Statistics

```
select * from EMPLOYEE t where emp_tz=202
```

	EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	EMP_PHONE_NUMBER	EMP_BIRTHDATE
▶ 1	moshe	...	202 dscnt	24/05/2020	55	1	1	521220212	12/12/2010

פעולת העדכון:

```

SQL Output Statistics
update employee
set emp_hour_wage=15
where emp_tz=202

```

פעולות הtrigger:

SQL Output Statistics

Clear Buffer size 10000 Enabled

```
minimum wage for hour : 35
```

לאחר העדכון: השכר נשאר מקודם למרות ניסיון השינוי.

SQL Output Statistics

```
select * from EMPLOYEE t where emp_tz=202
```

	EMP_NAME	EMP_TZ	EMP_ACC_DETAILS	EMP_HIRE_DATE	EMP_HOUR_WAGE	ADR_ID	KNOW_ID	EMP_PHONE_NUMBER	EMP_BIRTHDATE
▶ 1	moshe	...	202 dscnt	24/05/2020	55	1	1	521220212	12/12/2010