

מעבדת תרומת דם

מגישות:

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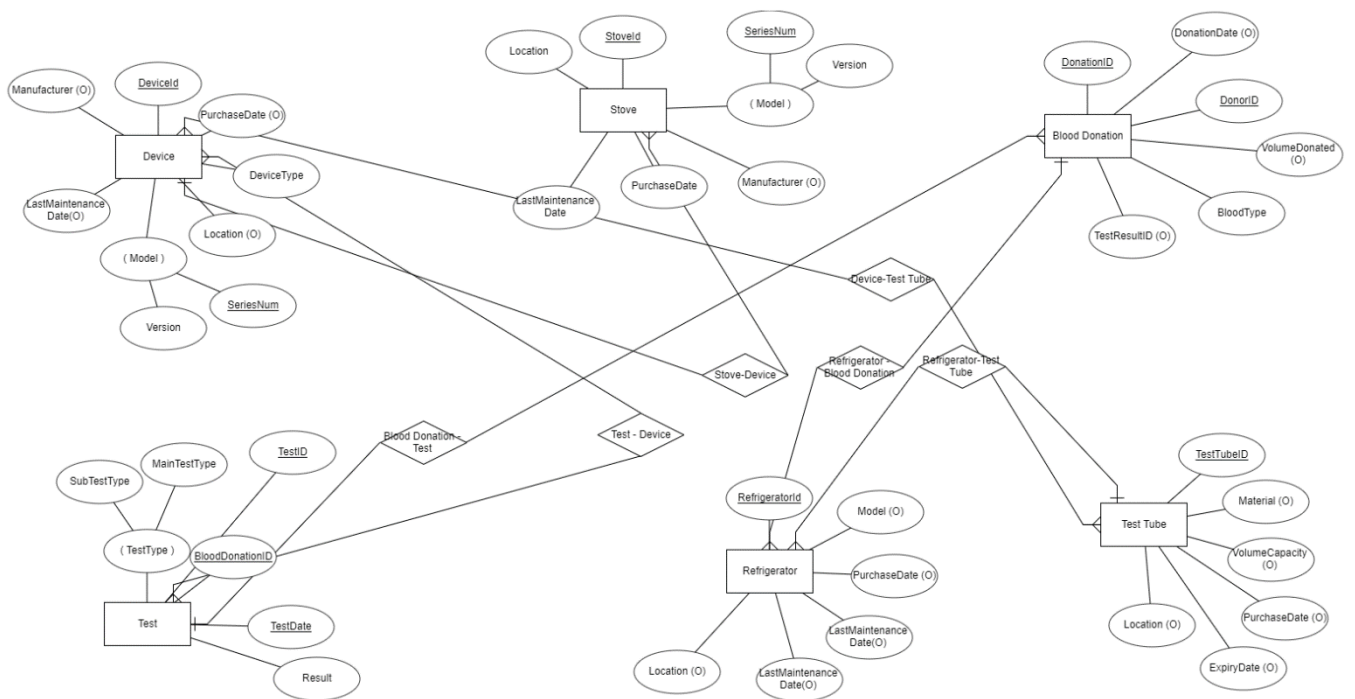
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תיאור מילולי:

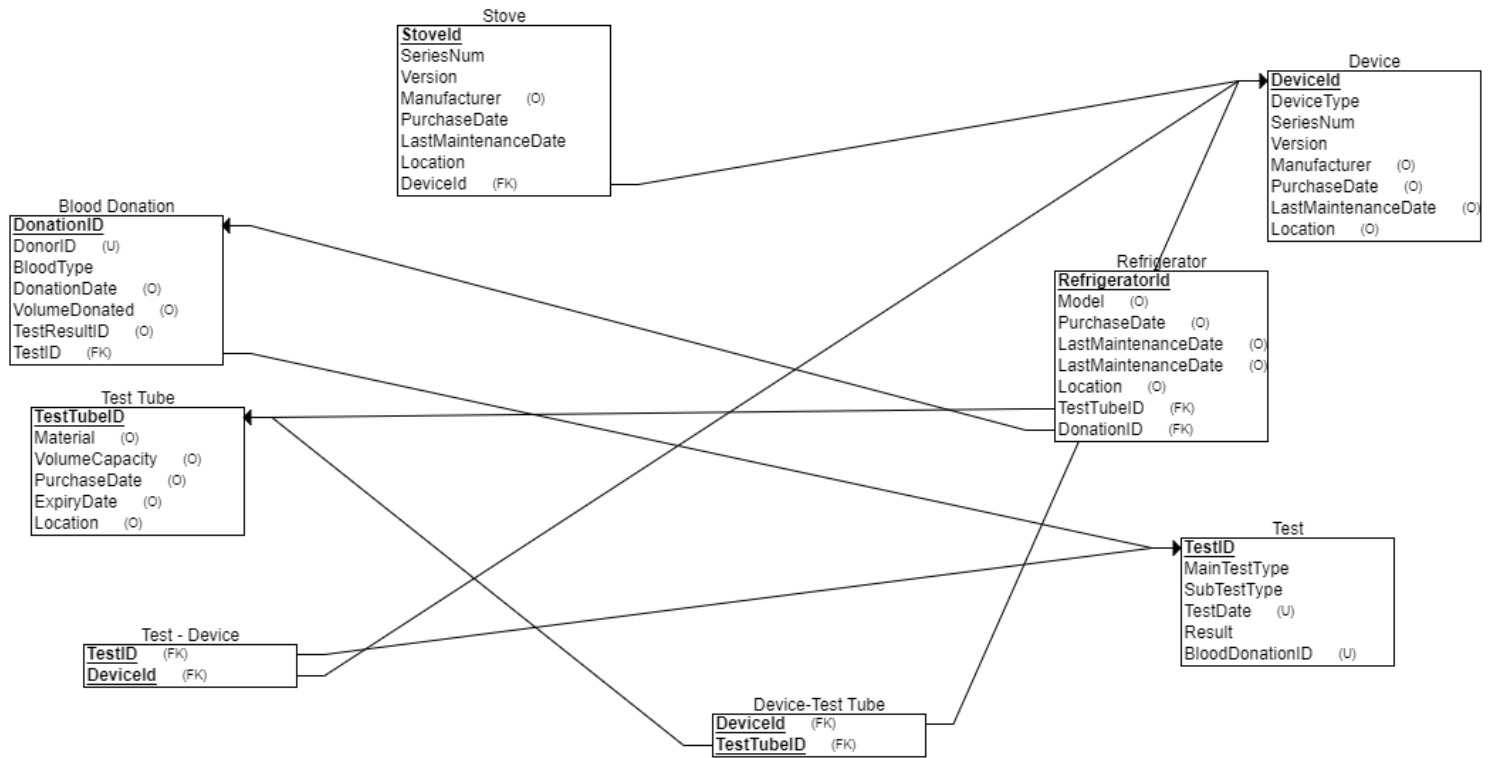
שם המערכת: מעבדת תרומות דם.

תיאור המערכת: המערכת היא מערכת לניהול מידע על מכשירים, בדיקות רפואיות, תרומות דם וציוד רפואי. הנתונים המרכזיים במערכת כוללים מידע על מכשירים רפואיים (כמו מספר סידורי, סוג, יצרן ותאריכי רכישה ותחזוקה אחרונה), בדיקות רפואיות (כולל סוג בדיקה, תאריך ותוצאות), תרומות דם (כולל סוג דם, תאריך התרומה וכמות דם) וציוד רפואי נלווה (כולל תאריכי רכישה ותחזוקה, דגם ומיקום). המערכת מטרתה לאפשר ניהול יעיל ומדויק של כלל המידע הרלוונטי, כולל הקשרים בין הנתונים, לצורך תמיכה בתהליכי רפואיים, ניהול מלאי וציוד, וניטור וניהול תרומות דם.

ERD של המערכת:



DSD של המערכת



CreateTable

```
CREATE TABLE Device1
(
    DeviceId varchar2(50) NOT NULL,
    DeviceType INT NOT NULL,
    SeriesNum INT NOT NULL,
    VersionD INT NOT NULL,
    Manufacturer varchar2(50),
    PurchaseDate DATE,
    LastMaintenanceDate DATE,
    LocationD varchar2(50),
    PRIMARY KEY (DeviceId)
);
```

```
CREATE TABLE Test_Tube1—
(
    TestTubeID varchar2(50) NOT NULL,
    Material INT,
    VolumeCapacity INT,
    PurchaseDate DATE,
    ExpiryDate DATE,
    LocationTestTube varchar2(50),
    PRIMARY KEY (TestTubeID)
);
```

```
CREATE TABLE Test_1—
(
    TestID varchar2(50) NOT NULL,
```

```

MainTestType INT NOT NULL,
SubTestType INT NOT NULL,
TestDate DATE NOT NULL,
ResultT varchar2(50) NOT NULL,
BloodDonationID varchar2(50) NOT NULL,
PRIMARY KEY (TestID),
UNIQUE (TestDate),
UNIQUE (BloodDonationID)
);

```

```

CREATE TABLE Test_Device1—
(
TestID varchar2(50) NOT NULL,
DeviceId varchar2(50) NOT NULL,
PRIMARY KEY (TestID, DeviceId),
FOREIGN KEY (TestID) REFERENCES Test_1(TestID),
FOREIGN KEY (DeviceId) REFERENCES Device1(DeviceId)) ;

```

```

CREATE TABLE DeviceTest_Tube1—
(
DeviceId varchar2(50) NOT NULL,
TestTubeID varchar2(50) NOT NULL,
PRIMARY KEY (DeviceId, TestTubeID),
FOREIGN KEY (DeviceId) REFERENCES Device1(DeviceId),
FOREIGN KEY (TestTubeID) REFERENCES Test_Tube1(TestTubeID)
);

```

```

CREATE TABLE Blood_Donation1

```

```
(
    DonationID varchar2(50) NOT NULL,
    DonorID varchar2(50) NOT NULL,
    BloodType varchar2(50) NOT NULL,
    DonationDate DATE,
    VolumeDonated INT,
    TestResultID varchar2(50),
    TestID varchar2(50) NOT NULL,
    PRIMARY KEY (DonationID),
    FOREIGN KEY (TestID) REFERENCES Test_1(TestID),
    UNIQUE (DonorID)
);
```

CREATE TABLE Stove1—

```
(
    StoveId varchar2(50) NOT NULL,
    SeriesNum INT NOT NULL,
    VersionStove INT NOT NULL,
    Manufacturer INT,
    PurchaseDate DATE NOT NULL,
    LastMaintenanceDate DATE NOT NULL,
    LocationStove varchar2(50) NOT NULL,
    DeviceId varchar2(50) NOT NULL,
    PRIMARY KEY (StoveId),
    FOREIGN KEY (DeviceId) REFERENCES Device1(DeviceId)
);
```

CREATE TABLE Refrigerator1—


```
(  
    RefrigeratorId varchar2(50) NOT NULL,  
    ModelR INT,  
    PurchaseDate DATE,  
    LastMaintenanceDate DATE,  
    LocationR varchar2(50),  
    TestTubeID varchar2(50) NOT NULL,  
    DonationID varchar2(50) NOT NULL,  
    PRIMARY KEY (RefrigeratorId),  
    FOREIGN KEY (TestTubeID) REFERENCES Test_Tube1(TestTubeID),  
    FOREIGN KEY (DonationID) REFERENCES Blood_Donation1(DonationID)  
);
```

DropTable

```
;DROP TABLE Refrigerator1  
;DROP TABLE Stove1  
;DROP TABLE Blood_Donation1  
;DROP TABLE DeviceTest_Tube1  
;DROP TABLE Test_Device1  
;DROP TABLE Test_1  
;DROP TABLE Test_Tube1  
;DROP TABLE Device1
```

Insert

זה כמות אדירה ולכן נרשום רק כמה שורות...

```
INSERT INTO Device1 (DeviceId, DeviceType, SeriesNum, VersionD,  
Manufacturer, PurchaseDate, LastMaintenanceDate, LocationD) VALUES  
('YvSGkO6l6fRwXlaf5But', 31, 760, 9, 'PvsL2vp1kgjRPSYTZaTE', TO_DATE('2003-  
09-16', 'YYYY-MM-DD'), TO_DATE('2010-04-13', 'YYYY-MM-DD'),  
'evqI5CvnJlWT5sjpFOr8');
```

```
INSERT INTO Device1 (DeviceId, DeviceType, SeriesNum, VersionD,  
Manufacturer, PurchaseDate, LastMaintenanceDate, LocationD) VALUES  
('eR4LgsUjk1PKOmGQkmDp', 46, 436, 2, 'WiFxVJLbwrlcYzZdpL5G',  
TO_DATE('2010-04-04', 'YYYY-MM-DD'), TO_DATE('2010-09-25', 'YYYY-MM-DD'),  
'mFjXIEDHUPMHZDlvApsT');
```

```
INSERT INTO Device1 (DeviceId, DeviceType, SeriesNum, VersionD,  
Manufacturer, PurchaseDate, LastMaintenanceDate, LocationD) VALUES  
('3h5ggjXUeEB2Gr8WzzWa', 73, 748, 9, 'sApvxdDVio2a9G4AMJ3C',  
TO_DATE('2020-03-12', 'YYYY-MM-DD'), TO_DATE('2000-04-20', 'YYYY-MM-DD'),  
'r964gYNL8H8739jrYgrf');
```

SelectAll

SELECT* from Device1;

SELECT* from Test_Tube1;

SELECT* from Test_1;

SELECT* from Test_Device1;

SELECT* from DeviceTest_Tube1;

SELECT* from Blood_Donation1;

SELECT* from Stove1;

SELECT* from Refrigerator1;

Desc

```
VOLUMEDONATED INTEGER Y  
TESTRESULTID VARCHAR2 (50) Y  
TESTID VARCHAR2 (50)
```

SQL> desc Stove1

Name	Type	Nullable	Default	Comments
STOVEID	VARCHAR2 (50)			
SERIESNUM	INTEGER			
VERSIONSTOVE	INTEGER			
MANUFACTURER	INTEGER	Y		
PURCHASEDATE	DATE			
LASTMAINTENANCEDATE	DATE			
LOCATIONSTOVE	VARCHAR2 (50)			
DEVICEID	VARCHAR2 (50)			

SQL> desc Refrigerator1

Name	Type	Nullable	Default	Comments
REFRIGERATORID	VARCHAR2 (50)			
MODELNR	INTEGER	Y		
PURCHASEDATE	DATE	Y		
LASTMAINTENANCEDATE	DATE	Y		
LOCATIONNR	VARCHAR2 (50)	Y		
TESTTUBEID	VARCHAR2 (50)			
DONATIONID	VARCHAR2 (50)			

SQL> |

SQL> desc Test_Device1

Name	Type	Nullable	Default	Comments
TESTID	VARCHAR2 (50)			
DEVICEID	VARCHAR2 (50)			

SQL> desc DeviceTest_Tube1

Name	Type	Nullable	Default	Comments
DEVICEID	VARCHAR2 (50)			
TESTTUBEID	VARCHAR2 (50)			

SQL> desc Blood_Donation1

Name	Type	Nullable	Default	Comments
DONATIONID	VARCHAR2 (50)			
DONORID	VARCHAR2 (50)			
BLOODTYPE	VARCHAR2 (50)			
DONATIONDATE	DATE	Y		
VOLUMEDONATED	INTEGER	Y		
TESTRESULTID	VARCHAR2 (50)	Y		
TESTID	VARCHAR2 (50)			

SQL> desc Stove1

Name	Type	Nullable	Default	Comments
STOVEID	VARCHAR2 (50)			
SERIESNUM	INTEGER			
VERSIONSTOVE	INTEGER			
MANUFACTURER	INTEGER	Y		

```

SQL> desc device1
Name          Type          Nullable Default Comments
-----
DEVICEID      VARCHAR2 (50)
DEVICETYPE    INTEGER
SERIESNUM     INTEGER
VERSIOND      INTEGER
MANUFACTURER  VARCHAR2 (50) Y
PURCHASEDATE  DATE          Y
LASTMAINTENANCEDATE DATE          Y
LOCATIOND      VARCHAR2 (50) Y

SQL> desc Test_Tube1
Name          Type          Nullable Default Comments
-----
TESTTUBEID    VARCHAR2 (50)
MATERIAL      INTEGER       Y
VOLUMECAPACITY INTEGER       Y
PURCHASEDATE  DATE          Y
EXPIRYDATE    DATE          Y
LOCATIONTESTTUBE VARCHAR2 (50) Y

SQL> desc Test_1
Name          Type          Nullable Default Comments
-----
TESTID        VARCHAR2 (50)
MAINTESTTYPE  INTEGER
SUBTESTTYPE   INTEGER
TESTDATE      DATE

```

Data Generators

*על ידי תוכנית ב C++

```









1 #include <iostream>
2 #include <string>
3 #include <vector>
4 #include <ctime>
5 #include <cstdlib>
6 #include <unordered_map>
7
8 using namespace std;
9
10 // Function to generate a random string of given length
11 string generateRandomString(int length) {
12     string chars = "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789";
13     string result = "";
14     for (int i = 0; i < length; i++) {
15         result += chars[rand() % chars.length()];
16     }
17     return result;
18 }
19
20 // Function to generate a random date within a specific range
21 string generateRandomDate(int startYear, int endYear) {
22     int year = rand() % (endYear - startYear + 1) + startYear;
23     int month = rand() % 12 + 1;
24     int day = rand() % 28 + 1; // To avoid issues with varying month lengths
25     char date[11];
26     sprintf(date, "%04d-%02d-%02d", year, month, day);
27     return string(date);
28 }

```

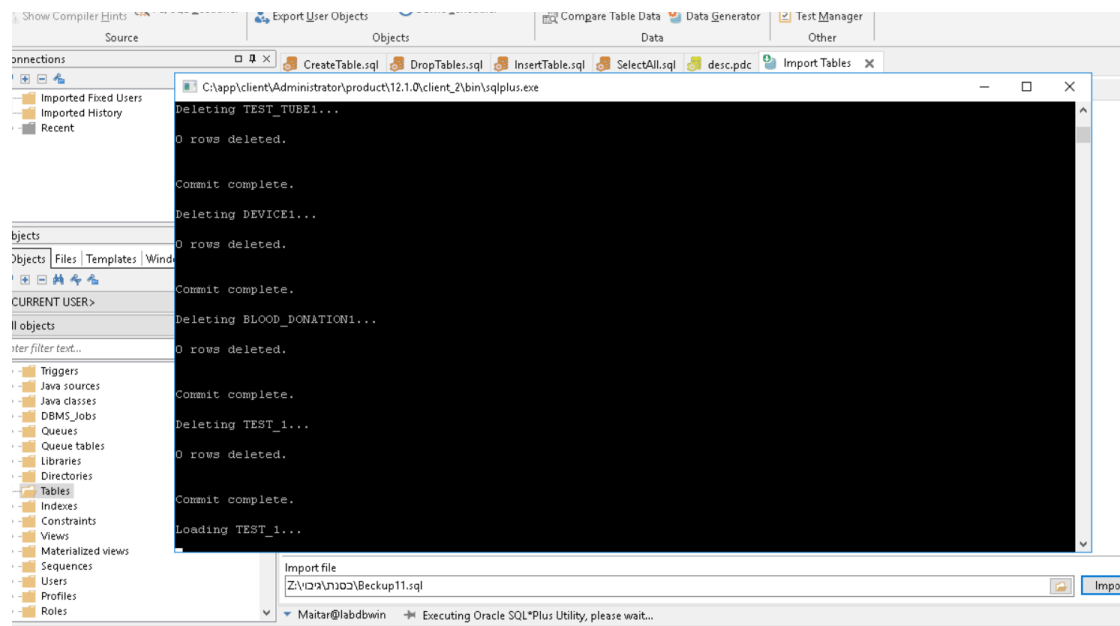
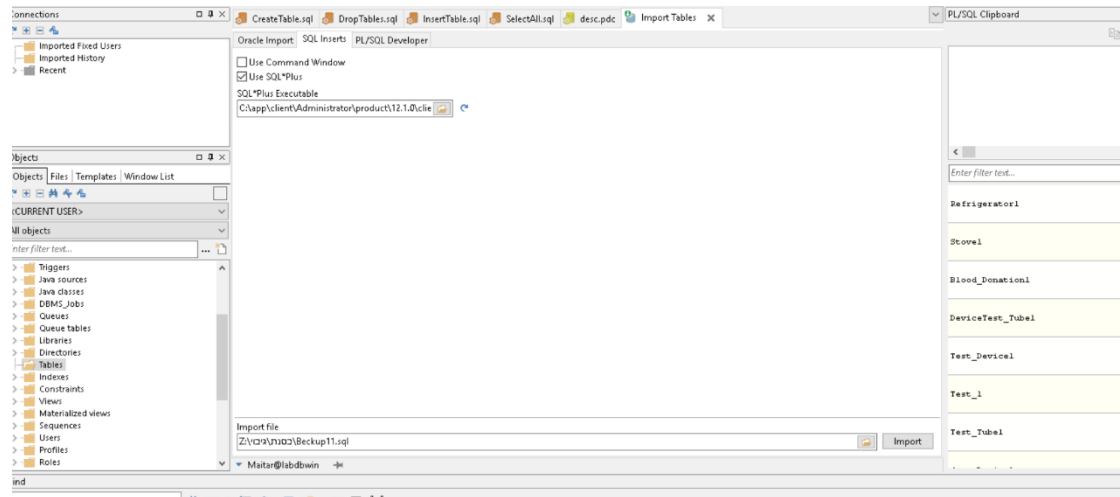
*על ידי קצבי exel

	A	B	C	D	E	F	G	H
1	StoveId	SeriesNum	VersionStov	Manufacture	PurchaseDa	LastMainter	LocationSto	DeviceId
2	OJ8Wfwytgs	174	6	u61GURC3Q	18/05/2012	13/08/2011	BoPRzd0Wq	3JwlU9dGEK
3	PhjEe2RBjeZ	558	4	DrP9PLdrDE	11/03/2000	26/02/2017	VutQ1URAbg	GJuUmCFHC
4	ucv1cbpZpG	450	6	ixWGvNwzjV	09/08/2021	30/05/2008	JLVnsJ16iwT	VeaALT3zZXY
5	OtW1RvJk2c	232	1	csnDyAO7cT	20/05/2014	18/03/2022	OGHZcYN8ey	c2S8bsiiL3b
6	qmbzvsh75	619	6	bNMtNT0Hb	18/01/2009	30/11/2011	dVLRZGP62l	aG8voTCFXY
7	Eh2froCbIfP	467	8	AdEhesNB2f	15/12/2008	17/12/2018	egFJsZF4KM	oXmV4VXME
8	geg5hj1XtJO	785	2	ohntDbjHMc	04/01/2015	03/11/2002	yvs03aKBXv	pOmuSefulv
9	cAmrtwNx9l	348	10	QtMFaAOaQ	20/10/2016	02/06/2004	43a7gSo2YO	6TZmHHpk2
10	xP7xvGst9Jz	964	8	xPEVVB4M6	14/02/2017	30/06/2021	m8akuXm3u	TDrY6r5Ed1S
11	PqhxYb34y	70	7	7rcgEJWFDX	18/10/2021	22/07/2005	dNOxhXQWJ	VvQmJJqAG
12	loWYjCPkxzc	599	4	xPEVVB4M6	07/07/2017	06/07/2001	kPJ6wn5HhE	iEvYsrJUPTxe
13	EB9ezF823d	79	2	mXOT9piWC	11/12/2009	08/11/2022	FxlaHG0114	6TZmHHpk2
14	fep9TtSfwdjS	660	4	x2PuvzbtSyC	24/02/2002	06/04/2005	59dlwta97K	VvQmJJqAG
15	6ro8MKCON	309	3	RoTCaXQL8E	08/07/2019	07/07/2022	dcCBE3VjI7n	zVz4eeNfme
16	UKHpG0XGv	604	7	CZtZyasZln6	23/09/2011	04/07/2017	n4qlODAzP6	Dt7CfR1315C
17	UdOKkkAQeI	99	2	u61GURC3Q	02/08/2021	31/10/2015	IreuSnbbyNk	Q9AlgKi2VQI
18	gecyR2hzohc	371	7	h6Qa6DmKc	06/06/2001	03/06/2017	UJdUtdHC16	gcZRRWdAL8
19	6I7Ov4qMr7	437	7	zZ7AzXqFit3	18/08/2023	19/02/2003	rtJWWFXq3	UpHsnKtDiV
20	FbKBuDvdM	310	8	RVi0pauvdW	18/06/2016	09/06/2005	zraIB27hQn	MHRvIrODdE
21	pLBOWESXQ	310	2	CZtZyasZln6	23/07/2020	29/03/2015	Zot8YWkgxc	YFvzR6EXWS
22	ten6PvTviRV	304	6	NxpUebcl3gC	02/12/2012	18/08/2007	BcwsWb2Lw	eneDROYPYF
23	YCPYnvqT1F	894	9	rbCuTVjFSU5	07/01/2005	21/07/2013	JclUslbia4og	X7PapIqOITh
24	lBOHfxfnSfgM	59	3	Y8f1XoK7d8	04/03/2014	13/12/2023	xG4dvyyiqR5	cD7b4H2mT
25	HPojJsJF6tVl	433	6	NxpUebcl3gC	10/07/2005	22/02/2018	sRXlLJKockR	BYsYqbbqkNlJ

*על ידי Data Generaor

Name	Date modified	Type	Size
 DataGeneratorBloodDonation.gd	25/05/2024 21:48	GD File	1 KB
 DataGeneratorDevice_Test_Tube1.gd	25/05/2024 21:37	GD File	1 KB
 DataGeneratorDevice1.gd	25/05/2024 21:37	GD File	1 KB
 DataGeneratorRefrigerator1.gd	25/05/2024 21:48	GD File	1 KB
 DataGeneratorStove1.gd	25/05/2024 21:44	GD File	1 KB
 DataGeneratorTest_Device1.gd	25/05/2024 21:48	GD File	1 KB
 dataGeneratorTest_Tube1.gd	25/05/2024 21:37	GD File	1 KB
 DataGeneratorTest1.gd	25/05/2024 21:48	GD File	1 KB

גיבוי



Source Objects Data Other

Connections CreateTable.sql DropTables.sql InsertTable.sql SelectAll.sql desc.pdc Import Tables Edit data STOVE1@LABDBWIN PL/SQL Clipboard

SQL Output Statistics

```
select t.*, t.rowid from STOVE1 t
```

Objects Files Templates Window List

Imported Fixed Users
Imported History
Recent

Objects
DBMS_Jobs
Queues
Queue tables
Libraries
Directories
Tables
BLOOD_DONATION1
DEVICE1
DEVICETEST_TUBE1
REFRIGERATOR1
STOVE1
TEST_1
TEST_DEVICE1
TEST_TUBE1
Indexes
Constraints
Views

Enter filter text...

STOVEID	SERIESNUM	VERSIONSTOVE	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCE
1	1bQv9CpTWWFL9wK7NvI	25	8	08/07/2019	27/04/2013
2	dkq829bM475ih275oNh09nQb149hKT716Mo63N1579aS	771	29	144 13/10/2208 17:50:21	10/11/2028 08:
3	wMD693dkV856bHf72aAe575R25vMC781tT1500eR0681fN	795	50	1459 13/01/2524 15:54:17	11/03/2303 16:
4	YD773cAw787eOy719hG868gWB897bPA976kQc571nOG55yL	1170	97	578 11/02/2100 19:43:23	17/10/2396 12:
5	nKL628Cn816aGP799bRL287gY0270yXk669ZV758aJb989pO	964	23	840 16/07/2793 03:49:23	23/01/2580 22:
6	hNb4465q166cf315xU072ILq796uA86yQg686IG01IvZ	533	63	141 06/11/2494 07:04:48	28/05/2571 00:
7	gQw888MB522vE915ySw393xg793U9318Y634Hu04QcC	462	75	1795 27/02/2694 21:16:50	25/07/2224 07:
8	yUn814kR289UA42QkOF452xGH912pOL129Uw195jNB257N	973	2	957 06/01/2969 23:44:09	06/03/2707 04:
9	PE691mGV184FT864K444PD572hMc457DQ780L187R	755	79	1205 26/09/2303 15:20:52	25/02/2625 03:
10	FZA086uCC554oQH014oCc719UjQ22Zd665dQy396hBo614V	390	79	1952 26/09/2019 03:58:45	28/01/2805 10:
11	qZy727vGo437vWV390uJB160eY1120Fz084kQ347wAY735vA	37	9	1807 06/03/2428 05:25:52	26/05/2513 18:
12	kGU869hBU541hZ1216gVg797W6927FfX0T0E982bM494bR	784	7	266 20/06/2276 09:10:13	18/06/2914 08:
13	vGq557zEo497AS116wWk259uJO352hGy181hU6393kAq562nS	587	52	1238 04/09/2775 11:27:18	03/09/3018 03:
14	cFW797aCV835oTc394gT4397Mh134Tt682eYf316Mg126vQ	618	25	1527 16/05/2119 03:02:00	12/06/2812 21:
15	wf718aGe511jg889bBC090oO8563pIO357hJ741mIO15ZuK	662	59	662 19/06/2203 23:27:27	11/09/1921 01:
16	dAB01GvV953yCw065uEJ1698h5459vY364nZ328hYL723vG	11	88	1985 19/10/2841 22:51:27	10/08/2428 01:
17	vGH776hO26DhN587W784gEM559wLd090Yq727m3k144IG	447	89	2100 27/09/2379 03:16:42	15/07/2625 00:
18	uLU698v6T71hKT469qQ756pNA350wW723oRq519iG6549vK	971	44	2030 28/09/2788 16:14:18	07/11/2224 15:
19	dUOS47aYr514uUjQ62wD992vV025uVC344UB759kD093K	133	35	1672 14/04/2381 14:46:01	21/10/2512 22:
20	hVW621mKv318Rz22QY211PC789eYw428Uj646hRM789F	1217	6	1581 30/12/1954 11:54:23	13/06/3034 09:
21	wY760Ph244bEm411aWq747hRe611uDC839Bm851Gz075iE	542	62	631 10/12/2624 02:09:01	04/09/2084 02:

1:1 Mailer@labdbwin 22 rows selected in 0.130 seconds (more...)

Enter filter text

Refrigerato

Stove1

Blood_Donat

DeviceTest_

Test_Device

Test_1

Test_Tube1

שאלות בחירה

4.

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```
CreateTable.sql | DropTables.sql | InsertTable.sql | SelectAll.sql | OROKACH.BLOOD_DONATION@LABDBWIN | OROKACH.BLOOD_DONATION1@LABDBWIN | Select1 X
```

SQL Output Statistics

```
--בואר את כל המכשירים עם הרטטים שלהם כולל את מספר הרטטים שנעשו על כל מכשיר--
SELECT
    d.DeviceId,
    d.DeviceType,
    t.TestID,
    t.TestDate,
    t.ResultT,
    (SELECT COUNT(*) FROM Test_Device td WHERE td.DeviceId = d.DeviceId) AS TotalTests
FROM
    Device d
JOIN
    Test_Device td ON d.DeviceId = td.DeviceId
JOIN
    Test_1 t ON td.TestID = t.TestID
ORDER BY
    d.DeviceId, t.TestDate;
```

	DEVID	DEVICETYPE	TESTID	TESTDATE	RESULTT	TOTALTESTS
▶	1DwaKt+r32Njau+9QJMi	92	I4UNhXp1Pijq7llywvE	11/09/2006	OF4uIWCbdia6DMcZpVR	2
	1DwaKt+r32Njau+9QJMi	92	h3ofoVppzHhHNvt5p	28/06/2009	sudkQY7GiUeyzeFTN	2
	3o3lrEATBqlyzvOibhk	1	6dxTBxcDDrcbo45y5UK	21/10/2012	kjqlgmfegw6p8bTRvKx	1
	18IDbmOfOpT08L9pAb6P	79	rNPkSTh5gZoMvGhtxcl	15/10/2008	IcN34GuRZXV1bSnUGqd	3
	18IDbmOfOpT08L9pAb6P	79	fLOzmOHZEJEZOZ9Gnw	22/12/2008	P6gw5yeh5WenOXwp1rPN	3
	18IDbmOfOpT08L9pAb6P	79	6fricULslrmBgxfda0aU6	04/06/2011	J8cZvgMKfd3dGLQ8r	3
	1qIMAFhbgbPMb7p8K4ui	77	mHJZjvwycKcpnOnUn	19/04/2006	EDFqOBcqfIt5yj3pvh	2
	1qIMAFhbgbPMb7p8K4ui	77	lsmtwepSK9dvY35YRpDn	03/10/2017	cBrpNLt8OD6Ma6fmcNCR	2
	1suLYrLCaaftOpdmMGg	70	bwyqe5SEzoMvggiEWbF	30/12/2008	cwDPHdfpwBdhV0DTgxUV	1
	10Jf2QuOEUEJQmP8g3MBHV	72	6MuA97vatgrQMWyEbUj	01/01/2004	BOVSfOpCiqC6EZPf7dk	2

2. מחזירה את פרטי תרומת הדם יחד עם תוצאות הטסט ומחשבת את גיל תרומת הדם תוך שימוש בתאריך הנוכחי(כמה זמן עבר מאז שנתרם הדם).

-- מחזירה פרטים של תרומת דם ביחד עם תוצאות הטסט ומחשבת את גיל כל תרומת דם בימים מהתאריך הנוכחי --
 -- מחזיר בסדר יורד של תאריכים --

```

SELECT
    bd.DonationID,
    bd.DonorID,
    bd.BloodType,
    bd.DonationDate,
    t.ResultT,
    TRUNC(SYSDATE - bd.DonationDate) AS AgeInDays
FROM
    Blood_Donation1 bd
JOIN
    Test_1 t ON bd.TestID = t.TestID
ORDER BY
    bd.DonationDate DESC;
  
```

	BLOODTYPE	DONATIONDATE	RESULTT	AGEINDAYS
2	Qh147gBt85dxP07iBf558uGi382fZ2292Pv237hRf749pW	24/07/2064 03:22:01	ObAW9eNMLUSgloOFvid	-379889
3	IOp517uKd623vVh732xv113hZa89eP0568V1266TM859kV	14/09/2063 13:11:51	4OUJA7mQs9k4kZg7qIMb	-379575
4	pCH728bYP298qYH477xG05yAg245cCR091uO0289ci355aU	04/02/2063 02:23:16	uonIJHuCRv9kK3b8IM	-378953
5	di954il177vOY323iOj978fO594zDZ715vZl240gOC934U	16/07/2046 13:58:56	vSv660gfN851rUx976gRd424mRz514yfN667dKM198pPH717uJ	-372307
6	yP451Rj783qWA043vTI894RX628kZD942cDm689bVR184gZ	04/04/2043 06:27:21	tdH4a6Gc7y60rfDPHf6w	-372107
7	fMR894x0169pW4669pMd067AK381yEn237pJA153vOr524dJ	25/02/2017 20:31:20	ymnu5W3yKaJtOPNhfqS	-362574
8	fNRS276Yc065yBC571k1310qYv643fUjv760FE860Yc765mW	01/06/2013 08:02:49	BXC5025MK178jNM8HZud	-361208
9	oCUS40vQc733oNv365IV039cC0015WZ743tNm616gVv438fG	08/09/2010 23:20:15	zLr968bQU871gVv529b0w647kALU770zOv827aQD895vSD546uB	-360212
10	kFJ116qWw382d0w018ilq421wB0325Hhp656gTn477eOz687tM	10/08/2991 06:34:33	qJB323mPb995hCW594oXy872bPL761tGd071Ffc914cBI448yG	-353243
11	WB446dUJ278hJt692sAH166sAD056oKc182iBd660uPz216dM	10/02/2985 16:04:39	DfIAbItC8407pnEfbxrA	-350872

3. מחזירה את פרטי מבחנת הטסט שכוללים את המיקום שלה ומחשבת את מספר הימים שותרו לה עד לתאריך התפוגה.

חזויר פרטי מבחנות הרט. שכולל מיקום האחסון, ומחשב את מספר הימים שנותרו עד לתאריך התפוגה--

```
SELECT
    tt.TestTubeID,
    tt.LocationTestTube,
    tt.ExpiryDate,
    r.RefrigeratorId,
    r.LocationR,
    tt.ExpiryDate - SYSDATE AS DaysToExpiry
FROM
    Test_Tube1 tt
JOIN
    Refrigeratori r ON tt.TestTubeID = r.TestTubeID
ORDER BY
    tt.ExpiryDate;
```

TESTTUBEID	LOCATIONTESTTUBE	EXPIRYDATE	REFRIGERATORID	LOCATIONR
1	USA	30/04/1900 16:40:30	sOQ44B5A31tAq340Bb293nHi6920h777h4c768jU959gE	kRI6Z8IGY914sGL988HV085pHj156DA611eHvY377HEP
2	USA	07/03/1922 22:44:24	vPU174#T428pIQ213uSP415FZJ154nYg979hc278hYE714nQ	zB0164kV629wp264hAJ712wGW971q010191Hj062pAL
3	Italy	07/10/2016 10:59:13	gWY265yMj670aTw240nQH799pIn667hTy491wR9687h968uN	LTJ1561mE043yDL265Zg04zuZw591Rw983Uj59
4	Italy	07/10/2016 10:59:13	wfUB32c6s921aM6254eUX545Bm777KCb794Yz915kTb016e8	fU154Hf782cV2477h994yDP539wKQ935pfC485nPB
5	ChZelNOmorPXQnkDz8UA	15/02/2024	DDytpbp8vGLite8YKVF	iQDpVPYAuuH0FF6p59m

4. מחברת בין כמה טבלאות כדי לקבל פרטי מכשיר ותאריך שימוש אחרון. גם מחשבת את המספר הכללי של הטסטים שנעשו והזמן הממוצע שעבר ביניהם.

```
WITH TestIntervals AS (
    SELECT
        d.DeviceId,
        d.DeviceType,
        d.LastMaintenanceDate,
        t.TestID,
        t.TestDate,
        LAG(t.TestDate) OVER (PARTITION BY d.DeviceId ORDER BY t.TestDate) AS PrevTestDate
    FROM
        Device1 d
    LEFT JOIN
        Test_Device1 td ON d.DeviceId = td.DeviceId
    LEFT JOIN
        Test_1 t ON td.TestID = t.TestID
)
SELECT
    DeviceId,
    DeviceType,
    LastMaintenanceDate,
    COUNT(TestID) AS NumberOfTests,
    AVG(TestDate - PrevTestDate) AS AvgTimeBetweenTests
FROM
    TestIntervals
GROUP BY
    DeviceId,
    DeviceType,
    LastMaintenanceDate
```

	DEVICEID	DEVICETYPE	LASTMAINTENANCEDATE	NUMBEROFTES	AVGTIMEBETWEENTESTS
1	DXLoCOIDwQZOAHUFC86C	26	16/10/2017	5	82696.2433738426
2	JhwYkJE9WlIpRA6FnVTh	19	05/05/2005	5	95382.7063744213
3	dk7GxRPa0LLsAi7kzNw4	49	05/11/2009	5	94483.7163975694
4	VSGNUhHSO7qfffaHAcTZ	96	27/03/2009	4	2602.66666666667

שאלות עידכון

4. מעדכן מיקום למכשיר מסוג 83 שלא השתמשו בו למעלה משנה

לפני:

```
SELECT* from Device1;
SELECT* from Test_Tube1;
SELECT* from Test_1;
SELECT* from Test_Device1;
SELECT* from DeviceTest_Tube1;
SELECT* from Blood_Donation1;
SELECT* from Stove1;
SELECT* from Refrigerator1;
```

DEVCETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCE	LOCATIOND
1	83	193	0 9E6uEKFOsINXIZR2VZm	17/06/2017	05/12/2012	d7GvEzWylpnTms3vixBo
2	31	760	9 PvsL2p1kgjRPSYTzTE	16/09/2003	13/04/2010	evqj5CvniJWTSjnpFOr8
3	46	436	2 WfXvJLbwrlcYzZdpL5G	04/04/2010	25/09/2010	mFjXiEDHUPMhzDlvApsT
4	73	748	9 sApvxdDVio2a9G4AMJ3C	12/03/2020	20/04/2000	r964gYNL8H8739rYgrf
5	98	717	0 SU0vOmny59Rc11gmyE9UT	28/04/2015	17/09/2012	44liMzMUowLILqKcQ3aF
6	28	78	5 kQoES3yVarvsNokKitoZ	21/07/2022	14/02/2022	ZD0oIkOcpIIm38lj3TNS
7	97	566	0 4yz28FKoMI3yOo5LlkO	02/01/2017	07/06/2021	TZL8toQvBDv7uBClBz4k
8	72	454	9 MEEtEDxYBTtEBNjUbNGI	15/12/2003	16/06/2009	nKJKSoHJ1F5I79woA8b
9	81	945	5 jqWZ04LWuG9yZOKJCldS	20/10/2014	17/06/2013	wzlwNQGcCvLxV5AshaZ1
10	92	982	1 jcz0vIMgtOW1bPOF0Pe	24/08/2005	22/09/2000	Jr4ACbfmLDAmlea6aEz2
11	56	975	7 wunWFIkIBHHR7KOQZMg	15/10/2013	15/03/2001	6xU6fYgyvPINP27U6UQ
12	90	132	2 D5Ui763SK6sE66wKAH4I	04/12/2002	06/11/2000	TY7m6wThJN6ZZc0MzqG
13	16	424	5 ZzGwKulJg7dQ7zrrdka	13/10/2015	28/04/2020	KzH7rthfIUmwz15LHu3

אחרי:

```
SELECT* from Device1;
SELECT* from Test_Tube1;
SELECT* from Test_1;
SELECT* from Test_Device1;
SELECT* from DeviceTest_Tube1;
SELECT* from Blood_Donation1;
SELECT* from Stove1;
SELECT* from Refrigerator1;
```

DEVCETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCE	LOCATIOND
1	83	193	0 9E6uEKFOsINXIZR2VZm	17/06/2017	05/12/2012	Israel
2	31	760	9 PvsL2p1kgjRPSYTzTE	16/09/2003	13/04/2010	evqj5CvniJWTSjnpFOr8
3	46	436	2 WfXvJLbwrlcYzZdpL5G	04/04/2010	25/09/2010	mFjXiEDHUPMhzDlvApsT
4	73	748	9 sApvxdDVio2a9G4AMJ3C	12/03/2020	20/04/2000	r964gYNL8H8739rYgrf
5	98	717	0 SU0vOmny59Rc11gmyE9UT	28/04/2015	17/09/2012	44liMzMUowLILqKcQ3aF

2. מעדכן שימוש אחרון ומיקום למכשירים שנעשה בהם שימוש בשלוש השנים האחרונות.

לפני:

```
SELECT* from Device1;
SELECT* from Test_Tubel;
SELECT* from Test_1;
SELECT* from Test_Device1;
SELECT* from DeviceTest_Tubel;
SELECT* from Blood_Donation;
SELECT* from Stovel;
SELECT* from Refrigerator1;

select * from Device1
where LastMaintenanceDate > SYSDATE
```

DEVID	DEVICETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINT
1	EV980Aq091NC554H571aPr014m160Fg435VY5116	20	81	1 vZv143e1E167aVU113dIU824mF5241vCx492mBH222gUL172hD	21/05/2549 05:04:42	30/07/2567 00:03:53
2	tdR517GD947Cp271zMA239LNS28HF234-BK780MF314B	55	570	10 vZT074mOz667yLv081Rn048vGb475ZU785yKCS69GF827aL	15/11/2386 20:06:17	29/02/2668 11:10:45
3	mBv246qDn166wDw727eXg355Wx269mBy265oEP539eK86QpW	15	843	1 hUs798VZ798VNe77aOY714sY927Z5623Aco011bAW954dQ	18/11/1987 10:51:53	02/06/2709 05:18:05
4	qOR499Yn010bJE292qLq554DF322qRV220cTV241aCt323qB	6	765	10 gZq186FRZ418aOT816pAh4322Td679ZU115yPR645RT17Z	17/01/2037 03:58:27	18/01/2638 11:10:45
5	bOU617nXa130cHX462wXr681nJ5583aGn882LCS99eWA229M	60	927	6 yRe021Aa077JON838kWI093wUy181wE6797mKc562eCF962wH	28/08/3045 05:18:05	14/05/2095 11:10:45
6	xMI998cS8761HhG465cAE340LD332yAw971gR536aPz095oA	19	790	0 Kxq8300Rw951k8K742zGQ342nQ738uQI744RvY990bC492cZ	11/10/2216 09:23:28	24/01/2614 21:19:09
7	nHh754uLx789gH241Z2a350bOJ939aAe679hWP072vWL482eH	78	332	9 xCs540eQf672nRK937pY1460uXe218mOP520FX472Va998nO	20/11/2443 00:01:35	15/03/2269 21:19:09
8	pYD140mIn62bGj092gFeY182zW3w633nEB829eG640LL339D	80	239	4 jFC356eOK905JE8059M4433ST953yGn493vG4467cFE254wV	21/05/2743 15:24:11	30/09/2502 11:10:45
9	zUz677Rk714RF180Bx550E0576BUB79ZY687ET822cT	66	8	0 JSH424Uq123wUJ496UJ348VA935pEe625yVM044bT665gJ	07/09/2076 13:19:12	02/01/2924 11:10:45
10	ISm546gHh559Bh368S355JOI976aSR170dLN672cF4111Y	31	321	9 jCt065aAR128RH044Lj492gCj367dMz737uOU624ePM818gG	05/02/2416 17:18:57	14/07/2199 03:08:09
11	hCH377aMh075pPh612ue640uF112nVE939n3k890QRS52QpP	25	449	6 xPK398Z0A413zdC384fUj740dFg685hDR395bQJ757bSH971eE	24/02/2391 11:10:45	30/10/2682 01:30:51
12	fEz595bQe471KtGH987aPw743nYD23QzMi625pUy867GvU166oK	51	995	1 zKy887eUj438Oi880kLw086uOy814Fxe691nUg956dPz962rB	18/03/2620 14:25:35	27/06/2220 22:30:08
13	wNj346qAJ385wS6447aPy133fV231uGz130gBu962hHY531dW	14	661	8 oBi574IOV251KJ587kV868LL180bOh258vOT021bSR950mF	21/07/2478 21:12:57	06/05/2709 12:05:19

אחרי:

```
lect * from Device1
where LocationD ='USA'
```

DEVID	DEVICETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCE	LOCATIOND
1	20	81	1	vZv143e1E167aVU113dIU824mF5241vCx492mBH222gUL172hD	21/05/2549 05:04:42	30/07/2567 00:03:53	USA
2	34	863	0	rTg078aUk934kAp638jSh449wDZ455gHg590Aq535fen614gL	04/09/2150 08:56:15	16/06/2024 15:35:13	USA
3	78	332	9	xCs540eQf672nRK937pY1460uXe218mOP520FX472Va998nO	20/11/2443 00:01:35	15/03/2269 21:19:09	USA
4	31	321	9	jCt065aAR128RH044Lj492gCj367dMz737uOU624ePM818gG	05/02/2416 17:18:57	14/07/2199 03:08:09	USA
5	25	449	6	xPK398Z0A413zdC384fUj740dFg685hDR395bQJ757bSH971eE	24/02/2391 11:10:45	30/10/2682 01:30:51	USA
6	51	995	1	zKy887eUj438Oi880kLw086uOy814Fxe691nUg956dPz962rB	18/03/2620 14:25:35	27/06/2220 22:30:08	USA
7	14	661	8	oBi574IOV251KJ587kV868LL180bOh258vOT021bSR950mF	21/07/2478 21:12:57	06/05/2709 12:05:19	USA
8	21	29	2	nWJ962dPm630yFr164iAX262oEZ615nXE186Ep517aWV753mN	10/07/2535 18:48:31	06/04/2852 20:42:34	USA
9	17	397	9	HvV457ITTH692yIz117cTz855vDv137wNY331mPK786cR0572dB	16/05/2147 23:37:06	24/01/2174 17:45:27	USA
10	41	656	5	aVe877gPR619dFe031kY330oGg764cPK622FQO141ITA355xQ	12/04/2394 19:16:01	02/08/2080 12:13:58	USA
11	4	260	8	pSu234iSh645tOU25QjKc696FBD682dSH778vOC127kVl887O	21/11/2549 12:41:19	31/03/2090 00:06:20	USA
12	5	877	6	wR0572aMn430iVY560dL762zZh364VYo827mMt6280Uz255uL	11/10/2989 08:07:35	16/06/2024 15:35:13	USA
13	85	144	8	fRI152Dz167Jq460Vq652nLy639AU368jYo649nDj983tG	02/10/2476 03:21:53	12/11/1960 23:26:00	USA

שאלות מחיקה

4. מוחק תרומות דם שנעשו לפני יותר משנתיים. מוחק מכל הטבלאות הקשורות בזה.

לפני:

```
SELECT* from Stove1;
SELECT* from Refrigerator1;

select * from Blood Donation1
where      DonationDate < ADD_MONTHS(SYSDATE, -24);

select * from Device1
where      LastMaintenanceDate > SYSDATE
;
select * from Device1
```

DONATIONID	DONORID	BLOODTYPE	DONATIONDATE	VOLUMEDONATED	TESTRESULTID	TESTID
1	GyBdzOmbqrChvSSg7DgA	wwmDqUakuf7Phhv759z	KTZ6oVFky3Cm4WkogV2q	14/02/2022	321	qh10bcncprjMdnXhVvNz
2	kgIj278yESQPNyZdpmrd	nPKgAZCTkuqY0sZelUaa	FXZHDnRShj7JUnSGapDg	19/05/2022	328	qXqg08eBYfoMySaVQR4

אחרי:

```
SELECT * from Blood_Donation1
WHERE DonationDate < ADD_MONTHS(SYSDATE, -24);
SELECT * from Device1
WHERE VersionD =0;
```

2. מוחק את כל המכשירים מגרסא מסוימת. מוחק מכל הטבלאות הקשורות בו.

לפני:

```
SELECT * from Device1
WHERE VersionD =0;
```

	DEVICEID	DEVICETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTEN
3	GmrbtE8X9GMY5T3LJ16	...	97	566	0 4yz29FFkoMI3yOoS5LkO	02/01/2017	07/06/2021
4	evFPXla550Tntcl3wQA6	...	81	356	0 gNLtYjAjraE1DbIma\$0s	19/08/2007	11/09/2014
5	gntD2XQAJgTZPt6cgRn	...	49	975	0 iVe9ylsXh2PgSMQOKN4N	14/09/2004	17/02/2006
6	dYCqiwEngdq1XkHDd4	...	52	252	0 O:rRnDyYASoxWcAJMmaFz	24/12/2006	16/06/2024 15:4
7	vssuOoN770VhOIlvsPVV	...	78	346	0 PwVjuX3ydl3oEpGRNBrl	21/04/2010	19/11/2007
8	aRq239bWc744fPX032vYt722mOK220m6s743jPz8796Di791rD	...	34	963	0 rTg078aUk934kAp639Sh449wDZ455gHg590Aq535fEn614gI	04/09/2150 08:56:15	16/06/2024 15:4
9	smI989cSB761sHg465cAE34bLD332yAw971gGR536aPz095oX	...	19	790	0 kXq030oRw951k8K742zrGQ342rNQ738uQI744RvY890aBC492cZ	11/10/2216 09:23:28	24/01/2614 23:2
10	zUZ67fLRK714RF180BX50EJ057hBU879kZY687eT829cT	...	66	8	0 sH424gUq132wUG496U348vVA955pEz625YIM0442NT665gl	07/09/2076 13:19:12	02/01/2924 13:0
11	vFh171oTa222mWz244SY389cKd418pHr169qW00762ZV082cT	...	75	457	0 tMb596yWf817kQW323kL0976oJb750pC4980INT2RD:1117vW	03/07/2786 10:56:39	16/06/2024 15:4
12	zBy324vQv417INy039yD886cVz156dER349wd334zSZ994bX	...	67	815	0 K6X830vZD971jXc557oRc289dL9380dE189cOo314nCV131rD	02/12/2013 08:02:41	09/03/2047 09:4
13	uUZ67fPN064fP969wEL643nVr345vMH131vG1012vC3458pN	...	6	974	0 kZM931mUP572qZB190nIq178mLs824mfT264wMly245dWj287vW	15/10/2927 20:42:34	03/01/2657 11:1
14	vOQ374kKp447c50261kCr238qQm1402v017aYb179bD687dS	...	25	598	0 uYJ128vSA335HhH482znZB658q1q627kV913bLV546vA763wL	01/05/2481 12:05:36	30/12/2873 09:3

אחרי:

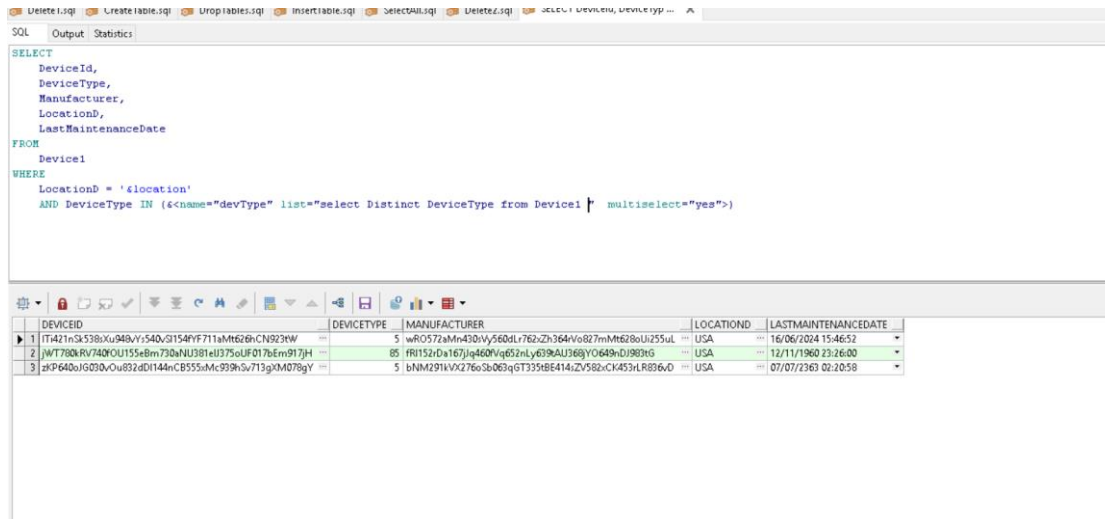
```
SELECT * from Device1
WHERE VersionD =0;
```

	DEVICEID	DEVICETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCE DATE	LOCATIONID
--	----------	------------	-----------	----------	--------------	--------------	----------------------	------------

שאלות עם פרמטרים

(כל הצילומי מסך הנצרכים נמצאים באותו צילום מסך...)

1. מחזיר פרטי מכשיר שנמצא במיקום מסוים וסוג המכשיר שלו נבחר מרשימת סוגי המכשירים האפשריים.



The screenshot shows a SQL IDE interface. The top pane contains a SQL query. The bottom pane shows the results of the query in a table format.

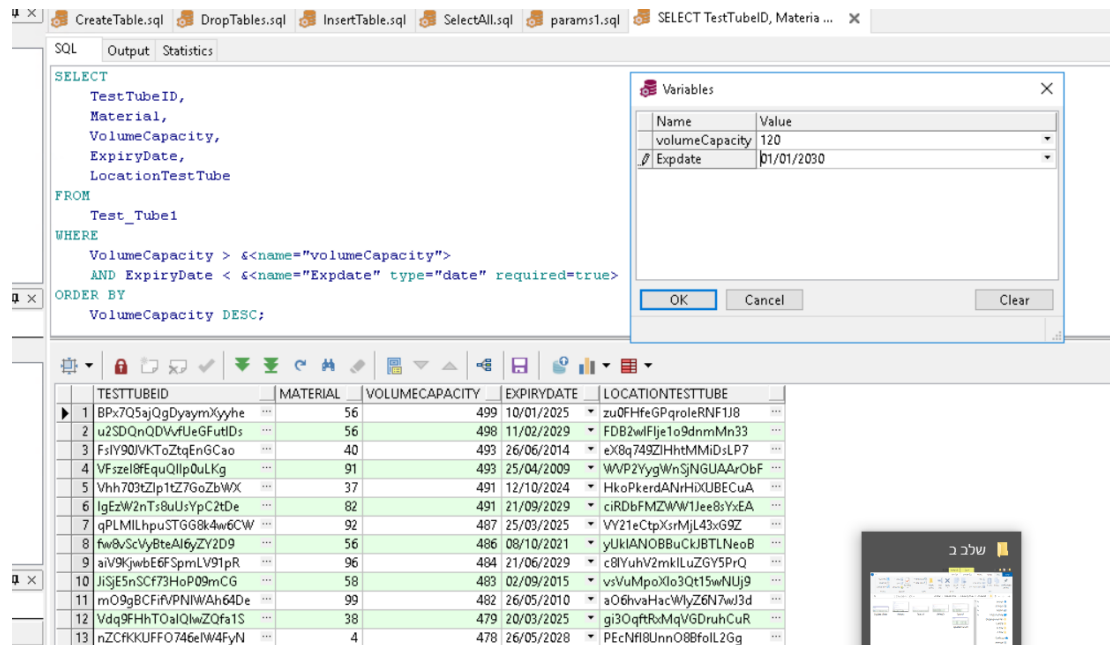
SQL Query:

```
SELECT
    DeviceId,
    DeviceType,
    Manufacturer,
    LocationD,
    LastMaintenanceDate
FROM
    Device1
WHERE
    LocationD = '<location>'
    AND DeviceType IN (<name="devType" list="select Distinct DeviceType from Device1 | multiselect="yes">)
```

Results Table:

	DEVICEID	DEVICETYPE	MANUFACTURER	LOCATIOND	LASTMAINTENANCEDATE
1	IT421a34338x040v1:54Qv0154PvF711aM628-CN9229W	5	wR0572aMn40204y5604L762-Zh364Vv027mM628uU255uL	USA	16/06/2014 15:46:52
2	W778Q8RV748YOLU155e8m730mNU381uU375oUf017bEm917jH	85	fR1152a0s167q460Mq652mLy019AU768Y01649-D1980H6	USA	12/11/1960 23:26:00
3	zP640uIG030vOu832dD1144nCB555sMc939h3v713gUM078gY	5	bNM291uVv0276o3b063q6T3354BE414ZV582-CK453LR036vD	USA	07/07/2363 02:20:58

2. מחזיר פרטי מבחנת ססט שעומדת בקיבול שניתנה ובתאריך תפוגה שהוקש.



SQL

```
SELECT
    TestTubeID,
    Material,
    VolumeCapacity,
    ExpiryDate,
    LocationTestTube
FROM
    Test_Tube1
WHERE
    VolumeCapacity > <<name="volumeCapacity">
AND ExpiryDate < <<name="Expdate" type="date" required=true>
ORDER BY
    VolumeCapacity DESC;
```

Variables

Name	Value
volumeCapacity	120
Expdate	01/01/2030

OK Cancel Clear

TESTTUBEID	MATERIAL	VOLUMECAPACITY	EXPIRYDATE	LOCATIONTESTTUBE
1	BPx705ajQgDysymYyyhe	56	499 10/01/2025	zu0FHfeGPqroleRNF1J8
2	u2SDQnQDWvUeGFutlDs	56	498 11/02/2029	FDB2wFJe1o9dnmMn33
3	FslY90lVKToZtqEnGCao	40	493 26/06/2014	eX8q749ZIHtMMiDsLP7
4	VfSzsl8FEquQllp0uLKg	91	493 25/04/2009	WVP2YygWnSjNGUAArObF
5	Vhh703tZlp1tZ7GoZbWX	37	491 12/10/2024	HkoPkerdANrHixUBECuA
6	IgEzW2nTs8uUsYpC2tDe	82	491 21/09/2029	ciRDbFMZWW1Jee8YyEA
7	qPLMLhpuSTGG8k4w6CW	92	487 25/03/2025	VY21eCtpXgrMjL43xG9Z
8	fw8vScVybteAl6yZY2D9	56	486 08/10/2021	yUklANOBbuCKJBTlNeoB
9	aiV9KjwbE6FspmLV91pR	96	484 21/06/2029	c8YuhV2mkILuZGY5PrQ
10	JiSjE5nSCf73HoP09mCG	58	483 02/09/2015	vsVuMpoXio3Qt15wNUj9
11	mO9gBCFifVPNIWAh64De	99	482 26/05/2010	aO6hvaHacWlyZ6N7wd3d
12	Vdq9FHHtOalQhwZOfa1S	38	479 20/03/2025	gi3OqftRdMqV6DruhCuR
13	nZCRKkUFFO746eW4FyN	4	478 26/05/2028	PEcNfH8UnnO8BfolL2Gg

3. מחזיר פרטי טסט עבור תוצאה שהתקבלה ושנמצא בין 2 תאריכים שהוקשו. התאריך סיום הינו אופציונלי.

The screenshot shows a SQL query editor with the following query:

```
SELECT
    TestID,
    MainTestType,
    SubTestType,
    TestDate,
    ResultT,
    BloodDonationID
FROM
    Test_1
WHERE
    ResultT = <name="result" type="string">
    AND TestDate BETWEEN <name="startDate" type="date" required=true> AND <name="endDate" type="date" default="01/01/2030">
ORDER BY
    TestDate DESC;
```

A "Variables" dialog box is open, showing the following values:

Name	Value
result	hnE78PQv7QobzbW4iO1l
startDate	01/01/2000
endDate	01/01/2030

The results table below shows one row of data:

TESTID	MAINTESTTYPE	SUBTESTTYPE	TESTDATE	RESULTT	BLOODDONATIONID
1	znNfeYtv874ZZC41zFb8	58	20 05/05/2023	hnE78PQv7QobzbW4iO1l	YmakL0uccyrotGXsRCU

4. מחזיר פרטי תרומת דם כאשר הID שלה נבחר מבין רשימת ID's וסוג הדם מוקש.

The screenshot shows a SQL application window with a query editor, a variables dialog, and a result set.

Query Editor:

```
SELECT
  DonationID,
  DonorID,
  BloodType,
  DonationDate,
  VolumeDonated,
  TestResultID
FROM
  Blood_Donation1
WHERE
  DonorID IN (<name="donorId" list="'4vBdG7waNm9gJnMXXQLx','1CB675cNb061bRW689iPf743jMj2881MQ733nbB871eFR059vA','1QC458wWb4541Ik918eKK867mXJ138cTC'
AND BloodType = <name="bloodType" type="string">
ORDER BY
  DonationDate DESC;
```

Variables Dialog:

Name	Value
donorId	4vBdG7waNm9gJnMXXQLx
bloodType	OExbnQ13PrfOnfDZoMBQ

Result Set:

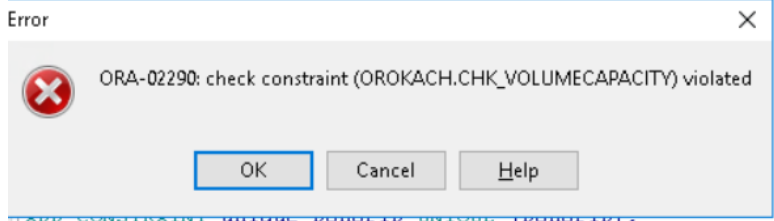
DONATIONID	DONORID	BLOODTYPE	DONATIONDATE	VOLUMEDONATED	TESTRESULTID
1	Dyo5QA8k99b5TQA5m7s8	4vBdG7waNm9gJnMXXQLx	OExbnQ13PrfOnfDZoMBQ	22/06/2023	349 WB3ef83ei4t1owPUkD2f

אילוצים

1. הוספת אילוץ check ל-TestTube שבדוק שמוכנס רק ערך חיובי ל-VolumeCapacity.

```
ALTER TABLE Test_Tube1
ADD CONSTRAINT chk_VolumeCapacity CHECK (VolumeCapacity > 0);

INSERT INTO Test_Tube1 (TestTubeID, Material, VolumeCapacity, PurchaseDate, ExpiryDate)
VALUES ('TT001', 1, -10, TO_DATE('2024-01-01', 'YYYY-MM-DD'), TO_DATE('2025-01-01', 'YYYY-MM-DD'));
```



Error

ORA-02290: check constraint (OROKACH.CHK_VOLUMECAPACITY) violated

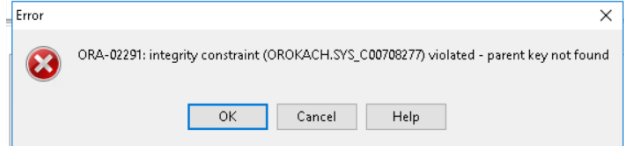
OK Cancel Help

2. הוספת אילוץ ל- BLOOD DONATION שעבורו השדה DONORID יהיה ייחודי.

```
ALTER TABLE Blood_Donation1
ADD CONSTRAINT unique_DonorID UNIQUE (DonorID);

INSERT INTO Blood_Donation1 (DonationID, DonorID, BloodType, DonationDate, VolumeDonated, TestResultID, TestID)
VALUES ('BD001', 'DON001', 'A+', TO_DATE('2023-01-01', 'YYYY-MM-DD'), 500, 'TRO01', 'T001');

-- Attempt to insert a duplicate DonorID
INSERT INTO Blood_Donation1 (DonationID, DonorID, BloodType, DonationDate, VolumeDonated, TestResultID, TestID)
VALUES ('BD002', 'DON001', 'B+', TO_DATE('2023-02-01', 'YYYY-MM-DD'), 450, 'TRO02', 'T002');
```



Error

ORA-02291: integrity constraint (OROKACH.SYS_C00708277) violated - parent key not found

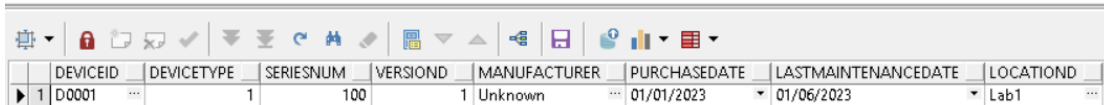
OK Cancel Help

3. הוספת ערך ברירת מחדל ל- Device1 עבור Manufacturer.

```
ALTER TABLE Device1
MODIFY Manufacturer DEFAULT 'Unknown';

INSERT INTO Device1 (DeviceID, DeviceType, SeriesNum, VersionD, PurchaseDate, LastMaintenanceDate, LocationD)
VALUES ('D0001', 1, 100, 1, TO_DATE('2023-01-01', 'YYYY-MM-DD'), TO_DATE('2023-06-01', 'YYYY-MM-DD'), 'Lab1');
```

```
select * from Device1
where Manufacturer = 'Unknown';
```



	DEVICEID	DEVICETYPE	SERIESNUM	VERSIOND	MANUFACTURER	PURCHASEDATE	LASTMAINTENANCEDATE	LOCATIOND			
1	D0001	...	1	100	1	Unknown	...	01/01/2023	01/06/2023	Lab1	...