

דו"ח פרויקט בסנ"ת

בסיס נתונים עבור חיל הרגלים בצבא ההגנה לישראל



מגישים: טוביה מיסול יסלזון וידידיה בן אהרן

מלחמת חרבות ברזל התשפ"ד

תוכן העניינים

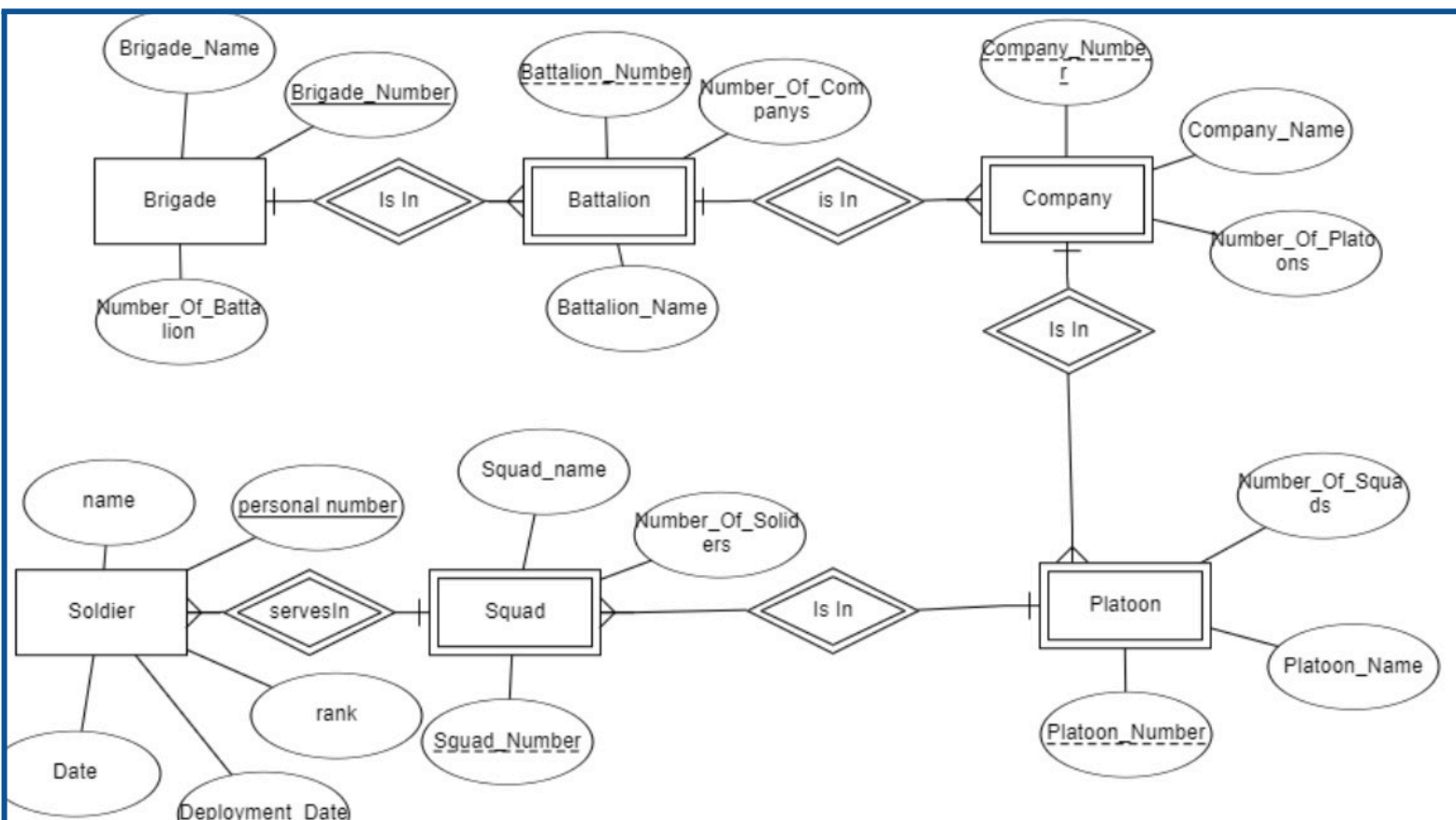
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מבוא

חיל הרגלים הוא אחד החילות העיקריים אם לא העיקרי בצה"ל,
בחיל מספר יחידות החל מחטיבה וכלה בכיתה.
בסיס הנתונים שאנו בונים ידאג לרכז את שיוך החיילים ליחידות השונות.
נפרט מעט יותר בשלבים הבאים בע"ה.

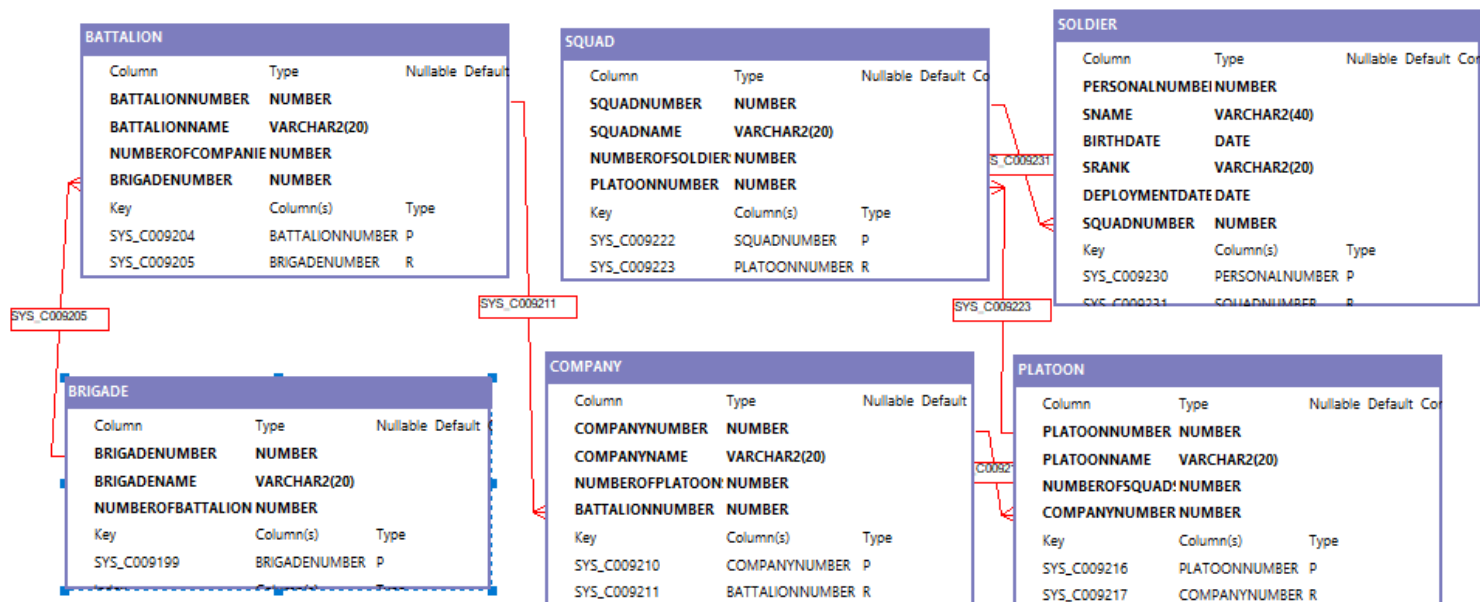
תרשים ERD

מצורף צילום מסך של תרשים ERD שבנינו בתוכנת ERDPlus.



תרשים DSD

כנ"ל תרשים ה - DSD.



פקודות ה - createTable

```
CREATE TABLE Brigade
(
    BrigadeNumber NUMBER NOT NULL,
    BrigadeName VARCHAR2(20) NOT NULL,
    NumberOfBattalions NUMBER NOT NULL,
    PRIMARY KEY (BrigadeNumber)
);

CREATE TABLE Battalion
(
    BattalionNumber NUMBER NOT NULL,
    BattalionName VARCHAR2(20) NOT NULL,
    NumberOfCompanies NUMBER NOT NULL,
    BrigadeNumber NUMBER NOT NULL,
    PRIMARY KEY (BattalionNumber),
    FOREIGN KEY (BrigadeNumber) REFERENCES Brigade(BrigadeNumber)
);

CREATE TABLE Company
(
    CompanyNumber NUMBER NOT NULL,
    CompanyName VARCHAR2(20) NOT NULL,
    NumberOfPlatoons NUMBER NOT NULL,
    BattalionNumber NUMBER NOT NULL,
    PRIMARY KEY (CompanyNumber),
    FOREIGN KEY (BattalionNumber) REFERENCES Battalion(BattalionNumber)
);

CREATE TABLE Platoon
(
    PlatoonNumber NUMBER NOT NULL,
    PlatoonName VARCHAR2(20) NOT NULL,
    NumberOfSquads NUMBER NOT NULL,
    CompanyNumber NUMBER NOT NULL,
    PRIMARY KEY (PlatoonNumber),
    FOREIGN KEY (CompanyNumber) REFERENCES Company(CompanyNumber)
);

CREATE TABLE Squad
```

```
(
    SquadNumber NUMBER NOT NULL,
    SquadName VARCHAR2(20) NOT NULL,
    NumberOfSoldiers NUMBER NOT NULL,
    PlatoonNumber NUMBER NOT NULL,
    PRIMARY KEY (SquadNumber),
    FOREIGN KEY (PlatoonNumber) REFERENCES Platoon(PlatoonNumber)
);

CREATE TABLE Soldier
(
    PersonalNumber NUMBER NOT NULL,
    SName VARCHAR2(40) NOT NULL,
    BirthDate DATE NOT NULL,
    SRank VARCHAR2(20) NOT NULL,
    DeploymentDate DATE NOT NULL,
    SquadNumber NUMBER NOT NULL,
    PRIMARY KEY (PersonalNumber),
    FOREIGN KEY (SquadNumber) REFERENCES Squad(SquadNumber)
);
```

צילומי מסך מהכנסת הנתונים

1. בעזרת ה Data Generator

SOLDIER:

SOLDIER

< Owner Table Number of records
> C##BOSS SOLDIER 400
...

Name	Type	Size	Data	Master
PERSONALNUMBER	NUMBER		Random(100000, 9999999)	...
SNAME	VARCHAR2	40	FirstName + ' ' + LastName	...
BIRTHDATE	DATE		Random(01/01/1930, 01/01/2005)	...
SRANK	VARCHAR2	20	List('Private', 'Corporal', 'Sergeant', 'Lieutenant', 'Captain',	...
DEPLOYMENTDATE	DATE		Random(01/01/1948, 01/01/2024)	...
SQUADID	NUMBER		Random(1, 5)	...
*				...

SQUAD:

SQUAD

< Owner Table Number of records
> C##BOSS SQUAD 200
...

Name	Type	Size	Data	Master
SQUADNUMBER	NUMBER		Random(100000, 9999999)	...
SQUADNAME	VARCHAR2	20	List('Red', 'Blue', 'Green', 'Gold', 'Silver')	...
NUMBEROFSOLDIERS	NUMBER		Random(1, 500)	...
PLATOONNUMBER	NUMBER		list(select PlatoonNumber from Platoon)	...
*				...

PLATOON:

PLATOON

< Owner Table Number of records
> C##BOSS PLATOON 200
...

Name	Type	Size	Data	Master
PLATOONNUMBER	NUMBER		Random(100000, 9999999)	...
PLATOONNAME	VARCHAR2	20	List('Saber', 'Raptor', 'Phantom', 'Cobra', 'Talon')	...
NUMBEROFSQUADS	NUMBER		Random(1, 100)	...
COMPANYNUMBER	NUMBER		list(select CompanyNumber from Company)	...
*				...

COMPANY:

COMPANY

<

Owner

Table

Number of records

>

C##BOSS

COMPANY

200

...

Name	Type	Size	Data	Master
COMPANYNUMBER	NUMBER		Random(100000, 999999)	...
COMPANYNAME	VARCHAR2	20	List('Alpha', 'Bravo', 'Charlie', 'Delta', 'Echo')	...
NUMBEROFPLATOONS	NUMBER		Random(1, 100)	...
BATTALIONNUMBER	NUMBER		list(select BattalionNumber from Battalion)	...
*				...

BATTALION:

BATTALION

<

Owner

Table

Number of records

>

C##BOSS

BATTALION

200

...

Name	Type	Size	Data	Master
BATTALIONNUMBER	NUMBER		Random(100000, 999999)	...
BATTALIONNAME	VARCHAR2	20	List('Wolfpack', 'Crusader', 'Spartan', 'Razorback', 'Centurio')	...
NUMBEROFCOMPANIES	NUMBER		Random(1, 10)	...
BRIGADENUMBER	NUMBER		list(select BrigadeNumber from Brigade)	...
*				...

BRIGADE:

BATTALION

<

Owner

Table

Number of records

>

C##BOSS

BATTALION

200

...

Name	Type	Size	Data	Master
BRIGADENUMBER	NUMBER		Random(100000, 999999)	...
BRIGADENAME	VARCHAR2	20	List('Iron', 'Thunderbolt', 'Guardian', 'Phoenix', 'Vanguard')	...
NUMBEROFBATTALIONS	NUMBER		Random(100000, 999999)	...
*				...

2. שיטת ה Mockaroo:

BRIGADE:

Field Name	Type	Options
BrigadeNumber	Number	min: 100000 max: 999999 decimals: 0 blank: 0 % Σ ×
BrigadeName	Custom List	Alpha Company, Bravo Company, Charlie Company, Delta Compar random blank: 0 % Σ ×
NumberOfBattalions	Number	min: 1 max: 10 decimals: 0 blank: 0 % Σ ×

+ ADD ANOTHER FIELD
GENERATE FIELDS USING AI...

ובגלל שיש לנו רק ישות אחת שאינה תלויה במקרו אי אפשר לייצג ישויות שהם תלויות. אז ממקרו יש לנו רק את BRIGADE.

3. אחרון חביב ה *Faker*

THE CODE:

```
from faker import Faker
```

```
import random
```

```
import csv
```

```
import os
```

```
fake = Faker()
```

```
#enter the path of the python script so itll open the csv files in the  
correct folder
```

```
path_of_faker
```

```
="C:\\Users\\tuvya\\OneDrive\\Desktop\\tuvya\\courses\\bsnt\\shlav1\\Fa  
kerCSV\\fakerDG.py"
```

```
# Get the directory where the script is located
```

```
script_dir = os.path.dirname(os.path.realpath(path_of_faker))
```

```
# Lists to store generated IDs
```

```
brigade_numbers = []
```

```
battalion_numbers = []
```

```
company_numbers = []
```

```
platoon_numbers = []
```

```
squad_numbers = []
```

```

# Open CSV files in the script's directory

with open(os.path.join(script_dir, 'Brigade.csv'), mode='w',
newline='') as brigade_file, \

    open(os.path.join(script_dir, 'Battalion.csv'), mode='w',
newline='') as battalion_file, \

    open(os.path.join(script_dir, 'Company.csv'), mode='w',
newline='') as company_file, \

    open(os.path.join(script_dir, 'Platoon.csv'), mode='w',
newline='') as platoon_file, \

    open(os.path.join(script_dir, 'Squad.csv'), mode='w', newline='')
as squad_file, \

    open(os.path.join(script_dir, 'Soldier.csv'), mode='w',
newline='') as soldier_file:

    brigade_writer = csv.writer(brigade_file)

    battalion_writer = csv.writer(battalion_file)

    company_writer = csv.writer(company_file)

    platoon_writer = csv.writer(platoon_file)

    squad_writer = csv.writer(squad_file)

    soldier_writer = csv.writer(soldier_file)

# Write headers

```

```

    brigade_writer.writerow(['BrigadeNumber', 'BrigadeName',
'NumberOfBattalions'])

    battalion_writer.writerow(['BattalionNumber', 'BattalionName',
'NumberOfCompanies', 'BrigadeNumber'])

    company_writer.writerow(['CompanyNumber', 'CompanyName',
'NumberOfPlatoons', 'BattalionNumber'])

    platoon_writer.writerow(['PlatoonNumber', 'PlatoonName',
'NumberOfSquads', 'CompanyNumber'])

    squad_writer.writerow(['SquadNumber', 'SquadName',
'NumberOfSoldiers', 'PlatoonNumber'])

    soldier_writer.writerow(['PersonalNumber', 'SName', 'BirthDate',
'SRank', 'DeploymentDate', 'SquadNumber'])

# Generate data for Brigade table

for i in range(1, 401):

    brigade_number = random.randint(100000, 999999)

    brigade_name = fake.word().capitalize()

    number_of_battalions = random.randint(3, 10)

    brigade_writer.writerow([brigade_number, brigade_name,
number_of_battalions])

    brigade_numbers.append(brigade_number)

# Generate data for Battalion table

```

```
for i in range(1, 401):

    battalion_number = random.randint(100000, 999999)

    battalion_name = fake.word().capitalize()

    number_of_companies = random.randint(3, 50)

    brigade_number = random.choice(brigade_numbers)

    battalion_writer.writerow([battalion_number, battalion_name,
number_of_companies, brigade_number])

    battalion_numbers.append(battalion_number)


# Generate data for Company table

for i in range(1, 401):

    company_number = random.randint(100000, 999999)

    company_name = fake.word().capitalize()

    number_of_platoons = random.randint(3, 100)

    battalion_number = random.choice(battalion_numbers)

    company_writer.writerow([company_number, company_name,
number_of_platoons, battalion_number])

    company_numbers.append(company_number)


# Generate data for Platoon table

for i in range(1, 401):
```

```

    platoon_number = random.randint(100000, 999999)

    platoon_name = fake.word().capitalize()

    number_of_squads = random.randint(3, 150)

    company_number = random.choice(company_numbers)

    platoon_writer.writerow([platoon_number, platoon_name,
number_of_squads, company_number])

    platoon_numbers.append(platoon_number)

# Generate data for Squad table

for i in range(1, 401):

    squad_number = random.randint(100000, 999999)

    squad_name = fake.word().capitalize()

    number_of_soldiers = random.randint(8, 200)

    platoon_number = random.choice(platoon_numbers)

    squad_writer.writerow([squad_number, squad_name,
number_of_soldiers, platoon_number])

    squad_numbers.append(squad_number)

# Generate data for Soldier table

ranks = ['Private', 'Corporal', 'Sergeant', 'Lieutenant',
'Captain', 'Major', 'Colonel', 'General']

```

```
for i in range(1, 401):

    personal_number = random.randint(100000, 999999)

    name = fake.name()

    birth_date = fake.date_of_birth(minimum_age=18,
maximum_age=50).strftime('%Y-%m-%d')

    rank = random.choice(ranks)

    deployment_date = fake.date_between(start_date='-5y',
end_date='today').strftime('%Y-%m-%d')

    squad_number = random.choice(squad_numbers)

    soldier_writer.writerow([personal_number, name, birth_date,
rank, deployment_date, squad_number])
```

BRIGADE:

Export User Objects Compare Table Data Data Generator Test Manager Tester

Objects Data Other

createTables.sql dropTables.sql selectAll.sql Diagram Window Brigade.csv

Data from Textfile Data to Oracle

General

Owner: Table: BRIGADE

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records
☐ Ignore duplicates ☐ Truncate table

Initializing Script:

Finalizing Script:

Fields

Field1 BrigadeNumber -> BRIGADENUM Field:

Field2 BrigadeName -> BRIGADENAME Fieldtype:

Field3 NumberOfBattalions -> NUMBER

SQL function:

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

BATTALION:

createTables.sql dropTables.sql selectAll.sql Diagram Window Battalion.csv

Data from Textfile Data to Oracle

General

Owner: Table: BATTALION

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records
☐ Ignore duplicates ☐ Truncate table

Initializing Script:

Finalizing Script:

Fields

Field1 BattalionNumber -> BATTALIONN Field:

Field2 BattalionName -> BATTALIONNAI Fieldtype:

Field3 NumberOfCompanies -> NUMBE

Field4 BrigadeNumber -> BRIGADENUM SQL function:

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

COMPANY:

createTables.sql dropTables.sql selectAll.sql Diagram Window Company.csv X

Data from Textfile Data to Oracle

General

Owner: Table: COMPANY

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records ☐ Truncate table

☐ Ignore duplicates

Initializing Script: ...

Finalizing Script: ...

Fields

Field1: CompanyNumber -> COMPANYN
Field2: CompanyName -> COMPANYN
Field3: NumberOfPlatoons -> NUMBERC
Field4: BattalionNumber -> BATTALIONN

Field:
Fieldtype:
Create SQL
SQL function: ...
additional Oracle processing, for example: substr(#, 1, 20)

Import Import to Script Close [13:21:56] 400 records imported in 0.937 s Help

PLATOON:

createTables.sql dropTables.sql selectAll.sql Diagram Window Platoon.csv X

Data from Textfile Data to Oracle

General

Owner: Table: PLATOON

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records ☐ Truncate table

☐ Ignore duplicates

Initializing Script: ...

Finalizing Script: ...

Fields

Field1: PlatoonNumber -> PLATOONNUM
Field2: PlatoonName -> PLATOONNAME
Field3: NumberOfSquads -> NUMBEROF
Field4: CompanyNumber -> COMPANYN

Field:
Fieldtype:
Create SQL
SQL function: ...
additional Oracle processing, for example: substr(#, 1, 20)

SQUAD:

createTables.sql dropTables.sql selectAll.sql Diagram Window Squad.csv

Data from Textfile Data to Oracle

General

Owner: Table: SQUAD

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records ☐ Truncate table

Initializing Script: ...

Finalizing Script: ...

Fields

Field1 SquadNumber -> SQUADNUMBER
Field2 SquadName -> SQUADNAME
Field3 NumberOfSoldiers -> NUMBEROF
Field4 PlatoonNumber -> PLATOONNUM

Field:
Fieldtype:
Create SQL
SQL function: ...
additional Oracle processing, for example: substr(, 1, 20)

Import Import to Script Close [13:47:00] 400 records imported in 4.016 s Help

SOLDIER:

createTables.sql dropTables.sql selectAll.sql Diagram Window Soldier.csv

Data from Textfile Data to Oracle

General

Owner: Table: SOLDIER

Commit every...: 100

☒ Overwrite duplicates ☐ Delete records ☐ Truncate table

Initializing Script: ...

Finalizing Script: ...

Fields

Field1 PersonalNumber -> PERSONALNUM
Field2 SName -> SNAME
Field3 BirthDate -> BIRTHDATE
Field4 SRank -> SRANK
Field5 DeploymentDate -> DEPLOYMENT
Field6 SquadNumber -> SQUADNUMBER

Field:
Fieldtype:
Create SQL
SQL function: ...
additional Oracle processing, for example: substr(, 1, 20)

Import Import to Script Close [13:47:32] 400 records imported in 2.937 s Help

וכפי שניתן לראות כל הטבלאות מלאות:

createTables.sql | dropTables.sql | selectAll.sql | Diagram Window | Soldier.csv

SQL | Output | Statistics

```
SELECT * FROM BRIGADE;
SELECT * FROM BATTALION;
SELECT * FROM COMPANY;
SELECT * FROM PLATOON;
SELECT * FROM SQUAD;
SELECT * FROM SOLDIER;
```

Select brigade | Select battalion | Select company | Select platoon | Select squad | Select soldier

	BRIGADENUMBER	BRIGADENAME	NUMBEROFBATTALIONS
1	817999	Sit	10
2	470639	Support	4
3	883025	Particular	10
4	554092	From	7
5	276600	Cultural	3

	BRIGADENUMBER	BRIGADENAME	NUMBEROFBATTALIONS
1	817999	Sit	10
2	470639	Support	4
3	883025	Particular	10
4	554092	From	7
5	276600	Cultural	3

```
SQL> desc brigade;
Name                                     Null?   Type
-----
BRIGADENUMBER                          NOT NULL NUMBER
BRIGADENAME                            NOT NULL VARCHAR2(20)
NUMBEROFBATTALIONS                    NOT NULL NUMBER
```

```
SQL> desc battalion;
```

Name	Null?	Type
BATTALIONNUMBER	NOT NULL	NUMBER
BATTALIONNAME	NOT NULL	VARCHAR2(20)
NUMBEROFCOMPANIES	NOT NULL	NUMBER
BRIGADENUMBER	NOT NULL	NUMBER

Name	Null?	Type
COMPANYNUMBER	NOT NULL	NUMBER
COMPANYNAME	NOT NULL	VARCHAR2(20)
NUMBEROFPLATOONS	NOT NULL	NUMBER
BATTALIONNUMBER	NOT NULL	NUMBER

```
SQL> desc platoon;
```

Name	Null?	Type
PLATOONNUMBER	NOT NULL	NUMBER
PLATOONNAME	NOT NULL	VARCHAR2(20)
NUMBEROFSQUADS	NOT NULL	NUMBER
COMPANYNUMBER	NOT NULL	NUMBER

```
SQL> desc squad;
```

Name	Null?	Type
SQUADNUMBER	NOT NULL	NUMBER
SQUADNAME	NOT NULL	VARCHAR2(20)
NUMBEROFSOLDIERS	NOT NULL	NUMBER
PLATOONNUMBER	NOT NULL	NUMBER

```
SQL> desc soldier;
```

Name	Null?	Type
PERSONALNUMBER	NOT NULL	NUMBER
SNAME	NOT NULL	VARCHAR2(40)
BIRTHDATE	NOT NULL	DATE
SRANK	NOT NULL	VARCHAR2(20)
DEPLOYMENTDATE	NOT NULL	DATE
SQUADNUMBER	NOT NULL	NUMBER

```
SQL> |
```

ראיות לגיבוי ושחזור הנתונים

