Tzah Mar. 15_10_19

# Personal project | Git Hub Task

Data base is a toll to manage large amount of data on computer in the hard drive. It gives a quick access to the data and allows to query it. Now days, the 'principle of tables' is the most common principle for data maintenance and managing in tables.

- All data stored in tables
- Each table storing data about essence (customers, suppliers and more)
- Each table composed of columns, rows and fields
- Every field/column as his own data type

## A. Normalization process:

This is a process where all tables set into logical order, no duplicates, easy maintenance, completeness and simplified. During the process we will make sure that:

NF 1

- Each field contain single value
- Each field contain unique value
- Same data type for each column
- NO duplicates
- NO aggregate fields

NF 2

- There is functional hierarchy to the primary key for each row,
  If not, we will separate
- All columns can be determined only by the primary key column,
  Ask yourself "does all columns of table depend on PK?"

NF 3

All NF before the third are existing and valid

## B. SQL | Structured Query Language:

It is a code language using to deal with Data bases maintenance.

Through SQL we can create, update, insert, modify, manipulating the data base and the tables in it.

In SQL we have different command sets –

DML – Data manipulation language, which helps to query and modify objects in data base

DDL – Data define language, set of commands to modify, create and managing data bases

DCL – Data control language, for Dba use usually, controlling permissions and users

T-SQL – transact Structured Query Language, extending the set of commands and gives more tolls to deal with data manipulation and query.

## C. I would like to explain about some of the frequent expressions we use in SQL:

Primary key (PK) – Is unique identifier for tables. Uses for relative row in specific table, prevents duplicates and helps to process data by getting to it faster.

Foreign key (FK) – Is a primary key imported to other table for establishing a connection between 2 or more tables, keeps data normalized and integrity (ex: preventing duplicates values)

Table – Set of fields, columns, rows and constraints that together as rational order and this set composing a table.

SELECT command – For drawing out certain data from specific table

FROM – Defines which table or tables are going to be used in query

WHERE clause – Uses for filtering results by some condition

GROUP BY clause – aggregate data

HAVING clause – filter layer which relevant for aggregate columns

## D. I would like to present common data types:

INT – Full number

FLOAT – Full number with 2 places after "."

DECIMAL – Full number with defining option for places after and before "."

BIT – 0/1 | TRUE/FALSE

DATE – date format XX-XX-XXXX

DATETIME – date and time format XX-XX-XXXX XX:XX:XX

STRINGS TYPES (ex: varchar)

We can create, alter, and cast data types using DDL, DML, TSQL languages.

# Appendix A – SQL server 2017 | DB, Table Creation and maintain

```sql
-- creation of a new DB

create database Exmpel;

-- creation of anew table in Exmpel DB

create table Exmpel1 (
ID int identity primary key,
FirstName varchar(20),
LastName varchar(20),
HireDate date default getdate(),
JobTitle varchar(20) default 'general'
)

-- values into table Exmepl1, without hiredate and id
insert into Exmpel1(FirstName, LastName, JobTitle)
    values('ashli', 'simpson', 'secritry'),
          ('ash', 'simpson', 'oprations'),
          ('adam', 'simpson', 'general'),
          ('harvi', 'specter', 'lower'),
          ('lula', 'simpson', 'secritry')

-- we also can define our pk by:
set identity_insert dbo.Exmpel1 on

insert into Exmpel1(ID,FirstName, LastName, JobTitle)
    values( 290890 ,'jess', 'trump', 'blones lover')

-- showing the table
select * from Exmpel1

drop table Exmpel1;
```

```
Messages
Commands completed successfully.

Completion time: 2019-09-28T10:00:40.1448327+03:00
```

esults | Messages

| ID | FirstName | LastName | HireDate | JobTitle |
|---|---|---|---|---|
| 1 | ashli | simpson | 2019-09-28 | secritry |
| 2 | ash | simpson | 2019-09-28 | oprations |
| 3 | adam | simpson | 2019-09-28 | general |
| 4 | harvi | specter | 2019-09-28 | lower |
| 5 | lula | simpson | 2019-09-28 | secritry |

```sql
-- we also can define our pk by:
set identity_insert dbo.Exmpel1 on

insert into Exmpel1(ID,FirstName, LastName, JobTitle)
    values( 290890 ,'jess', 'trump', 'blones lover')

-- showing the table
select * from Exmpel1

drop table Exmpel1;
```

108 %

Results | Messages

| | ID | FirstName | LastName | HireDate | JobTitle |
|---|---|---|---|---|---|
| 1 | 1 | ashli | simpson | 2019-09-28 | secritry |
| 2 | 2 | ash | simpson | 2019-09-28 | oprations |
| 3 | 3 | adam | simpson | 2019-09-28 | general |
| 4 | 4 | harvi | specter | 2019-09-28 | lower |
| 5 | 5 | lula | simpson | 2019-09-28 | secritry |
| 6 | 290890 | jess | trump | 2019-09-28 | blones lover |