

DATA DEFINITION LANGUAGE



1. CREATE

2. ALTER

3. TRUNCATE

4. DROP

Defines the Structure of Database Objects

INSURANCE MANAGEMENT SYSTEM(IMS)



We will be using IMS through out this module

Customer
• CId
• CName
• Phoneno
• Email
• Address

Policy
• PId
• PName
• PPeriodInYears
• MinAmountPerMonth

PolicyEnrollment
• EnrollmentId
• CId
• PId
• Amount
• DueDate
• PaidDate
• Penalty

SAMPLE RECORDS



CID	CNAME	PHONENO	DOB	EMAILID	ADDRESS
1	Tom	9876523190	17-MAR-87	tom@gmail.com	chennai
2	John	8765432190	26-JAN-86	john@yahoo.com	delhi
3	Ram	7654321890	14-DEC-85	ram@gmail.com	pune
4	Tiny	9012365478	28-MAY-86	NULL	chennai

Customer

PID	PNAME	PPERIODINYEARS	MINAMOUNTPERMONTH
MBP	Money Back Plan	20	1000
PP	Personal Protect	15	1500

Policy

ENROLLMENTID	CID	PID	DUEDATE	PAIDDATE	AMOUNT	PENALTY
101	3	MBP	12-Dec-2017	11-Dec-2017	2000	0
102	1	PP	15-Mar-2018	13-Mar-2018	3000	0
103	2	PP	15-Feb-2018	22-Feb-2018	4000	200

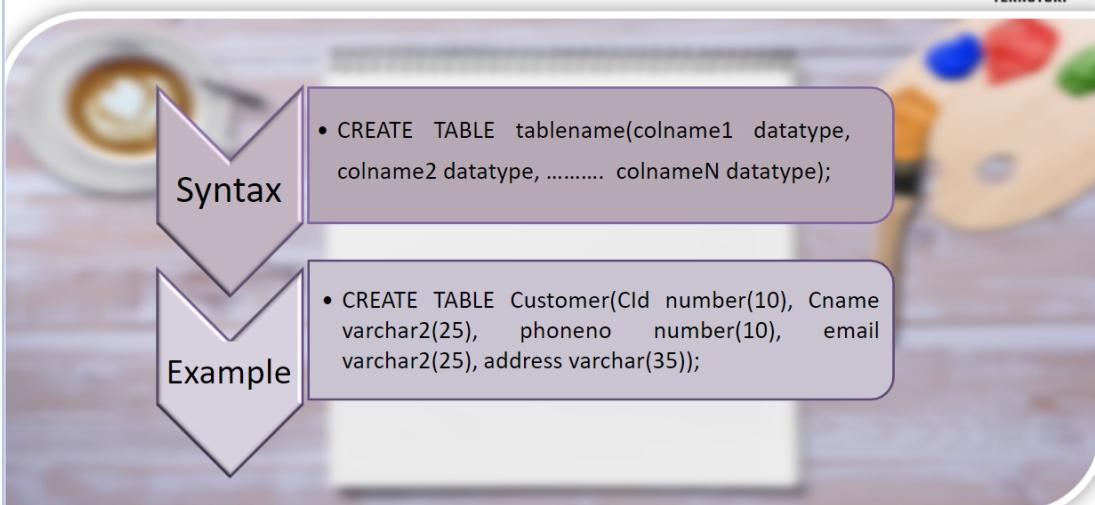
PolicyEnrollment

DATA TYPES



DATATYPE	TYPE OF DATA	COLUMN DEFINITION	DESCRIPTION
Varchar2(size)	'John', 'Tom123' 'Alex@#'	NAME VARCHAR2(5)	When column 'NAME' stores data 'John' it occupies a size of 4 characters even though the column is created with a size of 5.
Char(size)	'John', 'Tom123' 'Alex@#'	NAME CHAR(5)	When column 'NAME' stores data 'John' it occupies the size of 5 characters even though the data has 4 characters.
Number(p)	123 45678	PHONENO NUMBER(8)	Column 'PHONENO' can store a number with maximum digit size of 8. Error will occur when the number of digit exceeds than specified size.
Number(p,s)	789.453 3.14	SALARY NUMBER(8,2)	Column Salary can store a value of 8 digits in which 2 digits should come after the decimal point.
Date	'17-Oct-20'	BIRTHDATE DATE	Date values are in the format 'DD -Mon-YY'. Column 'BIRTHDATE' will store date values.

CREATE A TABLE



NAMING CONVENTION



- Only letters, numbers and underscore are allowed in names
- Provides a meaningful table name.



CONSTRAINT

Constraints are the rules enforced on data columns on the table. These are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the database.

Types of constraint

- Primary key
- Foreign key
- Unique
- Not null
- Check

A table can have one primary key, but it can have 'N' number of foreign keys, unique, not null and check constraints.

Two columns joined together can be made as single primary key.

PRIMARY KEY

CID	CNAME	PHONENO	EMAIL	ADDRESS
1	Tom	9876543210	tom@gmail.com	Chennai
2	John	8765798700	john@gmail.com	Delhi
1		4323190	ram@gmail.com	Pune

Duplicate and NULL values are not allowed.

UNIQUE

CID	CNAME	PHONENO	EMAIL	ADDRESS
1	Tom	9876543210	tom@gmail.com	Chennai
2	John	8765798700	john@gmail.com	Delhi
1	Ram	7654323190	ram@gmail.com	Pune



Mark EMAIL attribute as unique if values in the attribute to be unique .

NOT NULL



CID	CNAME	PHONENO	EMAIL	ADDRESS
1	Tom	9876543210	tom@gmail.com	Chennai
2	John	8765798700	john@gmail.com	Delhi
1	Ram	7654323190	ram@gmail.com	Pune

Mark CNAME attribute as
Not Null to ensure the
attribute should has value

CHECK



EnrollmentID	CId	PId	DueDate	PaidDate	Amount	Penalty
101	3	MBP	12-Dec-2017	11-Dec-2017	2000	0
102	1	PP	15-Mar-2018	13-Mar-2018	3000	0
103	2	PP	15-Feb-2018	22-Feb-2018	4000	200

Use check constraint to
ensure, the attribute has only
a positive value.

FOREIGN KEY



Customer	CID	CNAME	PHONENO	EMAIL	ADDRESS
	1	Tom	9876543210	tom@gmail.com	Chennai
	2	John	8765798700	john@gmail.com	Delhi

Policy	PID	PNAME	PPERIODINYEARS	MINAMOUNTPERMONTH
	MBP	Money Back Plan	20	1000
	PP	Personal Protect	15	1500

Policy Enrollment	ENROLLMENTID	CID	PID	DUEDATE	PAIDDATE	PENALTY
	101	3	MBP	12-Dec-2017	11-Dec-2017	0
	102	1	PP	15-Mar-2018	13-Mar-2018	0

This problem can be resolved using
foreign key.

There is no Customer with the id:3, then how can
there be an entry in the Enrollment table?

FOREIGN KEY

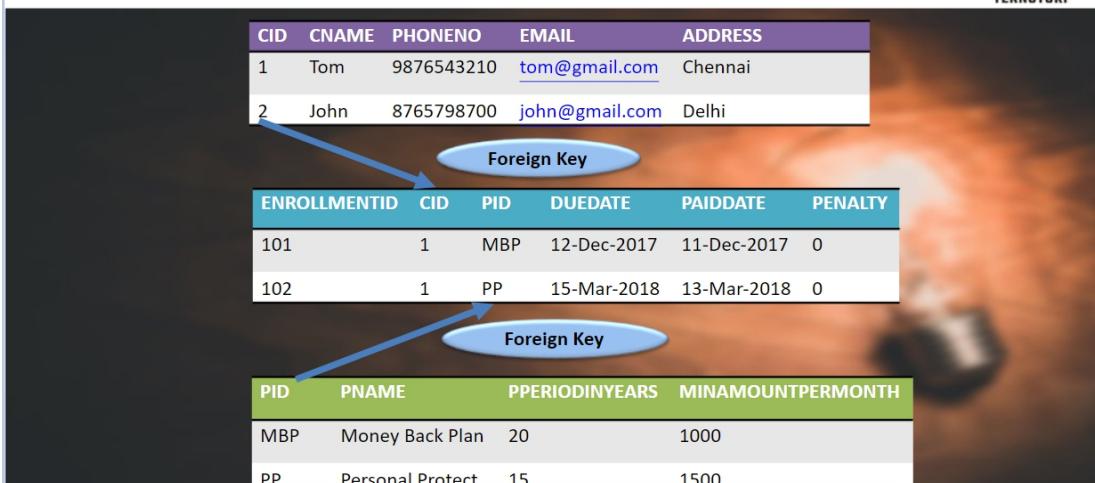
- Foreign key is used to enforce the link between tables.
- The referenced table is called the ***parent table*** while the table with the foreign key is called the ***child table***.
- The primary or unique column of the parent table can be created as the foreign key column in the child table.



ENROLLMENTID	CID	PID	DUEDATE	PAIDDATE	PENALTY
101	3 	MBP	12-Dec-2017	11-Dec-2017	0
102	1	PP	15-Mar-2018	13-Mar-2018	0

We can mark **Cid** and **PId** as foreign keys to ensure integrity.

PRIMARY AND FOREIGN KEY



CREATE TABLE WITH CONSTRAINTS



```
CREATE TABLE Customer(Cid number(10)PRIMARY KEY, CName varchar2(25)NOT NULL, phoneno number(10),email varchar2(25)UNIQUE);
```



```
CREATE TABLE Policy(Pid varchar2(10)PRIMARY KEY, Pname varchar2(25), PPeriodInYears varchar2(25) NOT NULL, MinAmount number(10)CHECK (MinAmount>0));
```



```
CREATE TABLE PolicyEnrollment(EnrollmentId number(5) PRIMARY KEY, Cid number(10) REFERENCES customer(Cid),Pid varchar2(10), Duedate date, Paiddate date, penalty number(10));
```

CONSTRAINT NAME

- On creating a table with a constraint, oracle provides default name to it.
- The constraint names are stored in the built in table called “**USER_CONSTRAINTS**”.
- User can override the default constraint name with the user defined constraint name.
- Example:

```
CREATE TABLE Policy(Pid varchar2(10) CONSTRAINT pk_pid primary key, Pname
varchar2(25), PPeriodInYears varchar2(25) Not Null, MinAmount number(10) CONSTRAINT
ck_minamount check (MinAmount>0));
```

ALTER



```
CREATE TABLE PolicyEnrollment(EnrollmentId number(5) primary key, Cid
number(10) references customer(Cid),Pid varchar2(10), Duedate date,
Paiddate date, penalty number(10));
```



Alter table PolicyEnrollment add foreign key(Pid) references Policy(Pid);

ALTER

Alter command is used to change the structure of the table.

- Add a new column/constraint
- Remove an existing column/constraint
- Rename the existing column
- Increase or decrease the column size
- Change the column data type

ALTER - EXAMPLE



To add a column age to customer table. → ALTER TABLE customer ADD age number(2);

To increase the column size of email to 30. → ALTER TABLE customer MODIFY email varchar2(30);

To change the column name from email to email id. → ALTER TABLE customer RENAME COLUMN email TO emailid;

ALTER - SYNTAX



To change the datatype of a particular column

- ALTER TABLE tablename MODIFY columnname newdatatype;

To remove a column from the table

- ALTER TABLE tablename DROP COLUMN columnname;

To remove a constraint

- ALTER TABLE tablename DROP CONSTRAINT constraintname;

To enable/disable a constraint

- ALTER TABLE tablename ENABLE/DISBALE CONSTRAINT constraintname;

TABLE LEVEL CONSTRAINT



How can I check whether the paid date is greater than the due date in the Policy Enrollment Table?

You can use table level constraint to check this.

```
CREATE TABLE PolicyEnrollment(EnrollmentId number(5) primary key, bid varchar2(10) references book(bid), mid number(10) references member(mid), issuedate date, returndate date, penalty number(10),  
check(returndate>issuedate));
```

Constraints can be column level or table level. Column level constraints are applied only to one column, whereas table level constraints are applied to the whole table.

TRUNCATE



Removes all rows from the table

Restriction

- You cannot truncate the table if it is linked with another table

Syntax

- TRUNCATE TABLE <Table_name>;

Example

- TRUNCATE TABLE Customer;

DROP



Drops the entire table structure

Syntax

- DROP TABLE <TABLE_NAME>



Example

- DROP TABLE Customer;

TRUNCATE VS DROP



Table



Table after truncate



Table after drop

In truncate only the data is removed,
whereas,
in drop the entire structure is removed.