Data : small volume of facts and figures

DataBase : large volume of facts and figures

DBMS – DataBase Management system

* It is a software which is used to efficiently store and manage the data
* CRUD

Types of DBMS

* Centralized database
* Distributed database
* **Relational database (RDBMS)**
* Document databse
* Cloud database
* Object-oriented database
* **NoSql database - MongoDB**
* ………….

Types of data

* Structured data - RDBMS
* Semi-structured data
* Unstructured data

RDBMS – Relational Database Management system

MySql - SQL

Oracle

Sql server

Ms server

Sqlite

Maria DB

DB2

SQL- Structured query language / Sequel - query language

Features of MySQL

* Open source
* Easy to use
* High performance
* GUI support
* Platform independent

Database/scheme – group of table (Entity)

Columns as attributes

Every entity cab have relations like

1-M

M-1

M-N

1-1

Data types

* Tinyint – 1byte
* Smallint – 2byte
* Mediumint – 3byte
* Int -4 byte
* Bigint – 8byte
* Decimal (p,s)

P – total number of digits(65)

s- total no of digits after decimal point

23.05

- Float(p,s)

P – total number of digits(24)

s- total no of digits after decimal point

* Date
* Time
* DateTime
* Year
* Char (10)
* VarChar(10)
* BOLB
* LongText

RAMA

**Constraints – rule/restrictions**

Unique

Not Null

Primary key = unique + Not Null – parent table

Check

Default

Foreign key – child table

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DDL – Data Defination Language

Create

Alter

Drop

Truncate

-----------------------------------------------------------------------------

DML – Data Manipulation Language

Quering and managing the data

CRUD

* Insert
* Update
* Delete

Clauses

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SELECT

WHERE

FROM

ORDER BY

GROUP BY

HAVING

Operators

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Arithmetic operators - + ,-,\*,/…

Relational operators - <,>=,<=,!=……

Logical operators – AND,OR,NOT

DISTINCT

Between and

IN

LIKE

ESCAPE………..

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E-commerce schema

CREATE DATABASE E\_COMMERCE;

USE E\_COMMERCE;

CREATE TABLE item(

itemcode VARCHAR(6) PRIMARY KEY,

itemtype VARCHAR(30),

descr VARCHAR(30) NOT NULL,

price int,

reorderlevel int,

qtyonhand int,

category CHAR(1)

);

CREATE TABLE quotation(

quotationid VARCHAR(6) PRIMARY KEY,

sname VARCHAR(30),

itemcode VARCHAR(10),

quotedprice int,

qdate DATE,

qstatus VARCHAR(10) CHECK(qstatus IN ('Accepted','Rejected','Closed')), foreign key(itemcode) REFERENCES item(itemcode));

CREATE TABLE orders

(

orderid VARCHAR(6) PRIMARY KEY,

quotationid VARCHAR(6),

qtyordered int CHECK(qtyordered > 0),

orderdate DATE,

status VARCHAR(20) CHECK(status in ('Ordered','Delivered')), pymtdate DATE,

delivereddate DATE,

amountpaid int,

pymtmode VARCHAR(20) CHECK(pymtmode in ('Cash','Cheque')), foreign key(quotationid) REFERENCES quotation(quotationid) );

CREATE TABLE retailoutlet(

roid VARCHAR(6) PRIMARY KEY,

location VARCHAR(30) NOT NULL,

managerid int);

CREATE TABLE empdetails(

empid int PRIMARY KEY,

empname VARCHAR(20),

designation VARCHAR(20),

emailid VARCHAR(30),

contactno int,

worksin VARCHAR(6),

salary int,

foreign key(worksin) REFERENCES retailoutlet(roid) );

CREATE TABLE retailstock(

roid VARCHAR(6),

itemcode VARCHAR(6),

unitprice int,

qtyavailable int,

PRIMARY KEY(roid, itemcode),

foreign key(roid) REFERENCES retailoutlet(roid), foreign key(itemcode) REFERENCES item(itemcode) );

CREATE TABLE customer(

custid int PRIMARY KEY,

custtype VARCHAR(12),

custname VARCHAR(20) NOT NULL,

gender char(1),

spouse int,

emailid VARCHAR(30),

address VARCHAR(50),

foreign key(spouse) references customer(custid)

);

CREATE TABLE purchasebill(

billid int PRIMARY KEY,

roid VARCHAR(6),

itemcode VARCHAR(6),

custid int,

billamount int,

billdate DATE,

quantity int,

foreign key(roid) REFERENCES retailoutlet (roid),

foreign key(itemcode) REFERENCES item(itemcode),

foreign key(custid) REFERENCES customer(custid)

);

INSERT INTO item VALUES('I1001', 'FMCG', 'Britannia Marie Gold Cookies',20, 100, 1000,'C'); INSERT INTO item VALUES('I1002', 'FMCG', 'Best Rice', 120,100,1000,'C'); INSERT INTO item VALUES('I1003', 'FMCG', 'Modern Bread', 15, 100,1000,'C'); INSERT INTO item VALUES('I1004','Apparels', 'Lee T-Shirt', 300, 100, 1000,'B'); INSERT INTO item VALUES('I1005','Apparels', 'Levis T-Shirt', 1700,100,1000,'B'); INSERT INTO item VALUES('I1006','Apparels', 'Satyapaul Sari', 7300, 100, 1000, 'A'); INSERT INTO item VALUES('I1007','Apparels', 'Allen Solly Tie', 600,100,1000,'C'); INSERT INTO item VALUES('I1008','Computer', 'Xbox gamepad',1500,100,50,'B'); INSERT INTO item VALUES('I1009','Computer','Microsoft Mouse', 700, 120, 50,'C'); INSERT INTO item VALUES('I1010','Computer','Intel C2D Processor', 6500, 50,25,'A'); INSERT INTO item VALUES('I1011','Computer','Intel Motherboard',5000, 50, 25, 'A'); INSERT INTO item VALUES('I1012','Computer','500GB Hard disk', 2500, 150, 50,'B'); INSERT INTO item VALUES('I1013','Computer','320GB Hard disk', 1800, 150, 50, 'B'); INSERT INTO item VALUES('I1014', 'FMCG', 'Aroma Bread', 17, 100,50,'C'); INSERT INTO item VALUES('I1015','Apparels', 'Arrow Jeans', 7300, 50,60,'A');

INSERT INTO quotation VALUES('Q1001','Giant Store', 'I1008',1500,'2012-10-10','Rejected'); INSERT INTO quotation VALUES('Q1002','EBATs', 'I1008',1400,'2012-10-10','Closed'); INSERT INTO quotation VALUES('Q1003','EBATs','I1010',6200,'2012-10-10','Accepted'); INSERT INTO quotation VALUES('Q1004','Shop Zilla','I1010',6250,'2012-10-10','Rejected');

INSERT INTO quotation VALUES('Q1005','Giant Store','I1009',850,'2012-10-10','Rejected'); INSERT INTO quotation VALUES('Q1006','VV Electronics','I1009',800,'2012-10-10','Closed'); INSERT INTO quotation VALUES('Q1007','Shop Zilla','I1012',2200,'2012-10-10','Rejected'); INSERT INTO quotation VALUES('Q1008','Shop Zilla','I1012',2150,'2012-10-10','Accepted'); INSERT INTO quotation VALUES('Q1009','Shop Zilla','I1005',1480,'2012-10-10','Accepted');

INSERT INTO quotation VALUES('Q1010','Giant Store','I1005',1490,'2012-10-10','Rejected'); INSERT INTO quotation VALUES('Q1011','EBATs','I1002',120,'2012-10-10','Rejected');

INSERT INTO quotation VALUES('Q1012','VV Electronics','I1002',120,'2012-10-10','Rejected'); INSERT INTO quotation VALUES('Q1013','Giant Store','I1012',2150,'2012-10-10','Accepted');

INSERT INTO orders VALUES('O1001','Q1002',100,'2012-10-10','Delivered','2012-10-10','2012-10-10', 140000,'Cash'); INSERT INTO orders VALUES('O1002','Q1006',150,'2012-10-10','Ordered',NULL,NULL,NULL,NULL); INSERT INTO orders VALUES('O1003','Q1003',50,'2012-10-10','Delivered','2012-10-10', '2012-10-10', 310000, 'Cash'); INSERT INTO orders VALUES('O1004','Q1006',100,'2012-10-10','Delivered','2012-10-10','2012-10-10',80000,'Cheque'); INSERT INTO orders VALUES('O1005','Q1002',50,'2012-10-10','Delivered','2012-10-10','2012-10-10', 70000,'Cheque'); INSERT INTO orders VALUES('O1006','Q1008',75,'2012-10-10','Delivered','2012-10-10','2012-10-10',161250,'Cash'); INSERT INTO orders VALUES('O1007','Q1009',50,'2012-10-10','Ordered',NULL,NULL,NULL,NULL); INSERT INTO orders VALUES('O1008','Q1013',75,'2012-10-10','Ordered',NULL,NULL,NULL,NULL);

INSERT INTO retailoutlet VALUES('R1001','California', 1002);

INSERT INTO retailoutlet VALUES('R1002','New York', 1006);

INSERT INTO retailoutlet VALUES('R1003','Dallas', NULL);

INSERT INTO retailstock VALUES ('R1001','I1001', 21.25, 28);

INSERT INTO retailstock VALUES ('R1001','I1002',112.00, 20);

INSERT INTO retailstock VALUES ('R1001','I1003', 18.50, 20);

INSERT INTO retailstock VALUES ('R1001','I1004', 353.00, 100);

INSERT INTO retailstock VALUES ('R1001','I1007', 709.00, 50);

INSERT INTO retailstock VALUES ('R1001','I1006', 7350.00, 20);

INSERT INTO retailstock VALUES ('R1001','I1010', 6199.00, 100);

INSERT INTO retailstock VALUES ('R1001','I1011', 5340.00, 150);

INSERT INTO retailstock VALUES ('R1001','I1012', 2510.00, 50);

INSERT INTO retailstock VALUES ('R1001','I1013', 2204.00, 50);

INSERT INTO retailstock VALUES ('R1001','I1015', 7700.00, 60);

INSERT INTO retailstock VALUES ('R1002','I1001',25.25, 25);

INSERT INTO retailstock VALUES ('R1002','I1002', 139.00, 50);

INSERT INTO retailstock VALUES ('R1002','I1003', 21.00, 20);

INSERT INTO retailstock VALUES ('R1002','I1004', 400.00, 110);

INSERT INTO retailstock VALUES ('R1002','I1005' , 1751.00, 60);

INSERT INTO retailstock VALUES ('R1002','I1006', 7499.00, 50);

INSERT INTO retailstock VALUES ('R1002','I1007', 799.00, 20);

INSERT INTO retailstock VALUES ('R1002','I1008', 2499.00, 70);

INSERT INTO retailstock VALUES ('R1002','I1009', 903.00, 80);

INSERT INTO retailstock VALUES ('R1002','I1010', 6801.00, 20);

INSERT INTO retailstock VALUES ('R1002','I1011', 5402.00, 30);

INSERT INTO retailstock VALUES ('R1002','I1012', 2900.50, 130);

INSERT INTO retailstock VALUES ('R1002','I1013', 2300.50, 60);

INSERT INTO retailstock VALUES ('R1002','I1014', 29.25, 75);

INSERT INTO retailstock VALUES ('R1002','I1015', 7400.00, 65);

INSERT INTO retailstock VALUES ('R1003','I1012', 3000.50, 50);

INSERT INTO retailstock VALUES ('R1003','I1015', 7800.00, 40);

INSERT INTO retailstock VALUES ('R1003','I1008', 2600.00, 30);

INSERT INTO empdetails VALUES(1001, 'George', 'Administrator', 'george@easy.com', '904582', 'R1001', 6000); INSERT INTO empdetails VALUES(1002, 'Kevin', 'Manager', 'kevin@easy.com', '904582', 'R1001', 6500); INSERT INTO empdetails VALUES(1003, 'Lisa', 'Billing Staff', 'lisa@easy.com', '904582', 'R1001', 3000); INSERT INTO empdetails VALUES(1004, 'Allen', 'Super Manager', 'allen@easy.com', '904582', NULL,9000); INSERT INTO empdetails VALUES(1005, 'Peter', 'Administrator', 'peter@easy.com', '8923610', 'R1002', 6000); INSERT INTO empdetails VALUES(1006, 'John', 'Manager', 'john@easy.com',NULL, 'R1002', 6500); INSERT INTO empdetails VALUES(1007, 'Sam', 'Billing Staff', 'sam@easy.com','8038106', 'R1002', 3000); INSERT INTO empdetails VALUES(1008, 'Megan', 'Manager', 'megan5@easy.com', '9481083', 'R1002', 5000); INSERT INTO empdetails VALUES(1009, 'Henry', 'Billing Staff', 'henry@easy.com', '7820179', 'R1002', 5000); INSERT INTO empdetails VALUES(1010, 'Cris', 'Billing Staff', 'cris@easy.com',NULL, 'R1001', 2800); INSERT INTO empdetails VALUES(1011, 'Donald', 'Billing Staff','donald@easy.com', '749072', 'R1001', 2900); INSERT INTO empdetails VALUES(1012, 'Edwin', 'Billing Staff','edwin@easy.com', '9820984', 'R1002', 2500); INSERT INTO empdetails VALUES(1013, 'Clara', 'Security','clara@easy.com','93871093', 'R1001', 2000); INSERT INTO empdetails VALUES(1014, 'Michael', 'Security', 'michael@easy.com', '93871093', 'R1002', 2000);

INSERT INTO customer VALUES(2001, 'Regular', 'John', 'M', Null, 'john@easy.com', 'Allen Street, New York'); INSERT INTO customer VALUES(2002, 'Regular', 'Jason', 'M', Null, 'jason@adgm.in', 'Richmond Parkway, California'); INSERT INTO customer VALUES(2003, 'Privileged', 'Sam', 'M', Null, 'sam@xyz.corp', 'Ann Street, New York'); INSERT INTO customer VALUES(2004, 'Privileged', 'Susan', 'F', Null,'susan@adgm.in', 'Allen Street, New York');

INSERT INTO customer VALUES(2005, 'Privileged', 'Nancy', 'F', Null,'nancy@xyz.corp', 'East Fork Road, California'); INSERT INTO customer VALUES(2006, 'Regular', 'Rachel', 'F', Null,'rachel1@easy.com', 'Charles Street, New York'); INSERT INTO customer VALUES(2007, 'Regular', 'Dexter', 'M', Null,'dexter2@easy.com', 'Beak Street, New York');

INSERT INTO customer VALUES(2008, 'Regular', 'Thomas', 'M', Null,'thomas3@easy.com', 'Sand Hill Road, California'); INSERT INTO customer VALUES(2009, 'Regular', 'Christina', 'F', Null,'christina4@easy.com', 'Sand Hill Road, California'); INSERT INTO customer VALUES(2010, 'Regular', 'Megan', 'F', Null,'megan5@easy.com', 'Richmond Parkway, California'); UPDATE customer SET spouse = 2004 where custid = 2001;

UPDATE customer SET spouse = 2005 where custid = 2002;

UPDATE customer SET spouse = 2001 where custid = 2004;

UPDATE customer SET spouse = 2002 where custid = 2005;

UPDATE customer SET spouse = 2007 where custid = 2006;

UPDATE customer SET spouse = 2006 where custid = 2007;

UPDATE customer SET spouse = 2009 where custid = 2008;

UPDATE customer SET spouse = 2008 where custid = 2009;

INSERT INTO purchasebill VALUES (5001,'R1001','I1002',2001,342.384,'2012-10-10',3);

INSERT INTO purchasebill VALUES (5002,'R1001','I1001',2002,86.615,'2012-10-10',4);

INSERT INTO purchasebill VALUES (5003,'R1001','I1004',2002,359.707,'2012-10-10',1);

INSERT INTO purchasebill VALUES (5004,'R1002','I1003',2003,64.197,'2012-10-10',3);

INSERT INTO purchasebill VALUES (5005,'R1002','I1002',2005,283.282,'2012-10-10',2);

INSERT INTO purchasebill VALUES (5006,'R1002','I1004',2004,1222.80,'2012-10-10',3);

INSERT INTO purchasebill VALUES (5007,'R1002','I1013',2007,2344.2095,'2012-10-10',1);

INSERT INTO purchasebill VALUES (5008,'R1002','I1007',2002,1628.362,'2012-10-10',2);

INSERT INTO purchasebill VALUES (5009,'R1001','I1011',2005,5441.46,'2012-10-10',1);

INSERT INTO purchasebill VALUES (5010,'R1001','I1013',2007,8983.504,'2012-10-10',4);

INSERT INTO purchasebill VALUES (5011,'R1001','I1015',2002,7846.30,'2012-10-10',1);

INSERT INTO purchasebill VALUES (5012,'R1002','I1008',2004,5092.962,'2012-10-10',2);

INSERT INTO purchasebill VALUES (5013,'R1002','I1010',2008,6930.219,'2012-10-10',1);

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create table student (

ID int primary key auto\_increament,

Name varchar (30) not null,

Marks tinyint check (Marks>=35) not null,

Grade varchar (2) not null

);

alter table student

add column Result varchar(4) default "PASS";

truncate student;

drop table student;

alter table student

drop column Result;

-- ALTER TABLE table\_name RENAME COLUMN old\_column\_name TO new\_column\_name;

alter table student

rename column Name to Student\_name;

delete from student where id=6;

update student

set Marks = 65

where id=2;

update student

set Marks = 65

where id=2;

ALTER TABLE `newdatabase`.`studentdata`

CHANGE COLUMN `ID` `ID` INT NOT NULL AUTO\_INCREMENT ;

select \* from customer;

select custid,emailid from customer;

select \*

from customer

where gender= "F"

order by custid desc;

select worksin , count(\*) as `total employee`

from empdetails

group by worksin

order by `total employee` desc;

Having

* Used to filter records after grouping
* Can have aggregate functions

Where

* Used to filter records before grouping
* Cannot contain aggregate functions

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