

assignment#3

Database systems



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Reg# 132412

Implementing the schema

CREATE TABLE dbo.book(book\_id int NOT NULL,title varchar(50) NULL,publisher\_name varchar(50) NULL, CONSTRAINT PK\_book PRIMARY KEY (book\_id)

CREATE TABLE dbo.book\_author(book\_id int NOT NULL,author\_name varchar(50) NULL)

CREATE TABLE dbo.book\_copies(book\_id int NOT NULL,branch\_id int NOT NULL,no\_of\_copies int NULL, CONSTRAINT PK\_book\_copies PRIMARY KEY(book\_id ,branch\_id ))

CREATE TABLE dbo.book\_loan(book\_id int NOT NULL,branch\_id int NOT NULL,card\_no int NOT NULL,due\_date date NULL,date\_out date NULL,CONSTRAINT PK\_book\_loan PRIMARY KEY

(book\_id ASC,branch\_id ,card\_no ))

CREATE TABLE dbo.borrower(card\_no int NOT NULL,name varchar(50) NULL,address varchar(50) NULL,phone int NULL,CONSTRAINT PK\_borrower PRIMARY KEY CLUSTERED (card\_no)

CREATE TABLE dbo.library\_branch(branch\_id int NOT NULL,branch\_name varchar(50) NULL,address varchar(50) NULL,CONSTRAINT PK\_library\_branch PRIMARY KEY CLUSTERED (branch\_id )

CREATE TABLE dbo.publisher(name varchar(50) NOT NULL,address varchar(50) NULL,phone int NULL, CONSTRAINT PK\_publisher PRIMARY KEY CLUSTERED (name)

**Adding foreign key constraints**

alter table dbo.book

add constraint fk\_book\_publisher foreign key (publisher\_name)

references dbo.publisher(name)

on delete cascade

on update cascade;

alter table dbo.book\_authors

add constraint fk\_book\_authors\_book foreign key (book\_id)

references dbo.book(book\_id)

on delete cascade

on update cascade;

alter table dbo.book\_loans

add constraint fk\_book\_loans\_borrower foreign key (card\_no)

references dbo.borrower(card\_no)

on delete cascade

on update cascade;

ALTER TABLE dbo.book\_loans WITH CHECK ADD CONSTRAINT fk\_book\_loans\_library\_branch FOREIGN KEY(branch\_id)

REFERENCES dbo.library\_branch (branch\_id)

ON UPDATE CASCADE

ON DELETE CASCADE

ALTER TABLE dbo.book\_loans WITH CHECK ADD CONSTRAINT fk\_book\_loans\_book FOREIGN KEY(book\_id)

REFERENCES dbo.book (book\_id)

ON UPDATE CASCADE

ON DELETE CASCADE

alter table dbo.book\_copies

add constraint fk\_book\_copies\_book foreign key (book\_id)

references dbo.book(book\_id)

on delete cascade

on update cascade;

alter table dbo.book\_copies

add constraint fk\_book\_copies\_branch foreign key (branch\_id)

references dbo.library\_branch(branch\_id)

on delete cascade

on update cascade;

**QUESTION NO 3:**

add five tuples in each relation

INSERT INTO dbo.borrower

(card\_no ,name,address,phone)

VALUE

(1,'ali','beachon street',0333516),(2,'umer','220B helli',0333518),

(3,'sara','sadiq street',0333514),(4,'rizwan','hanoi king',0333512),

(5,'shumayl','beachon street',0333511)

INSERT INTO dbo.library\_branch

(branch\_id,branch\_name,address)

VALUES

(200,'wah','cantt area'),(208,'gulberg','lahore cantt'),(67,'basti','taxila cantt'),

(100,'G-13','islamabad'),(300,'terap','khunjarab KPK')

INSERT INTO dbo.publisher

(name,address,phone)

VALUES

('robther','kela kel',0347821),('montana','st, peter street',0347021),('rizvi','ginger bell',0344521),

('khalid','red street',0347901),('honey','zotopia street',0347211),('bibo','grang street',0340421)

INSERT INTO dbo.book\_author

(book\_id ,author\_name)

VALUES

(1

,'robther'),(2,'rizvi'),(3,'khalid'),(4,'bibo'),(5,'honey'),(6,'montana')

INSERT INTO dbo.book

(book\_id,title,publisher\_name)

VALUES

(1

,’storm and silence’,'robther'),(2,’urdu’'rizvi'),(3,’kite runner’'khalid'),(4,’’'bibo'),(5,’yoyo’'honey'),(6,’hanna’'montana')

INSERT INTO dbo.book\_copies

(book\_id,branch\_id,no\_of\_copies)

VALUES

(1

,200,3),(2,208,100),(3,209,20),(4,300,450),(5,67,5),(6,208,6

INSERT INTO dbo.book\_loans

(book\_id,branch\_id,card\_no,date\_out,due\_date)

VALUES

(1,200,3,1990-12-12,1991-01-12),( 2,209,1,2001-03-09,2001-03-19),( 4,209,4,2009-08-09,2009-10-19),( 5,208,2,2007-04-12,2007-05-19),( 6,300,5,2013-05-03,2013-05-07)

**Question no 4**

Difference between mysql and mssql in structure and query

* It may or may not uses the go keyword for defining the query at start and end of query
* mssql uses the statement “use” for defining which database is being used whereas mysql uses “using” for defining the database
* query in sql language is exactly similar in both platforms but mssql uses the with check option and full outer joins
* drop create and alter schema are exactly same
* you can use mssql with both windows and user based id whereas mysql only uses user based id
* you cannot use multiple “using” keyword in joins in mssql but it was not the problem in mysql
* in mssql limit query does not work instead we must use top keyword
* view cannot be created if you do not specify the alias for all aggregate functions

**QUESTION NO 5:**

5. execute the following queries to fulfill information needs

**Part(a)**

select branch\_id,count(\*)

from book\_loan

group by branch\_id

having count(\*)<=all (select count(\*)

from book\_loan

group by branch\_id)

part(b)

select name

from book b join book\_loan as l on (b.book\_id=l.book\_id)

join borrower k on l.card\_no=k.card\_no

where title='database systems by elmasri';

part(c)

select branch\_id,sum(no\_of\_copies)

from book\_copies

group by branch\_id

having sum(no\_of\_copies)>=all(select sum(no\_of\_copies)

FROM book\_copies

group by branch\_id)

**QUESTION NO. 6**

implement the following as views

part(a)

create view v2 as

select title

from book

group by publisher\_name,title

having count(book\_id)>1

part(b)

create view v5 as

select name,b.title,b.publisher\_name

from book\_loan d join book b on(b.book\_id=d.book\_id)

join borrower l on(l.card\_no=d.card\_no)

where DATEDIFF(day,d.due\_date,getdate())>0

part(c)

create view v3 as

select top(3) b.title,count(b.book\_id) as k

from book b

group by title

having count(b.book\_id) in

(select count(d.book\_id)

from book\_loan d

group by d.book\_id)

order by count(book\_id) desc