Database HW2

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5.12 a.

INSERT INTO SEAT\_RESERVATION (FNO, LNO, DAT, SNO, CNA, CPH)

MODIFY LEG\_INSTANCE (FLGHT\_NUMBER = FNO, LEG\_NUMBER = LNO, DATE = DAT)

NUMBER\_OF\_AVAILABLE\_SEATS = NUMBER\_OF\_AVAILABLE\_SEATS +1

b.

需要檢查LEG\_INSTANCE中的Number\_of\_available\_seats,可用坐席的數量，是否能符合訂票坐席數量，還有就是SEAT\_RESERVATION中的座席號Seat\_Number是否可用。

c.

訂票更新操作，INSERT INTO SEAT\_RESERVATION是key, entity integrity, and referential integrity constraints，檢查LEG\_INSTANCE中的剩餘坐席操作不是這些約束。

d.

FLIGHT\_LEG Flight\_number > FLIGHT

LEG\_INSTANCE Arrival\_airport\_code > FLIGHT\_LEG

FARE Flight\_number > FLIGHT

CAN\_LAND Airplane\_type\_name > AIRPLANE\_TYPE

CAN\_LAND Airport\_code > AIRPORT

LEG\_INSTANCE Airplane\_id > AIRPLANE

SEAT\_RESERVATION Flight\_number Leg\_number > LEG\_INSTANCE

5.17

OPTION的Serial\_no引用了CAR的Serial\_no。

SALE的Serial\_no引用了CAR中的Serial\_no。

SALE的Salesperson\_id引用了SALESPERSON的Salesperson\_id。

CAR

Serial\_no, Model, Manufacturer, Price

1 A BMW 9999

2 S KIA 8888

OPTION

Serial\_no, Option\_name, Price

8 motor 300

9 wheel 100

SALE

Salesperson\_id, Serial\_no, Date, Sale\_price

991 1 040882 9999

992 9 040985 200

SALESPERSON

Salesperson\_id, Name. Phone

991 LUKE 0901

992 KIM 0909

INSERT INTO SALE VALUES(‘992’,’aka’,040480’,’2345’)

INSERT INTO SALESPERSON VALUES(‘NULL’,’alala’,’1234’)

8.15 Show the result of each of the sample queries in Section 8.5 as it would apply

to the database state in Figure 5.6.

QUERY1

RESULT

Fname Lname Address

John Smith 731 Fondren, Houston, TX

Franklin Wong 638 Voss, Houston, TX

Ramesh Narayan 975 Fire Oak, Humble, TX

Joyce English 5631 Rice, Huston, TX

QUERY2

Pnumber Dnum Lname Address Bdate

10 4 Wallace 291 Berry, Bellaire, TX 1941-06-20

30 4 Wallace 291 Berry, Bellaire, TX 1941-06-20

QUERY3

Lname Fname

Smith John

Narayang Ramesh

English Joyce

Wong Franklin

QUERY4

Pno

1

2

Query5

Lname Fname

Wong Franklin

Smith John

Query6

Lname Fname

Zelaya Alicia

Narayang Ramesh

English Joyce

Jabbar Ahmad

Borg James

Query7

Lname Fname

Wong Franklin

8.17 a

First departure leg = Flight\_number ℑ MIN Leg\_number (FLIGHT\_LEG)

Departure\_airport = πFlight\_number,Departure\_airport\_code (DEPARTURE \* FLIGHT\_LEG )

Last arrival leg = Flight\_number ℑ MAX Leg\_number (FLIGHT\_LEG)

Arrival\_airport = πFlight\_number, Arrival\_airport\_code (ARRIVAL \* FLIGHT\_LEG )

RESULT <- Departure\_airport \* Arrival\_airport

b

Depart\_Huston <- σ Departure\_airport\_code = 'IAH'(FLIGHT\_LEG)

Arrival\_LA <- σ Arrival\_airport\_code = 'LAX'(FLIGHT\_LEG)

AllFromHustonToLA <- Depart\_Huston \* Arrival\_LA

RESULT <- π Flight\_number, Weekdays(AllFromHustonToLA \* FLIGHT)

c

Depart\_Huston <- σ Departure\_airport\_code = 'IAH'(FLIGHT\_LEG)

Arrival\_LA <- σ Arrival\_airport\_code = 'LAX'(FLIGHT\_LEG)

AllFromHustonToLA <- Depart\_Huston \* Arrival\_LA

RESULT <-

πFlight\_number,Departure\_airport\_code,Scheduled\_departure\_time, Arrival\_airport\_code,Scheduled\_arrival\_time, Weekdays(AllFromHustonToLA \* FLIGHT)

d

RESULT <- σ Flight\_number = 'co197' (FARE)

e

FareInfo <- σ Flight\_number='CO197' AND Date='2009-10-09' (LEG\_INSTANCE)

RESULT <- π Number\_of\_available\_seats(FareInfo)

8.22

a. P Q R A B C

10 a 5 10 b 6

10 a 5 10 b 5

25 a 6 25 c 3

b. P Q R A B C

15 b 8 10 b 6

15 b 8 10 b 5

c. P Q R A B C

10 a 5 10 b 6

10 a 5 10 b 5

15 b 8 ω ω ω

25 a 6 25 c 3

d. P Q R A B C

15 b 8 10 b 6

ω ω ω 25 c 3

15 b 8 10 b 5

e. P Q R

10 a 5

15 b 8

25 a 6

10 b 6

25 c 3

10 b 5

f. P Q R A B C

10 a 5 10 b 5

8.25 abcd

8.30 a, c, d, f, g

a. { t | R(t) AND t.A=c}

{ xyz | R(xyz) AND x=c }

c. {t.A, t.B, t.C, q.D, q.E | R(t) AND S(q) AND t.C=q.C },

{ xyzvw | R(xyz) AND (EXISTS u) ( S(uvw) AND z=u ) }

d. { t | R(t) OR S(t) }

{ xyz | R(xyz) OR S(xyz) }

f. { t | R(t) AND NOT(S(t)) }

{ xyz | R(xyz) AND NOT(S(xyz)) }

g. { t.A, t.B, t.C, q.D, q.E, q.F | R(t) AND S(q) }

( xyzuvw | R(xyz) AND S(uvw) }

9.4 圖在下一頁

SHIP  
 Sname Owner Type Pname

SHIP\_TYPE

Type Tonnage Hull

STATE\_COUNTRY

Name Continent

SEA\_OCEAN\_LAKE

Name

SHIP\_MOVEMENT

Ssname Date Time Longitude Latitute

PORT

State\_country\_name Pname Sea\_ocean\_lake\_name

VISIT

Vsname Vpname Startdate Enddate