

A

Project Report on
Railway Management System
Database Management Systems
(UCS310)

Submitted by:

Vartika Gautam(102103397)
Saranya Aggarwal(102103416)
Panav Prasoon Awasthi(102283011)
Kartikye Chadda (102103708)

BE Second YearSubmitted to:

Dr. Sanjeev Rao



THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Computer Science and Engineering
DepartmentTIET, Patiala

Jan - June 2022

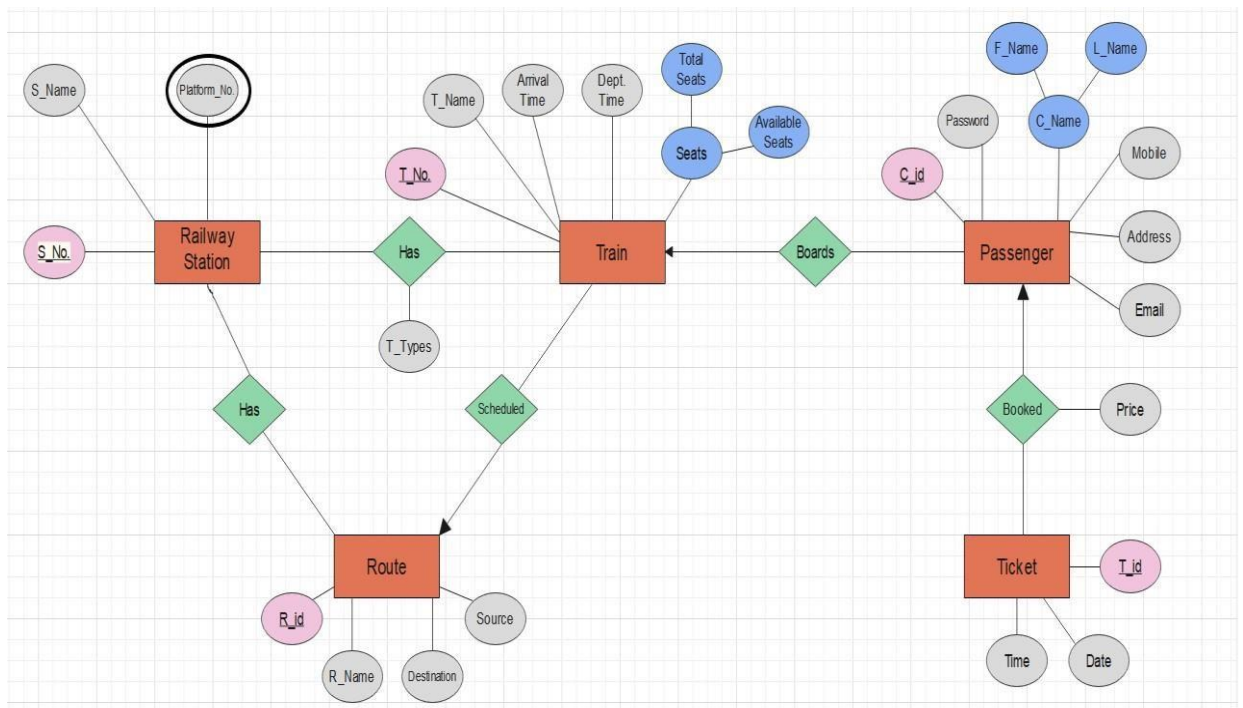
INDEX

1. PROBLEM STATEMENT
2. ER Diagram
3. ER to Table
4. Normalization (Normalized Tables)
5. SQL/PLSQL code
6. Output Screenshots

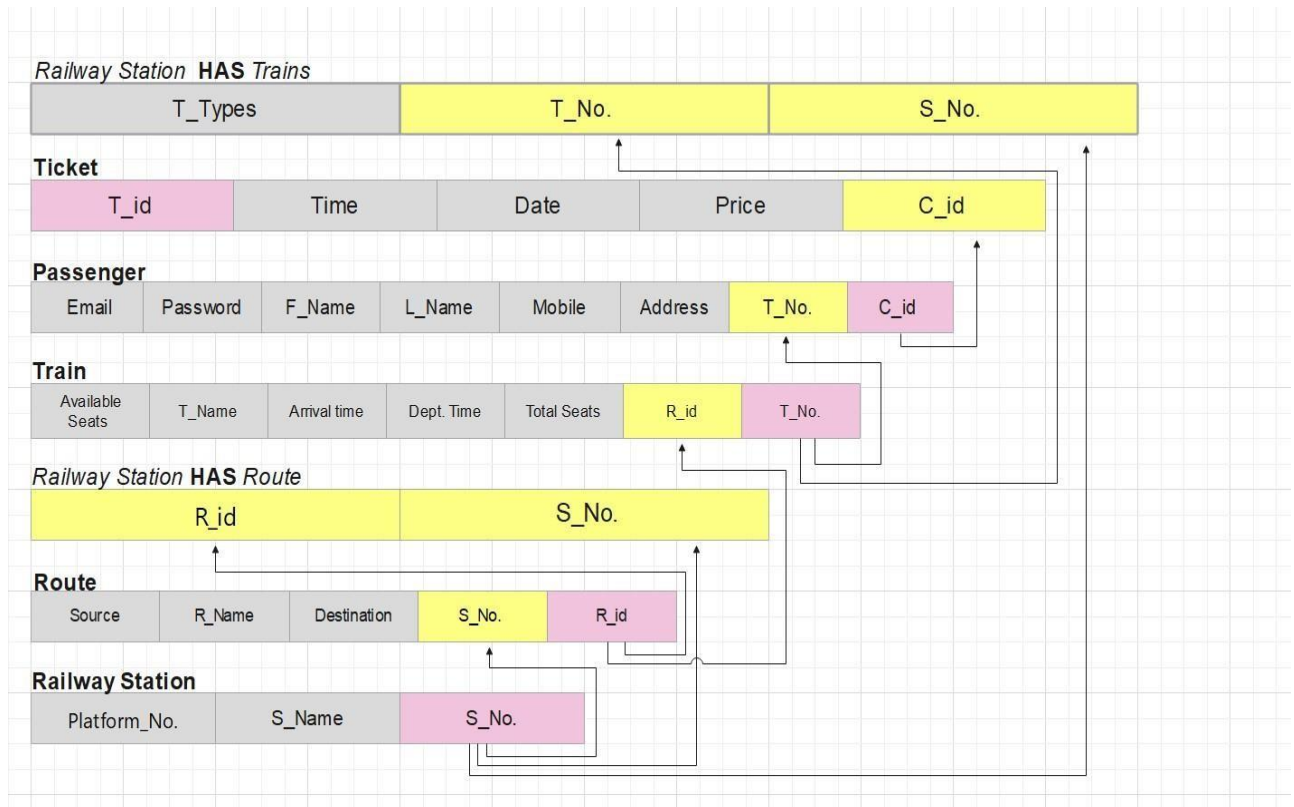
PROBLEM STATEMENT

- Keeping records for train timings.
- Records of Ticket reservations.
- Details about the passenger.
- Tracking routes of the trains.
- Records of platform number and station.

ER Diagram



ER to Table



NORMALIZATION

Railway Station Has Trains:-

T_types	T_No.	S_No.
---------	-------	-------

Ticket:- (1NF)

T_id	C_id
------	------

Email	Password	F_Name	L_Name	Mobile	Address	C_id
-------	----------	--------	--------	--------	---------	------

Train:-

Available Seats	T_Name	Arrival_time	Dept_time	Total Seats	R_id	T_No.
--------------------	--------	--------------	-----------	----------------	------	-------

Route:-

Source	R_Name	Destination	R_id
--------	--------	-------------	------

Railway Station Has Routes:-

S_No.	R_id
-------	------

Railway Station:-

(1NF)

Platform_No	S_No
-------------	------

S_Name	S_No
--------	------

SQL CODE

```
Create table Passenger(Email varchar(200),Pass varchar(200),F_Name
varchar(200),L_Name varchar(200),Mobile number,Address
varchar(200),T_No number,C_id number primary key)
INSERT INTO Passenger VALUES('ybansal@gmail.com', '****',
'Yash','Bansal',123456789,'Faridabad', 12926,11248)
INSERT INTO Passenger VALUES('ayadav@yahoo.in','****', 'Arvind',
'Yadav',234567891,'Bhatinda', 12013,11432)
INSERT INTO Passenger VALUES('rsingh@gmail.com', '****', 'Rajat',
'Singh',345678921,'Hyderabad',22429,11741)
INSERT INTO Passenger VALUES('pchauhan@gmail.com','****', 'Puneet',
'Chauhan',456789312,'Mumbai',12497,11875)
INSERT INTO Passenger VALUES('hmalhotra@gmail.com', '****', 'Harshit',
'Malhotra',567894231,'Jaipur',20807,11657)
Select * from Passenger
```

```
Create table Ticket(T_id number primary key,Tim timestamp,Dat date,Price
number,C_id number,foreign key(C_id) references Passenger(C_id))
INSERT INTO Ticket VALUES(2819542664,'22-Oct-2022
09:15','22Oct2022',186,11741)
INSERT INTO Ticket VALUES(2819542612,'14-Sep-2021 10:45','14-Sep-
2021', 125, 11248)
INSERT INTO Ticket VALUES(2819542687,'26-Apr-2021
10:10:55pm','26Apr2021', 550, 11875)
INSERT INTO Ticket VALUES(2819542655,'10-Aug-2021
03:40:21pm','10Aug2021',240,11657)
```

```
INSERT INTO Ticket VALUES(2819542694,'07-Mar-2021  
01:57:43pm','07Mar2021',605,11432)  
Select * from Ticket
```

```
Create table Route(Source varchar(20),R_name varchar(20),Destination  
varchar(20),S_no number,R_id number primary key)  
INSERT INTO Route VALUES('Jaipur','JPJUC','Jalandhar',31,321);  
INSERT INTO Route VALUES('Kota','KOTAUDZ','Udaipur',43,784);  
INSERT INTO Route VALUES('Rishikesh','RKSHCDG','Chandigarh',54,591);  
INSERT INTO Route VALUES('Amritsar','ASRNDLS','New Delhi',28,843);  
INSERT INTO Route VALUES('Mumbai','MMCT','Ambala',62,654);  
Select * from Route
```

```
Create table Train(AvailableSeats number,T_Name varchar(200),ArrivalTime  
timestamp,DepartureTime timestamp>TotalSeats number, R_id number,  
T_No number primary key,foreign key(R_id) references Route)  
INSERT INTO Train VALUES(823,'ASR SHTBDI EXP','10-Jan-2021  
07:20','10Jan2021 01:30:30pm',1000,843,22429)  
INSERT INTO Train VALUES(060,'All ASR EXP','10-Jan-2021 8:05:05pm','11-  
Jan2021 12:35:35pm',500,321,12926)  
INSERT INTO Train VALUES(005,'PASCHIM EXP','10-Jan-2021 11:30','10-  
Jan2021 02:30:30pm',500,654,12497)  
INSERT INTO Train VALUES(081,'MEWAR EXP','10-Jan-2021 07:20','10-Jan-  
2021 1:30:30pm',250,784,20807)  
INSERT INTO Train VALUES(450,'HEMKUNT EXP','10-Jan-2021  
5:20:20pm','10Jan-2021 9:58:58pm',1000,591,12013)  
Select * from Train
```

```
Create table RailwayStation(Platform_No number,S_Name varchar(200),  
S_No number primary key);  
INSERT INTO RailwayStation VALUES(3,'Rishikesh',54);  
INSERT INTO RailwayStation VALUES(6,'Amritsar',28);
```



```
INSERT INTO RailwayStation VALUES(2,'Mumbai',62);
INSERT INTO RailwayStation VALUES(5,'Kota',43);
INSERT INTO RailwayStation VALUES(1,'Jaipur',31);
Select * from RailwayStation
```

```
Create table HasRoute(R_id number,S_No number,foreign key(R_id)
references Route ,foreign key (S_no) references RailwayStation);
INSERT INTO HasRoute VALUES(654,62);
INSERT INTO HasRoute VALUES(591,54);
INSERT INTO HasRoute VALUES(321,31);
INSERT INTO HasRoute VALUES(843,28);
INSERT INTO HasRoute VALUES(784,43);
Select * from HasRoute
```

```
Create table HasTrain(T_types varchar(20),Tno number,Sno number,foreign
key(Tno) references Train,foreign key(Sno) references RailwayStation)
INSERT INTO HasTrain VALUES('Express',22429,28);
INSERT INTO HasTrain VALUES('Express',20807,43);
INSERT INTO HasTrain VALUES('Express',12926,31);
INSERT INTO HasTrain VALUES('Express',12497,62);
INSERT INTO HasTrain VALUES('Express',12013,54);
Select * from HasTrain
```

OUTPUT SCREENSHOTS OF SQL

Live SQL

Feedback Help kchadda_be21@thapar.edu

SQL Worksheet

Clear Find Actions Save Run

```
1 Create table Passenger(Email varchar(200),Pass varchar(200),F_Name varchar(200),L_Name varchar(200),Mobile number,Address varchar(200),T_No number,C_id number primary key)
2 INSERT INTO Passenger VALUES('ybansal@gmail.com', '****', 'Yash', 'Bansal',123456789,'Faridabad', 12926,11248)
3 INSERT INTO Passenger VALUES('ayadav@yahoo.in', '****', 'Arvind', 'Yadav',234567891,'Bhatinda', 12013,11432)
4 INSERT INTO Passenger VALUES('rsingh@gmail.com', '****', 'Rajat', 'Singh',345678921,'Hyderabad',22429,11741)
5 INSERT INTO Passenger VALUES('pchauhan@gmail.com', '****', 'Puneet', 'Chauhan',456789312,'Mumbai',12497,11875)
6 INSERT INTO Passenger VALUES('hmalhotra@gmail.com', '****', 'Harshit', 'Malhotra',567894231,'Jaipur',20807,11657)
7 Select * from Passenger
```

EMAIL	PASS	F_NAME	L_NAME	MOBILE	ADDRESS	T_NO	C_ID
pchauhan@gmail.com	****	Puneet	Chauhan	456789312	Mumbai	12497	11875
ybansal@gmail.com	****	Yash	Bansal	123456789	Faridabad	12926	11248
rsingh@gmail.com	****	Rajat	Singh	345678921	Hyderabad	22429	11741
ayadav@yahoo.in	****	Arvind	Yadav	234567891	Bhatinda	12013	11432
hmalhotra@gmail.com	****	Harshit	Malhotra	567894231	Jaipur	20807	11657

```
Create table Ticket(T_id number primary key,Tim timestamp,Dat date,Price number,C_id number,foreign key(C_id) references Passenger(C_id))
INSERT INTO Ticket VALUES(2819542664,'22-Oct-2022 09:15','22Oct2022',186,11741)
INSERT INTO Ticket VALUES(2819542612,'14-Sep-2021 10:45','14-Sep-2021', 125, 11248)
INSERT INTO Ticket VALUES(2819542687,'26-Apr-2021 10:10:55pm','26Apr2021', 550, 11875)
INSERT INTO Ticket VALUES(2819542655,'10-Aug-2021 03:40:21pm','10Aug2021',240,11657)
INSERT INTO Ticket VALUES(2819542694,'07-Mar-2021 01:57:43pm','07Mar2021',605,11432)
Select * from Ticket
```

T_ID	TIM	DAT	PRICE	C_ID
2819542687	26-APR-21 10.10.55.000000 PM	26-APR-21	550	11875
2819542655	10-AUG-21 03.40.21.000000 PM	10-AUG-21	240	11657
2819542694	07-MAR-21 01.57.43.000000 PM	07-MAR-21	605	11432
2819542664	22-OCT-22 09.15.00.000000 AM	22-OCT-22	186	11741
2819542612	14-SEP-21 10.45.00.000000 AM	14-SEP-21	125	11248

```
Create table Route(Source varchar(20),R_name varchar(20),Destination varchar(20),S_no number,R_id number primary key)
INSERT INTO Route VALUES('Jaipur','JPJUC','Jalandhar',31,321);
INSERT INTO Route VALUES('Kota', 'KOTAUDZ', 'Udaipur', 43,784);
INSERT INTO Route VALUES('Rishikesh','RKSHCDG','Chandigarh',54,591);
INSERT INTO Route VALUES('Amritsar', 'ASRNDLS', 'New Delhi',28,843);
INSERT INTO Route VALUES('Mumbai','MMCT','Ambala',62,654);
Select * from Route
```

SOURCE	R_NAME	DESTINATION	S_NO	R_ID
Kota	KOTAUDZ	Udaipur	43	784
Rishikesh	RKSHCDG	Chandigarh	54	591
Amritsar	ASRNDLS	New Delhi	28	843
Jaipur	JPJUC	Jalandhar	31	321
Mumbai	MMCT	Ambala	62	654

```

Create table Train(AvailableSeats number,T_Name varchar(200),ArrivalTime timestamp,DepartureTime timestamp,TotalSeats number, R_id number, T_No number primary key,foreign key(R_id) references
INSERT INTO Train VALUES(823,'ASR SHTBDI EXP','10-Jan-2021 07:20','10Jan2021 01:30:30pm',1000,843,22429)
INSERT INTO Train VALUES(060,'AII ASR EXP','10-Jan-2021 8:05:05pm','11-Jan2021 12:35:35pm',500,321,12926)
INSERT INTO Train VALUES(005,'PASCHIM EXP','10-Jan-2021 11:30','10-Jan2021 02:30:30pm',500,654,12497)
INSERT INTO Train VALUES(081,'MEWAR EXP','10-Jan-2021 07:20','10-Jan-2021 1:30:30pm',250,784,20807)
INSERT INTO Train VALUES(450,'HEMKUNT EXP','10-Jan-2021 5:20:20pm','10Jan-2021 9:58:58pm',1000,591,12013)
Select * from Train

```

AVAILABLESEATS	T_NAME	ARRIVALTIME	DEPARTURETIME	TOTALSEATS	R_ID	T_NO
823	ASR SHTBDI EXP	10-JAN-21 07.20.00.000000 AM	10-JAN-21 01.30.30.000000 PM	1000	843	22429
5	PASCHIM EXP	10-JAN-21 11.30.00.000000 AM	10-JAN-21 02.30.30.000000 PM	500	654	12497
81	MEWAR EXP	10-JAN-21 07.20.00.000000 AM	10-JAN-21 01.30.30.000000 PM	250	784	20807
60	AII ASR EXP	10-JAN-21 08.05.05.000000 PM	11-JAN-21 12.35.35.000000 PM	500	321	12926
450	HEMKUNT EXP	10-JAN-21 05.20.20.000000 PM	10-JAN-21 09.58.58.000000 PM	1000	591	12013

```

Create table RailwayStation(Platform_No number,S_Name varchar(200), S_No number primary key);
INSERT INTO RailwayStation VALUES(3,'Rishikesh',54);
INSERT INTO RailwayStation VALUES(6,'Amritsar',28);
INSERT INTO RailwayStation VALUES(2,'Mumbai',62);
INSERT INTO RailwayStation VALUES(5,'Kota',43);
INSERT INTO RailwayStation VALUES(1,'Jaipur',31);
Select * from RailwayStation

```

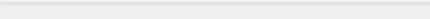
PLATFORM_NO	S_NAME	S_NO
3	Rishikesh	54
2	Mumbai	62
1	Jaipur	31
6	Amritsar	28
5	Kota	43



```
Create table HasRoute(R_id number,S_No number,foreign key(R_id) references Route ,foreign key (S_no) references RailwayStation);
INSERT INTO HasRoute VALUES(654,62);
INSERT INTO HasRoute VALUES(591,54);
INSERT INTO HasRoute VALUES(321,31);
INSERT INTO HasRoute VALUES(843,28);
INSERT INTO HasRoute VALUES(784,43); |
Select * from HasRoute
```



R_ID	S_NO
321	31
843	28
654	62
591	54
784	43



```

> Create table HasTrain(T_types varchar(20),Tno number,Sno number,foreign key(Tno) references Train,foreign key(Sno) references RailwayStation)
< INSERT INTO HasTrain VALUES('Express',22429,28);
< INSERT INTO HasTrain VALUES('Express',20807,43);
< INSERT INTO HasTrain VALUES('Express',12926,31);
< INSERT INTO HasTrain VALUES('Express',12497,62);
< INSERT INTO HasTrain VALUES('Express',12013,54);
< Select * from HasTrain

```

T_TYPES	TNO	SNO
Express	12013	54
Express	12497	62
Express	22429	28
Express	20807	43
Express	12926	31

PLSQL CODE

1. To display details of

passengers:-

declare

P_FName

Passenger.F_Name%type;

P_SName

Passenger.L_Name%type;

Mob Passenger.Mobile%type;

Address

Passenger.Address%type;

Cursor c IS select

F_Name,L_Name,Mobile,Address

from Passenger;

begin open c;

loop

fetch c into

P_FName,P_SName,Mob,Addres

s;

exit when c%NOTFOUND;

dbms_output.put_line(P_FName

||' '||P_SName||'

'||Mob||' '||Address);

end loop;

close c;

EXCEPTION

WHEN NO_DATA_FOUND THEN

DBMS_OUTPUT.PUT_LINE('NO

SUCH PERSON EXISTS');

WHEN OTHERS THEN

```
DBMS_OUTPUT.PUT_LINE('ERRO  
R')  
end;
```

**2. Trigger to check to check no of
seats available is less than 100**

create or replace trigger

MIN_SEATS

before insert or update

of AvailableSeats

on Train

for each row

begin

if (:new.AvailableSeats <100)

then

raise_application_error(-20000,

'Number of seats cannot be less

than 100');

end if;

end;

**3. To display the details of passenger whose has taken highest fair
ticket**

declare

```

P_FName Passenger.F_Name%type;
P_SName Passenger.L_Name%type;
Mob Passenger.Mobile%type;
Address Passenger.Address%type;
CustomerId Passenger.C_Id%type;
Cursor c IS select P.F_Name,P.L_Name,P.Mobile,P.Address,T.C_Id from Passenger
P,Ticket T where Price=(select max(Price) from Ticket) and T.C_Id=P.C_Id;

max_price exception;

begin
    if Price<150
    then
        raise max_price;
    end if;

    open c;
    loop fetch c into P_FName,P_SName,Mob,Address,CustomerId;
    exit when c%NOTFOUND; dbms_output.put_line(P_FName||' '||P_SName||'
'||Mob||' '||Address||' '||CustomerId||' ');
    end loop;
    close c;

```

OUTPUT SCREENSHOTS OF PLSQL CODE


```

58
59 declare
60 P_FName Passenger.F_Name%type;
61 P_SName Passenger.L_Name%type;
62 Mob Passenger.Mobile%type;
63 Address Passenger.Address%type;
64 Cursor c IS select F_Name,L_Name,Mob,Address from Passenger;
65 begin open c;
66 loop
67 fetch c into P_FName,P_SName,Mob,Address;
68 exit when c%NOTFOUND;
69 dbms_output.put_line(P_FName||' '||P_SName||'
70 '||Mob||' '||Address);
71 end loop;
72 close c;
73 EXCEPTION
74 WHEN NO_DATA_FOUND THEN
75 DBMS_OUTPUT.PUT_LINE('NO SUCH PERSON EXISTS');
76 end;

```

Statement processed.

Puneet Chauhan

456789312 Mumbai

Yash Bansal

123456789 Faridabad

Rajat Singh

345678921 Hyderabad

Arvind Yadav

234567891 Bhatinda

Harshit Malhotra

567894231 Jaipur

```

79
80 declare
81 P_FName Passenger.F_Name%type;
82 P_SName Passenger.L_Name%type;
83 Mob Passenger.Mobile%type;
84 Address Passenger.Address%type;
85 CustomerId Passenger.C_Id%type;
86 Cursor c IS select P.F_Name,P.L_Name,P.Mobile,P.Address,T.C_Id from Passenger P,Ticket T where Price=(select max(Price) from Ticket) and T.C_Id=P.C_Id;
87 begin open c;
88 loop fetch c into P_FName,P_SName,Mob,Address,CustomerId;
89 exit when c%NOTFOUND; dbms_output.put_line(P_FName||' '||P_SName||' '||Mob||' '||Address||' '||CustomerId||' ');
90 end loop;
91 close c;
92 end;
93
94

```

Statement processed.

Arvind Yadav 234567891 Bhatinda 11432

SQL Worksheet

Clear Find Actions Save

```
91 close c;  
92 end;  
93  
94 create or replace trigger MIN_SEATS  
95 before insert or update  
96 of AvailableSeats  
97 on Train  
98   for each row  
99  
100 begin  
101   if (:new.AvailableSeats < 100)  
102   then  
103     raise_application_error(-22002, 'Number of seats cannot be less than 100');  
104   end if;  
105 end;
```

Trigger created.

ORA-20000: Number of seats cannot be less than 100 ORA-06512: at "SQL_VBGXIKXEUYTZEGMWTXAXLSXX.MIN_SEATS", line 4
ORA-06512: at "SYS.DBMS_SQL", line 1721