

RAILWAYS DATABASE MANAGEMENT SYSTEM

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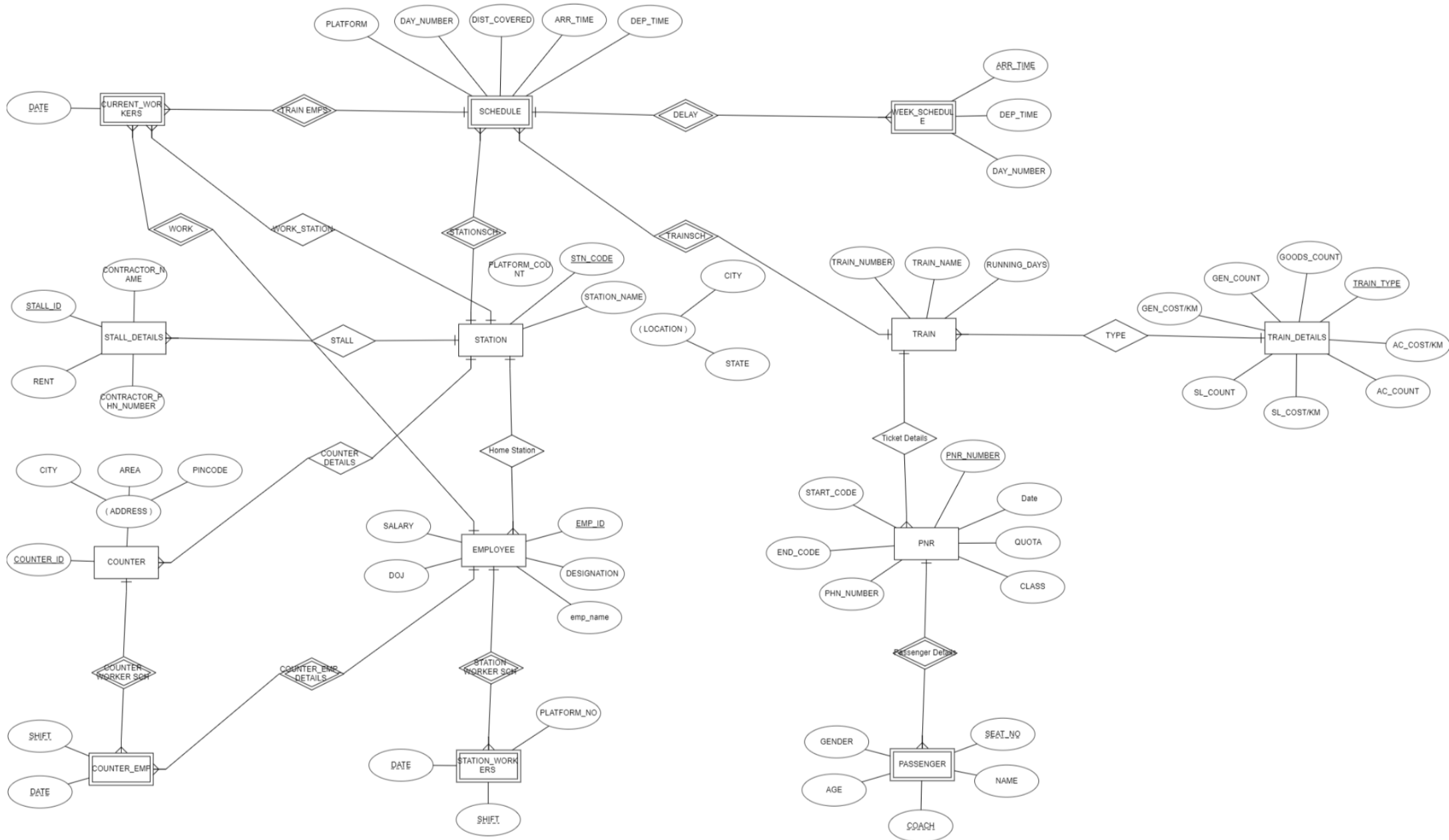
PROBLEM DEFINITION

This Railways System Database is modeled such that we can access the details of stations, trains, train schedules, employees, ticket details, stalls and counters present in railway stations related information quickly.

PROBLEM ANALYSIS

- The Railway System needs to maintain a lot of information regarding tickets , stalls , counters and employees.
- For maintaining this information we need to create an efficient database.
- We analyzed some data of Indian Railways and made a database.
- We need to store various information like details of stations , trains, details about the trains, schedules of trains, stalls and counters working under different stations, various employees working under a station, in a train, delay that a train makes on arrival.
- For example a ticket consists of data like start station, destination station , train number, seat number.

ER MODEL



RELATIONAL MODEL

1. TRAIN

- TRAIN_NUMBER
- RUNNING_DAYS
- TRAIN_NAME
- TRAIN_TYPE(FK)

2. TRAIN_DETAILS

- TRAIN_TYPE
- GOODS_COUNT
- GEN_COUNT
- GEN_COST/KM
- SL_COUNT
- SL_COST/KM
- AC_COUNT
- AC_COST/KM

3. STATION

- STN_CODE
- STATION_NAME
- CITY
- STATE
- PLATFORM_COUNT

4. PNR

- PNR_NUMBER
- DATE
- TRAIN_NUMBER (FK)
- START_CODE
- END_CODE
- CLASS
- QUOTA
- PHN_NUMBER

5. PASSENGER

- PNR NUMBER (FK)
- SEAT_NO
- COACH
- NAME
- AGE
- GENDER

6. EMPLOYEE

- EMP_ID
- EMP_NAME
- DESIGNATION
- SALARY
- DOJ
- HOME_STN_CODE (FK)

7. COUNTER

- COUNTER_ID
- STN_CODE (FK)
- CITY
- AREA
- PINCODE

8. STALL_DETAILS

- STALL_ID
- STN_CODE (FK)
- RENT
- CONTRACTOR_NAME
- CONTRACTOR_PHN_NUMBER

9. STATION_WORKERS

- EMP_ID (FK)
- DATE
- SHIFT
- PLATFORM_NO

10. COUNTER_EMP

- COUNTER_ID (FK)
- SHIFT
- DATE
- EMP_ID (FK)

11. SCHEDULE

- TRAIN_NUMBER (FK)
- STN_CODE (FK)
- ARR_TIME
- DEP_TIME
- DAY_NUMBER
- DIST_COVERED

12. WEEK_SCHEDULE

- TRAIN_NUMBER (FK)
- STN_CODE (FK)
- ARR_TIME
- DEP_TIME
- DAY_NUMBER

13. CURRENT_WORKERS

- TRAIN_NUMBER (FK)
- START_STN_CODE (FK)
- DATE
- EMP_ID (FK)
- END_STN_CODE (FK)

NORMALIZATION

Function Dependencies for each relation :

1.TRAIN

$\text{TRAIN_NUMBER} \rightarrow \text{RUNNING_DAYS}, \text{TRAIN_NAME}, \text{TRAIN_TYPE}$

$\text{TRAIN_NAME} \rightarrow \text{TRAIN_TYPE}$

2.TRAIN_DETAILS

$\text{TRAIN_TYPE} \rightarrow \text{GOODS_COUNT}, \text{GEN_COUNT}, \text{GEN_COST/KM}, \text{SL_COUNT}, \text{SL_COST/KM}, \text{AC_COUNT}, \text{AC_COST/KM}$

3.STATION

$\text{STN_CODE} \rightarrow \text{STATION_NAME}, \text{CITY}, \text{STATE}, \text{PLATFORM_COUNT}$

4.PNR

$\text{PNR_NUMBER} \rightarrow \text{DATE}, \text{TRAIN_NUMBER}, \text{START_CODE}, \text{END_CODE}, \text{CLASS}, \text{QUOTA}, \text{PHN_NUMBER}$

5.PASSENGER

$\text{PNR_NUMBER}, \text{COACH}, \text{SEAT_NO} \rightarrow \text{NAME}, \text{AGE}, \text{GENDER}$

6.EMPLOYEE

$\text{EMP_ID} \rightarrow \text{EMP_NAME}, \text{DESIGNATION}, \text{SALARY}, \text{DOJ}, \text{HOME_STN_CODE}$

7.COUNTER

$\text{COUNTER_ID} \rightarrow \text{STN_CODE}, \text{CITY}, \text{AREA}, \text{PINCODE}$

8.STALL_DETAILS

$\text{STALL_ID} \rightarrow \text{STN_CODE}, \text{RENT}, \text{CONTRACTOR_NAME}, \text{CONTRACTOR_PHN_NUMBER}$

9.STATION_WORKERS

EMP_ID ,DATE,SHIFT → PLATFORM_NO

10.COUNTER_EMP

COUNTER_ID,SHIFT, DATE → EMP_ID

11.SCHEDULE

TRAIN_NUMBER , STN_CODE → ARR_TIME,DEP_TIME, DAY_NUMBER,DIST_COVERED

12.WEEK_SCHEDULE

TRAIN_NUMBER , STN_CODE ,ARR_TIME →DEP_TIME, DAY_NUMBER

13.CURRENT_WORKERS

TRAIN_NUMBER , START_STN_CODE ,DATE, EMP_ID → END_STN_CODE

1NF :

- All attributes are atomic.
- It is in table format.
- There is a unique name for every attribute/column.
- There are no derived attributes.
- Relations are in 1 NF.

2 NF :

- There are no partial dependencies.
- Relations are in 2 NF.

3 NF :

- There is one transitive dependency in Relation 1
- We are decomposing it as below :

1. TRAIN

- TRAIN_NUMBER
- RUNNING_DAYS
- TRAIN_NAME (FK)

14. TRAIN_TYPE

- TRAIN_NAME
- TYPE (FK)

→ Now both the relations are in 3NF.

MODIFIED FD's:

1. TRAIN

TRAIN_NUMBER → RUNNING_DAYS, TRAIN_NAME, TRAIN_TYPE

14. TRAIN_TYPE :

TRAIN_NAME → TRAIN_TYPE

IMPLEMENTATION IN SQL

CREATION OF TABLES :

--1.TRAIN RELATION

```
CREATE TABLE TRAIN(  
    TRAIN_NUMBER NUMBER,  
    RUNNING_DAYS CHAR(7),  
    TRAIN_NAME VARCHAR(255),  
    PRIMARY KEY (TRAIN_NUMBER),  
    FOREIGN KEY (TRAIN_NAME) REFERENCES TRAIN_TYPE  
);
```

--2.TRAIN_DETAILS RELATION

```
CREATE TABLE TRAIN_DETAILS(  
    TRAIN_TYPE VARCHAR(255),  
    GOODS_COUNT INT,  
    GEN_COUNT INT,  
    GEN_COST_KM FLOAT,  
    SL_COUNT INT,  
    SL_COST_KM FLOAT,  
    AC_COUNT INT,  
    AC_COST_KM FLOAT,  
    PRIMARY KEY (TRAIN_TYPE)  
);
```

--14.TRAIN_TYPE RELATION

```
CREATE TABLE TRAIN_TYPE(  
    TRAIN_NAME VARCHAR(255),  
    TYPE VARCHAR(255),  
    PRIMARY KEY (TRAIN_NAME),  
    FOREIGN KEY (TYPE) REFERENCES TRAIN_DETAILS  
);
```

--3.STATION RELATION

```
CREATE TABLE STATION(  
    STATION_CODE VARCHAR(255),  
    STATION_NAME VARCHAR(255),  
    CITY VARCHAR(255),  
    STATE VARCHAR(255),  
    PLATFORM_COUNT NUMBER,  
    PRIMARY KEY (STATION_CODE)  
);
```

--4.PNR RELATION

```
CREATE TABLE PNR(  
    PNR_NUMBER NUMBER,  
    JDATE DATE,  
    TRAIN_NUMBER NUMBER ,  
    START_CODE VARCHAR(255),  
    END_CODE VARCHAR(255),  
    JCLASS CHAR(2),  
    JQUOTA VARCHAR(255),  
    PHN_NUMBER NUMBER,  
    PRIMARY KEY(PNR_NUMBER),  
    FOREIGN KEY (TRAIN_NUMBER) REFERENCES TRAIN,  
    FOREIGN KEY (START_CODE) REFERENCES STATION,  
    FOREIGN KEY (END_CODE) REFERENCES STATION  
);
```

--5.PASSENGER RELATION

```
CREATE TABLE PASSENGER(  
    PNR_NUMBER NUMBER,  
    SEAT_NO INT,  
    PNAME VARCHAR(255),  
    AGE NUMBER,  
    GENDER CHAR(1),  
    COACH VARCHAR(255),  
    PRIMARY KEY(PNR_NUMBER,SEAT_NO,COACH),  
    FOREIGN KEY (PNR_NUMBER) REFERENCES PNR  
);
```


--6.EMPLOYEE RELATION

```
CREATE TABLE EMPLOYEE(  
    EMP_ID NUMBER,  
    emp_name varchar(255),  
    DESIGNATION VARCHAR(255),  
    SALARY NUMBER,  
    DOJ DATE,  
    STATION_CODE VARCHAR(255),  
    PRIMARY KEY (EMP_ID),  
    FOREIGN KEY (STATION_CODE) REFERENCES STATION  
);
```

--7.COUNTER RELATION

```
CREATE TABLE COUNTER(  
    COUNTER_ID NUMBER,  
    STN_CODE VARCHAR(255),  
    CITY VARCHAR(255),  
    AREA VARCHAR(255),  
    PINCODE NUMBER,  
    PRIMARY KEY (COUNTER_ID),  
    FOREIGN KEY (STN_CODE) REFERENCES STATION  
);
```

--8.STALL_DETAILS relation

```
CREATE TABLE STALL_DETAILS (  
    STALL_ID NUMBER,  
    STN_CODE VARCHAR(255),  
    RENT FLOAT,  
    CONTRACTOR_NAME VARCHAR(255),  
    CONTRACTOR_PHN_NUMBER NUMBER,  
    PRIMARY KEY (STALL_ID),  
    FOREIGN KEY (STN_CODE) REFERENCES STATION  
);
```

--9.STATION_WORKERS relation

```
CREATE TABLE STATION_WORKERS (  
    EMP_ID NUMBER,  
    WDATE DATE,  
    SHIFT CHAR(1),  
    PLATFORM_NO INT,  
    PRIMARY KEY (EMP_ID,WDATE,SHIFT),  
    FOREIGN KEY (EMP_ID) REFERENCES EMPLOYEE  
);
```

--10.COUNTER_EMP relation

```
CREATE TABLE COUNTER_EMP (  
    COUNTER_ID NUMBER,  
    SHIFT CHAR(1),  
    WDATE DATE,  
    EMP_ID NUMBER,  
    PRIMARY KEY (COUNTER_ID,SHIFT,WDATE),  
    FOREIGN KEY (COUNTER_ID) REFERENCES COUNTER,  
    FOREIGN KEY (EMP_ID) REFERENCES EMPLOYEE  
);
```

--11.SCHEDULE relation

```
CREATE TABLE SCHEDULE(  
    TRAIN_NUMBER NUMBER,  
    STN_CODE VARCHAR(255),  
    ARR_TIME TIMESTAMP,  
    DEP_TIME TIMESTAMP,  
    DAY_NUMBER NUMBER,  
    DIST_COVERED NUMBER,  
    PRIMARY KEY (TRAIN_NUMBER,STN_CODE),  
    FOREIGN KEY (TRAIN_NUMBER) REFERENCES TRAIN,  
    FOREIGN KEY (STN_CODE) REFERENCES STATION  
);
```

--12.WEEK_SCHEDULE relation

```
CREATE TABLE WEEK_SCHEDULE(  
    TRAIN_NUMBER NUMBER,  
    STN_CODE VARCHAR(255),  
    ARR_TIME TIMESTAMP,  
    DEP_TIME TIMESTAMP,  
    DAY_NUMBER NUMBER,  
    PRIMARY KEY (TRAIN_NUMBER,STN_CODE,ARR_TIME),  
    FOREIGN KEY (TRAIN_NUMBER) REFERENCES TRAIN,  
    FOREIGN KEY (STN_CODE) REFERENCES STATION  
);
```

--13.CURRENT_WORKERS SCHEDULE

```
CREATE TABLE CURRENT_WORKERS(  
    TRAIN_NUMBER NUMBER,  
    START_STN_CODE VARCHAR(255),  
    WDATE DATE,  
    EMP_ID NUMBER,  
    END_STN_CODE VARCHAR(255),  
    PRIMARY KEY (TRAIN_NUMBER,START_STN_CODE,WDATE,EMP_ID),  
    FOREIGN KEY (TRAIN_NUMBER) REFERENCES TRAIN,  
    FOREIGN KEY (START_STN_CODE) REFERENCES STATION,  
    FOREIGN KEY (END_STN_CODE) REFERENCES STATION,  
    FOREIGN KEY (EMP_ID) REFERENCES EMPLOYEE  
);
```

DATA INSERTION FOR TESTING :

- ❖ For testing our database we have taken a small portion of data
- ❖ It consists of 6 trains covering different types of trains, their schedule, actual arrival, actual departure, employees and passengers in train for one day.
- ❖ It consists of details of 8 stations , counters under them ,stalls under them, employees working in them.

--1.TRAIN RELATION

```
INSERT INTO TRAIN VALUES(12713,'1010101','SHATAVAHANA');
INSERT INTO TRAIN VALUES(12728,'1111111','GODAVARI');
INSERT INTO TRAIN VALUES(12727,'1111111','GODAVARI');
INSERT INTO TRAIN VALUES(22691,'1001010','RAJADHANI');
INSERT INTO TRAIN VALUES(15389,'1111111','HYD_KZP_GOODS');
INSERT INTO TRAIN VALUES(12805,'1111111','JANMABHOOMI');
```

--2.TRAIN_DETAILS RELATION

```
INSERT INTO TRAIN_DETAILS VALUES('EXPRESS',2,10,2,13,3,8,4);
INSERT INTO TRAIN_DETAILS VALUES('GOODS',20,0,0,0,0,0,0);
INSERT INTO TRAIN_DETAILS VALUES('AC',3,0,0,0,0,10,10);
INSERT INTO TRAIN_DETAILS VALUES('SUPER FAST',4,5,2,15,5,8,7);
INSERT INTO TRAIN_DETAILS VALUES('GENERAL',2,30,1,0,0,0,0);
```

--14.TRAIN_TYPE RELATION

```
INSERT INTO TRAIN_TYPE VALUES('SHATAVAHANA' ,'EXPRESS');
INSERT INTO TRAIN_TYPE VALUES('GODAVARI','SUPER FAST');
INSERT INTO TRAIN_TYPE VALUES('RAJADHANI','AC');
INSERT INTO TRAIN_TYPE VALUES('HYD_KZP_GOODS','GOODS');
INSERT INTO TRAIN_TYPE VALUES('JANMABHOOMI','GENERAL');
```

--3.STATION RELATION

```
INSERT INTO STATION VALUES ('SC','SECUNDERABAD','HYDERABAD','TS',10);
INSERT INTO STATION VALUES('KZP','KAZIPET','WARANGAL','TS',3);
INSERT INTO STATION VALUES('BZA','VIJAYAWADA','VIJAYAWADA','AP',6);
INSERT INTO STATION VALUES('HYB','HYD_DEC_NAM','HYDERABAD','TS',8);
INSERT INTO STATION VALUES('VSKP','VISHAKAPATNAM','VISHAKAPATNAM','AP',12);
INSERT INTO STATION VALUES('KSRB','KSR BANGALORE','BANGALORE','KARNATAKA',7);
INSERT INTO STATION VALUES('NZM','HAZRAT NIZAMUDDIN','NEW DELHI','NEW DELHI',15);
INSERT INTO STATION VALUES('LNG','LINGAMPALLY','HYDERABAD','TS',2);
```

--4.PNR RELATION

```
INSERT INTO PNR VALUES(23874915,'08-MAY-2023',12713,'KZP','SC','SL','GN',8765439218);
INSERT INTO PNR VALUES(89256347,'08-MAY-2023',12713,'BZA','KZP','AC','GN',9846512374);
```

```
INSERT INTO PNR VALUES(41598623,'08-MAY-2023',12728,'SC','VSKP','SL','TATKAL',8456127893);
INSERT INTO PNR VALUES(67491258,'08-MAY-2023',12728,'BZA','VSKP','AC','GN',7845961235);
INSERT INTO PNR VALUES(32675891,'08-MAY-2023',12727,'VSKP','HYB','SL','GN',8462159753);
INSERT INTO PNR VALUES(87145963,'08-MAY-2023',12727,'VSKP','BZA','AC','TATKAL',9842136574);
INSERT INTO PNR VALUES(59368241,'08-MAY-2023',22691,'KSRB','NZM','AC','GN',6541872390);
INSERT INTO PNR VALUES(45617982,'08-MAY-2023',22691,'SC','NZM','AC','TATKAL',6248713905);
INSERT INTO PNR VALUES(91837526,'08-MAY-2023',12805,'VSKP','LNG','2S','GN',8462017935);
INSERT INTO PNR VALUES(72543918,'08-MAY-2023',12805,'SC','LNG','2S','GN',8896658937);
```

--5.PASSENGER RELATION

```
INSERT INTO PASSENGER VALUES (23874915,20,'SUMANTH',23,'M','S2');
INSERT INTO PASSENGER VALUES (89256347,30,'SRINU',40,'M','A1');
INSERT INTO PASSENGER VALUES (41598623,32,'NIDHI',30,'F','S1');
INSERT INTO PASSENGER VALUES (41598623,42,'VIJAYA',54,'F','S2');
INSERT INTO PASSENGER VALUES (67491258,56,'KUMAR',38,'M','A2');
INSERT INTO PASSENGER VALUES (32675891,20,'VISHWAJITH',19,'M','S1');
INSERT INTO PASSENGER VALUES (87145963,18,'VATSAV',26,'M','A3');
INSERT INTO PASSENGER VALUES (59368241,06,'HASINI',22,'F','A2');
INSERT INTO PASSENGER VALUES (45617982,12,'SHIVANI',42,'F','A1');
INSERT INTO PASSENGER VALUES (91837526,36,'DEVENDAR',60,'M','D1');
INSERT INTO PASSENGER VALUES (72543918,54,'SUNITHA',49,'F','D3');
```

--6.EMPLOYEE RELATION

```
INSERT INTO EMPLOYEE VALUES(00001,'rithuraj','TC',40000,'20 APR 2004','SC');
INSERT INTO EMPLOYEE VALUES(00002,'vishwa','SM',60000,'03 JAN 2001','SC');
INSERT INTO EMPLOYEE VALUES(00003,'ganesh','POLICE',30000,'04 AUG 1996','SC');
INSERT INTO EMPLOYEE VALUES(00004,'varsini','CLEANER',10000,'15 AUG 1998','SC');
INSERT INTO EMPLOYEE VALUES(00005,'vatsav','CW',20000,'12 SEP 2000','SC');
INSERT INTO EMPLOYEE VALUES(00006,'mukesh','TD',50000,'25 DEC 1996','SC');
INSERT INTO EMPLOYEE VALUES(00069,'YESHWANTH','TD',50000,'25 DEC 1996','SC');
INSERT INTO EMPLOYEE VALUES(00014,'shashidar','PW',5000,'12 SEP 2000','SC');
INSERT INTO EMPLOYEE VALUES(00057,'HANUMANTHARAO','POLICE',30000,'04 AUG 1996','SC');
INSERT INTO EMPLOYEE VALUES(00065,'RAJU','CW',20000,'12 SEP 2000','SC');
```

```
INSERT INTO EMPLOYEE VALUES(00007,'saketh','TD',50000,'21 FEB 2013','KZP');
INSERT INTO EMPLOYEE VALUES(00008,'pramod','PW',5000,'09 SEP 1993','KZP');
INSERT INTO EMPLOYEE VALUES(00009,'shivani','TC',40000,'05 MAR 2005','KZP');
INSERT INTO EMPLOYEE VALUES(00010,'sanjana','CLEANER',10000,'16 NOV 2016','KZP');
INSERT INTO EMPLOYEE VALUES(00011,'supraj','SM',60000,'20 APR 2004','KZP');
INSERT INTO EMPLOYEE VALUES(00012,'vishal','CW',20000,'03 JAN 2001','KZP');
INSERT INTO EMPLOYEE VALUES(00013,'srinivasa rao','POLICE',30000,'04 AUG 1996','KZP');
```

INSERT INTO EMPLOYEE VALUES(00058,'RAVI','POLICE',30000,'04 AUG 1996','KZP');

INSERT INTO EMPLOYEE VALUES(00015,'manikanta','TD',50000,'25 DEC 1996','BZA');
INSERT INTO EMPLOYEE VALUES(00016,'kamal','PW',5000,'21 FEB 2013','BZA');
INSERT INTO EMPLOYEE VALUES(00017,'sanjay','TC',40000,'09 SEP 1993','BZA');
INSERT INTO EMPLOYEE VALUES(00018,'abhishek','CLEANER',10000,'15 AUG 1998','BZA');
INSERT INTO EMPLOYEE VALUES(00019,'bhuvanesh','SM',60000,'05 MAR 2005','BZA');
INSERT INTO EMPLOYEE VALUES(00020,'saikiran','CW',20000,'16 NOV 2016','BZA');
INSERT INTO EMPLOYEE VALUES(00021,'AASHRITH','POLICE',30000,'04 AUG 1996','BZA');
INSERT INTO EMPLOYEE VALUES(00059,'TEJA','POLICE',30000,'04 AUG 1996','BZA');

INSERT INTO EMPLOYEE VALUES(00022,'PARVESH','TD',50000,'25 DEC 1996','HYB');
INSERT INTO EMPLOYEE VALUES(00023,'SAJJAN','PW',5000,'21 FEB 2013','HYB');
INSERT INTO EMPLOYEE VALUES(00024,'SUNITHA','TC',40000,'09 SEP 1993','HYB');
INSERT INTO EMPLOYEE VALUES(00025,'RAJINI','CLEANER',10000,'15 AUG 1998','HYB');
INSERT INTO EMPLOYEE VALUES(00026,'KIRAN','SM',60000,'05 MAR 2005','HYB');
INSERT INTO EMPLOYEE VALUES(00027,'RAJESH','CW',20000,'16 NOV 2016','HYB');
INSERT INTO EMPLOYEE VALUES(00028,'VARSHINI','POLICE',30000,'04 AUG 1996','HYB');
INSERT INTO EMPLOYEE VALUES(00064,'UTKARSH','POLICE',30000,'04 AUG 1996','HYB');
INSERT INTO EMPLOYEE VALUES(00066,'RAGHU','CW',20000,'12 SEP 2000','HYB');

INSERT INTO EMPLOYEE VALUES(00029,'Trishul','TD',50000,'25 DEC 1996','VSKP');
INSERT INTO EMPLOYEE VALUES(00030,'Raga','PW',5000,'21 FEB 2013','VSKP');
INSERT INTO EMPLOYEE VALUES(00031,'Pavan','TC',40000,'09 SEP 1993','VSKP');
INSERT INTO EMPLOYEE VALUES(00032,'Uma','CLEANER',10000,'15 AUG 1998','VSKP');
INSERT INTO EMPLOYEE VALUES(00033,'Rohit','SM',60000,'05 MAR 2005','VSKP');
INSERT INTO EMPLOYEE VALUES(00034,'Abhiram','CW',20000,'16 NOV 2016','VSKP');
INSERT INTO EMPLOYEE VALUES(00035,'Hanuman','POLICE',30000,'04 AUG 1996','VSKP');
INSERT INTO EMPLOYEE VALUES(00060,'JAYA','POLICE',30000,'04 AUG 1996','VSKP');
INSERT INTO EMPLOYEE VALUES(00068,'SHARMA','CW',20000,'12 SEP 2000','VSKP');

INSERT INTO EMPLOYEE VALUES(00036,'KARTHIK','TD',50000,'25 DEC 1996','KSRB');
INSERT INTO EMPLOYEE VALUES(00037,'RAHUL','PW',5000,'21 FEB 2013','KSRB');
INSERT INTO EMPLOYEE VALUES(00038,'HASINI','TC',40000,'09 SEP 1993','KSRB');
INSERT INTO EMPLOYEE VALUES(00039,'VYSHNAVI','CLEANER',10000,'15 AUG 1998','KSRB');
INSERT INTO EMPLOYEE VALUES(00040,'MANOJ','SM',60000,'05 MAR 2005','KSRB');
INSERT INTO EMPLOYEE VALUES(00041,'SRIRAM','CW',20000,'16 NOV 2016','KSRB');
INSERT INTO EMPLOYEE VALUES(00042,'ANEESH','POLICE',30000,'04 AUG 1996','KSRB');
INSERT INTO EMPLOYEE VALUES(00061,'CHANDRA','POLICE',30000,'04 AUG 1996','KSRB');

INSERT INTO EMPLOYEE VALUES(00043,'Anil','TD',50000,'25 DEC 1996','NZM');

```

INSERT INTO EMPLOYEE VALUES(00044,'Mohan','PW',5000,'21 FEB 2013','NZM');
INSERT INTO EMPLOYEE VALUES(00045,'Jagadish','TC',40000,'09 SEP 1993','NZM');
INSERT INTO EMPLOYEE VALUES(00046,'Raju','CLEANER',10000,'15 AUG 1998','NZM');
INSERT INTO EMPLOYEE VALUES(00047,'Charishma','SM',60000,'05 MAR 2005','NZM');
INSERT INTO EMPLOYEE VALUES(00048,'Sahithi','CW',20000,'16 NOV 2016','NZM');
INSERT INTO EMPLOYEE VALUES(00049,'Hanvitha','POLICE',30000,'04 AUG 1996','NZM');
INSERT INTO EMPLOYEE VALUES(00062,'HARSHA','POLICE',30000,'04 AUG 1996','NZM');
INSERT INTO EMPLOYEE VALUES(00067,'ROHITH','CW',20000,'12 SEP 2000','NZM');

```

```

INSERT INTO EMPLOYEE VALUES(00050,'ANURAG','TD',50000,'25 DEC 1996','LNG');
INSERT INTO EMPLOYEE VALUES(00051,'VISHNU','PW',5000,'21 FEB 2013','LNG');
INSERT INTO EMPLOYEE VALUES(00052,'VARSHA','TC',40000,'09 SEP 1993','LNG');
INSERT INTO EMPLOYEE VALUES(00053,'MOKSHAVI','CLEANER',10000,'15 AUG 1998','LNG');
INSERT INTO EMPLOYEE VALUES(00054,'RAKESH','SM',60000,'05 MAR 2005','LNG');
INSERT INTO EMPLOYEE VALUES(00055,'RISHIN','CW',20000,'16 NOV 2016','LNG');
INSERT INTO EMPLOYEE VALUES(00056,'BHARATH','POLICE',30000,'04 AUG 1996','LNG');
INSERT INTO EMPLOYEE VALUES(00063,'PRANAV','POLICE',30000,'04 AUG 1996','LNG');

```

--7.COUNTER RELATION

```

INSERT INTO COUNTER VALUES (1234,'SC','HYDERABAD','KOTHAPET',500035);
INSERT INTO COUNTER VALUES (2345,'SC','HYDERABAD','NAGOLE',500039);
INSERT INTO COUNTER VALUES (5678,'HYB','HYDERABAD','NAMPALLY',500095);
INSERT INTO COUNTER VALUES (3456,'NZM','NEW DELHI','NIZAMUDDIN',110013);
INSERT INTO COUNTER VALUES (4567,'HYB','HYDERABAD','MALAKPET',500036);
INSERT INTO COUNTER VALUES (6789,'NZM','NEW DELHI','SIDDARATH NAGAR',110013);
INSERT INTO COUNTER VALUES (7890,'VSKP','VISHAKAPATNAM','BALNAGAR',123456);
INSERT INTO COUNTER VALUES (8901,'VSKP','VISHAKAPATNAM','BEACH COLONY',234567);
INSERT INTO COUNTER VALUES (9012,'LNG','HYDERABAD','LINGAMPALLI',345678);
INSERT INTO COUNTER VALUES (0123,'BZA','VIJAYAWADA','JAGADAMBA CENTER',456789);
INSERT INTO COUNTER VALUES (0246,'KZP','KAZIPET','NITW',567890);
INSERT INTO COUNTER VALUES (1357,'KSRB','BANGLORE','CHINNASWAMY STADIUM',678901);

```

--8.STALL_DETAILS relation

```

INSERT INTO STALL_DETAILS VALUES (1,'SC',4500,'RAJU',9647851282);
INSERT INTO STALL_DETAILS VALUES (2,'SC',6000,'AKHIL',7451986035);
INSERT INTO STALL_DETAILS VALUES (3,'BZA',2000,'GANESH',8456903722);
INSERT INTO STALL_DETAILS VALUES (4,'BZA',3000,'VISHWA',6572931450);
INSERT INTO STALL_DETAILS VALUES (5,'VSKP',5000,'MUKESH',8462974530);
INSERT INTO STALL_DETAILS VALUES (6,'VSKP',10000,'CHANDU',7759138460);
INSERT INTO STALL_DETAILS VALUES (7,'KZP',3900,'SAI',8460913574);
INSERT INTO STALL_DETAILS VALUES (8,'LNG',7000,'SUNNY',9946137586);

```

--9.STATION_WORKERS relation

```
INSERT INTO STATION_WORKERS VALUES(00002,'08 MAY 2023','D',1);
INSERT INTO STATION_WORKERS VALUES(00003,'08 MAY 2023','N',2);
INSERT INTO STATION_WORKERS VALUES(00004,'08 MAY 2023','D',1);
```

```
INSERT INTO STATION_WORKERS VALUES(00011,'08 MAY 2023','N',2);
INSERT INTO STATION_WORKERS VALUES(00013,'08 MAY 2023','D',1);
INSERT INTO STATION_WORKERS VALUES(00010,'08 MAY 2023','N',2);
```

```
INSERT INTO STATION_WORKERS VALUES(00019,'08 MAY 2023','D',1);
INSERT INTO STATION_WORKERS VALUES(00021,'08 MAY 2023','D',2);
INSERT INTO STATION_WORKERS VALUES(00018,'08 MAY 2023','N',2);
```

```
INSERT INTO STATION_WORKERS VALUES(00026,'08 MAY 2023','D',2);
INSERT INTO STATION_WORKERS VALUES(00028,'08 MAY 2023','N',2);
INSERT INTO STATION_WORKERS VALUES(00025,'08 MAY 2023','N',1);
```

```
INSERT INTO STATION_WORKERS VALUES(00033,'08 MAY 2023','D',2);
INSERT INTO STATION_WORKERS VALUES(00035,'08 MAY 2023','N',1);
INSERT INTO STATION_WORKERS VALUES(00032,'08 MAY 2023','N',2);
```

```
INSERT INTO STATION_WORKERS VALUES(00040,'08 MAY 2023','N',1);
INSERT INTO STATION_WORKERS VALUES(00042,'08 MAY 2023','D',1);
INSERT INTO STATION_WORKERS VALUES(00039,'08 MAY 2023','D',1);
```

```
INSERT INTO STATION_WORKERS VALUES(00047,'08 MAY 2023','N',1);
INSERT INTO STATION_WORKERS VALUES(00049,'08 MAY 2023','D',2);
INSERT INTO STATION_WORKERS VALUES(00046,'08 MAY 2023','N',1);
```

```
INSERT INTO STATION_WORKERS VALUES(00054,'08 MAY 2023','D',2);
INSERT INTO STATION_WORKERS VALUES(00056,'08 MAY 2023','D',1);
INSERT INTO STATION_WORKERS VALUES(00053,'08 MAY 2023','D',1);
```

--10.COUNTER_EMP relation

```
INSERT INTO COUNTER_EMP VALUES(1234,'D','08 MAY 2023',00005);
INSERT INTO COUNTER_EMP VALUES(2345,'N','08 MAY 2023',00065);
```

```
INSERT INTO COUNTER_EMP VALUES(5678,'D','08 MAY 2023',00027);
INSERT INTO COUNTER_EMP VALUES(4567,'N','08 MAY 2023',00066);
INSERT INTO COUNTER_EMP VALUES(3456,'D','08 MAY 2023',00048);
INSERT INTO COUNTER_EMP VALUES(6789,'N','08 MAY 2023',00067);
INSERT INTO COUNTER_EMP VALUES(7890,'D','08 MAY 2023',00068);
INSERT INTO COUNTER_EMP VALUES(8901,'N','08 MAY 2023',00034);
INSERT INTO COUNTER_EMP VALUES(9012,'D','08 MAY 2023',00055);
INSERT INTO COUNTER_EMP VALUES(0123,'N','08 MAY 2023',00020);
INSERT INTO COUNTER_EMP VALUES(0246,'D','08 MAY 2023',00012);
INSERT INTO COUNTER_EMP VALUES(1357,'N','08 MAY 2023',00041);
```

--11.SCHEDULE relation

```
INSERT INTO SCHEDULE VALUES (12713,'BZA',NULL,'08-05-2023 06:25:00 AM',1,0);
INSERT INTO SCHEDULE VALUES (12713,'KZP','08-05-2023 09:33:00 AM','08-05-2023 09:35:00 AM',1,216);
INSERT INTO SCHEDULE VALUES (12713,'SC','08-05-2023 11:55:00 AM',NULL,1,348);
```

```
INSERT INTO SCHEDULE VALUES (12728,'HYB',NULL,'08-05-2023 05:05:00 PM',1,0);
INSERT INTO SCHEDULE VALUES (12728,'SC','08-05-2023 05:25:00 PM','08-05-2023 05:30:00 PM',1,7);
INSERT INTO SCHEDULE VALUES (12728,'KZP','08-05-2023 07:13:00 PM','08-05-2023 07:15:00 PM',1,139);
INSERT INTO SCHEDULE VALUES (12728,'BZA','08-05-2023 10:50:00 PM','08-05-2023 11:05:00 PM',1,356);
INSERT INTO SCHEDULE VALUES (12728,'VSKP','09-05-2023 05:35:00 AM',NULL,2,706);
```

```
INSERT INTO SCHEDULE VALUES (12727,'VSKP',NULL,'08-05-2023 05:20:00 PM',1,0);
INSERT INTO SCHEDULE VALUES (12727,'BZA','08-05-2023 11:25:00 PM','08-05-2023 11:40:00 PM',1,350);
INSERT INTO SCHEDULE VALUES (12727,'KZP','09-05-2023 02:55:00 AM','09-05-2023 02:57:00 AM',2,566);
INSERT INTO SCHEDULE VALUES (12727,'SC','09-05-2023 05:10:00 PM','09-05-2023 05:15:00 AM',2,698);
INSERT INTO SCHEDULE VALUES (12727,'HYB','09-05-2023 06:15:00 AM',NULL,2,706);
```

```
INSERT INTO SCHEDULE VALUES (22691,'KSRB',NULL,'08-05-2023 08:00:00 PM',1,0);
INSERT INTO SCHEDULE VALUES (22691,'SC','09-05-2023 07:05:00 AM','09-05-2023 07:15:00 AM',2,706);
INSERT INTO SCHEDULE VALUES (22691,'KZP','09-05-2023 08:48:00 AM','09-05-2023 08:50:00 AM',2,837);
INSERT INTO SCHEDULE VALUES (22691,'NZM','10-05-2023 05:30:00 AM',NULL,3,2374);
```

```
INSERT INTO SCHEDULE VALUES (15389,'SC',NULL,'08-05-2023 10:00:00 AM',1,0);
INSERT INTO SCHEDULE VALUES (15389,'KZP','08-05-2023 01:30:00 PM',NULL,1,132);
```

```
INSERT INTO SCHEDULE VALUES (12805,'VSKP',NULL,'08-05-2023 06:20:00 AM',1,0);
INSERT INTO SCHEDULE VALUES (12805,'BZA','08-05-2023 11:55:00 AM','08-05-2023 12:00:00 PM',1,349);
INSERT INTO SCHEDULE VALUES (12805,'SC','08-05-2023 06:15:00 PM','08-05-2023 06:20:00 PM',1,689);
INSERT INTO SCHEDULE VALUES (12805,'LNG','08-05-2023 07:40:00 PM',NULL,1,712);
```


--12.WEEK_SCHEDULE relation

```
INSERT INTO WEEK_SCHEDULE VALUES (12713,'BZA','08-05-2023 07:00:00 AM','08-05-2023 07:00:00 AM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12713,'KZP','08-05-2023 10:04:00 AM','08-05-2023 10:15:00 AM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12713,'SC','08-05-2023 12:48:00 PM','08-05-2023 12:48:00 PM',1);
```

```
INSERT INTO WEEK_SCHEDULE VALUES (12728,'HYB','08-05-2023 05:05:00 PM','08-05-2023 05:05:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12728,'SC','08-05-2023 05:22:00 PM','08-05-2023 06:17:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12728,'KZP','08-05-2023 07:51:00 PM','08-05-2023 07:56:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12728,'BZA','08-05-2023 11:32:00 PM','08-05-2023 11:40:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12728,'VSKP','09-05-2023 06:16:00 AM','09-05-2023 06:16:00 AM',2);
```

```
INSERT INTO WEEK_SCHEDULE VALUES (12727,'VSKP','08-05-2023 05:30:00 PM','08-05-2023 05:30:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12727,'BZA','09-05-2023 12:14:00 AM','09-05-2023 12:25:00 AM',2);
INSERT INTO WEEK_SCHEDULE VALUES (12727,'KZP','09-05-2023 04:38:00 AM','09-05-2023 04:46:00 AM',2);
INSERT INTO WEEK_SCHEDULE VALUES (12727,'SC','09-05-2023 07:10:00 PM','09-05-2023 07:39:00 AM',2);
INSERT INTO WEEK_SCHEDULE VALUES (12727,'HYB','09-05-2023 07:55:00 AM','09-05-2023 07:55:00 AM',2);
```

```
INSERT INTO WEEK_SCHEDULE VALUES (22691,'KSRB','08-05-2023 08:03:00 PM','08-05-2023 08:03:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (22691,'SC','09-05-2023 08:02:00 AM','09-05-2023 08:17:00 AM',2);
INSERT INTO WEEK_SCHEDULE VALUES (22691,'KZP','09-05-2023 10:14:00 AM','09-05-2023 10:20:00 AM',2);
INSERT INTO WEEK_SCHEDULE VALUES (22691,'NZM','10-05-2023 06:02:00 AM','10-05-2023 06:02:00 AM',3);
```

```
INSERT INTO WEEK_SCHEDULE VALUES (15389,'SC','08-05-2023 10:00:00 AM','08-05-2023 10:00:00 AM',1);
INSERT INTO WEEK_SCHEDULE VALUES (15389,'KZP','08-05-2023 01:00:00 PM','08-05-2023 01:00:00 PM',1);
```

```
INSERT INTO WEEK_SCHEDULE VALUES (12805,'VSKP','08-05-2023 06:20:00 AM','08-05-2023 06:20:00 AM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12805,'BZA','08-05-2023 12:45:00 PM','08-05-2023 01:01:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12805,'SC','08-05-2023 07:29:00 PM','08-05-2023 07:44:00 PM',1);
INSERT INTO WEEK_SCHEDULE VALUES (12805,'LNG','08-05-2023 08:47:00 PM','08-05-2023 08:47:00 PM',1);
```

--13.CURRENT_WORKERS SCHEDULE

--tc td POLICE PW

```
INSERT INTO CURRENT_WORKERS VALUES (12713,'BZA','08 MAY 2023',00017,'SC');
INSERT INTO CURRENT_WORKERS VALUES (12713,'BZA','08 MAY 2023',00015,'SC');
INSERT INTO CURRENT_WORKERS VALUES (12713,'BZA','08 MAY 2023',00059,'SC');
INSERT INTO CURRENT_WORKERS VALUES (12713,'BZA','08 MAY 2023',00016,'SC');
```

```
INSERT INTO CURRENT_WORKERS VALUES (12728,'HYB','08 MAY 2023',00024,'KZP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'HYB','08 MAY 2023',00022,'KZP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'HYB','08 MAY 2023',00064,'KZP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'HYB','08 MAY 2023',00023,'KZP');
```

INSERT INTO CURRENT_WORKERS VALUES (12728,'KZP','08 MAY 2023',00009,'VSKP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'KZP','08 MAY 2023',00007,'VSKP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'KZP','08 MAY 2023',00058,'VSKP');
INSERT INTO CURRENT_WORKERS VALUES (12728,'KZP','08 MAY 2023',00008,'VSKP');

INSERT INTO CURRENT_WORKERS VALUES (12727,'VSKP','08 MAY 2023',00031,'BZA');
INSERT INTO CURRENT_WORKERS VALUES (12727,'VSKP','08 MAY 2023',00029,'BZA');
INSERT INTO CURRENT_WORKERS VALUES (12727,'VSKP','08 MAY 2023',00068,'BZA');
INSERT INTO CURRENT_WORKERS VALUES (12727,'VSKP','08 MAY 2023',00030,'BZA');

INSERT INTO CURRENT_WORKERS VALUES (12727,'BZA','08 MAY 2023',00045,'HYB');
INSERT INTO CURRENT_WORKERS VALUES (12727,'BZA','08 MAY 2023',00043,'HYB');
INSERT INTO CURRENT_WORKERS VALUES (12727,'BZA','08 MAY 2023',00062,'HYB');
INSERT INTO CURRENT_WORKERS VALUES (12727,'BZA','08 MAY 2023',00044,'HYB');

INSERT INTO CURRENT_WORKERS VALUES (22691,'KSRB','08 MAY 2023',00038,'SC');
INSERT INTO CURRENT_WORKERS VALUES (22691,'KSRB','08 MAY 2023',00036,'SC');
INSERT INTO CURRENT_WORKERS VALUES (22691,'KSRB','08 MAY 2023',00042,'SC');
INSERT INTO CURRENT_WORKERS VALUES (22691,'KSRB','08 MAY 2023',00037,'SC');
INSERT INTO CURRENT_WORKERS VALUES (22691,'SC','08 MAY 2023',00069,'NZM');
INSERT INTO CURRENT_WORKERS VALUES (22691,'SC','08 MAY 2023',00001,'NZM');
INSERT INTO CURRENT_WORKERS VALUES (22691,'SC','08 MAY 2023',00003,'NZM');
INSERT INTO CURRENT_WORKERS VALUES (22691,'SC','08 MAY 2023',00014,'NZM');

INSERT INTO CURRENT_WORKERS VALUES (12805,'VSKP','08 MAY 2023',00052,'LNG');
INSERT INTO CURRENT_WORKERS VALUES (12805,'VSKP','08 MAY 2023',00050,'LNG');
INSERT INTO CURRENT_WORKERS VALUES (12805,'VSKP','08 MAY 2023',00063,'LNG');
INSERT INTO CURRENT_WORKERS VALUES (12805,'VSKP','08 MAY 2023',00051,'LNG');

INSERT INTO CURRENT_WORKERS VALUES (15389,'SC','08 MAY 2023',00006,'KZP');

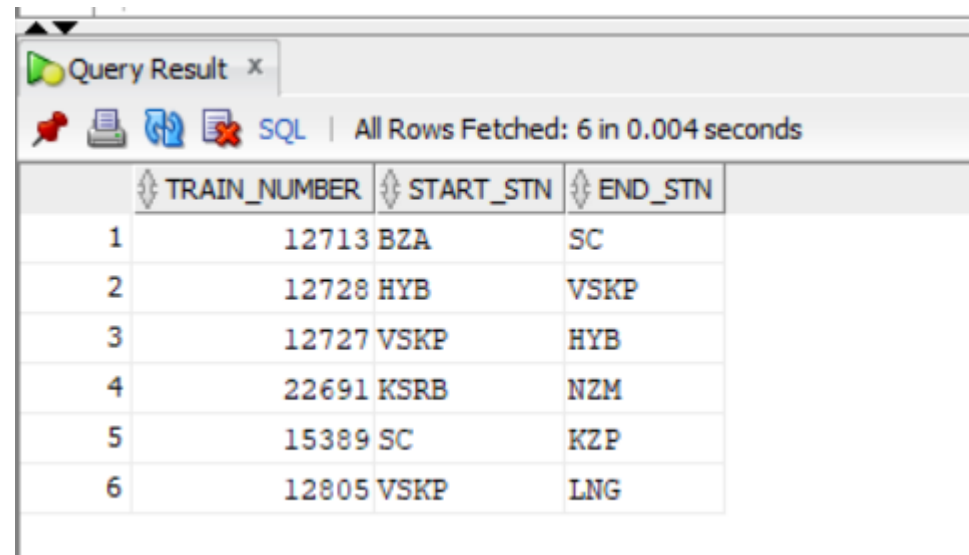
SQL QUERIES (Testing various requirements of data) :

1.Extract starting and ending point of each train

SQL Query :

```
select *  
from (select train_number,stn_code as start_stn from schedule where arr_time is null) natural join (select train_number,stn_code as end_Stn from schedule  
where dep_time is null);
```

OUTPUT :



The screenshot shows a 'Query Result' window with a table containing 6 rows of data. The table has four columns: an index, TRAIN_NUMBER, START_STN, and END_STN. The data is as follows:

	TRAIN_NUMBER	START_STN	END_STN
1	12713	BZA	SC
2	12728	HYB	VSKP
3	12727	VSKP	HYB
4	22691	KSRB	NZM
5	15389	SC	KZP
6	12805	VSKP	LNG

2.Display train driver names of RAJDHANI train and his boarding station,leaving station.

SQL Query :

```
select emp_id,emp_name,start_stn_code,end_stn_code  
from current_workers natural join employee  
where train_number=(select train_number from train where train_name='RAJADHANI') and designation='TD';
```

OUTPUT :

Query Result x				
SQL All Rows Fetched: 2 in 0.006 seconds				
	E...	EMP_NAME	START_STN_CODE	END_STN_CODE
1	36	KARTHIK	KSRB	SC
2	69	YESHWANTH	SC	NZM

3.EXTRACT ALL THE TRAINS WHICH ARRIVE AT A GIVEN STATION ALONG WITH THEIR START STATION INFORMATION .

SQL Query :

```
SELECT A.TRAIN_NUMBER,B.STN_CODE AS STARTSTATION,B.DEP_TIME AS DEP_AT_START_STATION,A.ARR_TIME AS ARR_AT_GIVEN_STATION
FROM WEEK_SCHEDULE A , SCHEDULE B
WHERE (A.stn_code=(select station_code from station where station_name='&A')) AND A.TRAIN_NUMBER=B.TRAIN_NUMBER AND B.ARR_TIME IS NULL;
```

OUTPUT :

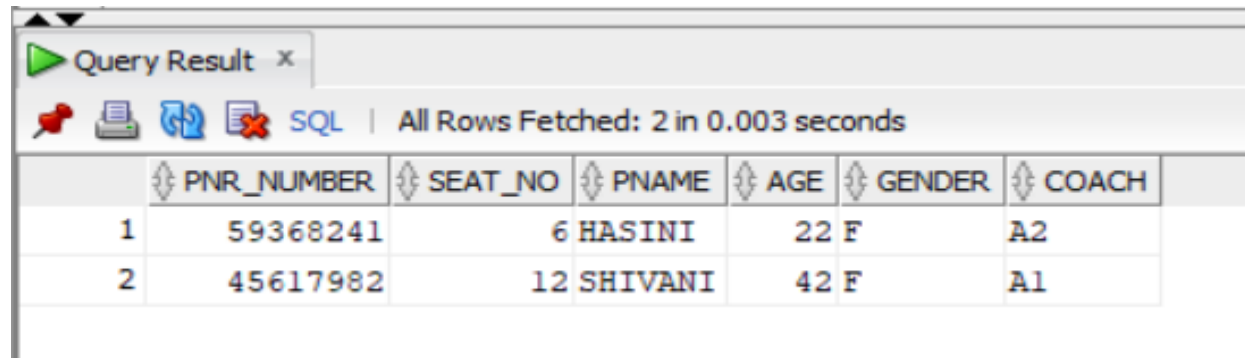
Query Result x				
SQL All Rows Fetched: 5 in 0.004 seconds				
	TRAIN_NUMBER	STARTSTATION	DEP_AT_START_STATION	ARR_AT_GIVEN_STATION
1	12713	BZA	08-05-23 6:25:00.000000000 AM	08-05-23 10:04:00.000000000 AM
2	12727	VSKP	08-05-23 5:20:00.000000000 PM	09-05-23 4:38:00.000000000 AM
3	12728	HYB	08-05-23 5:05:00.000000000 PM	08-05-23 7:51:00.000000000 PM
4	15389	SC	08-05-23 10:00:00.000000000 AM	08-05-23 1:00:00.000000000 PM
5	22691	KSRB	08-05-23 8:00:00.000000000 PM	09-05-23 10:14:00.000000000 AM

4.DISPLAY ALL PASSENGERS WHO BOOKED A TICKET FOR GIVEN INPUT TRAIN NAME ON A ON A PARTICULAR DATE

SQL Query :

```
SELECT B.*  
FROM PNR A,PASSENGER B  
WHERE A.PNR_NUMBER=B.PNR_NUMBER AND A.TRAIN_NUMBER=(SELECT TRAIN_NUMBER FROM TRAIN WHERE TRAIN_NAME='&A') AND  
A.JDATE='&B';
```

Output :



The screenshot shows a 'Query Result' window with a toolbar containing icons for a pin, print, refresh, and delete, along with an 'SQL' label. The status bar indicates 'All Rows Fetched: 2 in 0.003 seconds'. The result table has columns: PNR_NUMBER, SEAT_NO, PNAME, AGE, GENDER, and COACH. The first row shows PNR 59368241, Seat 6, Passenger HASINI, Age 22, Gender F, and Coach A2. The second row shows PNR 45617982, Seat 12, Passenger SHIVANI, Age 42, Gender F, and Coach A1.

	PNR_NUMBER	SEAT_NO	PNAME	AGE	GENDER	COACH
1	59368241	6	HASINI	22	F	A2
2	45617982	12	SHIVANI	42	F	A1

5.EXTRACT ALL TRAINS INFO WHICH RUN ON MONDAY AND SUNDAY

SQL Query :

```
SELECT TRAIN_NUMBER,TRAIN_NAME  
FROM TRAIN  
WHERE RUNNING_DAYS LIKE '1____1';
```

Query Result x		
SQL All Rows Fetched: 5 in 0.003 seconds		
	TRAIN_NUMBER	TRAIN_NAME
1	12713	SHATAVAHANA
2	15389	HYD_KZP_GOODS
3	12805	JANMABHOOMI
4	12728	GODAVARI
5	12727	GODAVARI

6.Find the cost of ticket by taking PNR number as input

SQL Query :

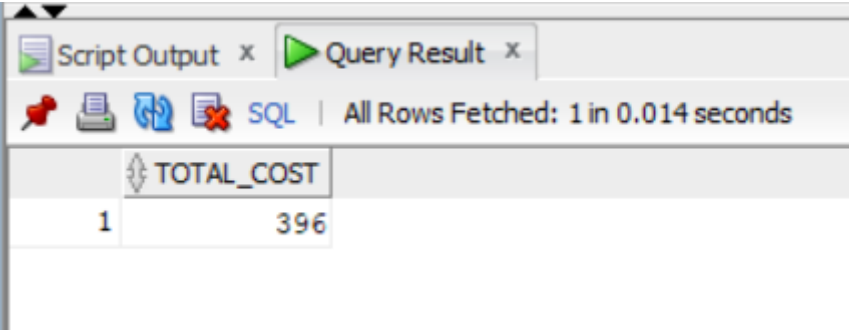
```
SELECT DISTANCE*COST*COUNT AS TOTAL_COST
FROM
(SELECT (MAX(DIST_COVERED)-MIN(DIST_COVERED)) AS DISTANCE
FROM PNR A,PASSENGER B,TRAIN C,TRAIN_DETAILS D,TRAIN_TYPE E,SCHEDULE F
WHERE A.PNR_NUMBER=&P AND A.PNR_NUMBER=B.PNR_NUMBER AND A.TRAIN_NUMBER=C.TRAIN_NUMBER AND
C.TRAIN_NAME=E.TRAIN_NAME AND D.TRAIN_TYPE=E.TYPE AND A.TRAIN_NUMBER=F.TRAIN_NUMBER AND (A.START_CODE=F.STN_CODE OR
A.END_CODE=F.STN_CODE))
```

```
,
(SELECT DISTINCT(CASE
    WHEN A.JCLASS='SL' THEN D.SL_COST_KM
    WHEN A.JCLASS='AC' THEN D.AC_COST_KM
    WHEN A.JCLASS='2S' THEN D.GEN_COST_KM
    END
) AS COST
FROM PNR A,PASSENGER B,TRAIN C,TRAIN_DETAILS D,TRAIN_TYPE E,SCHEDULE F
WHERE A.PNR_NUMBER=&P AND A.PNR_NUMBER=B.PNR_NUMBER AND A.TRAIN_NUMBER=C.TRAIN_NUMBER AND
C.TRAIN_NAME=E.TRAIN_NAME AND D.TRAIN_TYPE=E.TYPE AND A.TRAIN_NUMBER=F.TRAIN_NUMBER AND (A.START_CODE=F.STN_CODE OR
A.END_CODE=F.STN_CODE))
```

```

(SELECT (COUNT(*)/2) AS COUNT
FROM PNR A,PASSENGER B,TRAIN C,TRAIN_DETAILS D,TRAIN_TYPE E,SCHEDULE F
WHERE A.PNR_NUMBER=&P AND A.PNR_NUMBER=B.PNR_NUMBER AND A.TRAIN_NUMBER=C.TRAIN_NUMBER AND
C.TRAIN_NAME=E.TRAIN_NAME AND D.TRAIN_TYPE=E.TYPE AND A.TRAIN_NUMBER=F.TRAIN_NUMBER AND (A.START_CODE=F.STN_CODE OR
A.END_CODE=F.STN_CODE));

```



The screenshot shows a SQL query result window with a single row of data. The column header is 'TOTAL_COST' and the value in the row is '396'.

TOTAL_COST
396

7.DISPLAY THE TRAIN NUMBERS OF ALL TRAINS THAT CROSS TWO GIVEN STATIONS IN THEIR PATH OF JOURNEY.

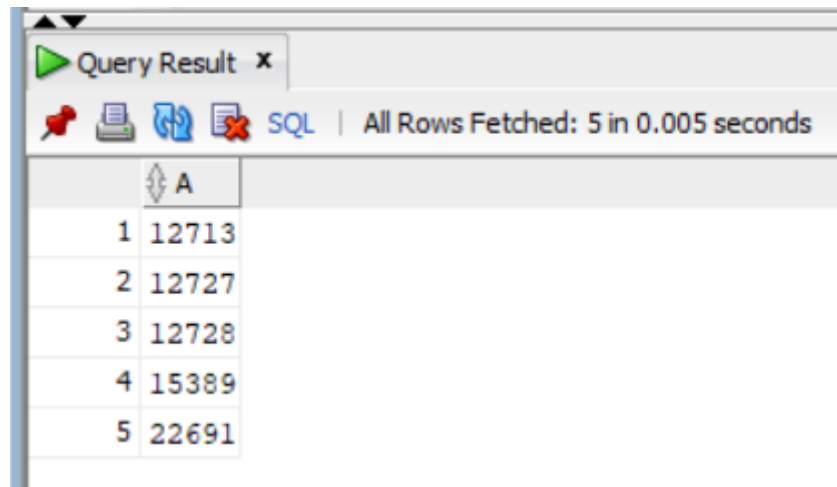
SQL Query :

```

(select train_number AS A
from schedule
where stn_code=(select station_code from station where station_name='&A'))
INTERSECT
(SELECT TRAIN_NUMBER AS B
FROM SCHEDULE
WHERE STN_CODE=(SELECT STATION_CODE FROM STATION WHERE STATION_NAME='&B'));

```

OUTPUT:



Query Result x

All Rows Fetched: 5 in 0.005 seconds

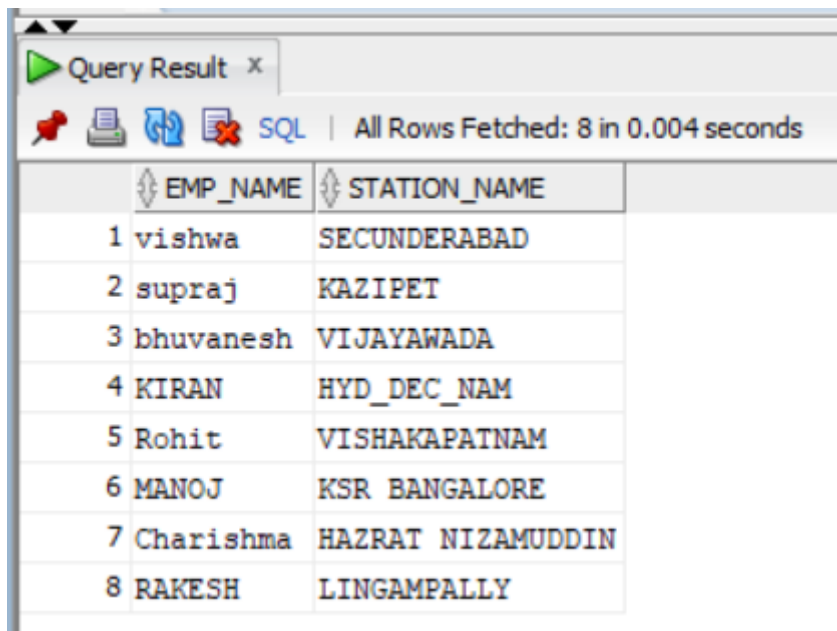
	A
1	12713
2	12727
3	12728
4	15389
5	22691

8. Write the details of all the station master and name of the station they handle

SQL QUERY:

```
SELECT B.EMP_NAME, C.STATION_NAME
FROM STATION_WORKERS A, EMPLOYEE B, STATION C
WHERE A.EMP_ID=B.EMP_ID AND B.DESIGNATION='SM' AND B.STATION_CODE=C.STATION_CODE;
```

OUTPUT:



Query Result x

All Rows Fetched: 8 in 0.004 seconds

	EMP_NAME	STATION_NAME
1	vishwa	SECUNDERABAD
2	supraj	KAZIPET
3	bhuvanesh	VIJAYAWADA
4	KIRAN	HYD_DEC_NAM
5	Rohit	VISHAKAPATNAM
6	MANOJ	KSR BANGALORE
7	Charishma	HAZRAT NIZAMUDDIN
8	RAKESH	LINGAMPALLY

9.DISPLAY ALL TRAIN NUMBERS WHICH ARE PASSING THROUGH 2 GIVEN STATIONS IN THAT ORDER.

SQL QUERY:

```
SELECT TRAIN_NUMBER
FROM (select train_number,arr_time as A
      from schedule
      where stn_code='&A') C natural join (select train_number,arr_time as B
      from schedule
      where stn_code='&B') D
WHERE (A IS NULL) OR (A < B);
```

INPUT:

Enter Substitution Variable ✕

Enter value for A:

SC

OK

Cancel

Enter Substitution Variable ✕

Enter value for B:





KZP

OK

Cancel

OUTPUT:

Query Result ✕



SQL | All Rows Fetched: 3 in 0.005 seconds

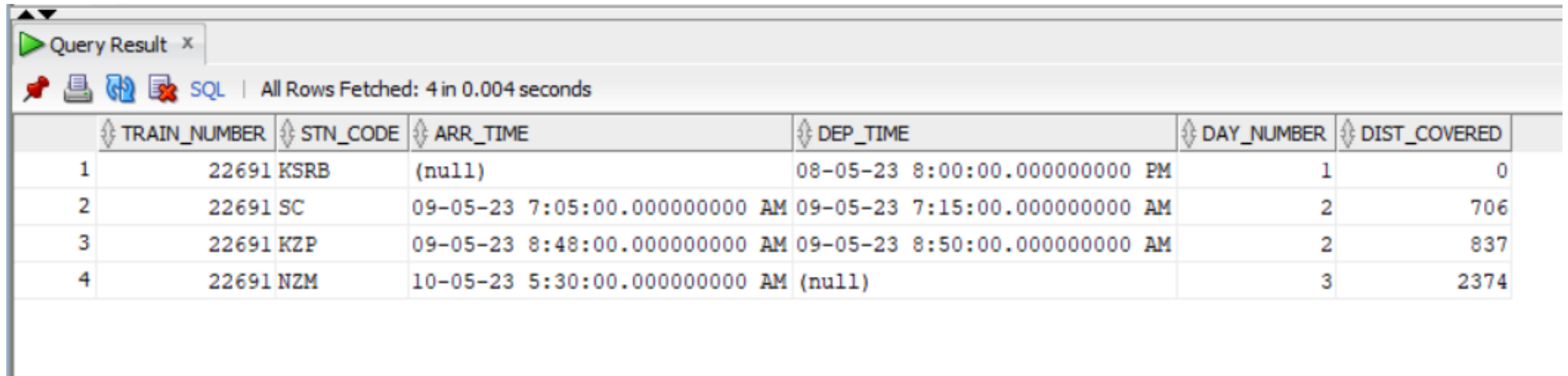
	TRAIN_NUMBER
1	12728
2	15389
3	22691

10. WRITE THE DETAILED SCHEDULE OF THE TRAIN WITH TRAIN NUMBER TAKEN AS INPUT.

SQL QUERY:

```
SELECT *  
FROM SCHEDULE  
WHERE TRAIN_NUMBER=&T  
ORDER BY DIST_COVERED;
```

OUTPUT:



The screenshot shows a 'Query Result' window with a toolbar containing icons for a pin, print, refresh, and SQL editor. The status bar indicates 'All Rows Fetched: 4 in 0.004 seconds'. The table below displays the schedule for train 22691, ordered by distance covered.

	TRAIN_NUMBER	STN_CODE	ARR_TIME	DEP_TIME	DAY_NUMBER	DIST_COVERED
1	22691	KSRB	(null)	08-05-23 8:00:00.000000000 PM	1	0
2	22691	SC	09-05-23 7:05:00.000000000 AM	09-05-23 7:15:00.000000000 AM	2	706
3	22691	KZP	09-05-23 8:48:00.000000000 AM	09-05-23 8:50:00.000000000 AM	2	837
4	22691	NZM	10-05-23 5:30:00.000000000 AM	(null)	3	2374