DBMS LAB-4

- Trainhalts(id,seqno.stcode,timein,timeout)

```
mytraindb=# create table trainhalts(
mytraindb(# id int not null,
mytraindb(# seqno int,
mytraindb(# stcode varchar(20) not null,
mytraindb(# timein char(8) not null,
mytraindb(# timeout char(8) default null,
mytraindb(# FOREIGN KEY(id) references train(id),
mytraindb(# FOREIGN KEY(stcode) references station(stcode)
mytraindb(# );
CREATE TABLE
```

```
mytraindb=# insert into trainhalts values(11029,1,'MMCT','9:13','9:15');
INSERT 0 1
mytraindb=# insert into trainhalts values(16345,5,'AMR','19:54','19:55');
INSERT 0 1
mytraindb=# insert into trainhalts values(16345,2,'SBC','10:10','10:15');
INSERT 0 1
mytraindb=# insert into trainhalts values(16345,3,'BGM','00:48','00:50');
INSERT 0 1
mytraindb=# insert into trainhalts values(12133,1,'MMCT','22:33','22:35');
INSERT 0 1
mytraindb=# insert into trainhalts values(16345,4,'TNA','3:48','3:50');
INSERT 0 1
mytraindb=# insert into trainhalts values(11008,1,'MMCT','18:43','18:45');
INSERT 0 1
mytraindb=# insert into trainhalts values(16345,1,'CST','12:03','12:05');
INSERT 0 1
mytraindb=# insert into trainhalts values(22128,7,'TNA','13:03');
INSERT 0 1
mytraindb=# insert into trainhalts values(11029,2,'TNA','20:48','20:50');
INSERT 0 1
```

```
mytraindb=# select *from trainhalts;
  id   | seqno | stcode |  timein  | timeout
-------+-------+--------+----------+---------
 11029 |     1 | MMCT   | 9:13     | 9:15
 16345 |     5 | AMR    | 19:54    | 19:55
 16345 |     2 | SBC    | 10:10    | 10:15
 16345 |     3 | BGM    | 00:48    | 00:50
 12133 |     1 | MMCT   | 22:33    | 22:35
 16345 |     4 | TNA    | 3:48     | 3:50
 11008 |     1 | MMCT   | 18:43    | 18:45
 16345 |     1 | CST    | 12:03    | 12:05
 22128 |     7 | TNA    | 13:03    |
 11029 |     2 | TNA    | 20:48    | 20:50
(10 rows)
```

- Track(stcode1,stcode2,distance)

```
mytraindb=# create table track(
mytraindb(# stcode1 varchar(6) not null,
mytraindb(# stcode2 varchar(6) not null,
mytraindb(# distance int default 10,
mytraindb(# FOREIGN KEY(stcode1) references station(stcode),
mytraindb(# FOREIGN KEY(stcode2) references station(stcode)
mytraindb(# );
CREATE TABLE
```

```
mytraindb=# insert into track values('CST','SBC',35);
INSERT 0 1
mytraindb=# insert into track values('TNA','AMR',15);
INSERT 0 1
mytraindb=# insert into track values('MMCT','TNA',30);
INSERT 0 1
mytraindb=# insert into track values('SBC','AMR',12);
INSERT 0 1
```

```
mytraindb=# select *from track;
 stcode1 | stcode2 | distance
---------+---------+----------
 CST     | SBC     |       35
 TNA     | AMR     |       15
 MMCT    | TNA     |       30
 SBC     | AMR     |       12
 CST     | BGM     |        6
 BGM     | AMR     |       18
 AMR     | CST     |       13
 BGM     | SBC     |       10
 CST     | TNA     |       16
 TNA     | MMCT    |       10
(10 rows)
```

- Station(stcode,name)

```
mytraindb=# create table station(
mytraindb(# stcode varchar(6),
mytraindb(# name char(30) not null,
mytraindb(# primary key(stcode)
mytraindb(# );
CREATE TABLE
```

```
mytraindb=# insert into station values('MMCT','MUMBAI CENTRAL');
INSERT 0 1
mytraindb=# insert into station values('SBC','KSR BENGULURU');
INSERT 0 1
mytraindb=# insert into station values('AMR','AMRITSAR');
INSERT 0 1
mytraindb=# insert into station values('CST','CHATRAPATI');
INSERT 0 1
mytraindb=# insert into station values('TNA','THANE');
INSERT 0 1
mytraindb=# insert into station values('BGM','BELAGAVI');
INSERT 0 1
mytraindb=# insert into station values('YPR','YASHAVANTUR');
INSERT 0 1
mytraindb=# insert into station values('MYS','MYSORE CITY');
INSERT 0 1
mytraindb=# insert into station values('UBL','HUBLI');
INSERT 0 1
mytraindb=# insert into station values('DWD','DHARWAD STATION');
INSERT 0 1
```

```
mytraindb=# select *from track;
 stcode1 | stcode2 | distance
---------+---------+----------
 CST     | SBC     |       35
 TNA     | AMR     |       15
 MMCT    | TNA     |       30
 SBC     | AMR     |       12
 CST     | BGM     |        6
 BGM     | AMR     |       18
 AMR     | CST     |       13
 BGM     | SBC     |       10
 CST     | TNA     |       16
 TNA     | MMCT    |       10
(10 rows)
```

- Train(id,name)

```
mytraindb=# create table train(
mytraindb(# id int not null,
mytraindb(# name varchar(30) not null,
mytraindb(# primary key(id)
mytraindb(# );
CREATE TABLE
```

```
mytraindb=# insert into train values(16345,'CST_AMR_LOCAL');
INSERT 0 1
mytraindb=# insert into train values(11029,'KOYNA EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(12133,'MANGALORE EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(11008,'DECAN EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(22128,'ANANDVAN EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(11301,'UDYAN EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(12109,'PANCHAVATI EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(12132,'SAINAGAR EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(11070,'TULSI EXPRESS');
INSERT 0 1
mytraindb=# insert into train values(12128,'INTERCITY EXPRESS');
INSERT 0 1
```

```
mytraindb=# select *from train;
  id   |         name
-------+--------------------
 16345 | CST_AMR_LOCAL
 11029 | KOYNA EXPRESS
 12133 | MANGALORE EXPRESS
 11008 | DECAN EXPRESS
 22128 | ANANDVAN EXPRESS
 11301 | UDYAN EXPRESS
 12109 | PANCHAVATI EXPRESS
 12132 | SAINAGAR EXPRESS
 11070 | TULSI EXPRESS
 12128 | INTERCITY EXPRESS
(10 rows)
```

1)Find the pairs of stations (station codes) that have a track(direct connection) with distance less than 20Kms between them.

```
mytraindb=# select stcode1,stcode2
mytraindb-# from track
mytraindb-# where distance<20 ;
 stcode1 | stcode2
---------+---------
 TNA     | AMR
 SBC     | AMR
 CST     | BGM
 BGM     | AMR
 AMR     | CST
 BGM     | SBC
 CST     | TNA
 TNA     | MMCT
(8 rows)
```

2)Find the IDs of all trains which have a stop at THANE.

```
mytraindb=# select id
from trainhalts
where timeout is null;
  id
-------
 22128
(1 row)
```

3)Find the names of all trains that starts at MUMBAI.

```
mytraindb=# select name
mytraindb-# from train as tr,trainhalts as t
mytraindb-# where seqno=1 and stcode='MMCT' and tr.id=t.id;
      name
------------------
 KOYNA EXPRESS
 MANGALORE EXPRESS
 DECAN EXPRESS
(3 rows)
```

4)List all the stations in order of visit by the train 'CST_AMR_LOCAL'

```
mytraindb=# select s.name
mytraindb-# from station as s,train as t,trainhalts as th
mytraindb-# where t.name='CST_AMR_LOCAL' and th.id=t.id and s.stcode=th.stcode order by th.seqno;
         name
---------------------------------
 CHATRAPATI
 KSR BENGULURU
 BELAGAVI
 THANE
 AMRITSAR
(5 rows)
```

5)Find the name of trains which have stop at THANE before the 6th station in the route of the train.

```
mytraindb=# select t.name
mytraindb-# from train as t,trainhalts as th,station as s
mytraindb-# where th.seqno<6 and s.name='THANE' and th.id=t.id and th.stcode=s.stcode;
     name
---------------
 CST_AMR_LOCAL
 KOYNA EXPRESS
(2 rows)
```