DBMS ASSIGNMENT-5

Code:-

```
create table train
(id varchar(5) ,
name varchar(20),
primary key (id) );

create table station
(stcode  varchar(5),
name varchar(20),
primary key (stcode));

create table track
(stcode1 varchar(5),
stcode2 varchar(5),
distance integer,
primary key (stcode1, stcode2) );
```

```
create table trainhalts
(id varchar(5) ,
seqno integer ,
stcode  varchar(10),
timein varchar(5) ,
timeout varchar(5) ,
primary key (id, seqno) );

insert into train values ('KP11' ,'CST-KYN');
insert into train values ('KP11L' ,'CST-KYN_LOCAL');
insert into train values ('T129' ,'CST-TNA_LOCAL');
insert into train values ('A63' ,'CST-DL_LOCAL');
insert into train values ('K101' ,'CST-KYN_LOCAL');
insert into train values ('N27' ,'CST-TNA_LOCAL');
insert into train values ('S33' ,'CST-KGR_LOCAL');
insert into train values ('A65' ,'CST-AMR_LOCAL');
insert into station values ('CST','MUMBAI');
insert into station values ('BYC','BYCULLA');
```

```
insert into station values ('DR' ,'DADAR');

insert into station values ('KRL' ,'KURLA');

insert into station values ('GPR' ,'GHATKOPAR');

insert into station values ('TNA' ,'THANE');

insert into station values ('DL' ,'DOMBIVALI');

insert into station values ('AMR', 'AMBARNATH');

insert into station values ('KYN' ,'KALYAN');

insert into station values ('KSR' ,'KASARA');


insert into track values ('CST' ,'BYC',5);

insert into track values ('CST' ,'DR', 9);

insert into track values ('CST' ,'KRL', 16);

insert into track values ('CST' ,'GPR', 20);

insert into track values ('CST' ,'TNA', 34);

insert into track values ('CST' ,'DL',49);

insert into track values ('CST' ,'KYN', 54);

insert into track values ('CST' ,'KSR', 77);

insert into track values ('CST' ,'AMR', 65);

insert into track values ('BYC' ,'DR',4);
```

```
insert into track values ('BYC' ,'KRL', 11);

insert into track values ('GRP' ,'TNA', 14);

insert into track values ('DR' ,'TNA', 25);

insert into track values ('KRL' ,'KYN', 38);

insert into track values ('TNA' ,'KYN', 20);

insert into track values ('TNA' ,'KSR', 43);


insert into trainhalts values ('KP11' , 0 , 'CST' , NULL,
'20.23');

insert into trainhalts values ('KP11' , 1 , 'BYC' , '20.31',
'20.32');

insert into trainhalts values ('KP11' , 2 , 'DR' , '20.41',
'20.42');

insert into trainhalts values ('KP11' , 3 , 'GPR' , '20.52',
'20.53');

insert into trainhalts values ('KP11' , 4 , 'GPR' , '20.52',
'20.53');

insert into trainhalts values ('KP11' , 5 , 'DR' , '20.41',
'20.42');

insert into trainhalts values ('KP11' , 6 , 'GPR' , '20.58',
'20.59');
```

```
insert into trainhalts values ('KP11',7,'TNA','21.21',
'21.22');


insert into trainhalts values ('KP11' , 8 , 'DL' , '21.45',
'21.46');

insert into trainhalts values ('KP11' , 9 , 'KYN' , '21.54',
NULL);

insert into trainhalts values ('A65',0,'CST',NULL,'20.52');

insert into trainhalts values ('A65',1,'BYC','21.00',
'21.01');

insert into trainhalts values ('A65',2,'DR','21.10','21.11');

insert into trainhalts values ('A65',3,'KRL','21.22',
'21.23');

insert into trainhalts values ('A65',4,'GPR','21.28',
'21.29');

insert into trainhalts values ('A65', 5,'TNA', '21.49' ,
'21.50');

insert into trainhalts values ('A65',6,'DL','22.13','22.14');

insert into trainhalts values ('A65',7,'KYN','22.22',
'22.23');
```

insert into trainhalts values ('A65' ,8 , 'AMR' , '22.36' , NULL);

1. Display all the pairs of stations with total distance for given source and destinations.

SELECT s1.name AS SRC ,s2.name AS DST ,t.distance FROM station s1, station s2,track t WHERE s1.stcode =t.stcode1 AND s2.stcode=t.stcode2;

```
MUMBAI|BYCULLA|5
MUMBAI|DADAR|9
MUMBAI|KURLA|16
MUMBAI|GHATKOPAR|20
MUMBAI|THANE|34
MUMBAI|DOMBIVALI|49
MUMBAI|KALYAN|54
MUMBAI|KASARA|77
MUMBAI|AMBARNATH|65
BYCULLA|DADAR|4
BYCULLA|KURLA|11
DADAR|THANE|25
KURLA|KALYAN|38
THANE|KALYAN|20
THANE|KASARA|43
```

2. Find the pairs of stations (station codes) which have a track with distance less than 20Kms between them.

SELECT * FROM track Where distance<20;

```
CST|BYC|5
CST|DR|9
CST|KRL|16
BYC|DR|4
BYC|KRL|11
GRP|TNA|14
```

3. Find the IDs of all the trains which have a stop at GHATKOPAR

```
SELECT DISTINCT ID FROM trainhalts WHERE stcode='GPR'
ORDER BY ID;
```

```
A65
KP11
```

4. Find the ordered list of names of all trains that start at MUMBAI.

```
SELECT name FROM train WHERE id IN (SELECT id FROM
trainhalts WHERE timein IS NULL and stcode='CST') ORDER
BY name;
```

```
CST-AMR_LOCAL
CST-KYN
```

5. List all the stations in order of visit by the train 'CST-AMR_LOCAL'.

```
SELECT stcode FROM trainhalts WHERE ID=(select ID from
train where name="CST-AMR_LOCAL") ORDER BY timein;
```

```
CST
BYC
DR
KRL
GPR
TNA
DL
KYN
AMR
```

6. Find the name of the trains which stop at Thane, before the 6th stop in the route of the train.

```
SELECT name FROM train WHERE id IN (SELECT id from trainhalts WHERE seqno<6 and stcode="TNA");
```

```
CST-AMR_LOCAL
```

7. Display the pair of stations (i.e. station names) having maximum distance between them.

```
SELECT source.name ,destination.name,T.distance FROM station source, station destination, track T WHERE distance=(SELECT MAX(distance) FROM track) AND T.stcode1=source.stcode AND T.stcode2=destination.stcode;
```

```
MUMBAI|KASARA|77
```

8. Display id of the trainhalt having second highest time out.

```
SELECT id FROM trainhalts WHERE timeout=(SELECT MAX(timeout) FROM trainhalts WHERE timeout<(SELECT MAX(timeout) FROM trainhalts));
```

```
A65
```

9. Remove Track “CST” from the track table. Note: If any track is removed from the track table, then that track related information also should be removed from the other tables.

DELETE FROM track WHERE stcode1="CST";

SELECT * FROM track;

```
BYC|DR|4
BYC|KRL|11
GRP|TNA|14
DR|TNA|25
KRL|KYN|38
TNA|KYN|20
TNA|KSR|43
```

10. Remove Track “KP11” from the train table. If any train is removed from the train table that track related information also should be removed from the other tables.

DELETE FROM train WHERE id="KP11";

SELECT * FROM train;

```
KP11L|CST-KYN_LOCAL
T129|CST-TNA_LOCAL
A63|CST-DL_LOCAL
K101|CST-KYN_LOCAL
N27|CST-TNA_LOCAL
S33|CST-KGR_LOCAL
A65|CST-AMR_LOCAL
```