

## LAB ASSIGNMENT 6

In reference to the **Bus database** given below, attempt the following questions:

**The queries to create the tables and the data to be inserted are listed below. Run these queries against the database to have your tables and data ready.**

**Some notes on terms used:**

+ table “bushalts” contains one row for every halt of a bus.

-- id : id of the bus which is the primary key.  
-- seqno : The halt number. Assume that the starting station has seqno as 0.  
-- stcode : station code of this halt.  
-- timein : time at which the bus arrives at this station. (will be null for the starting station of a bus)  
-- timeout: time at which the bus departs this station. (will be null for the terminating station of a bus)  
-- If a bus passes through a station without stopping, then there will be an entry with timein = timeout.

+ table “track” stores the distances between directly connected stations stcode1 and stcode2.

-- Assume that this represents a directed track. i.e., for two stations A and B, there will be an entry corresponding to (A, B, distance) and another for (B, A, distance).

**Script to be run to set up the tables and insert the respective data with the following constraints:**

- The stcode of table bushalts is the code which is available in the station table only.
- The track table should have distance value greater than 0.
- The seqno of the table bushalts should be automatically generated using the “SEQUENCE”.

create table bus (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 ,	create table bushalts (id varchar(5) , seqno integer , stcode varchar(10),

primary key (stcode1, stcode2) );	timein varchar(5) , timeout varchar(5) , primary key (id, seqno) );
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insert into bus values ('KP11' , 'ST-KYN');

insert into bus values ('KP11L' , 'ST-KYN\_LOCAL');

insert into bus values ('T129' , 'ST-TNA\_LOCAL');

insert into bus values ('A63' , 'ST-DL\_LOCAL');

insert into bus values ('K101' , 'ST-KYN\_LOCAL');

insert into bus values ('N27' , 'ST-TNA\_LOCAL');

insert into bus values ('S33' , 'ST-KGR\_LOCAL');

insert into bus values ('A65' , 'ST-AMR\_LOCAL');

insert into station values ('ST' , '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 ('ST' , 'BYC' , 5);

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

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

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

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

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

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

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

insert into track values ('ST' , '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 bushalts values ('KP11' , 0 , 'ST' , NULL , '20.23');

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

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

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

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

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

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

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

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

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

insert into bushalts values ('A65' , 0 , 'ST' , NULL , '20.52');

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

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

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

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

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

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

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

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

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**After the database tables and data are set; write the following queries:**

1. Display all the pairs of stations with total distance for given source and destinations.
2. Find the pairs of stations (station codes) which have a track with distance more than 15km between them.
3. Find the IDs of all the buses which have a stop at DADAR.
4. Find the ordered list of names of all buses that start at THANE.
5. List all the stations in order of visit by the bus 'ST-DL\_LOCAL'.
6. Find the name of the buses which stop at KALYAN, before the 3rd stop in the route of the bus.
7. Display the pair of stations (i.e. station names) having maximum distance between them.
8. Display id of the bushalt having highest time out.
9. Remove Track "ST" 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.
10. Remove Track "KP11" from the bus table. If any bus is removed from the bus table that track related information also should be removed from the other tables.
11. Delete the train "KP11" and all halt stations of that train.