



AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

Course: Introduction to Database

Section: M

Course Teacher: Md. Sohidul Islum

Group No: 5

Project Title: Bus Rapid Transit Management System

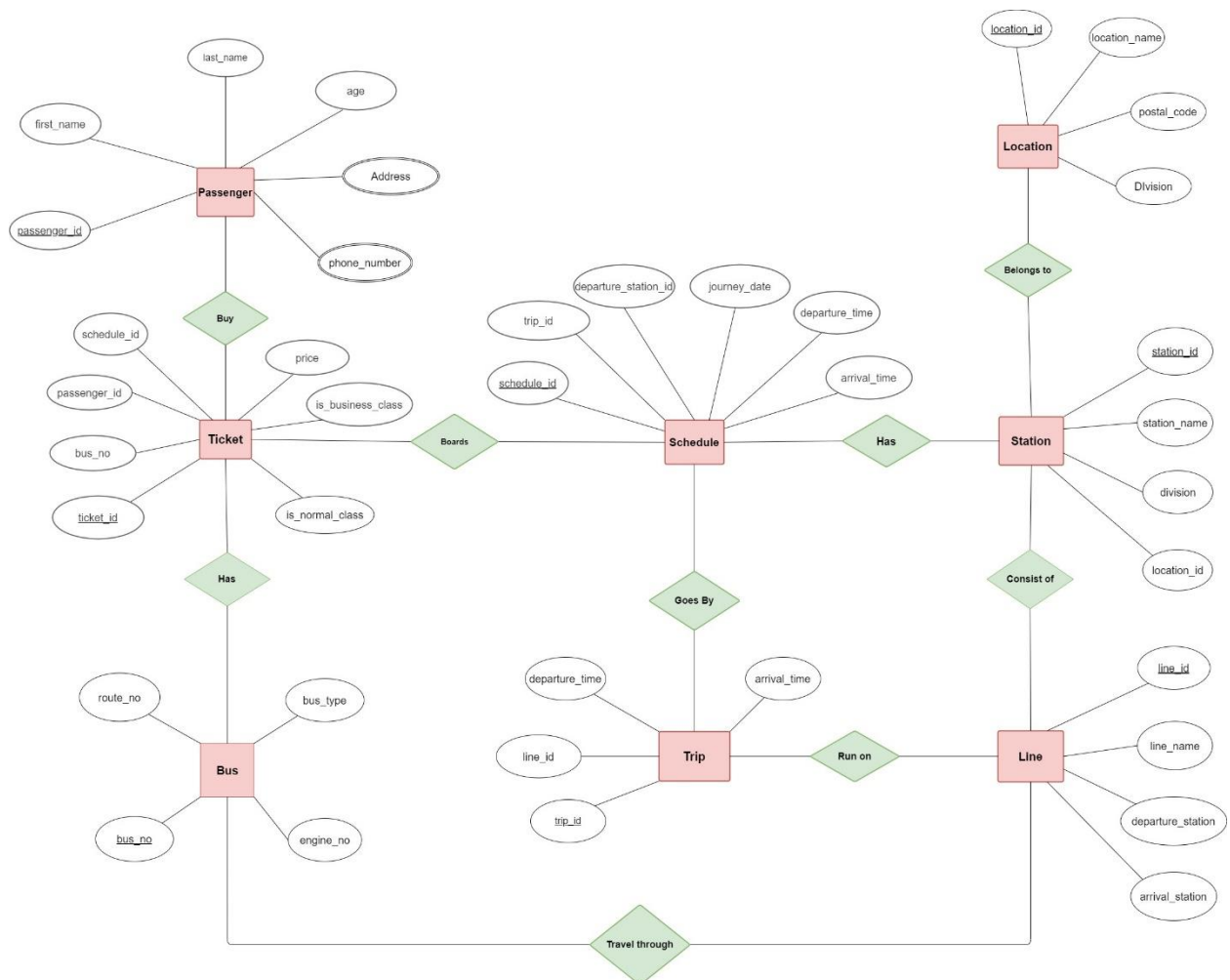
Group:

Serial	Name	ID
05	Sneha Fairuz Zahin	20-41912-1
15	Mim Dolona Aktar	20-42511-1
25	Life Md.Abrar Shariar	20-42876-1
35	Shakib Sadat Shanto	20-43074-1
45	Ahmed Munim	20-43303-1

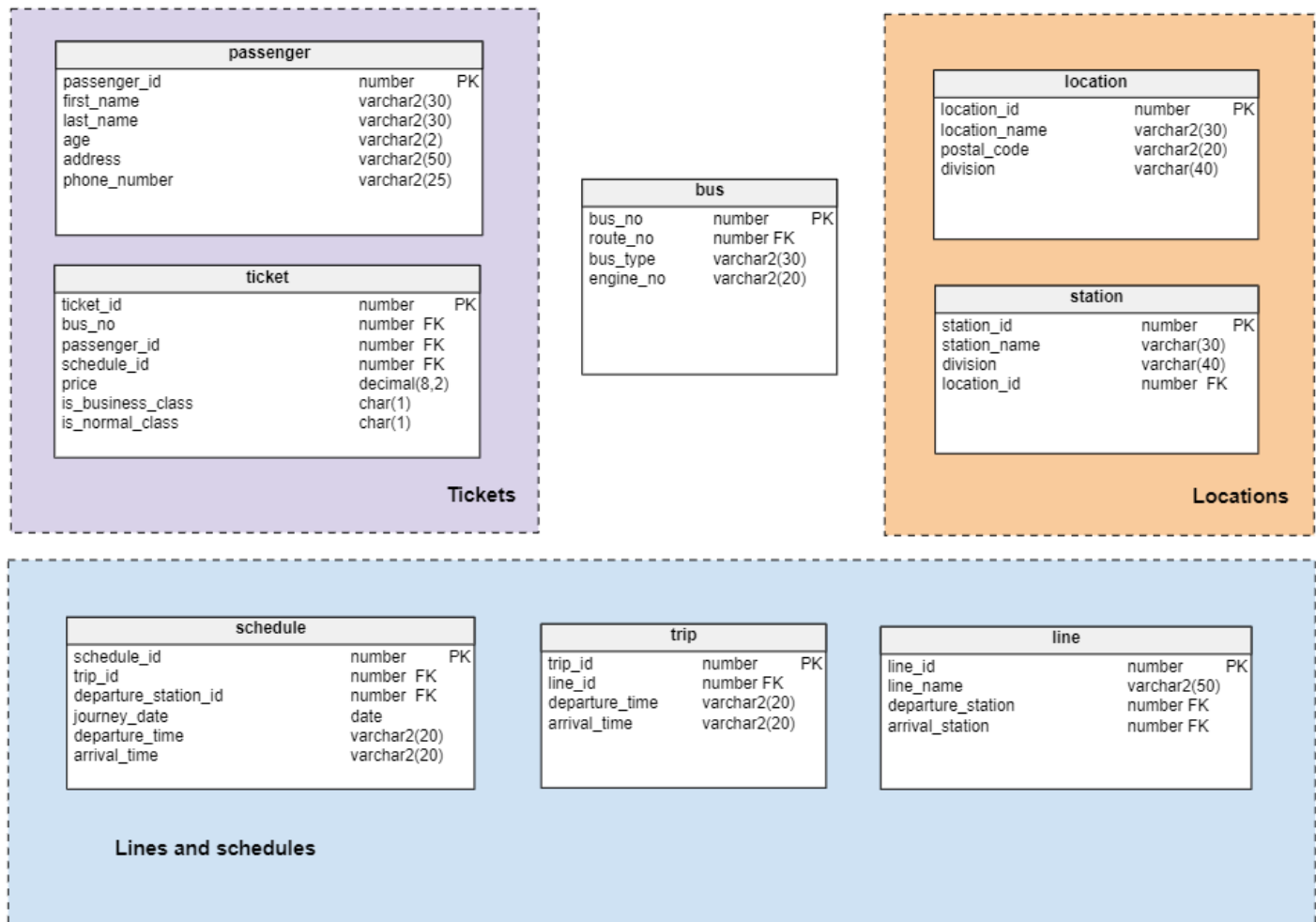
Scenario Description:

Bus Rapid Transit requires a database containing the Passenger, Location, Station, Line, Trip, Bus, Schedule and Ticket. Passenger has passenger_id, first_name, last_name, age, address, phone_number. Passenger buys Ticket. Ticket has ticket_id, bus_no, passenger_id, schedule_id, price, is_business_class, is_normal_class. Bus has Ticket. Bus has bus_no, route_no, bus_type, engine_no. Bus runs on Line. Line has line_id, line_name, departure_station, arrival_station. Line has Station. Station station_id, station_name, division, location_id. Station belongs to Location. Location has location_id, location_name, postal_code, division. Ticket has Schedule. Schedule has schedule_id, trip_id, departure_station_id, journey_date, departure_time, arrival_time. Trip goes by Schedule. Ticket belongs to Schedule.

E-R DIAGRAM



Normalization



(Blue -Primary Key & Red- Foreign Key)

Location-Station

Contains- ([location_id](#), location_name, postal_code, division, [station_id](#), station_name)

1NF- No multivalued attribute

2NF- 1. location_id, location_name, postal_code, division

2. station_id, station_name, division

Table list-

1. location_id, location_name, postal_code, division

2. station_id, station_name, division, location_id

Station-Line-Trip-Schedule

Contains- (station_id, station_name, division, line_id, line_name, trip_id, departure_time, arrival_time, schedule_id, journey_date)

1NF- No multivalued attribute

2NF- 1. station_id, station_name, division

2. line_id, line_name

3. trip_id, departure_time, arrival_time

4. schedule_id, journey_date

Table list-

1. station_id, station_name, division, location_id

2. line_id, line_name, arrival_station, departure_station

3. trip_id, line_id, departure_time, arrival_time

4. schedule_id, departure_time arrival_time, date, trip_id, departure_station_id

Line-BUS

Contains-(line_id, line_name, bus_no, bus type, engine_no)

1NF. No multivalued attributes

2NF. 1. line_id, line_name

2. bus_no, bus type, engine_no

Table list-

1. line_id, line_name, arrival_station, departure_station
2. bus_no, route_no, bus type, engine_no

Passenger-Ticket -Bus-Schedule

Contains- (passenger_id , first_name, last_name , age, address, phone_number, ticket_id, price, is_business_class, is_normal_class, bus_no, bus_type, engine_no, schedule_id, journey_date)

1NF. Already Normalized.

- 2NF. 1. passenger_id , first_name, last_name , age, address, phone_number
2. ticket_id, price, is_business_class, is_normal_class
 3. bus_no, bus_type, engine_no
 4. schedule_id, journey_date

Table list-

1. passenger_id , first_name, last_name , age, address, phone_number
2. ticket_id, bus_no, passenger_id, price, is_business_class, is_normal_class
3. bus_no, route_no, bus type, engine_no
4. schedule_id, departure_time arrival_time, date, trip_id, departure_station_id

FINAL TABLE LIST-

1. (Passenger)- passenger_id , first_name, last_name , age, address, phone_number
2. (Location)- location_id, location_name, postal_code, division
3. (Station)- station_id, station_name, division, location_id
4. (Line)- line_id, line_name, arrival_station, departure_station
5. (Trip)- trip_id, line_id, departure_time, arrival_time
6. (Bus)- bus_no, route_no, bus type, engine_no
7. (Schedule)- schedule_id, departure_time arrival_time, date, trip_id, departure_station_id
8. (Ticket)- ticket_id, bus_no, passenger_id, price, is_business_class, is_normal_class

TABLE CREATE & DATA INSERT

Table – Passenger

Home > SQL > SQL Commands

☒ Autocommit Display 10

```
create table passenger(  
  passenger_id number CONSTRAINT PK_PASSENGER PRIMARY KEY,  
  first_name varchar2(30),  
  last_name varchar2(30),  
  age varchar2(10),  
  address varchar2(50),  
  phone_number varchar2(25));  
  
describe passenger|
```

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **PASSENGER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PASSENGER	PASSENGER_ID	Number	-	-	-	1	-	-	-
	FIRST_NAME	Varchar2	30	-	-	-	✓	-	-
	LAST_NAME	Varchar2	30	-	-	-	✓	-	-
	AGE	Varchar2	10	-	-	-	✓	-	-
	ADDRESS	Varchar2	50	-	-	-	✓	-	-
	PHONE_NUMBER	Varchar2	25	-	-	-	✓	-	-
									1 - 6

Language: en-gb

☒ Autocommit Display 10 ▾

```
INSERT INTO passenger VALUES (101,'Jashim', 'Ahmed','50', '2/C Mohammadpur','01911488325');
INSERT INTO passenger VALUES (102,'Morshed', 'Ahmed','45', '4/C Mohammadpur','01910498325');
INSERT INTO passenger VALUES (103,'Jamil', 'Ahmed','20', 'Block-D, Mohammadpur','0194088005');
INSERT INTO passenger VALUES (104,'Sakib', 'Mohammad','27', '9/C Dhanmondi','0191199425');
INSERT INTO passenger VALUES (105,'Rahmat', 'Khan','30', 'Mirpur14','01811499501');
INSERT INTO passenger VALUES (106,'Niloy', 'Ahmed','35', 'Mirpur11','01821499325');
INSERT INTO passenger VALUES (107,'Mohammad', 'Ali','20', '7/C Kolabagan','01719195525');
INSERT INTO passenger VALUES (108,'Mina', 'Rahman','37', 'Mirpur10','01711994325');
INSERT INTO passenger VALUES (109,'Faiza', 'Rahman','21', '3/C Kolabagan','01711488919');
INSERT INTO passenger VALUES (110,'Karim', 'Mohammad','57', '10/C Dhanmondi','01719777325');
INSERT INTO passenger VALUES (111,'Sabiha', 'Sultana','32', '6/C Banani','01711400325');
INSERT INTO passenger VALUES (112,'Hikmat', 'Ali','22', 'Mirpur10','01845466325');
```

Select * from passenger

Results Explain Describe Saved SQL History

PASSENGER_ID	FIRST_NAME	LAST_NAME	AGE	ADDRESS	PHONE_NUMBER
101	Jashim	Ahmed	50	2/C Mohammadpur	01911488325
102	Morshed	Ahmed	45	4/C Mohammadpur	01910498325
103	Jamil	Ahmed	20	Block-D, Mohammadpur	0194088005
104	Sakib	Mohammad	27	9/C Dhanmondi	0191199425
105	Rahmat	Khan	30	Mirpur14	01811499501
106	Niloy	Ahmed	35	Mirpur11	01821499325
107	Mohammad	Ali	20	7/C Kolabagan	01719195525
108	Mina	Rahman	37	Mirpur10	01711994325
109	Faiza	Rahman	21	3/C Kolabagan	01711488919
110	Karim	Mohammad	57	10/C Dhanmondi	01719777325
More than 10 rows available. Increase rows selector to view more rows.					

10 rows returned in 0.11 seconds

[CSV Export](#)

TABLE- Location

Home > SQL > SQL Commands

☒ Autocommit Display 10 ▼

```
create table location(  
  location_id number CONSTRAINT PK_LOCATION PRIMARY KEY,  
  location_name varchar2(30),  
  postal_code varchar2(20),  
  division varchar2(40));
```

Describe location

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **LOCATION**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>LOCATION</u>	<u>LOCATION_ID</u>	Number	-	-	-	1	-	-	-
	<u>LOCATION_NAME</u>	Varchar2	30	-	-	-	✓	-	-
	<u>POSTAL_CODE</u>	Varchar2	20	-	-	-	✓	-	-
	<u>DIVISION</u>	Varchar2	40	-	-	-	✓	-	-
									1 - 4

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO location values(111,'Gulistan','1213','Dhaka');
INSERT INTO location values(222,'Savar','1340','Dhaka');
INSERT INTO location values(333,'Bhola','8300','Barisal');
INSERT INTO location values(444,'Iqbal Park','4365','Chittagong');
INSERT INTO location values(555,'Jalalabad','4214','Chittagong');
INSERT INTO location values(666,'HobiganjSadar','3300','Sylhet');
INSERT INTO location values(777,'Bhaluka','2240','Mymensingh');
INSERT INTO location values(888,'Taraganj','5420','Rangpur');
INSERT INTO location values(999,'Bhabaniganj','6250','Rajshahi');
INSERT INTO location values(112,'Benapole','7431','Khulna');
```

```
Select * FROM location;
```

Results Explain Describe Saved SQL History

LOCATION_ID	LOCATION_NAME	POSTAL_CODE	DIVISION
111	Gulistan	1213	Dhaka
222	Savar	1340	Dhaka
333	Bhola	8300	Barisal
444	Iqbal Park	4365	Chittagong
555	Jalalabad	4214	Chittagong
666	HobiganjSadar	3300	Sylhet
777	Bhaluka	2240	Mymensingh
888	Taraganj	5420	Rangpur
999	Bhabaniganj	6250	Rajshahi
112	Benapole	7431	Khulna

10 rows returned in 0.00 seconds

[CSV Export](#)

TABLE-Station

Home > SQL > SQL Commands

☒ Autocommit Display 10

```
CREATE table station(  
  station_id number CONSTRAINT PK_STATION PRIMARY KEY,  
  station_name varchar2(30),  
  division varchar2(40),  
  location_id number CONSTRAINT FK_LOCATION_ID REFERENCES LOCATION);  
  
Describe station
```

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **STATION**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STATION	STATION_ID	Number	-	-	-	1	-	-	-
	STATION_NAME	Varchar2	30	-	-	-	✓	-	-
	DIVISION	Varchar2	40	-	-	-	✓	-	-
	LOCATION_ID	Number	-	-	-	-	✓	-	-
1 - 4									

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO station values(9001, 'Golap Sha Majar Bus Stand', 'Dhaka', '111');
INSERT INTO station values(9002, 'Savar Bazar Bus Stand', 'Dhaka', '222');
INSERT INTO station values(9003, 'Bhola Bus Terminal', 'Barisal', '333');
INSERT INTO station values(9004, 'Iqbal Park Bus Stand', 'Chittagong', '444');
INSERT INTO station values(9005, 'Hath Hajari Bus Terminal', 'Chittagong', '555');
INSERT INTO station values(9006, 'Habiganj Bus Stand', 'Sylhet', '666');
INSERT INTO station values(9007, 'Hazir Bazar Bhaluka Bus Stop', 'Mymensingh', '777');
INSERT INTO station values(9008, 'Soleyasha Bus Stopage', 'Rangpur', '888');
INSERT INTO station values(9009, 'Dwipnagar Bus Stop', 'Rajshahi', '999');
INSERT INTO station values(9010, 'Benapole Bus Terminal', 'Khulna', '112');
```

```
SELECT * FROM station;
```

Results Explain Describe Saved SQL History

STATION_ID	STATION_NAME	DIVISION	LOCATION_ID
9001	Golap Sha Majar Bus Stand	Dhaka	111
9002	Savar Bazar Bus Stand	Dhaka	222
9003	Bhola Bus Terminal	Barisal	333
9004	Iqbal Park Bus Stand	Chittagong	444
9005	Hath Hajari Bus Terminal	Chittagong	555
9006	Habiganj Bus Stand	Sylhet	666
9007	Hazir Bazar Bhaluka Bus Stop	Mymensingh	777
9008	Soleyasha Bus Stopage	Rangpur	888
9009	Dwipnagar Bus Stop	Rajshahi	999
9010	Benapole Bus Terminal	Khulna	112

10 rows returned in 0.00 seconds

[CSV Export](#)

TABLE-Line

Home > SQL > SQL Commands

☒ Autocommit Display 10 ▼

```
CREATE table line(  
  line_id number CONSTRAINT PK_LINE PRIMARY KEY,  
  line_name varchar2(50),  
  departure_station number CONSTRAINT FK_DEPARTURE_STATION REFERENCES STATION,  
  arrival_station number CONSTRAINT FK_ARRIVAL_STATION REFERENCES STATION);  
  
describe line;  
|
```

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **LINE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
LINE	LINE_ID	Number	-	-	-	1	-	-	-
	LINE_NAME	Varchar2	50	-	-	-	✓	-	-
	DEPARTURE_STATION	Number	-	-	-	-	✓	-	-
	ARRIVAL_STATION	Number	-	-	-	-	✓	-	-
									1 - 4

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO line values(112233, 'DHAKA-SYLHET ROUTE', '9001', '9006');
INSERT INTO line values(112244, 'DHAKA-CHITTAGONG ROUTE', 9001, 9004);
INSERT INTO line values(112255, 'DHAKA-RAJSHAHI ROUTE', 9001, 9009);
INSERT INTO line values(112266, 'DHAKA-RANGPUR ROUTE', 9001, 9008);
INSERT INTO line values(112277, 'DHAKA-BARISAL ROUTE', 9001, 9003);
INSERT INTO line values(112288, 'DHAKA-KHULNA ROUTE', 9001, 9010);
INSERT INTO line values(112299, 'DHAKA-MYMENSINGH ROUTE', 9001, 9007);
INSERT INTO line values(113333, 'DHAKA-CHITTAGONG-2 ROUTE', 9002, 9005);
INSERT INTO line values(114433, 'MYMENSINGH-SYLHET ROUTE', 9007, 9006);
INSERT INTO line values(115533, 'CHITTAGONG-BARISAL ROUTE', 9005, 9003);
```

```
SELECT * FROM line;
```

Results Explain Describe Saved SQL History

LINE_ID	LINE_NAME	DEPARTURE_STATION	ARRIVAL_STATION
112233	DHAKA-SYLHET ROUTE	9001	9006
112244	DHAKA-CHITTAGONG ROUTE	9001	9004
112255	DHAKA-RAJSHAHI ROUTE	9001	9009
112266	DHAKA-RANGPUR ROUTE	9001	9008
112277	DHAKA-BARISAL ROUTE	9001	9003
112288	DHAKA-KHULNA ROUTE	9001	9010
112299	DHAKA-MYMENSINGH ROUTE	9001	9007
113333	DHAKA-CHITTAGONG-2 ROUTE	9002	9005
114433	MYMENSINGH-SYLHET ROUTE	9007	9006
115533	CHITTAGONG-BARISAL ROUTE	9005	9003

10 rows returned in 0.00 seconds

[CSV Export](#)

TABLE-Trip

Home > SQL > SQL Commands

☒ Autocommit Display 10 ▼

```
CREATE TABLE trip(  
trip_id number CONSTRAINT PK_TRIP PRIMARY KEY,  
line_id number CONSTRAINT FK_LINE_ID REFERENCES LINE,  
departure_time varchar2(20),  
arrival_time varchar2(20));
```

describe trip

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **TRIP**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TRIP	TRIP_ID	Number	-	-	-	1	-	-	-
	LINE_ID	Number	-	-	-	-	✓	-	-
	DEPARTURE_TIME	Varchar2	20	-	-	-	✓	-	-
	ARRIVAL_TIME	Varchar2	20	-	-	-	✓	-	-
									1 - 4

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO trip values(202101, '112233', '09:30 AM', '03:30 PM');
INSERT INTO trip values(202102, '112244', '10:30 AM', '06:00 PM');
INSERT INTO trip values(202103, '112255', '11:30 PM', '05:30 AM');
INSERT INTO trip values(202104, '112266', '07:30 AM', '12:30 PM');
INSERT INTO trip values(202105, '112277', '12:00 AM', '06:30 AM');
INSERT INTO trip values(202106, '112288', '10:30 AM', '04:30 PM');
INSERT INTO trip values(202107, '112299', '06:30 AM', '11:30 AM');
INSERT INTO trip values(202108, '113333', '10:30 PM', '04:30 AM');
INSERT INTO trip values(202109, '114433', '11:00 AM', '05:00 PM');
INSERT INTO trip values(202110, '115533', '08:00 AM', '02:30 PM');
```

```
Select * FROM trip
```

Results Explain Describe Saved SQL History

TRIP_ID	LINE_ID	DEPARTURE_TIME	ARRIVAL_TIME
202101	112233	09:30 AM	03:30 PM
202102	112244	10:30 AM	06:00 PM
202103	112255	11:30 PM	05:30 AM
202104	112266	07:30 AM	12:30 PM
202105	112277	12:00 AM	06:30 AM
202106	112288	10:30 AM	04:30 PM
202107	112299	06:30 AM	11:30 AM
202108	113333	10:30 PM	04:30 AM
202109	114433	11:00 AM	05:00 PM
202110	115533	08:00 AM	02:30 PM

10 rows returned in 0.00 seconds

[CSV Export](#)

TABLE- Bus

Home > SQL > SQL Commands

☒ Autocommit Display 10 ▼

```
CREATE table bus(  
  bus_no number CONSTRAINT PK_BUS PRIMARY KEY,  
  route_no number CONSTRAINT FK_ROUTE_NO REFERENCES LINE,  
  bus_type varchar2(30),  
  engine_no varchar2(20));
```

describe bus

Results Explain Describe Saved SQL History

Object Type **TABLE** Object **BUS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
BUS	BUS_NO	Number	-	-	-	1	-	-	-
	ROUTE_NO	Number	-	-	-	-	✓	-	-
	BUS_TYPE	Varchar2	30	-	-	-	✓	-	-
	ENGINE_NO	Varchar2	20	-	-	-	✓	-	-
									1 - 4

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO bus values(1001, '112233', 'Business Class', 'VC100458');
INSERT INTO bus values(1002, '112244', 'Normal Class', 'BW289034');
INSERT INTO bus values(1003, '112255', 'Business Class', 'AQ976645');
INSERT INTO bus values(1004, '112266', 'Normal Class', 'MH125640');
INSERT INTO bus values(1005, '112277', 'Normal Class', 'NB214908');
INSERT INTO bus values(1006, '112288', 'Business Class', 'FN321540');
INSERT INTO bus values(1007, '112299', 'Business Class', 'NX705478');
INSERT INTO bus values(1008, '113333', 'Normal Class', 'AZ032489');
INSERT INTO bus values(1009, '114433', 'Normal Class', 'BX756832');
INSERT INTO bus values(1010, '115533', 'Business Class', 'KR650712');
```

```
SELECT * FROM bus;
```

Results Explain Describe Saved SQL History

BUS_NO	ROUTE_NO	BUS_TYPE	ENGINE_NO
1001	112233	Business Class	VC100458
1002	112244	Normal Class	BW289034
1003	112255	Business Class	AQ976645
1004	112266	Normal Class	MH125640
1005	112277	Normal Class	NB214908
1006	112288	Business Class	FN321540
1007	112299	Business Class	NX705478
1008	113333	Normal Class	AZ032489
1009	114433	Normal Class	BX756832
1010	115533	Business Class	KR650712

10 rows returned in 0.00 seconds

[CSV Export](#)

TABLE- Schedule

Home > SQL > SQL Commands

☒ Autocommit **Display** 10 ▼

```
CREATE TABLE SCHEDULE(  
  schedule_id number CONSTRAINT PK_SCHEDULE PRIMARY KEY,  
  trip_id number CONSTRAINT FK_TRIP_ID REFERENCES TRIP,  
  departure_station_id number CONSTRAINT FK_DEPARTURE_STATION_ID REFERENCES STATION,  
  journey_date DATE,  
  departure_time varchar2(20),  
  arrival_time varchar2(20)  
);  
  
describe schedule
```

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **SCHEDULE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>SCHEDULE</u>	<u>SCHEDULE_ID</u>	Number	-	-	-	1	-	-	-
	<u>TRIP_ID</u>	Number	-	-	-	-	✓	-	-
	<u>DEPARTURE_STATION_ID</u>	Number	-	-	-	-	✓	-	-
	<u>JOURNEY_DATE</u>	Date	7	-	-	-	✓	-	-
	<u>DEPARTURE_TIME</u>	Varchar2	20	-	-	-	✓	-	-
	<u>ARRIVAL_TIME</u>	Varchar2	20	-	-	-	✓	-	-
									1 - 6

Language: en-gb

User: C##SCOTT

Home > SQL > **SQL Commands**

☒ Autocommit **Display** 10 ▼

```
INSERT INTO schedule values(9991, '202101', '9001', to_date('15-01-2021','DD-MM-YYYY'),'09:30 AM', '03:30 PM');
INSERT INTO schedule values(9992, '202102', '9001', to_date('17-01-2021','DD-MM-YYYY'),'10:30 AM', '06:00 PM');
INSERT INTO schedule values(9993, '202103', '9001', to_date('21-01-2021','DD-MM-YYYY'),'11:30 PM', '05:30 AM');
INSERT INTO schedule values(9994, '202104', '9001', to_date('02-02-2021','DD-MM-YYYY'),'07:30 AM', '12:30 PM');
INSERT INTO schedule values(9995, '202105', '9001', to_date('19-02-2021','DD-MM-YYYY'),'12:00 AM', '06:30 AM');
INSERT INTO schedule values(9996, '202106', '9001', to_date('14-03-2021','DD-MM-YYYY'),'10:30 AM', '04:30 PM');
INSERT INTO schedule values(9997, '202107', '9001', to_date('17-03-2021','DD-MM-YYYY'),'10:30 AM', '04:30 PM');
INSERT INTO schedule values(9998, '202108', '9002', to_date('25-03-2021','DD-MM-YYYY'),'10:30 PM', '04:30 AM');
INSERT INTO schedule values(9999, '202109', '9007', to_date('30-03-2021','DD-MM-YYYY'),'11:00 AM', '05:00 PM');
INSERT INTO schedule values(9910, '202110', '9005', to_date('11-04-2021','DD-MM-YYYY'),'08:00 AM', '02:30 PM');

SELECT * FROM schedule;
```

Results Explain Describe Saved SQL History

SCHEDULE_ID	TRIP_ID	DEPARTURE_STATION_ID	JOURNEY_DATE	DEPARTURE_TIME	ARRIVAL_TIME
9991	202101	9001	15-JAN-21	09:30 AM	03:30 PM
9992	202102	9001	17-JAN-21	10:30 AM	06:00 PM
9993	202103	9001	21-JAN-21	11:30 PM	05:30 AM
9994	202104	9001	02-FEB-21	07:30 AM	12:30 PM
9995	202105	9001	19-FEB-21	12:00 AM	06:30 AM
9996	202106	9001	14-MAR-21	10:30 AM	04:30 PM
9997	202107	9001	17-MAR-21	10:30 AM	04:30 PM
9998	202108	9002	25-MAR-21	10:30 PM	04:30 AM
9999	202109	9007	30-MAR-21	11:00 AM	05:00 PM
9910	202110	9005	11-APR-21	08:00 AM	02:30 PM

10 rows returned in 0.05 seconds

[CSV Export](#)

Language: en-gb

TABLE- Ticket

Home > SQL > SQL Commands

☒ Autocommit Display 10 ▼

```
CREATE TABLE TICKET(  
  ticket_id varchar(30) CONSTRAINT PK_TICKET PRIMARY KEY,  
  bus_no number CONSTRAINT FK_BUS_NO REFERENCES BUS,  
  passenger_id number CONSTRAINT FK_PASSENGER_ID REFERENCES PASSENGER,  
  schedule_id number CONSTRAINT FK_SCHEDULE_ID REFERENCES SCHEDULE,  
  price DECIMAL(8,2),  
  is_business_class char(1),  
  is_normal_class char(1)  
);
```

describe ticket

Results Explain Describe Saved SQL History

Object Type TABLE Object TICKET

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TICKET	<u>TICKET_ID</u>	Varchar2	30	-	-	1	-	-	-
	<u>BUS_NO</u>	Number	-	-	-	-	✓	-	-
	<u>PASSENGER_ID</u>	Number	-	-	-	-	✓	-	-
	<u>SCHEDULE_ID</u>	Number	-	-	-	-	✓	-	-
	<u>PRICE</u>	Number	-	8	2	-	✓	-	-
	<u>IS_BUSINESS_CLASS</u>	Char	1	-	-	-	✓	-	-
	<u>IS_NORMAL_CLASS</u>	Char	1	-	-	-	✓	-	-
1 - 7									

Language: en-gb

☒ Autocommit Display 10 ▼

```
INSERT INTO ticket values('AA102', '1001', '103', '9991', '850.00', 'Y', 'N');
INSERT INTO ticket values('AD234', '1002', '105', '9992', '450.00', 'N', 'Y');
INSERT INTO ticket values('AC157', '1003', '109', '9993', '900.00', 'Y', 'N');
INSERT INTO ticket values('AY189', '1004', '107', '9994', '500.00', 'N', 'Y');
INSERT INTO ticket values('AM212', '1005', '101', '9995', '470.00', 'N', 'Y');
INSERT INTO ticket values('AT309', '1006', '102', '9996', '950.00', 'Y', 'N');
INSERT INTO ticket values('AE789', '1007', '108', '9997', '1050.00', 'Y', 'N');
INSERT INTO ticket values('AG587', '1008', '104', '9998', '550.00', 'N', 'Y');
INSERT INTO ticket values('AL825', '1009', '110', '9999', '450.00', 'N', 'Y');
INSERT INTO ticket values('AV490', '1010', '106', '9910', '850.00', 'Y', 'N');
```

```
SELECT* FROM ticket;
```

Results Explain Describe Saved SQL History

TICKET_ID	BUS_NO	PASSENGER_ID	SCHEDULE_ID	PRICE	IS_BUSINESS_CLASS	IS_NORMAL_CLASS
AA102	1001	103	9991	850	Y	N
AD234	1002	105	9992	450	N	Y
AC157	1003	109	9993	900	Y	N
AY189	1004	107	9994	500	N	Y
AM212	1005	101	9995	470	N	Y
AT309	1006	102	9996	950	Y	N
AE789	1007	108	9997	1050	Y	N
AG587	1008	104	9998	550	N	Y
AL825	1009	110	9999	450	N	Y
AV490	1010	106	9910	850	Y	N

10 rows returned in 0.00 seconds

[CSV Export](#)

SOURCE CODE

TABLE- Passenger

```
create table passenger(  
passenger_id number CONSTRAINT PK_PASSENGER PRIMARY KEY,  
first_name varchar2(30),  
last_name varchar2(30),  
age varchar2(10),  
address varchar2(50),  
phone_number varchar2(25));  
  
describe passenger;  
  
INSERT INTO passenger VALUES (101,'Jashim', 'Ahmed','50', '2/C Mohammadpur','01911488325');  
INSERT INTO passenger VALUES (102,'Morshed', 'Ahmed','45', '4/C Mohammadpur','01910498325');  
INSERT INTO passenger VALUES (103,'Jamil', 'Ahmed','20', 'Block-D, Mohammadpur','0194088005');  
  
INSERT INTO passenger VALUES (104,'Sakib', 'Mohammad','27', '9/C Dhanmondi','0191199425');  
INSERT INTO passenger VALUES (105,'Rahmat', 'Khan','30', 'Mirpur14','01811499501');  
INSERT INTO passenger VALUES (106,'Niloy', 'Ahmed','35', 'Mirpur11','01821499325');  
INSERT INTO passenger VALUES (107,'Mohammad', 'Ali','20', '7/C Kolabagan','01719195525');  
INSERT INTO passenger VALUES (108,'Mina', 'Rahman','37', 'Mirpur10','01711994325');  
INSERT INTO passenger VALUES (109,'Faiza', 'Rahman','21', '3/C Kolabagan','01711488919');  
INSERT INTO passenger VALUES (110,'Karim', 'Mohammad','57', '10/C Dhanmondi','01719777325');  
INSERT INTO passenger VALUES (111,'Sabiha', 'Sultana','32', '6/C Banani','01711400325');
```

```
INSERT INTO passenger VALUES (112,'Hikmat', 'Ali','22', 'Mirpur10','01845466325');  
  
select * from passenger;
```

TABLE- Location

```
create table location(  
location_id number CONSTRAINT PK_LOCATION PRIMARY KEY,  
location_name varchar2(30),  
postal_code varchar2(20),  
division varchar2(40));  
  
describe location;  
  
INSERT INTO location values(111,'Gulistan','1213','Dhaka');  
INSERT INTO location values(222,'Savar','1340','Dhaka');  
INSERT INTO location values(333,'Bhola','8300','Barisal');  
INSERT INTO location values(444,'Iqbal Park','4365','Chittagong');  
INSERT INTO location values(555,'Jalalabad','4214','Chittagong');  
INSERT INTO location values(666,'HobiganjSadar','3300','Sylhet');  
INSERT INTO location values(777,'Bhaluka','2240','Mymensingh');  
INSERT INTO location values(888,'Taraganj','5420','Rangpur');  
INSERT INTO location values(999,'Bhabaniganj','6250','Rajshahi');  
INSERT INTO location values(112,'Benapole','7431','Khulna');  
  
select * from location;
```



TABLE- Station

```
CREATE table station(  
station_id number CONSTRAINT PK_STATION PRIMARY KEY,  
station_name varchar2(30),  
division varchar2(40),  
location_id number CONSTRAINT FK_LOCATION_ID REFERENCES LOCATION);  
describe station;
```



```
INSERT INTO station values(9001, 'Golap Sha Majar Bus Stand', 'Dhaka', '111');  
INSERT INTO station values(9002, 'Savar Bazar Bus Stand', 'Dhaka', '222');  
INSERT INTO station values(9003, 'Bhola Bus Terminal', 'Barisal', '333');  
INSERT INTO station values(9004, 'Iqbal Park Bus Stand', 'Chittagong', '444');  
INSERT INTO station values(9005, 'Hath Hajari Bus Terminal', 'Chittagong', '555');  
INSERT INTO station values(9006, 'Habiganj Bus Stand', 'Sylhet', '666');  
INSERT INTO station values(9007, 'Hazir Bazar Bhaluka Bus Stop', 'Mymensingh', '777');  
INSERT INTO station values(9008, 'Soleyasha Bus Stopage', 'Rangpur', '888');  
INSERT INTO station values(9009, 'Dwipnagar Bus Stop', 'Rajshahi', '999');  
INSERT INTO station values(9010, 'Benapole Bus Terminal', 'Khulna', '112');
```

```
SELECT * FROM station;
```

TABLE- Line

```
CREATE table line(  
line_id number CONSTRAINT PK_LINE PRIMARY KEY,
```

```
line_name varchar2(50),  
arrival_station number CONSTRAINT FK_ARRIVAL_STATION REFERENCES STATION,  
departure_station number CONSTRAINT FK_DEPARTURE_STATION REFERENCES STATION);
```

```
INSERT INTO line values(112233, 'DHAKA-SYLHET ROUTE', '9001', '9006');
```

```
INSERT INTO line values(112244, 'DHAKA-CHITTAGONG ROUTE', 9001, 9004);
```

```
INSERT INTO line values(112255, 'DHAKA-RAJSHAHI ROUTE', 9001, 9009);
```

```
INSERT INTO line values(112266, 'DHAKA-RANGPUR ROUTE', 9001, 9008);
```

```
INSERT INTO line values(112277, 'DHAKA-BARISAL ROUTE', 9001, 9003);
```

```
INSERT INTO line values(112288, 'DHAKA-KHULNA ROUTE', 9001, 9010);
```

```
INSERT INTO line values(112299, 'DHAKA-MYMENSINGH ROUTE', 9001, 9007);
```

```
INSERT INTO line values(113333, 'DHAKA-CHITTAGONG-2 ROUTE', 9002, 9005);
```

```
INSERT INTO line values(114433, 'MYMENSINGH-SYLHET ROUTE', 9007, 9006);
```

```
INSERT INTO line values(115533, 'CHITTAGONG-BARISAL ROUTE', 9005, 9003);
```

```
SELECT * FROM line;
```

TABLE- Trip

```
CREATE TABLE trip(  
trip_id number CONSTRAINT PK_TRIP PRIMARY KEY,  
line_id number CONSTRAINT FK_LINE_ID REFERENCES LINE,
```

```
departure_time varchar2(20),  
arrival_time varchar2(20));
```

```
INSERT INTO trip values(202101, '112233', '09:30 AM', '03:30 PM');  
INSERT INTO trip values(202102, '112244', '10:30 AM', '06:00 PM');  
INSERT INTO trip values(202103, '112255', '11:30 PM', '05:30 AM');  
INSERT INTO trip values(202104, '112266', '07:30 AM', '12:30 PM');  
INSERT INTO trip values(202105, '112277', '12:00 AM', '06:30 AM');  
INSERT INTO trip values(202106, '112288', '10:30 AM', '04:30 PM');  
INSERT INTO trip values(202106, '112288', '10:30 AM', '04:30 PM');  
INSERT INTO trip values(202108, '113333', '10:30 PM', '04:30 AM');  
INSERT INTO trip values(202109, '114433', '11:00 AM', '05:00 PM');  
INSERT INTO trip values(202110, '115533', '08:00 AM', '02:30 PM');
```

```
SELECT * FROM trip;
```

TABLE- Bus

```
CREATE table bus(  
bus_no number CONSTRAINT PK_BUS PRIMARY KEY,  
route_no number CONSTRAINT FK_ROUTE_NO REFERENCES LINE,  
bus_type varchar2(30),  
engine_no varchar2(20));
```

```
describe bus;
```

```
INSERT INTO bus values(1001, '112233', 'Business Class', 'VC100458');
INSERT INTO bus values(1002, '112244', 'Normal Class', 'BW289034');
INSERT INTO bus values(1003, '112255', 'Business Class', 'AQ976645');
INSERT INTO bus values(1004, '112266', 'Normal Class', 'MH125640');
INSERT INTO bus values(1005, '112277', 'Normal Class', 'NB214908');
INSERT INTO bus values(1006, '112288', 'Business Class', 'FN321540');
INSERT INTO bus values(1007, '112299', 'Business Class', 'NX705478');
INSERT INTO bus values(1008, '113333', 'Normal Class', 'AZ032489');
INSERT INTO bus values(1009, '114433', 'Normal Class', 'BX756832');
INSERT INTO bus values(1010, '115533', 'Business Class', 'KR650712');
```

```
SELECT * FROM bus;
```

TABLE- Schedule

```
CREATE TABLE SCHEDULE(
schedule_id number CONSTRAINT PK_SCHEDULE PRIMARY KEY,
trip_id number CONSTRAINT FK_TRIP_ID REFERENCES TRIP,
departure_station_id number CONSTRAINT FK_DEPARTURE_STATION_ID REFERENCES STATION,
journey_date DATE,
departure_time varchar2(20),
arrival_time varchar2(20)
);
describe schedule;
```

```
INSERT INTO schedule values(9991, '202101', '9001', to_date('15-01-2021','DD-MM-YYYY'),'09:30 AM',  
'03:30 PM');
```

```
INSERT INTO schedule values(9992, '202102', '9001', to_date('17-01-2021','DD-MM-YYYY'), '10:30 AM',  
'06:00 PM');
```

```
INSERT INTO schedule values(9993, '202103', '9001', to_date('21-01-2021','DD-MM-YYYY'), '11:30 PM',  
'05:30 AM');
```

```
INSERT INTO schedule values(9994, '202104', '9001', to_date('02-02-2021','DD-MM-YYYY'), '07:30 AM',  
'12:30 PM');
```

```
INSERT INTO schedule values(9995, '202105', '9001', to_date('19-02-2021','DD-MM-YYYY'), '12:00 AM',  
'06:30 AM');
```

```
INSERT INTO schedule values(9996, '202106', '9001', to_date('14-03-2021','DD-MM-YYYY'), '10:30 AM',  
'04:30 PM');
```

```
INSERT INTO schedule values(9997, '202107', '9001', to_date('17-03-2021','DD-MM-YYYY'), '10:30 AM',  
'04:30 PM');
```

```
INSERT INTO schedule values(9998, '202108', '9002', to_date('25-03-2021','DD-MM-YYYY'), '10:30 PM',  
'04:30 AM');
```

```
INSERT INTO schedule values(9999, '202109', '9007', to_date('30-03-2021','DD-MM-YYYY'), '11:00 AM',  
'05:00 PM');
```

```
INSERT INTO schedule values(9910, '202110', '9005', to_date('11-04-2021','DD-MM-YYYY'), '08:00 AM',  
'02:30 PM');
```

```
SELECT * FROM schedule;
```

TABLE- Ticket

```
CREATE TABLE TICKET(
```

```
ticket_id varchar(30) CONSTRAINT PK_TICKET PRIMARY KEY,
```

```
bus_no number CONSTRAINT FK_BUS_NO REFERENCES BUS,
```

```
passenger_id number CONSTRAINT FK_PASSENGER_ID REFERENCES PASSENGER,  
schedule_id number CONSTRAINT FK_SCHEDULE_ID REFERENCES SCHEDULE,  
price DECIMAL(8,2),  
is_business_class char(1),  
is_normal_class char(1)  
);
```

describe ticket;



```
INSERT INTO ticket values('AA102', '1001', '103', '9991', '850.00', 'Y', 'N');  
INSERT INTO ticket values('AA102', '1002', '105', '9992', '450.00', 'N', 'Y');  
INSERT INTO ticket values('AA102', '1003', '109', '9993', '900.00', 'Y', 'N');  
INSERT INTO ticket values('AA102', '1004', '107', '9994', '500.00', 'N', 'Y');  
INSERT INTO ticket values('AA102', '1005', '101', '9995', '470.00', 'N', 'Y');  
INSERT INTO ticket values('AA102', '1006', '102', '9996', '950.00', 'Y', 'N');  
INSERT INTO ticket values('AA102', '1007', '108', '9997', '1050.00', 'Y', 'N');  
INSERT INTO ticket values('AA102', '1008', '104', '9998', '550.00', 'N', 'Y');  
INSERT INTO ticket values('AA102', '1009', '110', '9999', '450.00', 'N', 'Y');  
INSERT INTO ticket values('AA102', '1010', '106', '9910', '850.00', 'Y', 'N');
```

```
INSERT INTO ticket values('AA102', '1001', '103', '9991', '850.00', 'Y', 'N');  
INSERT INTO ticket values('AD234', '1002', '105', '9992', '450.00', 'N', 'Y');  
INSERT INTO ticket values('AC157', '1003', '109', '9993', '900.00', 'Y', 'N');  
INSERT INTO ticket values('AY189', '1004', '107', '9994', '500.00', 'N', 'Y');  
INSERT INTO ticket values('AM212', '1005', '101', '9995', '470.00', 'N', 'Y');
```



```

INSERT INTO ticket values('AT309', '1006', '102', '9996', '950.00', 'Y', 'N');

INSERT INTO ticket values('AE789', '1007', '108', '9997', '1050.00', 'Y', 'N');

INSERT INTO ticket values('AG587', '1008', '104', '9998', '550.00', 'N', 'Y');

INSERT INTO ticket values('AL825', '1009', '110', '9999', '450.00', 'N', 'Y');

INSERT INTO ticket values('AV490', '1010', '106', '9910', '850.00', 'Y', 'N');

SELECT* FROM ticket;

```

IMPORTANT QUERIES

Comparison-

☒ Autocommit
 Display 10

```
select * from passenger where age > 30;
```

[Results](#)
[Explain](#)
[Describe](#)
[Saved SQL](#)
[History](#)

PASSENGER_ID	FIRST_NAME	LAST_NAME	AGE	ADDRESS	PHONE_NUMBER
101	Jashim	Ahmed	50	2/C Mohammadpur	01911488325
102	Morshed	Ahmed	45	4/C Mohammadpur	01910498325
106	Niloy	Ahmed	35	Mirpur11	01821499325
108	Mina	Rahman	37	Mirpur10	01711994325
110	Karim	Mohammad	57	10/C Dhanmondi	01719777325
111	Sabiha	Sultana	32	6/C Banani	01711400325

6 rows returned in 0.03 seconds
 [CSV Export](#)

Limiting Row-

```
select * from schedule where departure_station_id = '9001';
```

[Results](#)
[Explain](#)
[Describe](#)
[Saved SQL](#)
[History](#)

SCHEDULE_ID	TRIP_ID	DEPARTURE_STATION_ID	JOURNEY_DATE	DEPARTURE_TIME	ARRIVAL_TIME
9991	202101	9001	15-JAN-21	09:30 AM	03:30 PM
9992	202102	9001	17-JAN-21	10:30 AM	06:00 PM
9993	202103	9001	21-JAN-21	11:30 PM	05:30 AM
9994	202104	9001	02-FEB-21	07:30 AM	12:30 PM
9995	202105	9001	19-FEB-21	12:00 AM	06:30 AM
9996	202106	9001	14-MAR-21	10:30 AM	04:30 PM

6 rows returned in 0.03 seconds
 [CSV Export](#)

Logical Operators-

☒ Autocommit Display 10

```
select * from location where division = 'Chittagong' or division = 'Rangpur';
```

Results Explain Describe Saved SQL History

LOCATION_ID	LOCATION_NAME	POSTAL_CODE	DIVISION
444	Iqbal Park	4365	Chittagong
555	Jalalabad	4214	Chittagong
888	Taraganj	5420	Rangpur

3 rows returned in 0.03 seconds [CSV Export](#)

Multiple Row Subqueries-

☒ Autocommit Display 10

```
Select * FROM Ticket where schedule_id <> (Select schedule_id FROM schedule where departure_station_id = '9002')
```

Results Explain Describe Saved SQL History

TICKET_ID	BUS_NO	PASSENGER_ID	SCHEDULE_ID	PRICE	IS_BUSINESS_CLASS	IS_NORMAL_CLASS
AA102	1001	103	9991	850	Y	N
AD234	1002	105	9992	450	N	Y
AC157	1003	109	9993	900	Y	N
AY189	1004	107	9994	500	N	Y
AM212	1005	101	9995	470	N	Y
AT309	1006	102	9996	950	Y	N
AE789	1007	108	9997	1050	Y	N
AL825	1009	110	9999	450	N	Y
AV490	1010	106	9910	850	Y	N

9 rows returned in 0.00 seconds [CSV Export](#)

Language: en-gb

Joining Query-

Home > SQL > SQL Commands

☒ Autocommit Display 10

```
Select l.location_id, l.location_name, l.postal_code, l.division, s.station_id, s.station_name, s.division
FROM location l, station s
WHERE l.division=s.division;
```

Results Explain Describe Saved SQL History

LOCATION_ID	LOCATION_NAME	POSTAL_CODE	DIVISION	STATION_ID	STATION_NAME	DIVISION
222	Savar	1340	Dhaka	9001	Golap Sha Majar Bus Stand	Dhaka
111	Gulistan	1213	Dhaka	9001	Golap Sha Majar Bus Stand	Dhaka
222	Savar	1340	Dhaka	9002	Savar Bazar Bus Stand	Dhaka
111	Gulistan	1213	Dhaka	9002	Savar Bazar Bus Stand	Dhaka
333	Bhola	8300	Barisal	9003	Bhola Bus Terminal	Barisal
555	Jalalabad	4214	Chittagong	9004	Iqbal Park Bus Stand	Chittagong
444	Iqbal Park	4365	Chittagong	9004	Iqbal Park Bus Stand	Chittagong
555	Jalalabad	4214	Chittagong	9005	Hath Hajari Bus Terminal	Chittagong
444	Iqbal Park	4365	Chittagong	9005	Hath Hajari Bus Terminal	Chittagong
666	HobiganjSadar	3300	Sylhet	9006	Habiganj Bus Stand	Sylhet

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.12 seconds

[CSV Export](#)

Language: en-gb

VIEW Query-

Home > SQL > SQL Commands

☒ Autocommit Display 10

```
CREATE VIEW scheduledhaka as SELECT schedule_id, trip_id, journey_date FROM schedule where departure_station_id = '9001';
SELECT * FROM scheduledhaka;
```

Results Explain Describe Saved SQL History

SCHEDULE_ID	TRIP_ID	JOURNEY_DATE
9991	202101	15-JAN-21
9992	202102	17-JAN-21
9993	202103	21-JAN-21
9994	202104	02-FEB-21
9995	202105	19-FEB-21
9996	202106	14-MAR-21
9997	202107	17-MAR-21

7 rows returned in 0.00 seconds

[CSV Export](#)

Language: en-gb

Conclusion

This project helped us to understand how to store data in various table and join them. Moreover, it also helped to design a database model while maintain relations between different tables, modify them and retrieve them. We think this project will help us in future to do more database related works.



THANK YOU