AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

Introduction to Database

FALL 2021-2022

Section: D

Topic

Vehicle Renting System

Supervised By

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Submitted By

Name	ID	Contribution
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KANIZ SUBRENA BINTY	20-42916-1	Questions and their solutions.
MUSHFIQ HASAN MUNIM	20-43718-2	Overview
SHIRIN REZA MEDHA	20-42844-1	Screenshot of each table data

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Overview

- Every passenger has their id, name, phone number, birthdate, and address. The passengers are identified by their id. Their phone number must be unique.

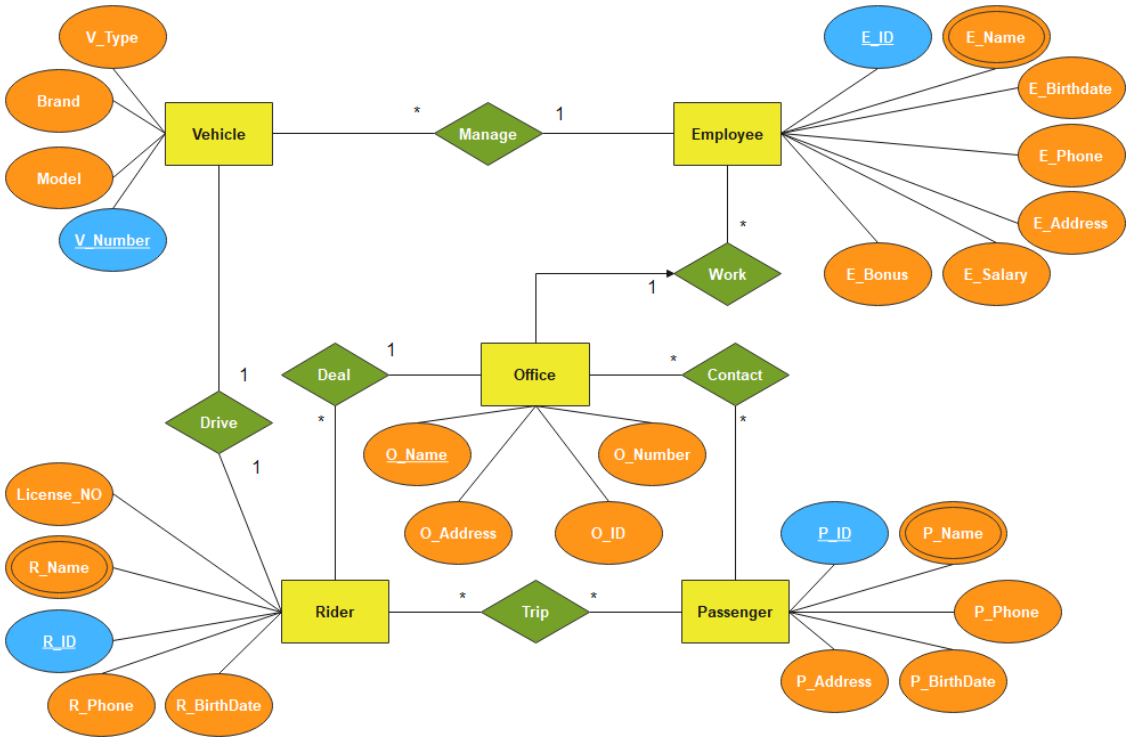
- The passengers called for trip to riders. Every rider has their id, name, driving license number, phone number and birthdate. The riders are identified by their id. Every rider's driving license number must be unique.

- Every rider can drive a vehicle. Every vehicle has a serial number, model, brand and their type like motorcycle, car. The vehicles are identified by their serial number.

- Every vehicle is managed by an employee. Every employee has an id, name, phone number, birthdate, address, salary, and bonus. An employee can manage more than one vehicle. The employees are identified by their id. Their phone number should be unique.

- Every employee can work for an office, but an office can have more than one employee. Every office has id, name, phone number, birthdate, and address. They are identified by their id. Their phone number and name should be unique. The offices deal with riders and contact with passengers.

ERD Diagram



Normalization

Trip (P_ID, P_Name, P_Phone, P_Birthdate, P_Address, R_ID, License_No, R_Name, R_phone, R_BirthDate,)

1NF: P_Name, R_Name, are multivalued attributes.

2NF:

P_ID, P_Name, P_Phone, P_Birthdate, P_Address
R_ID, License_No, R_Name, R_phone, R_BirthDate

3NF:

(No transitive dependency)
P_ID, P_Name, P_Phone, P_Birthdate, P_Address
R_ID, License_No, R_Name, R_phone, R_BirthDate

Table for trip:

1. P_ID, P_Name, P_Phone, P_Birthdate, P_Address
2. R_ID, R_Name, License_No, R_phone, R_BirthDate
3. T_ID, P_ID, R_ID

contact (P_ID, P_Name, P_Phone, P_Birthdate, P_Address, O_Name, O_ID, O_Address, O_Number)

1NF:

P_Name is a multivalued attribute.

2NF:

P_ID, P_Name, P_Phone, P_Birthdate, P_Address
O_ID, O_Name, O_Address, O_Number

3NF:

(No transitive dependency)
P_ID, P_Name, P_Phone, P_Birthdate, P_Address
O_ID, O_Name, O_Address, O_Number

Table for contact:

4. P_ID, P_Name, P_Phone, P_Birthdate, P_Address
5. O_ID, O_Name, O_Address, O_Number
6. C_ID, P_ID, O_ID

Deal (R_ID, License_No, R_Name, R_phone, R_BirthDate, O_Name, O_ID, O_Address, O_Number)

1NF: R_Name is a multivalued attribute.

2NF:

R_ID, License_No, R_Name, R_phone, R_BirthDate
O_ID, O_Name, O_Address, O_Number

3NF:

(No transitive dependency)
R_ID, License_No, R_Name, R_phone, R_BirthDate
O_ID, O_Name, O_Address, O_Number

Table for Deal:

7. R_ID, R_Name, License_No, R_phone, R_BirthDate, O_ID
8. O_ID, O_Name, O_Address, O_Number

Drive (R_ID, License_No, R_Name, R_phone, R_BirthDate, V_Number, V_Type, model, brand)

1NF:

R_Name is a multivalued attribute.

2NF:

R_ID, License_No, R_Name, R_phone, R_BirthDate
V_Number, V_Type, model, brand

3NF:

(Model ,brand and v_type have transitive dependency)
R_ID, License_No, R_Name, R_phone, R_BirthDate
V_Number
M_ID, model, brand, V_Type

Table for Drive:

9. R_ID, R_Name, License_No, R_phone, R_BirthDate, V_Number
10. V_Number, M_ID
11. M_ID, model, brand, V_Type

Manage

(V_Number, V_Type, model, brand, E_ID, E_Name, E_Birthdate, E_Phone, E_Address, E_Salary, E_Bonus)

1NF:

E_Name is a multivalued attribute.

2NF:

V_Number, V_Type, model, brand
E_ID, E_Name, E_Birthdate, E_Phone, E_Address, E_Salary, E_Bonus

3NF:
(Model ,brand and v_type have transitive dependency)

V_Number
M_ID, model, brand , V_Type
E_ID, E_Name, E_Birthdate, E_Phone, E_Address, E_Salary, E_Bonus

Table for Manage:

12. V_Number, M_ID, E_ID
13. M_ID, model, brand, V_Type
14. E_ID, E_Name, E_Birthdate, E_Phone, E_Address, E_Salary, E_Bonus

Work (E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus, O_Name, O_ID, O_Address, O_Number)

1NF:

E_Name is a multivalued attribute.

2NF:

E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus
O_ID, O_Name, O_Address, O_Number

3NF:

(No transitive dependency)
E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus
O_ID, O_Name, O_Address, O_Number

Table for work:

15. E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus, O_ID
16. O_ID, O_Name, O_Address, O_Number

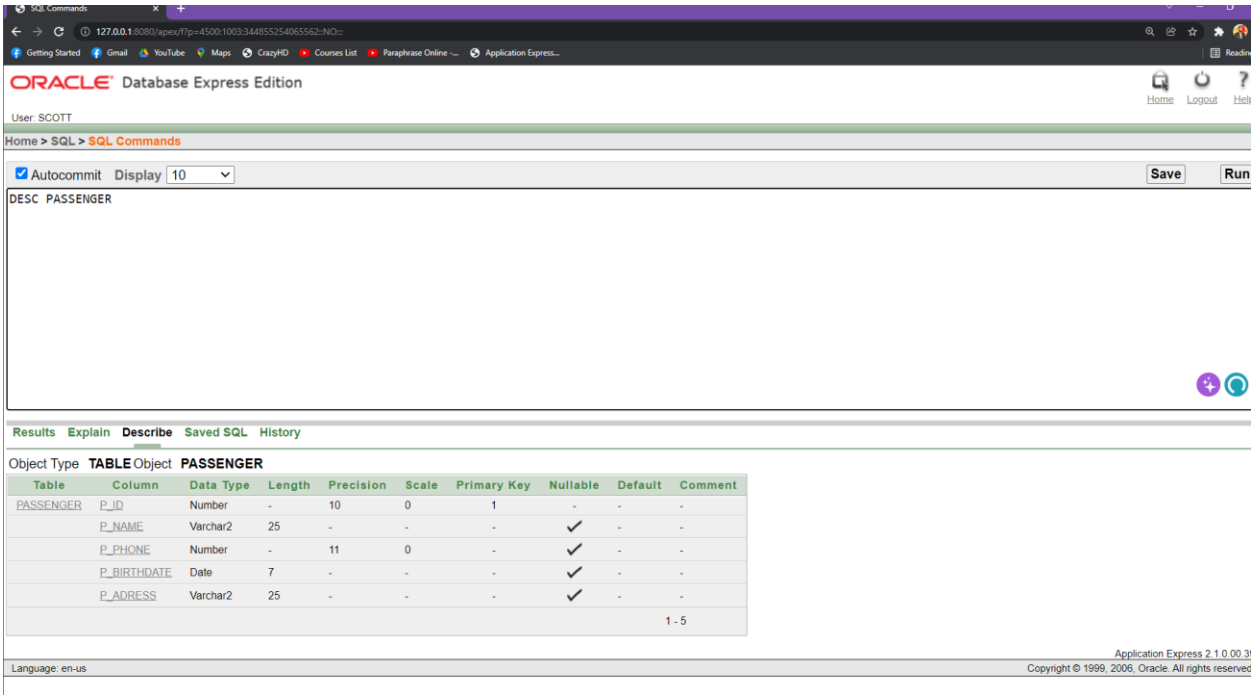
Tables for normalization:

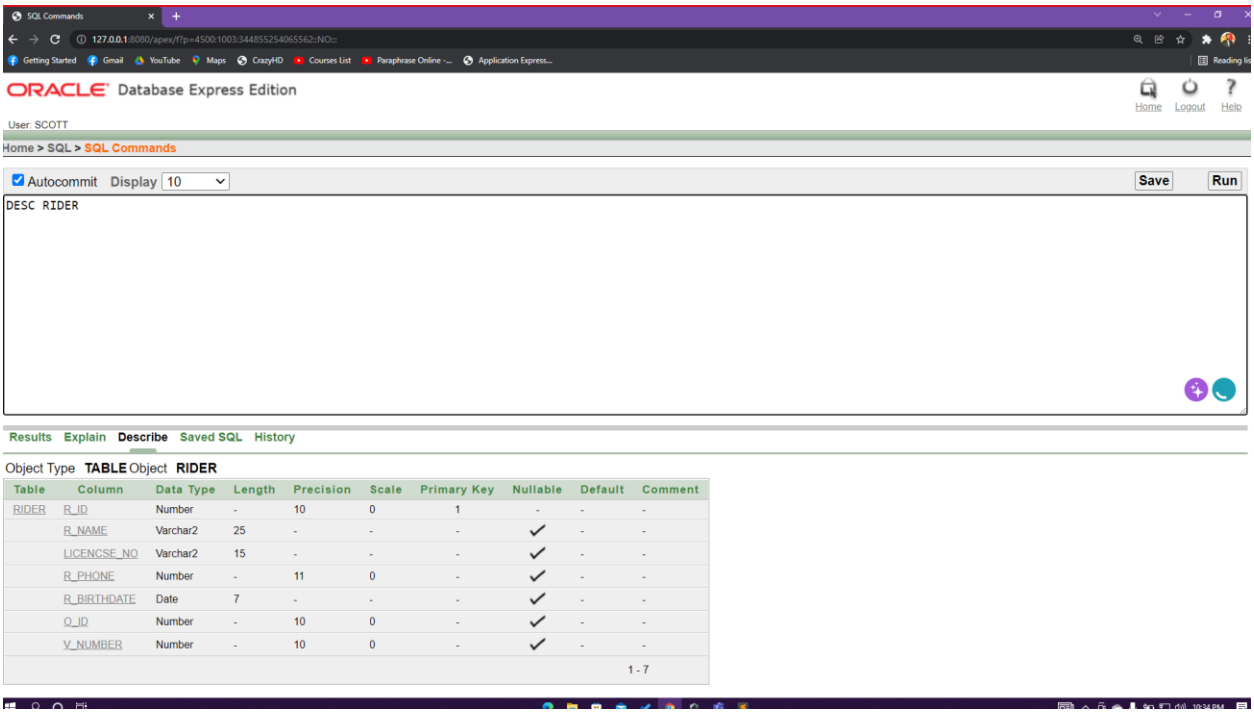
1. P_ID, P_Name, P_Phone, P_Birthdate, P_Address
2. R_ID, R_Name, License_No, R_phone, R_BirthDate
3. T_ID, P_ID, R_ID
4. P_ID, P_Name, P_Phone, P_Birthdate, P_Address
5. O_ID, O_Name, O_Address, O_Number
6. C_ID, P_ID, O_ID
7. R_ID, R_Name, License_No, R_phone, R_BirthDate, O_ID
8. O_ID, O_Name, O_Address, O_Number
9. R_ID, R_Name, License_No, R_phone, R_BirthDate, V_Number
10. V_Number, M_ID
11. M_ID, model, brand, V_Type
12. V_Number, M_ID, E_ID
13. M_ID, model, brand, V_Type
14. E_ID, E_Name, E_Birthdate, E_Phone, E_Address, E_Salary, E_Bonus
15. E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus, O_ID
16. O_ID, O_Name, O_Address, O_Number

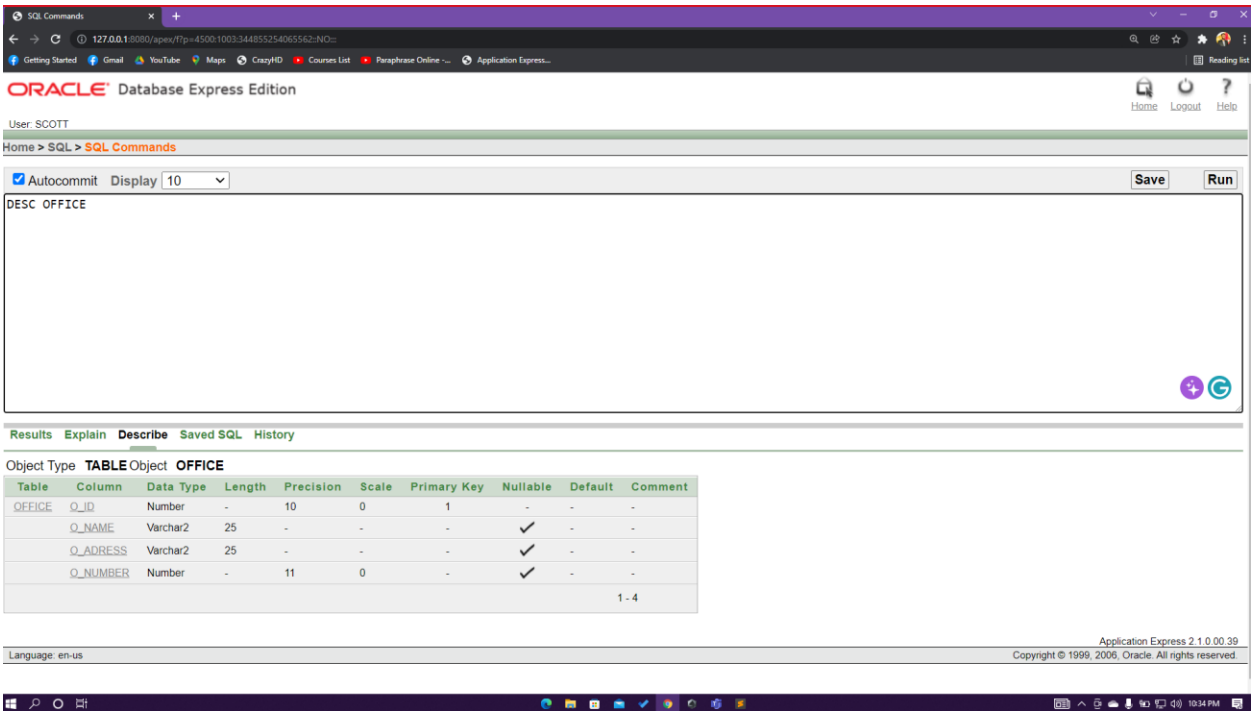
Tables After normalization:

Table Name	Attribute
Passenger	P_ID, P_Name, P_Phone, P_Birthdate, P_Address
Rider	R_ID, R_Name, License_No, R_phone, R_BirthDate, O_ID, V_Number
trip	T_ID, P_ID, R_ID
Office	O_ID, O_Name, O_Address, O_Number
contact	C_ID, P_ID, O_ID
Vehicle	V_Number, M_ID, E_ID
VMB	M_ID, model, brand, V_Type
Employee	E_ID, E_Name, E_BirthDate, E_Phone, E_Address, E_Salary, E_Bonus, O_ID

Description of Each Table



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Data Type
Length
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Scale
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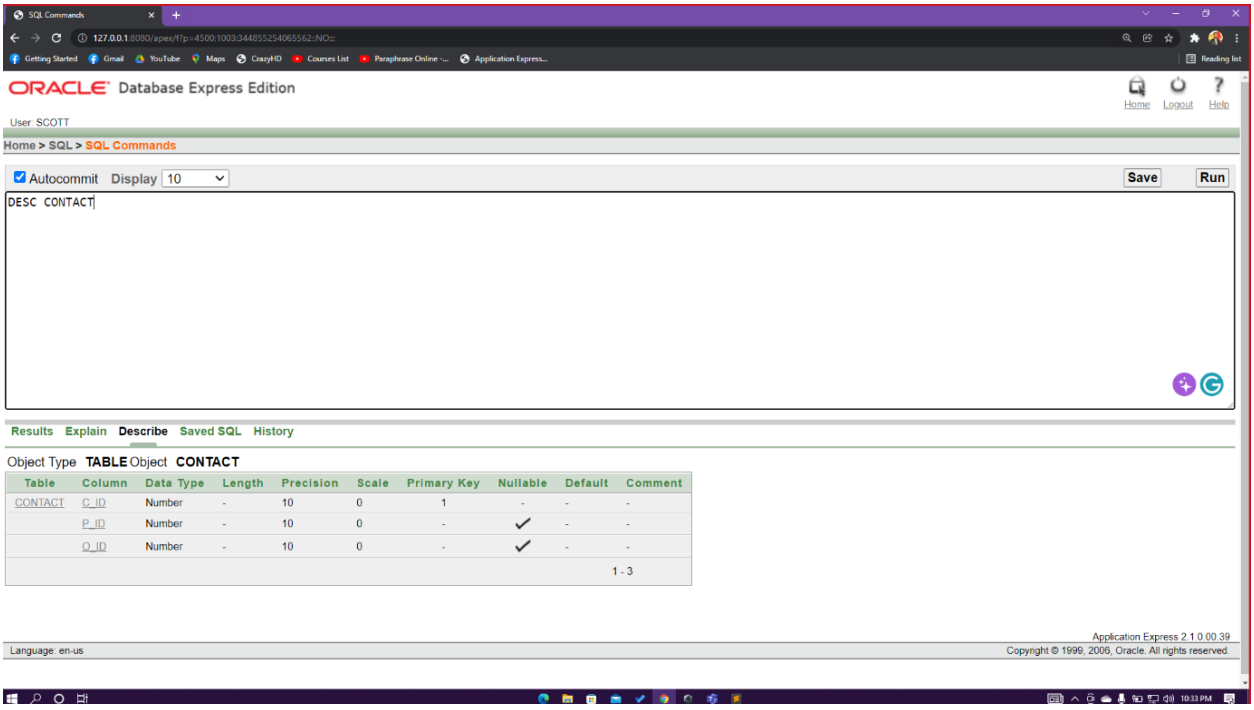
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Explain
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Column
Data Type
Length
Precision
Scale
Primary Key
Nullable
Default
Comment
CONTACT
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Number
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1
P_ID
Number
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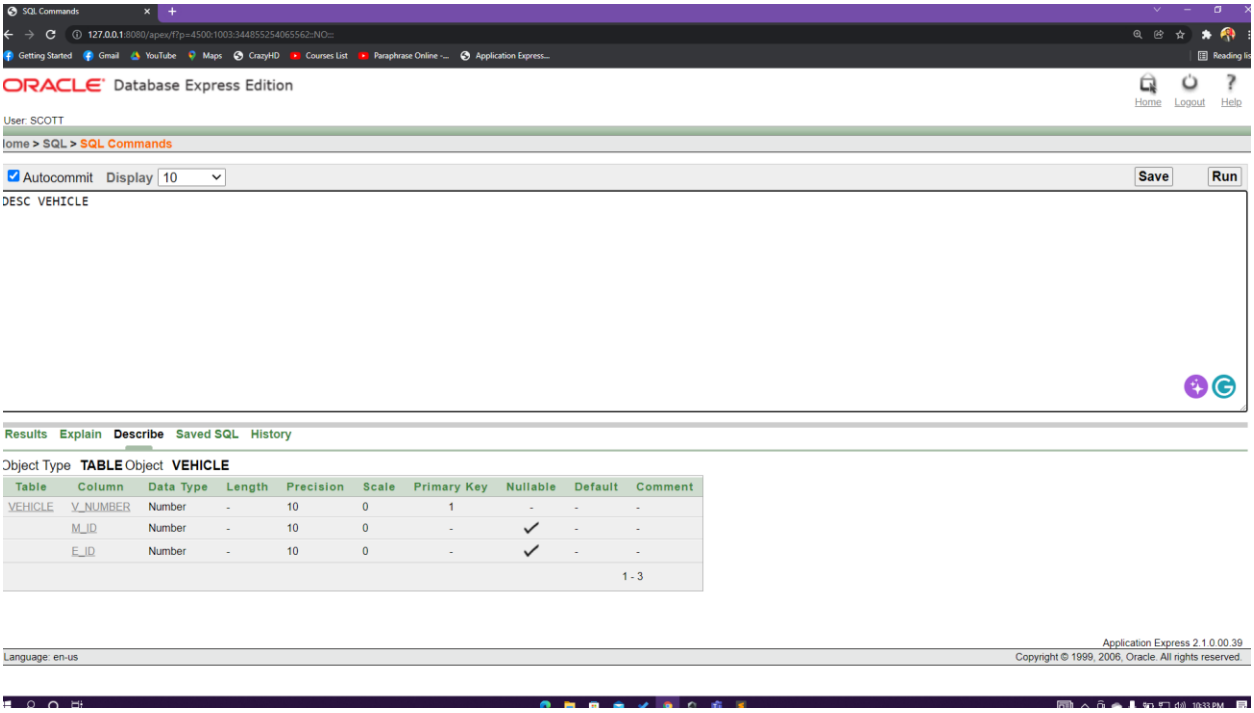
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Data Type
Length
Precision
Scale
Primary Key
Nullable
Default
Comment
VEHICLE
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Number
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M_ID
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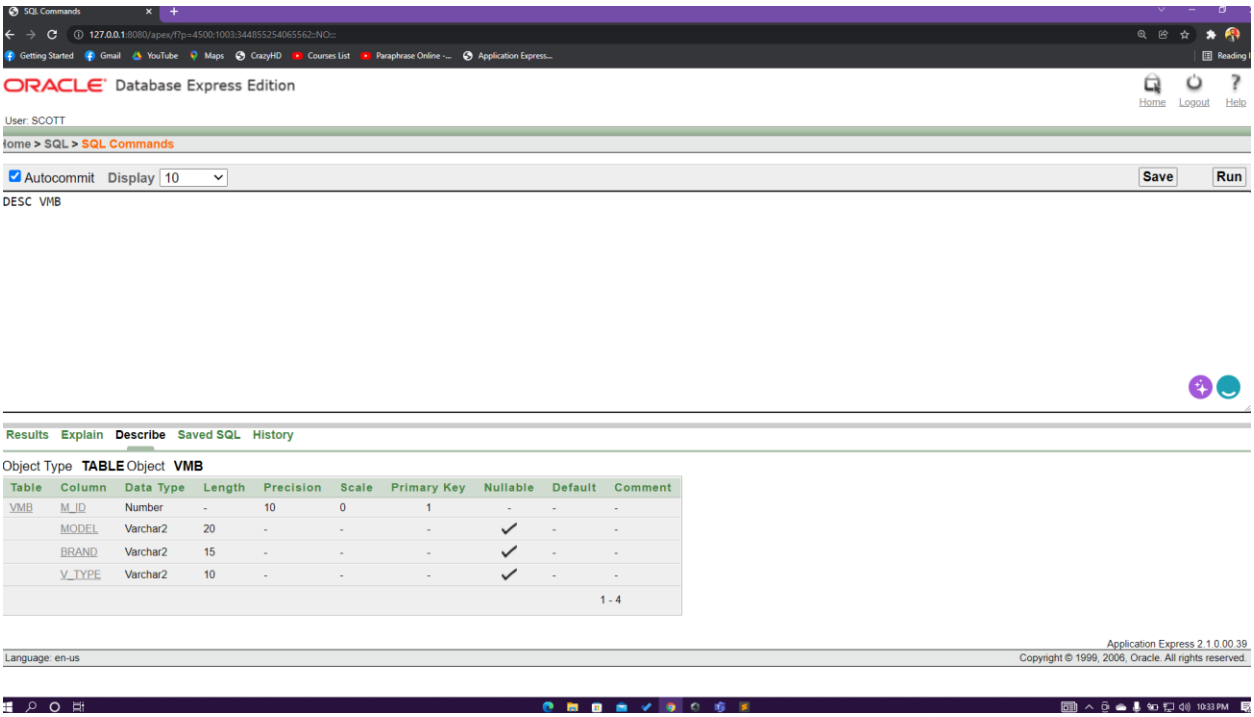
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Precision
Scale
Primary Key
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Comment
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Number
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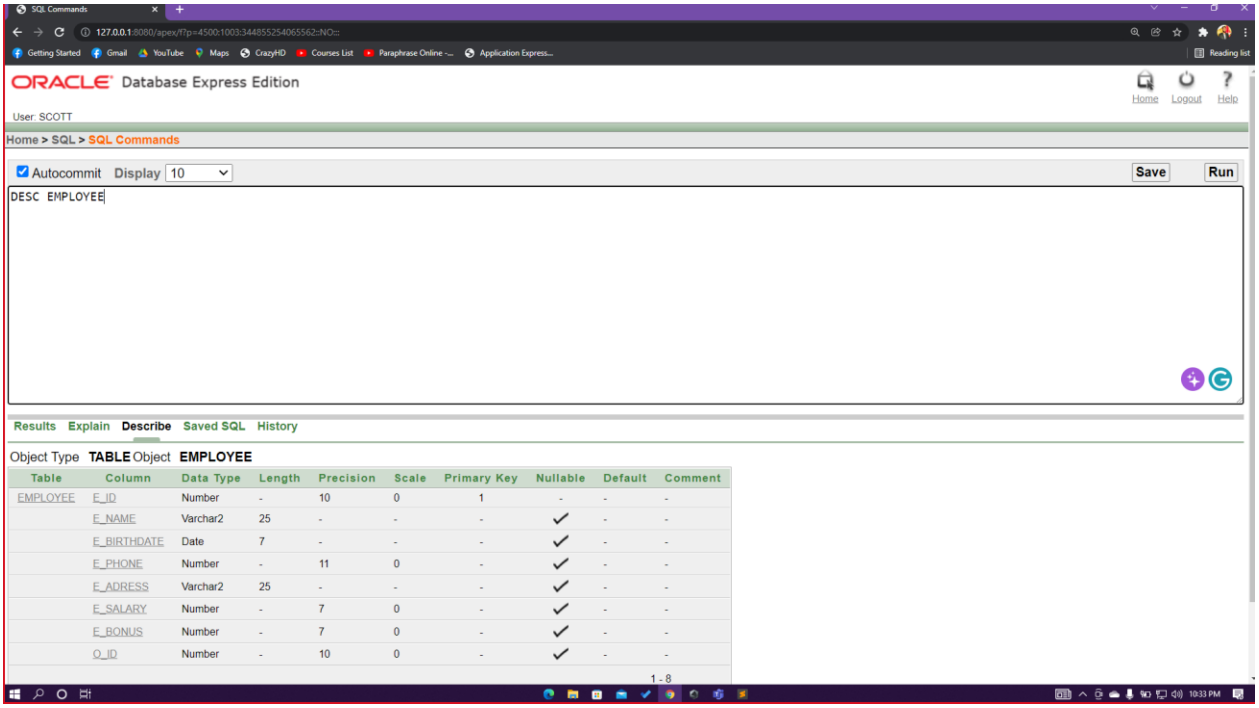
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Scale
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Varchar2
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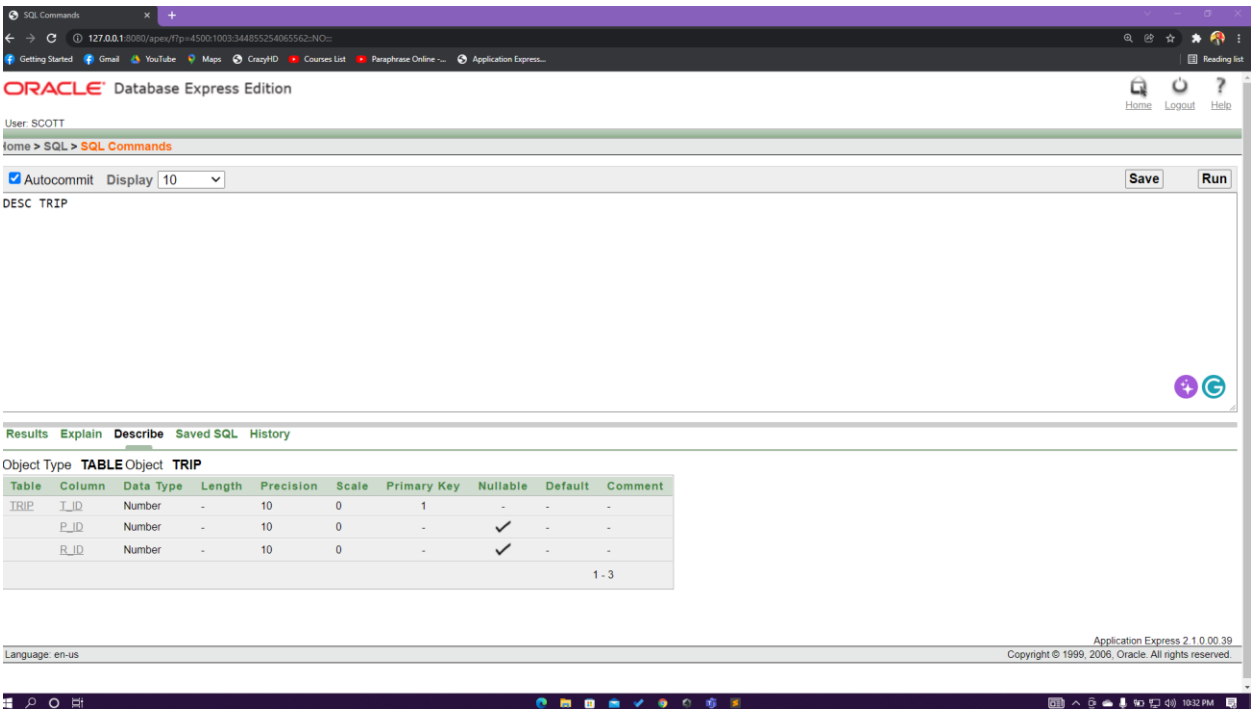
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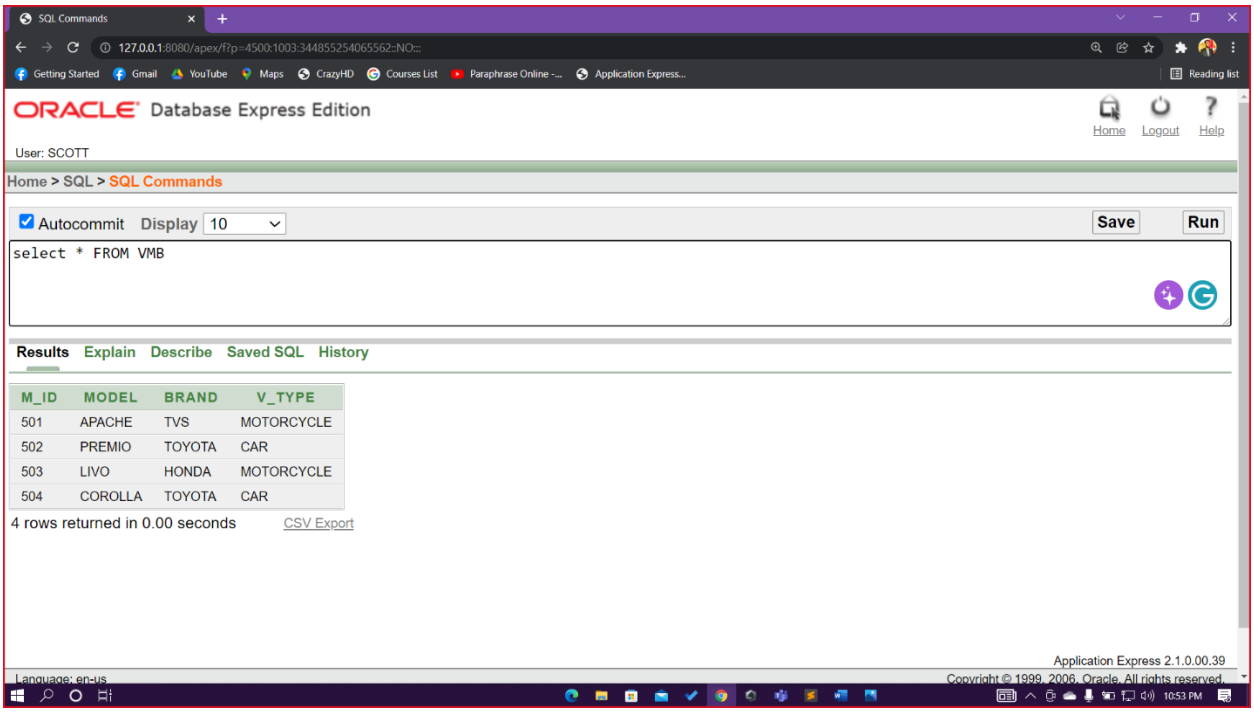
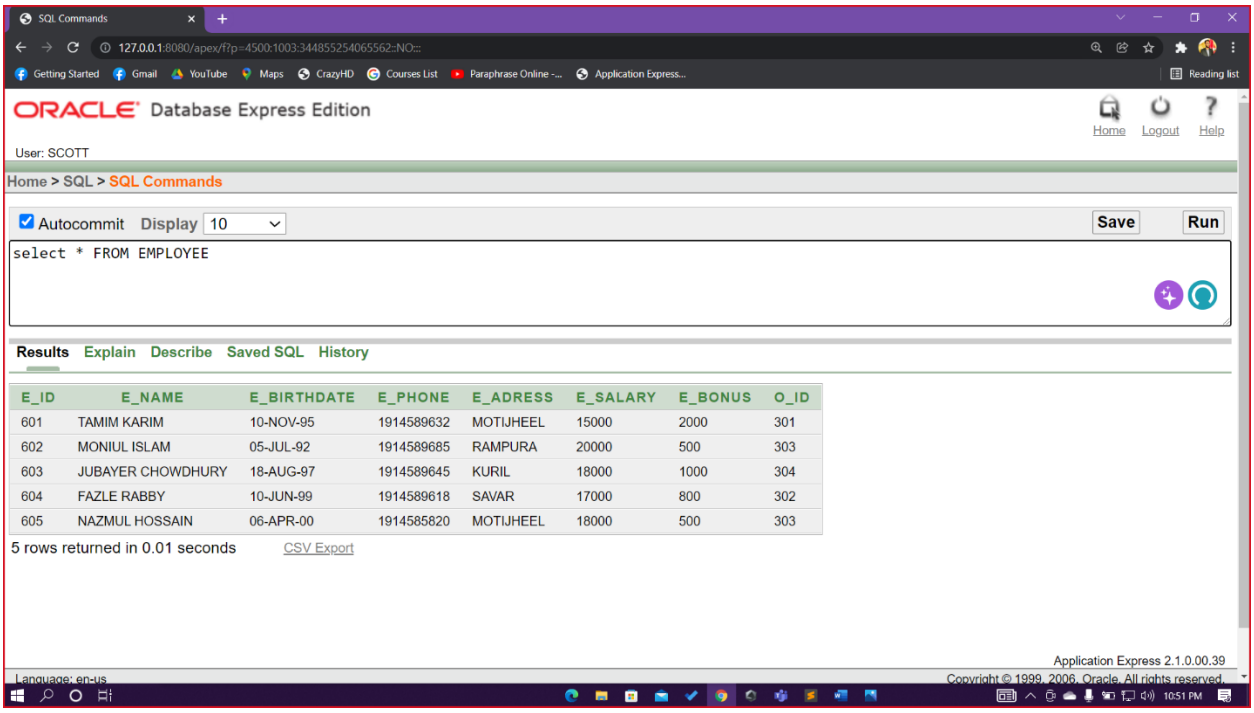
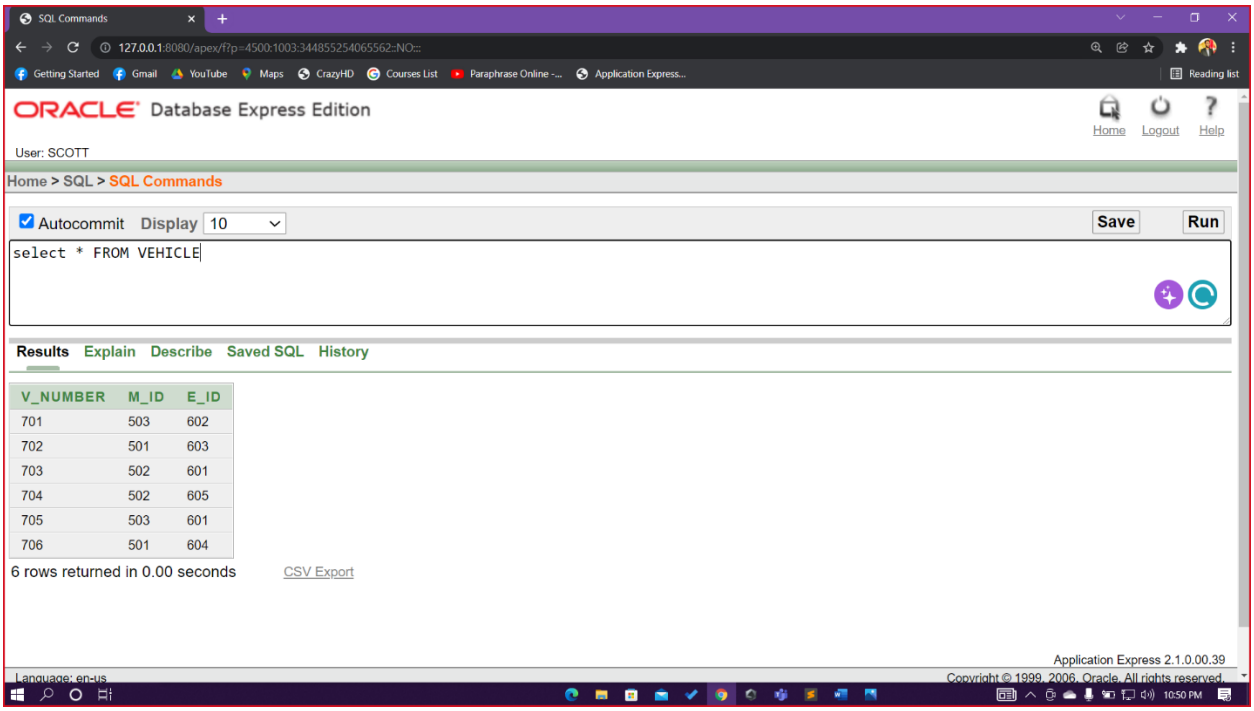
Screenshot of Each Table Data



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Home > SQL > SQL Commands
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Run
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Results
Explain
Describe
Saved SQL
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702 501 603
703 502 601
704 502 605
705 503 601
706 501 604
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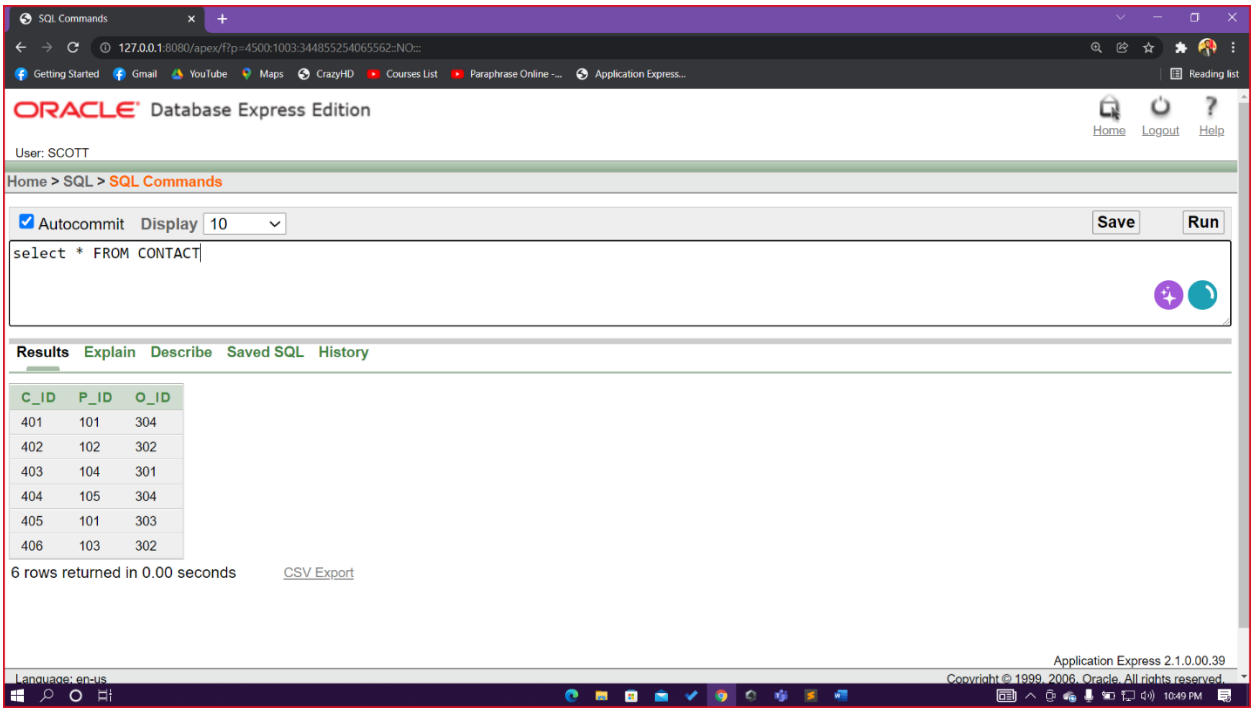
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Autocommit
Display 10
Save
Run
select * FROM CONTACT
Results
Explain
Describe
Saved SQL
History
C_ID P_ID O_ID
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402 102 302
403 104 301
404 105 304
405 101 303
406 103 302
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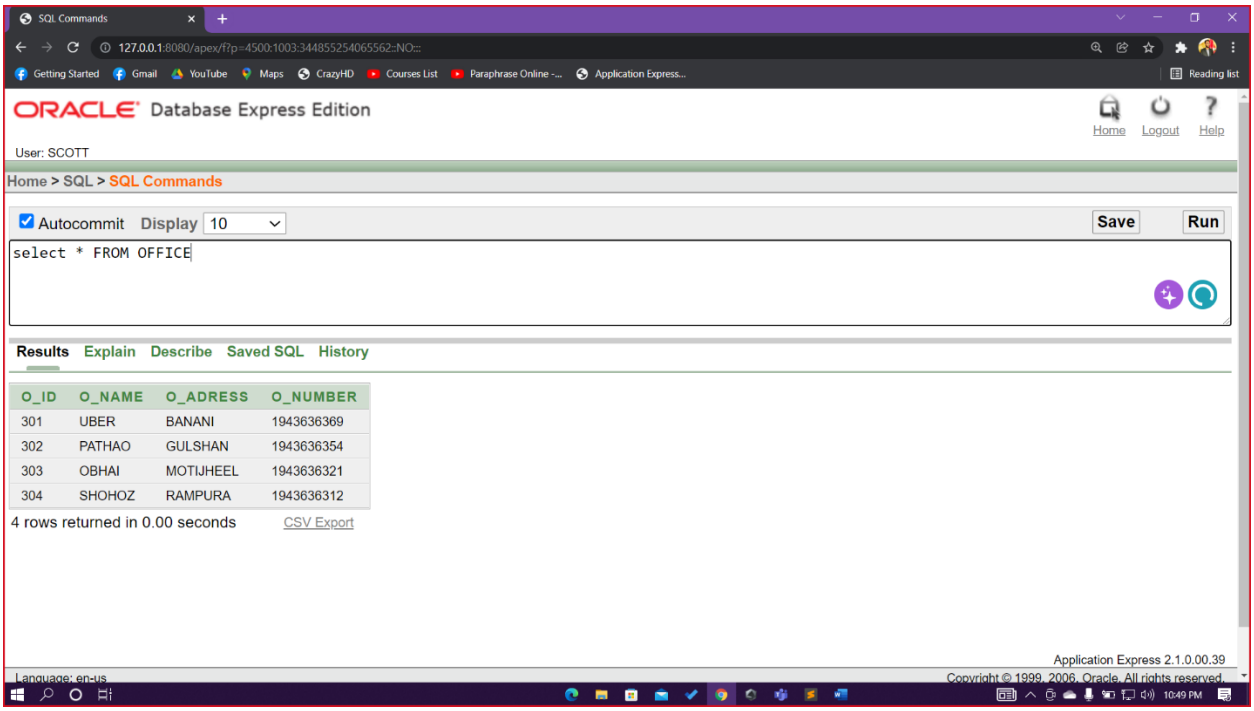
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Run
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Results
Explain
Describe
Saved SQL
History
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302 PATHAO GULSHAN 1943636354
303 OBHAI MOTIJHEEL 1943636321
304 SHOHOZ RAMPURA 1943636312
4 rows returned in 0.00 seconds
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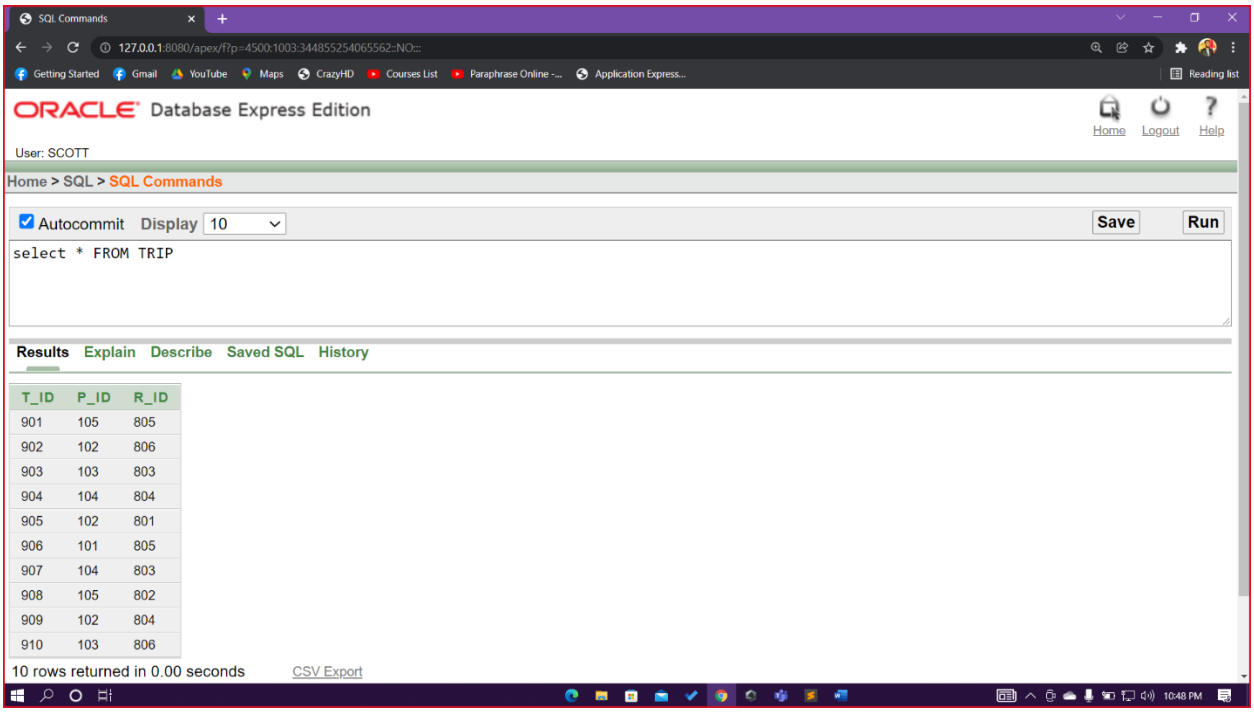
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Describe
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902 102 806
903 103 803
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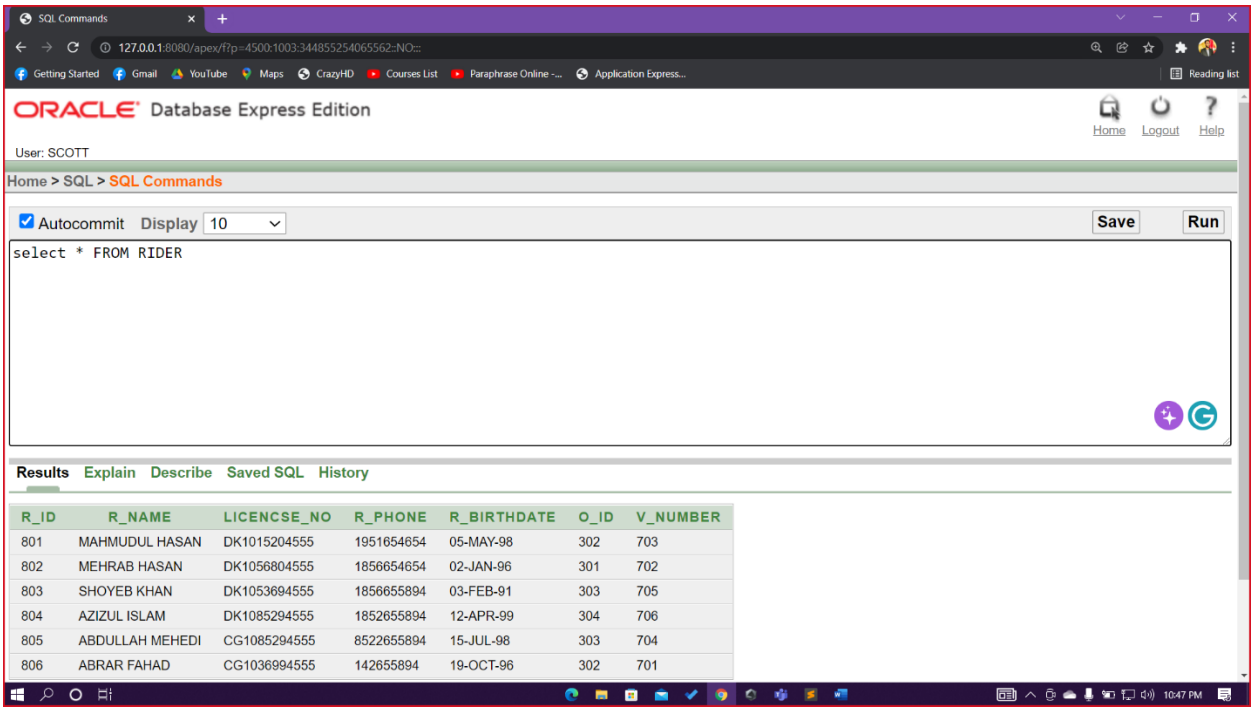
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803 SHOYEB KHAN DK1053694555 1856655894 03-FEB-91 303 705
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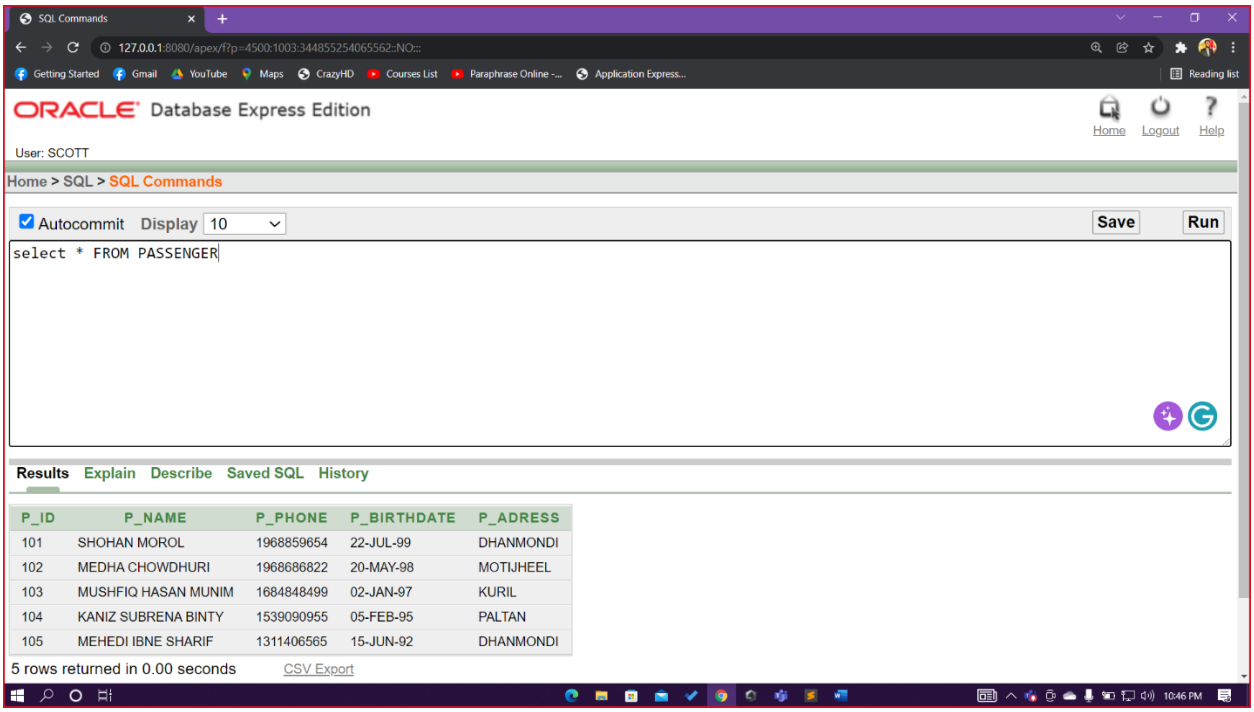
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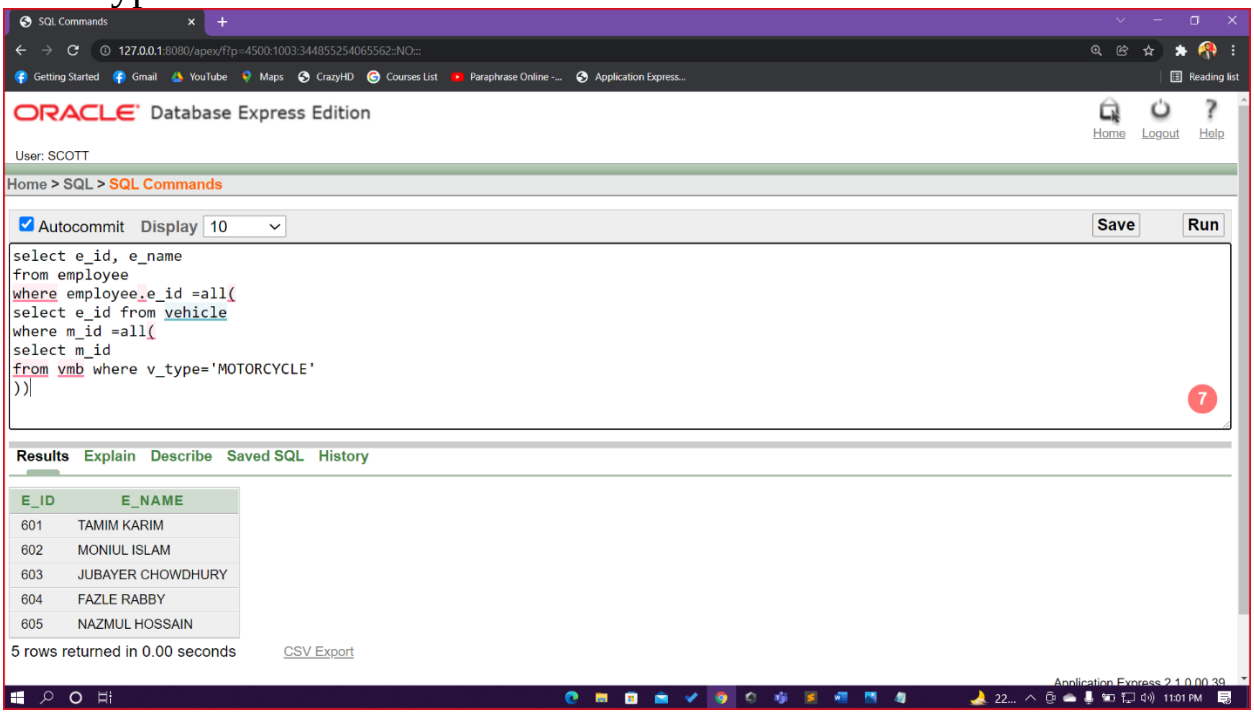
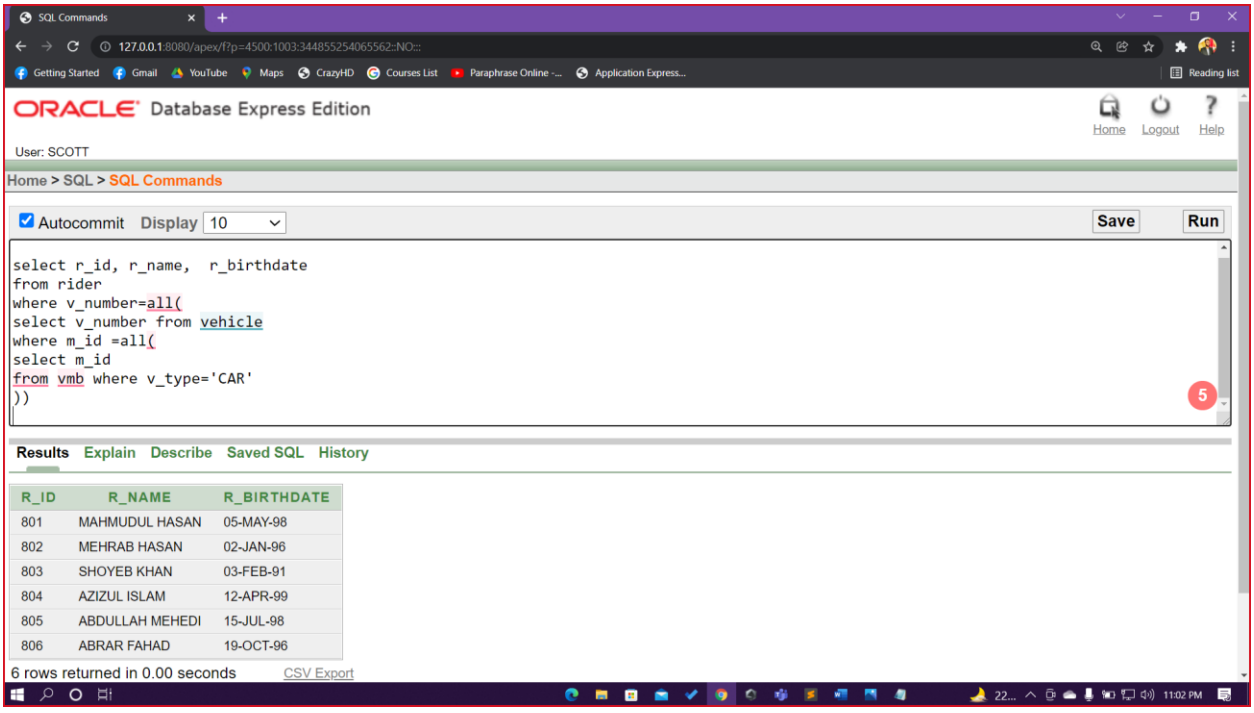
Logout
Help
User: SCOTT
Home > SQL > SQL Commands
Autocommit
Display 10
Save
Run
select * FROM PASSENGER
Results
Explain
Describe
Saved SQL
History
P_ID P_NAME P_PHONE P_BIRTHDATE P_ADRESS
101 SHOHAN MOROL 1968859654 22-JUL-99 DHANMONDI
102 MEDHA CHOWDHURI 1968686822 20-MAY-98 MOTIJHEEL
103 MUSHFIQ HASAN MUNIM 1684848499 02-JAN-97 KURIL
104 KANIZ SUBRENA BINTY 1539090955 05-FEB-95 PALTAN
105 MEHEDI IBNE SHARIF 1311406565 15-JUN-92 DHANMONDI
5 rows returned in 0.00 seconds
CSV Export
10:46 PM

Questions and Their Solutions

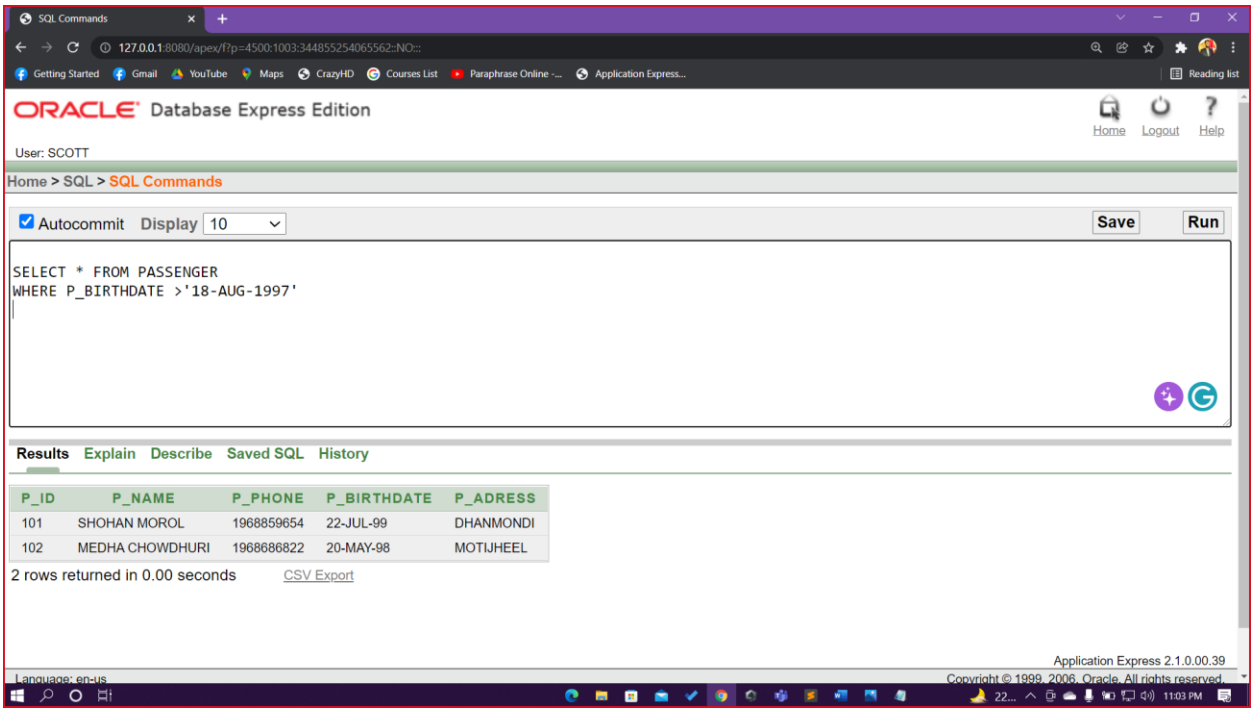
1. Display employee id and employee name who manage motorcycle type vehicle



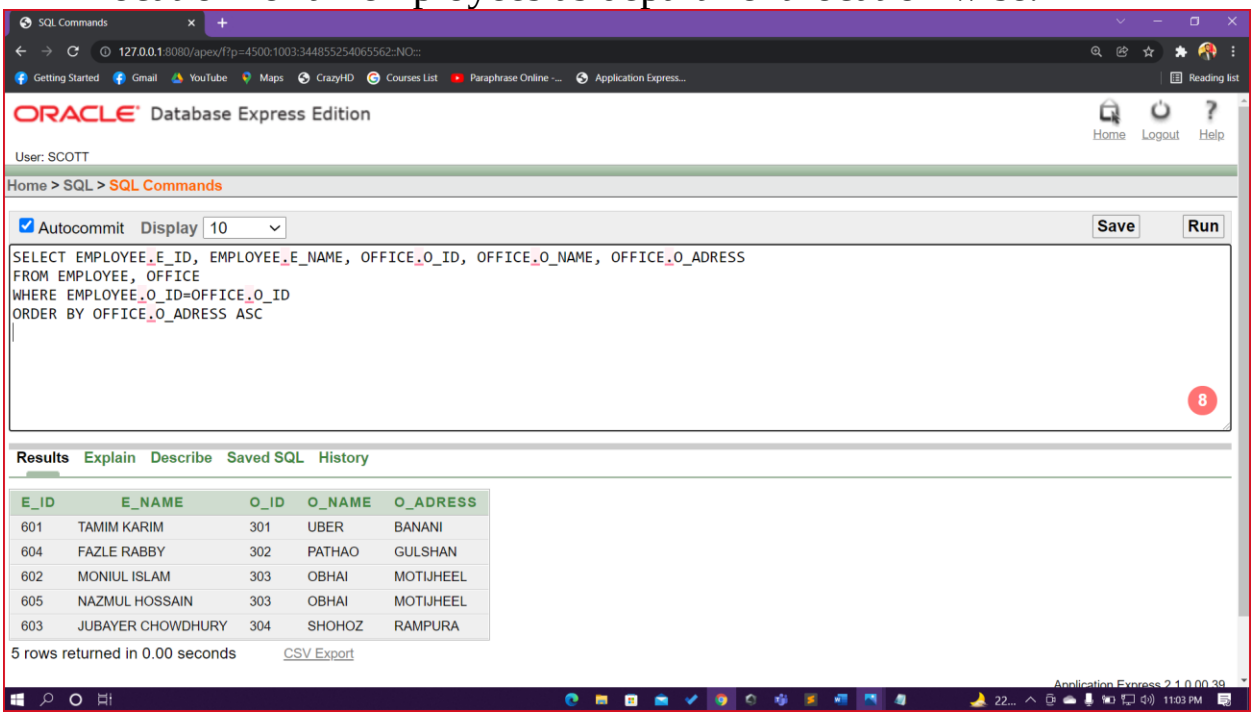
2. Display riders id, name, birthdate who rides car.



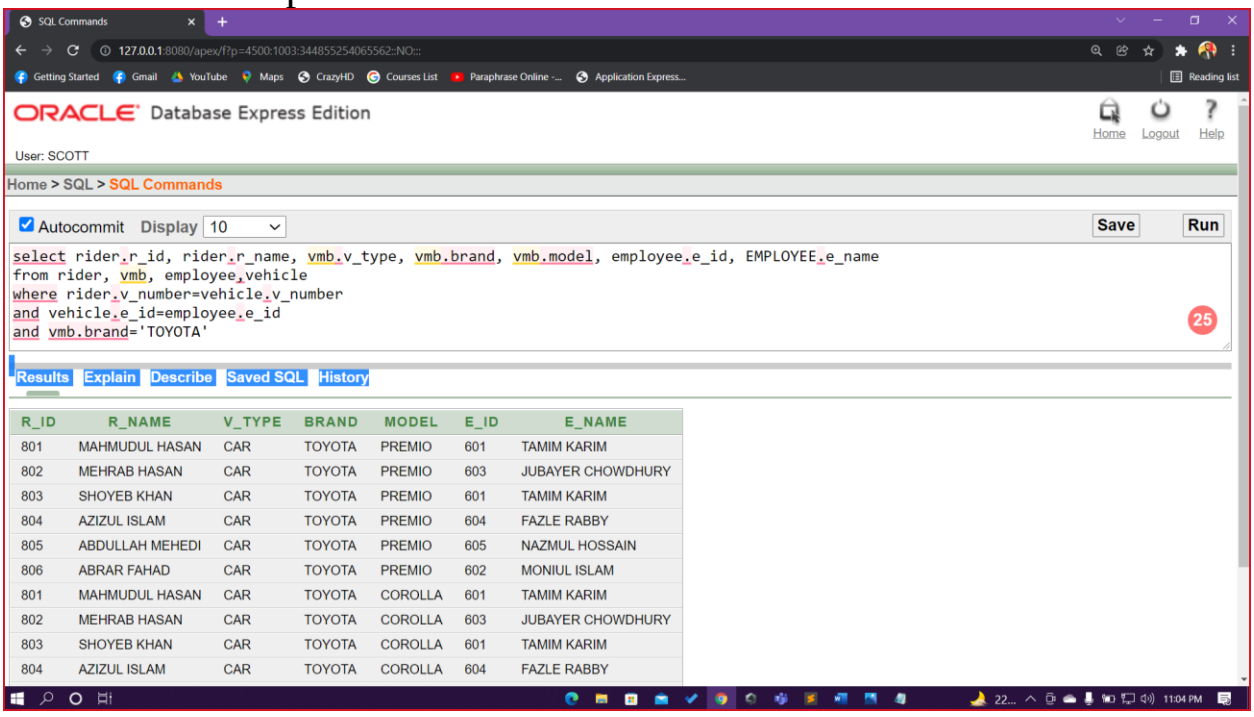
3. Display passenger name who are born after 1997.



4. Display the employee id, name and their office id, name and office location for all employees as department location wise.

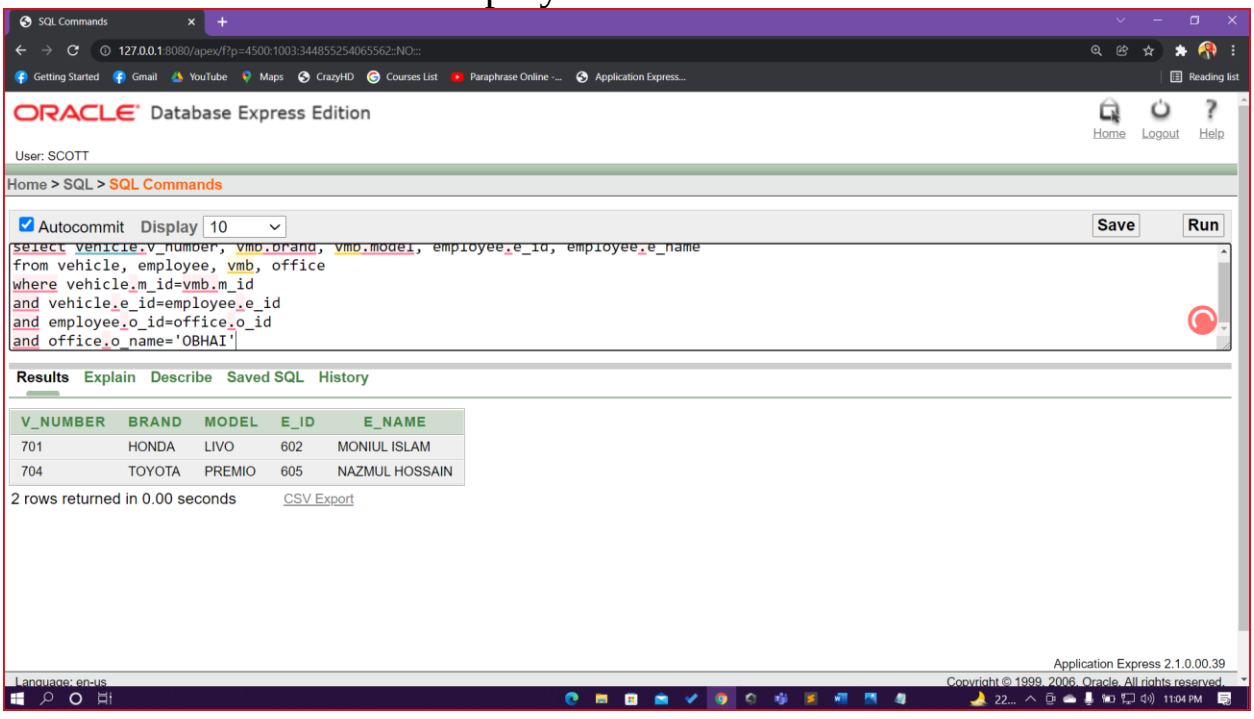


5. Display the rider id, name along with their vehicle type, vehicle model and vehicle brand who ride Toyota brand vehicle or vehicle model is Apache.



R_ID	R_NAME	V_TYPE	BRAND	MODEL	E_ID	E_NAME
801	MAHMUDUL HASAN	CAR	TOYOTA	PREMIO	601	TAMIM KARIM
802	MEHRAB HASAN	CAR	TOYOTA	PREMIO	603	JUBAYER CHOWDHURY
803	SHOYEB KHAN	CAR	TOYOTA	PREMIO	601	TAMIM KARIM
804	AZIZUL ISLAM	CAR	TOYOTA	PREMIO	604	FAZLE RABBY
805	ABDULLAH MEHEDI	CAR	TOYOTA	PREMIO	605	NAZMUL HOSSAIN
806	ABRAR FAHAD	CAR	TOYOTA	PREMIO	602	MONIUL ISLAM
801	MAHMUDUL HASAN	CAR	TOYOTA	COROLLA	601	TAMIM KARIM
802	MEHRAB HASAN	CAR	TOYOTA	COROLLA	603	JUBAYER CHOWDHURY
803	SHOYEB KHAN	CAR	TOYOTA	COROLLA	601	TAMIM KARIM
804	AZIZUL ISLAM	CAR	TOYOTA	COROLLA	604	FAZLE RABBY

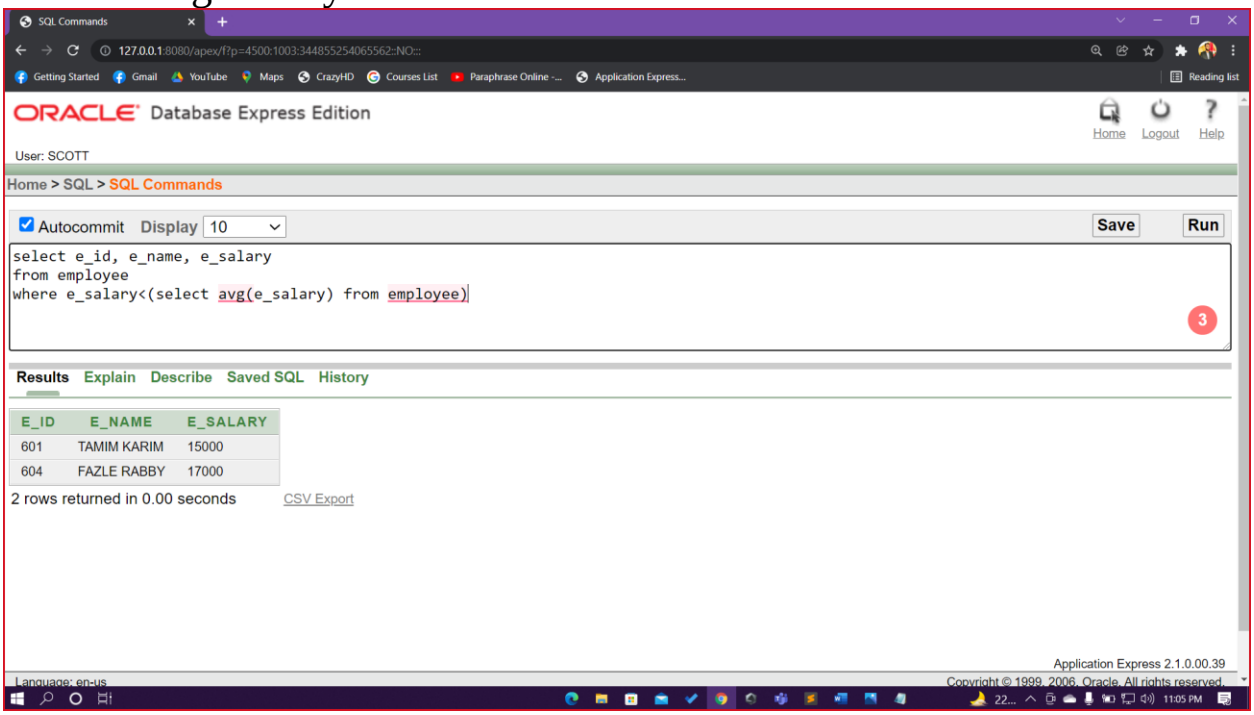
6. Display the vehicle number, brand and model along their manager id and name where employee works for Obhai.



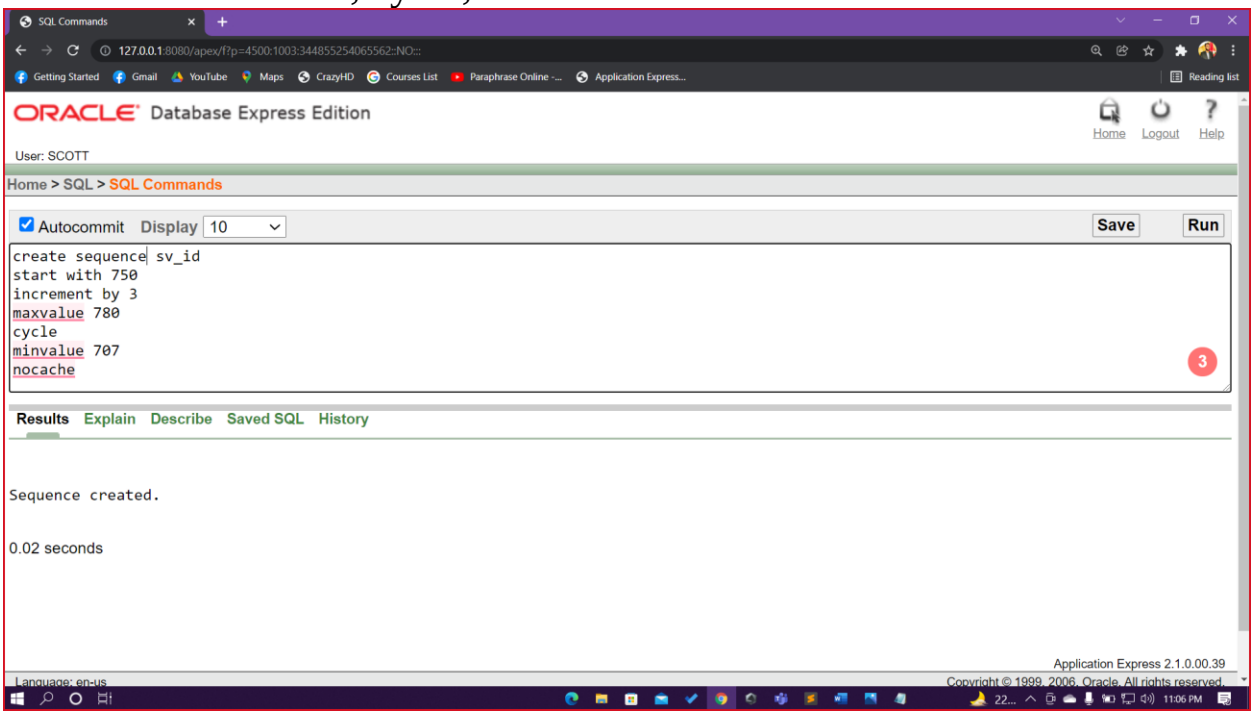
V_NUMBER	BRAND	MODEL	E_ID	E_NAME
701	HONDA	LIVO	602	MONIUL ISLAM
704	TOYOTA	PREMIO	605	NAZMUL HOSSAIN

2 rows returned in 0.00 seconds CSV Export

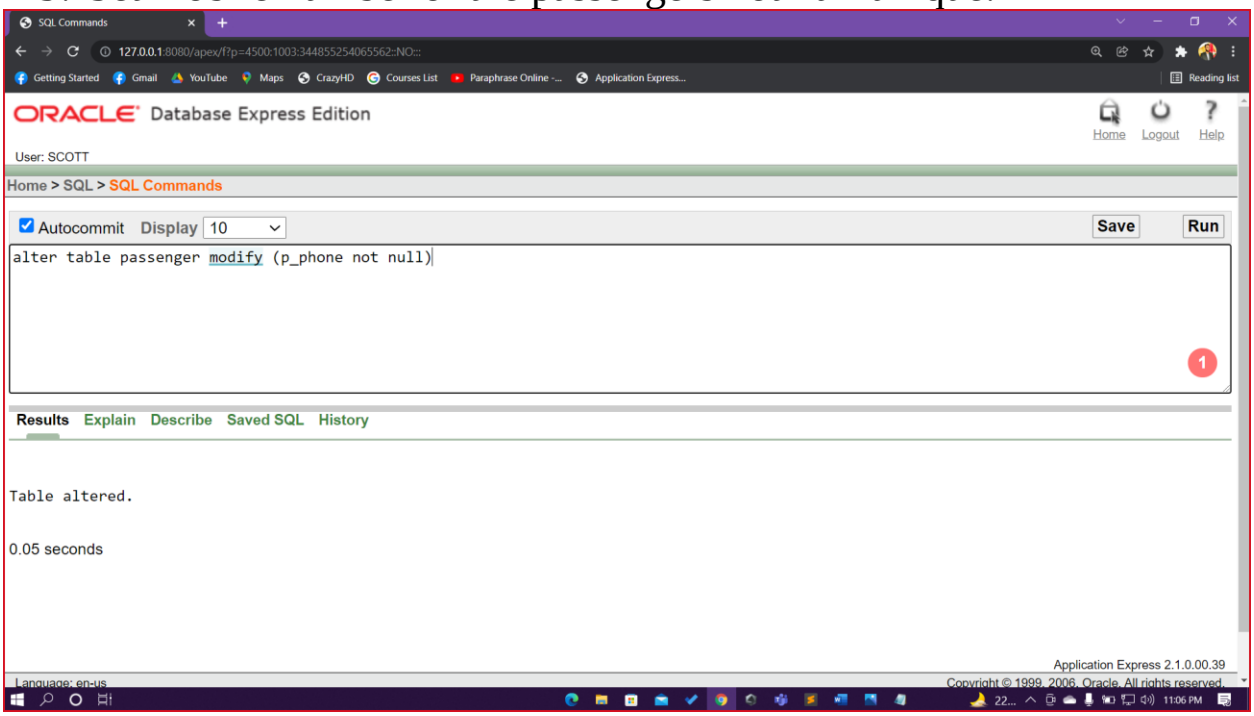
7. Display the employee id, name and salary who gets salary less than average salary.



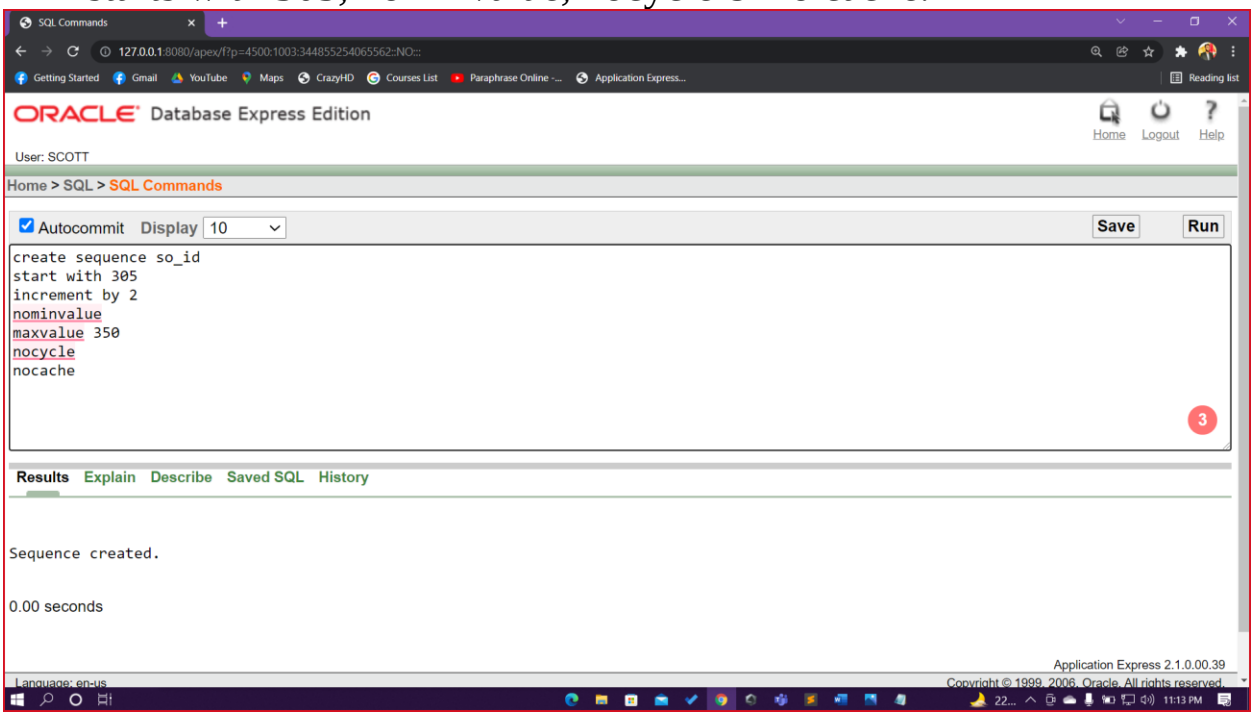
8. Create sequence named sv_id. Increment by 3, Max value 780, starts with 750, cycle, minvalue 707 & no cache.



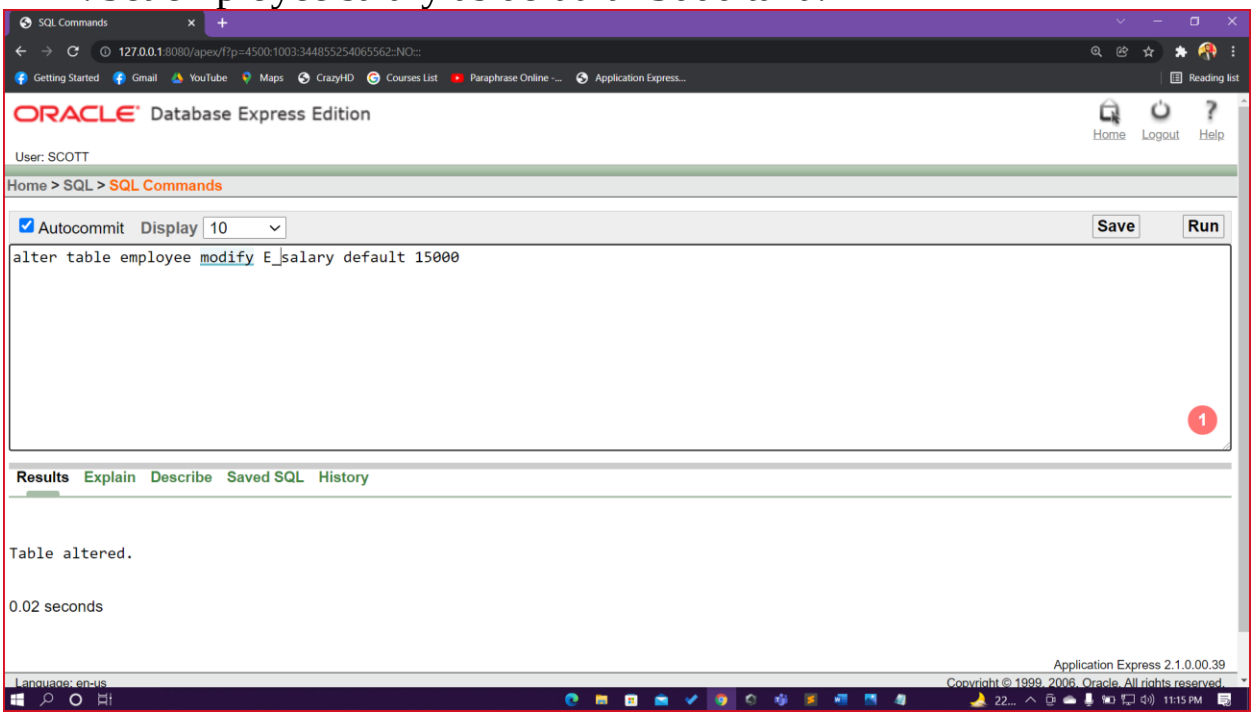
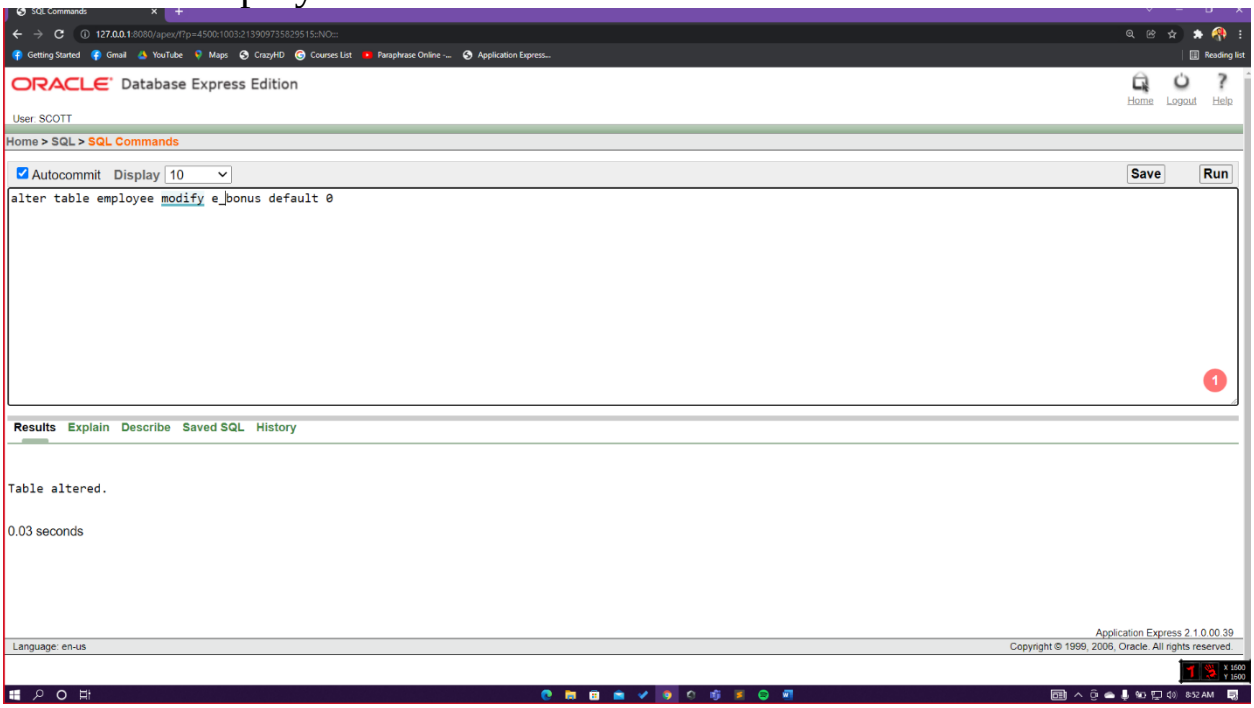
9. Set mobile number of the passengers not null unique.



10. Create sequence named so_id. Increment by 2, Max value 350, starts with 305, nominvalue, nocycle & no cache.



11. Set employee salary as default 15000 taka.



12. Set employee bonus as default 0 taka.