

Tables:

```
SQL> create table Customer
  2  (CustId varchar(5) primary key,
  3   CustName varchar(20),
  4   CustAdd varchar(50),
  5   Phone number(10),
  6   Email varchar2(25));
```

Table created.

```
SQL> desc Customer;
```

Name	Null?	Type
CUSTID	NOT NULL	VARCHAR2(5)
CUSTNAME		VARCHAR2(20)
CUSTADD		VARCHAR2(50)
PHONE		NUMBER(10)
EMAIL		VARCHAR2(25)

```
SQL> insert into Customer values ('&CustId', '&CustName', '&CustAdd', &Phone, '&Email' );
Enter value for custid: C0001
Enter value for custname: AmitSaha
Enter value for custadd: L-10,Pitampura
Enter value for phone: 4564587852
Enter value for email: amitsaha2@gmail.com
old 1: insert into Customer values ('&CustId', '&CustName', '&CustAdd', &Phone, '&Email' )
new 1: insert into Customer values ('C0001', 'AmitSaha', 'L-10,Pitampura', 4564587852, 'amitsaha2@gmail.com' )
```

1 row created.

```
SQL> /
Enter value for custid: C0002
Enter value for custname: Rehnuma
Enter value for custadd: J-12, saket
Enter value for phone: 5527688761
Enter value for email: rehnuma@hotmail.com
old 1: insert into Customer values ('&CustId', '&CustName', '&CustAdd', &Phone, '&Email' )
new 1: insert into Customer values ('C0002', 'Rehnuma', 'J-12, saket', 5527688761, 'rehnuma@hotmail.com' )
```

1 row created.

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```
SQL> /
Enter value for custid: C0003
Enter value for custname: CharviNayyar
Enter value for custadd: 10/9 , FF , Rohini
Enter value for phone: 6811635425
Enter value for email: charvi123@yahoo.com
old 1: insert into Customer values ('&CustId', '&CustName', '&CustAdd', &Phone , '&Email' )
new 1: insert into Customer values ('C0003', 'CharviNayyar', '10/9 , FF , Rohini' , 6811635425 , 'charvi123@yahoo.com' )

1 row created.
```

```
SQL> /
Enter value for custid: C0004
Enter value for custname: Gurpreet
Enter value for custadd: A-10/2,SF,MayurVihar
Enter value for phone: 3511056125
Enter value for email: gur_singh@yahoo.com
old 1: insert into Customer values ('&CustId', '&CustName', '&CustAdd', &Phone , '&Email' )
new 1: insert into Customer values ('C0004', 'Gurpreet', 'A-10/2,SF,MayurVihar' , 3511056125 , 'gur_singh@yahoo.com' )

1 row created.
```

```
SQL> select * from Customer;
```

CUSTI	CUSTNAME	CUSTADD
C0001	AmitSaha	L-10,Pitampura
4564587852	amitsaha2@gmail.com	
C0002	Rehnuma	J-12 , saket
5527688761	rehnuma@hotmail.com	
C0003	CharviNayyar	10/9 , FF , Rohini
6811635425	charvi123@yahoo.com	
C0004	Gurpreet	A-10/2,SF,MayurVihar
3511056125	gur_singh@yahoo.com	

```
SQL> create table Inventory
  2   (CarId varchar(4) primary key,
  3   CarName varchar(4),
  4   Price varchar(10),
  5   Model varchar(10),
  6   YearManufacture number(4),
  7   Fueltype varchar(10));

Table created.

SQL> insert into Inventory values('&CarId','&CarName','&Price','&Model',&YearManufacture,'&Fueltype');
Enter value for carid: D001
Enter value for carname: Car1
Enter value for price: 582613.00
Enter value for model: LXI
Enter value for yearmanufacture: 2017
Enter value for fueltype: Petrol
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model',&YearManufacture,'&Fueltype')
new 1: insert into Inventory values('D001','Car1','582613.00','LXI',2017,'Petrol')

1 row created.

SQL> /
Enter value for carid: D002
Enter value for carname: Car1
Enter value for price: 673112.00
Enter value for model: VXI
Enter value for yearmanufacture: 2018
Enter value for fueltype: Petrol
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model',&YearManufacture,'&Fueltype')
new 1: insert into Inventory values('D002','Car1','673112.00','VXI',2018,'Petrol')

1 row created.
```

```

SQL> /
Enter value for carid: E001
Enter value for carname: Car3
Enter value for price: 355205.00
Enter value for model: 5 STR STD
Enter value for yearmanufacture: 2017
Enter value for fueltype: CNG
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model','&YearManufacture','&Fueltype')
new 1: insert into Inventory values('E001','Car3','355205.00','5 STR STD',2017,'CNG')

1 row created.

SQL> /
Enter value for carid: E002
Enter value for carname: Car3
Enter value for price: 654914.00
Enter value for model: CARE
Enter value for yearmanufacture: 2018
Enter value for fueltype: CNG
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model','&YearManufacture','&Fueltype')
new 1: insert into Inventory values('E002','Car3','654914.00','CARE',2018,'CNG')

1 row created.

SQL> /
Enter value for carid: S001
Enter value for carname: Car4
Enter value for price: 514000.00
Enter value for model: LXI
Enter value for yearmanufacture: 2017
Enter value for fueltype: Petrol
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model','&YearManufacture','&Fueltype')
new 1: insert into Inventory values('S001','Car4','514000.00','LXI',2017,'Petrol')

1 row created.

SQL> /
Enter value for carid: S002
Enter value for carname: Car4
Enter value for price: 614000.00
Enter value for model: VXI
Enter value for yearmanufacture: 2018
Enter value for fueltype: Petrol
old 1: insert into Inventory values('&CarId','&CarName','&Price','&Model','&YearManufacture','&Fueltype')
new 1: insert into Inventory values('S002','Car4','614000.00','VXI',2018,'Petrol')

1 row created.

```

```
SQL> select * from Inventory;
```

CARI	CARN	PRICE	MODEL	YEARMANUFACTURE	FUELTYPE
D001	Car1	582613.00	LXI	2017	Petrol
D002	Car1	673112.00	VXI	2018	Petrol
B001	Car2	567031.00	Sigma1.2	2019	Petrol
B002	Car2	647858.00	Deltal.2	2018	Petrol
E001	Car3	355205.00	5 STR STD	2017	CNG
E002	Car3	654914.00	CARE	2018	CNG
S001	Car4	514000.00	LXI	2017	Petrol
S002	Car4	614000.00	VXI	2018	Petrol

```
8 rows selected.
```

```
SQL> create table Employee
  2      (EmpId varchar(5) primary key,
  3      EmpName char(10), DOB date, DOJ date, Designation char(15), Salary number(6));
```

Table created.

```
SQL> desc Employee;
```

Name	Null?	Type
-----	-----	-----
EMPID	NOT NULL	VARCHAR2(5)
EMPNAME		CHAR(10)
DOB		DATE
DOJ		DATE
DESIGNATION		CHAR(15)
SALARY		NUMBER(6)

```
SQL>
```

```
SQL> insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary);
Enter value for empid: E001
Enter value for empname: Rushil
Enter value for dob: 1994 jul 10
Enter value for doj: 2017 dec 12
Enter value for designation: Salesman
Enter value for salary: 25550
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E001','Rushil','1994 jul 10' , '2017 dec 12' , 'Salesman',25550)
insert into Employee values('E001','Rushil','1994 jul 10' , '2017 dec 12' , 'Salesman',25550)
*
```

```
ERROR at line 1:
ORA-01861: literal does not match format string
```

```
SQL> insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary);
Enter value for empid: E001
Enter value for empname: Rushil
Enter value for dob: 10 jul 1994
Enter value for doj: 12 dec 2017
Enter value for designation: Salesman
Enter value for salary: 25550
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E001','Rushil','10 jul 1994' , '12 dec 2017' , 'Salesman',25550)
```

1 row created.

```
SQL> /
```

```
Enter value for empid: E002
Enter value for empname: Sanjay
Enter value for dob: 10 mar 1990
Enter value for doj: 5 jun 2016
Enter value for designation: Salesman
Enter value for salary: 33100
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E002','Sanjay','10 mar 1990' , '5 jun 2016' , 'Salesman',33100)
```

1 row created.

```

SQL> /
Enter value for empid: E003
Enter value for empname: Zohar
Enter value for dob: 30 aug 1975
Enter value for doj: 1 aug 1999
Enter value for designation: Poen
Enter value for salary:
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E003','Zohar','30 aug 1975' , '1 aug 1999' , 'Poen',
insert into Employee values('E003','Zohar','30 aug 1975' , '1 aug 1999' , 'Poen',
*)

ERROR at line 1:
ORA-00911: invalid character

SQL>
SQL> /
Enter value for empid: E003
Enter value for empname: Zohar
Enter value for dob: 30 aug 1975
Enter value for doj: 1 aug 1999
Enter value for designation: Peon
Enter value for salary: 20000
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E003','Zohar','30 aug 1975' , '1 aug 1999' , 'Peon',20000)

1 row created.

SQL> /
Enter value for empid: E004
Enter value for empname: Arpit
Enter value for dob: 6 jun 1989
Enter value for doj: 2 dec 2010
Enter value for designation: Salesman
Enter value for salary: 39100
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E004','Arpit','6 jun 1989' , '2 dec 2010' , 'Salesman',39100)

1 row created.

SQL> /
Enter value for empid: E006
Enter value for empname: Sanjucta
Enter value for dob: 3 nov 1985
Enter value for doj: 1 jul 2012
Enter value for designation: Receptionist
Enter value for salary: 27350
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E006','Sanjucta','3 nov 1985' , '1 jul 2012' , 'Receptionist',27350)

1 row created.

```

```

SQL> /
Enter value for empid: E007
Enter value for empname: Mayank
Enter value for dob: 3 april 1993
Enter value for doj: 1 jan 2017
Enter value for designation: Salesman
Enter value for salary: 27352
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E007','Mayank','3 april 1993' , '1 jan 2017' , 'Salesman',27352)

1 row created.

```

```

SQL>
SQL> /
Enter value for empid: E010
Enter value for empname: Rajkumar
Enter value for dob: 26 feb 1987
Enter value for doj: 23 oct 2013
Enter value for designation: Salesman
Enter value for salary: 31111
old 1: insert into Employee values('&EmpId','&EmpName','&DOB' , '&DOJ' , '&Designation',&Salary)
new 1: insert into Employee values('E010','Rajkumar','26 feb 1987' , '23 oct 2013' , 'Salesman',31111)

1 row created.

SQL> select * from Employee;

EMPID EMPNAME   DOB        DOJ        DESIGNATION  SALARY
-----
E001  Rushil      10-JUL-94  12-DEC-17  Salesman     25550
E002  Sanjay      10-MAR-90  05-JUN-16  Salesman     33100
E003  Zohar       30-AUG-75  01-AUG-99  Peon         20000
E004  Arpit       06-JUN-89  02-DEC-10  Salesman     39100
E006  Sanjucta    03-NOV-85  01-JUL-12  Receptionist 27350
E007  Mayank      03-APR-93  01-JAN-17  Salesman     27352
E010  Rajkumar    26-FEB-87  23-OCT-13  Salesman     31111

7 rows selected.

```

```

SQL> create table Sales
2      (InvoiceNo varchar(6) primary key,
3      CarId REFERENCES Inventory(CarId),
4      CustId REFERENCES Customer(CustId),
5      SaleDate date, PaymentMode char(15) ,EmpID REFERENCES Employee(EmpId) , SalePrice varchar(10));

Table created.

```

```

SQL> Insert into Sales values ('&InvoiceNo' , '&CarId' , '&CustId' , '&SaleDate' , '&PaymentMode' , '&EmpID' , '&SalePrice');
Enter value for invoiceno: I00001
Enter value for carid: D001
Enter value for custid: C0001
Enter value for saledate: 24 jan 2019
Enter value for paymentmode: Credit Card
Enter value for empid: E004
Enter value for saleprice: 613247.00
old 1: Insert into Sales values ('&InvoiceNo' , '&CarId' , '&CustId' , '&SaleDate' , '&PaymentMode' , '&EmpID' , '&SalePrice')
new 1: Insert into Sales values ('I00001' , 'D001' , 'C0001' , '24 jan 2019' , 'Credit Card' , 'E004' , '613247.00')

1 row created.

```

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```
SQL> Insert into Sales values ('&InvoiceNo' , '&CarId' , '&CustId' , '&SaleDate' , '&PaymentMode' , '&EmpID' , '&SalePrice');
Enter value for invoiceno: I00005
Enter value for carid: E001
Enter value for custid: C0003
Enter value for saledate: 20 dec 2018
Enter value for paymentmode: credit card
Enter value for empid: E002
Enter value for saleprice: 369310.00
old   1: Insert into Sales values ('&InvoiceNo' , '&CarId' , '&CustId' , '&SaleDate' , '&PaymentMode' , '&EmpID' , '&SalePrice')
new   1: Insert into Sales values ('I00005' , 'E001' , 'C0003' , '20 dec 2018' , 'credit card' , 'E002' , '369310.00')

1 row created.

SQL> /
Enter value for invoiceno: I00006
Enter value for carid: S002
Enter value for custid: C0002
Enter value for saledate: 30 jan 2019
Enter value for paymentmode: bank finance
Enter value for empid: E007
Enter value for saleprice: 620214.00
old   1: Insert into Sales values ('&InvoiceNo' , '&CarId' , '&CustId' , '&SaleDate' , '&PaymentMode' , '&EmpID' , '&SalePrice')
new   1: Insert into Sales values ('I00006' , 'S002' , 'C0002' , '30 jan 2019' , 'bank finance' , 'E007' , '620214.00')

1 row created.
```

INVOIC	CARI	CUSTI	SALEDATE	PAYMENTMODE	EMPID	SALEPRICE
I00001	D001	C0001	24-JAN-19	Credit card	E004	613247.00
I00002	S001	C0002	12-DEC-18	Online	E001	590321.00
I00003	S002	C0004	25-JAN-19	Cheque	E010	604000.00
I00004	D002	C0001	15-OCT-18	Bank Finance	E007	659982.00
I00005	E001	C0003	20-DEC-18	Credit Card	E002	369310.00
I00006	S002	C0002	30-JAN-19	Bank Finance	E007	620214.00

6 rows selected.

Queries on Aggregate Functions:

1. Display the total number of records from table INVENTORY having a model as VXI.

```
SQL> select count(*) from Inventory where Model = 'VXI';
```

COUNT(*)
2

2. Display the total number of different types of Models available from table INVENTORY.

```
SQL> select count(distinct model) from Inventory;
```

COUNT(DISTINCTMODEL)
6

3. Display the average price of all the cars with Model LXI from table INVENTORY.

```
SQL> select AVG(Price) from Inventory where Model='LXI';
```

AVG(PRICE)
548306.5

4. Find sum of Sale Price of the cars purchased by the customer having ID C0001 from table SALE.

```
SQL> select sum(SalePrice) from Sales where CustId='C0001';
```

SUM(SALEPRICE)
1273229

5. Find the maximum and minimum commission from the SALE table.

```
SQL> select Min(Saleprice) as MIN_COMMISSION,
2 Max(SalePrice) as MAX_COMMISSION from sales;
```

MIN_COMMIS	MAX_COMMIS
369310.00	659982.00

Queries Using Group By:

1. Display the number of cars purchased by each customer from the SALE table.

```
SQL> select CustId,count(*) as NUMBER_OF_CARS from Sales group by CustId;
```

CUSTI	NUMBER_OF_CARS
C0002	2
C0004	1
C0003	1
C0001	2

2. Display the customer Id and number of cars purchased if the customer purchased more than 1 car from SALE table.

```
SQL> select CustId,count(*) as NUMBER_OF_CARS from Sales group by CustId having count(*)>1;
```

CUSTI	NUMBER_OF_CARS
C0002	2
C0001	2

3. Display the number of people in each category of payment mode from the table SALE.

```
SQL> select PaymentMode, count(PaymentMode) from sales group by PaymentMode;
```

PAYMENTMODE	COUNT(PAYMENTMODE)
Bank Finance	2
Online	1
Credit card	2
Cheque	1

4. Display the PaymentMode and number of payments made using that mode more than once.

```
SQL> select PaymentMode, count(PaymentMode) from sales group by PaymentMode order by PaymentMode;
```

PAYMENTMODE	COUNT(PAYMENTMODE)
Bank Finance	2
Cheque	1
Credit card	2
Online	1

Queries Using Having By Clause:

1. Lists the number of cars in manufactured in each year. Only include years with more than 3 Cars.

```
SQL> select PaymentMode, count(PaymentMode) from sales group by PaymentMode having count(*)>1;
```

PAYMENTMODE	COUNT(PAYMENTMODE)
Bank Finance	2
Credit card	2

2. Display the designation where the sum of salaries is 50,000 or more.

```
SQL> select Designation,count(Designation),SUM(Salary) from Employee group by Designation having Sum(Salary) >50000;
```

DESIGNATION	COUNT(DESIGNATION)	SUM(SALARY)
Salesman	5	156213

Queries on Numeric Functions:

1. Calculate GST as 12% of Price and display the result after rounding it off to one decimal Place.

```
SQL> select round(12/100 *Price,1) as GST from Inventory;
```

```

      GST
-----
69913.6
80773.4
68043.7
77743
42624.6
78589.7
61680
73680

```

```
8 rows selected.
```

2. Add a new column FinalPrice to the table inventory, which will have the value as sum of Price and 12% of the GST.

```
SQL> alter table inventory
2 add finalprice number (10,1);
```

```
Table altered.
```

```
SQL> update Inventory
2 set FinalPrice=Price+round(12/100 * price,1);
```

```
8 rows updated.
```

```
SQL> select * from Inventory;
```

CARI	CARN	PRICE	MODEL	YEARMANUFACTURE	FUELTYPE	FINALPRICE
D001	Car1	582613.00	LXI	2017	Petrol	652526.6
D002	Car1	673112.00	VXI	2018	Petrol	753885.4
B001	Car2	567031.00	Sigma1.2	2019	Petrol	635074.7
B002	Car2	647858.00	Deltal.2	2018	Petrol	725601
E001	Car3	355205.00	5 STR STD	2017	CNG	397829.6
E002	Car3	654914.00	CARE	2018	CNG	733503.7
S001	Car4	514000.00	LXI	2017	Petrol	575680
S002	Car4	614000.00	VXI	2018	Petrol	687680

```
8 rows selected.
```

3. Add a new column Commission to the SALE table. The column Commission should have a total length of 7 in which 2 decimal places to be there.

```

SQL> alter table sales
  2  add Commission number(7,2);

Table altered.

SQL> update Sales
  2  set Commission= 12/100 * SalePrice;

6 rows updated.

SQL> select * from sales;

```

INVOIC	CARI	CUSTI	SALEDATE	PAYMENTMODE	EMPID	SALEPRICE	COMMISSION
I00001	D001	C0001	24-JAN-19	Credit card	E004	613247.00	73589.64
I00002	S001	C0002	12-DEC-18	Online	E001	590321.00	70838.52
I00003	S002	C0004	25-JAN-19	Cheque	E010	604000.00	72480
I00004	D002	C0001	15-OCT-18	Bank Finance	E007	659982.00	79197.84
I00005	E001	C0003	20-DEC-18	Credit card	E002	369310.00	44317.2
I00006	S002	C0002	30-JAN-19	Bank Finance	E007	620214.00	74425.68

```

6 rows selected.

```

4. Calculate commission for sales agents as 12 per cent of the SalePrice, insert the values to the newly added column Commission and then display records of the table SALE where commission > 73000.

> Alter table inventory

2 add FinalPrice Number(10,1);

5. Display InvoiceNo, SalePrice and Commission such that commission value is rounded off to 0.

> update Inventory

2 set FinalPrice=Price+round(12/100 * price,1);

8 rows updated.

Queries on String Functions:

1. Display customer name in lower case and customer email in upper case from table CUSTOMER.

```
SQL> select * from Customer where Email like '%yahoo%';
```

CUSTI	CUSTNAME	CUSTADD	PHONE	EMAIL
C0003	CharviNayyar	10/9 , FF , Rohini	6811635425	charvi123@yahoo.com
C0004	Gurpreet	A-10/2,SF,MayurVihar	3511056125	gur_singh@yahoo.com

2. Display the length of the email and part of the email from the email ID before the character '@'. Note – Do not print '@'.

```
SQL> select SUBSTR(email,1,instr(email,'@')-1) AS username , length(email) AS length from customer;
```

USERNAME	LENGTH
amitsaha2	19
rehnuma	19
charvi123	19
gur_singh	19

3. Let us assume that four digit area code is reflected in the mobile number starting from position number For example, 1851 is the area code of mobile number 9818511338. Now, write the SQL query to display the area code of the customer living in Rohini.

```
SQL> select substr(phone,3,4) from customer where custadd like '%Rohini%';

SUBSTR(PHONE,3,4)
-----
1163
```

4. Display emails after removing the domain name extension “.com” from emails of the Customers.

```
SQL> select regexp_replace(email, '.com') as domain_name from customer;

DOMAIN_NAME
-----
amitsaha2@gmail
rehnuma@hotmail
charvi123@yahoo
gur_singh@yahoo
```

5. Display details of all the customers having yahoo emails only.

```
SQL> select * from customer where email like '%yahoo%';

CUSTI CUSTNAME          CUSTADD
-----
      PHONE EMAIL
-----
C0003 CharviNayyar      10/9 , FF , Rohini
6811635425 charvi123@yahoo.com

C0004 Gurpreet          A-10/2,SF,MayurVihar
3511056125 gur_singh@yahoo.com
```

Queries on Date & Time Functions:

1. Select the day, month number and year of joining of all employees.

```
SQL> select to_char (DOJ, 'fm DD month YYYY')as DOJ from Employee;

DOJ
-----
12 december 2017
5 june 2016
1 august 1999
2 december 2010
1 july 2012
1 january 2017
23 october 2013

7 rows selected.
```

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2. If the date of joining is not a Sunday, then display it in the following format "Wednesday, 26, November, 1979."

```
SQL> select to_char(DOJ , 'fm DD Month YYYY') as DOJ
2   from Employee
3  where to_char(DOJ,'fmdd')!='Sunday';
```

DOJ

```
-----
12 December 2017
5 June 2016
1 August 1999
2 December 2010
1 July 2012
1 January 2017
23 October 2013
```

7 rows selected.