EXAMPLES ON SQL

EXAMPLE 1

Consider the given database
Employee(emp-no,skill,pay-rate)
Position(posting-no,skill)
Duty-allocation(posting-no,emp-no,day,shift)

1) Find complete details from duty-allocation.

```
Select *
From duty-allocation;
```

2) Find duty allocation details for emp-no 101 for the month of April 2003.

```
Select posting-no,shift,day
From duty-allocation
Where emp-no=101 and
        Day ≥ 20030401  and Day ≤ 20030430;
```

3) Find the shift details of employee ‘Bhushan”

```
Select posting-no,shift,day
```

```
From duty-allocation,employee
Where duty-allocation.emp-no=Employee.emp-no
and name='Bhushan';
```

4) find employees whose rate of pay is more than or equal to the rate of pay of employee 'AHIRE'.

```
select S.name,S.payrate
from employee as S, Employee as T
where S.payrate > T.payrate;
and T.name='AHIRE';
```

5) Find all pairs of posting-no requiring the same skill.

```
Select S.posting-no,T.posting-no
From position as S,position as T
Where S.skill=T.skill
And s.posting-no < T.posting-no;
```

6) Find the employee eligible to fill a position.

```
Select Employee.emp-no,position-posting-no,position.skill
From employee,position
Where employee.skill=position.skill;
```

7) find the names and pay rates of employee with emp-no less than 1000 whose pay-rate is more than the rate of pay of at least one employee with emp-no greatar than or equal to 1000.

```
Select name,payrate
From employee
Where emp-no < 1000 and
        Pay-rate > some
        (select payrate
        from employee
        where emp-no ≥ 1000);
```

8) Find employees who are working either on the date 19-04-20023 or 20-04-2003.

```
Select emp-no
From duty-allocation
Where Day in(20030419 or 20030420);
    OR
Select emp-no
From duty-allocation
Where day=20030419 or day=20030420;
```

9) Find the employees with the lowest pay-rate

```
Select emp-no,name,pay-rate
From employee
```

```
Where pay-rate ≤
        (select pay-rate
        from employee);
```

10) Find the programmer's paid at the minimum pay-rate.

```
Select name
From employee
Where skill=”programmer”
        and pay-rate ≤ all
        (select pay-rate
        from Employee
        where skill=’programmer’);
```

11) Find the names and the pay-rates of all employee who are allocated duty.

```
Select name,pay-rate
From employee
Where exists
(select *
from duty-allocation
where Employee.emp-no=duty-allocation.emp-no);
```

12) Find the names and the rate of pay of all employees who are not allocated duty.

```
Select name,pay-rate
From employee
Where not exists
(select *
from duty-allocation
where employee.emp-no=duty-allocation.emp-no);
```

13) find employee numbers of persons who work at posting-no 100 but don't have the skill of 'programmer'.

```
(select emp-no
from duty-allocation
where posting-nol=100)
minus
(select emp-no
from employee
where skill=’programmer’);
```

14) Find the employees who are programmer;s or work at position no. 100.

```
Select emp-no
From employee
Where skill=’programmer’
Union
```

```
(select emp-no
from duty-allocation
where posting-no=100);
```

15) Find a list of employees not assigned a duty.

```
(Select emp-no
From employee)
Minus
(select emp-no
from duty-allocation);
```

16) Find a list of names of employees with skill of programmer who are assigned duty.

```
Select name
From employee
Where emp-no in
((select emp-no
from duty-allocation
where skill='programmer')
intersect
(select emp-no
from duty-allocation));
```

17) Get a count of different employees on each shift.

```
Select shift,count(distinct emp-no)
From duty-allocation
Group by shift;
```

18) Find the employee numbers of all employee working on at least two dates.

```
Select emp-no
From duty-allocation
Group by emp-no
Having (count *) >1;
```

EXAMPLE 2

Consider the following database.
Doctor (Doctor_no, Doctor_name, Address, City).
Hospital (Hospital_no, Name, Street, City).
Doc_Hosp (Doctor_no, Hospital_no, Date).

Construct the following Queries in SQL.
1. Find out all Doctors who have visited to Hospital in same city in which they live.

```
Select Doctor_no
from Doc_Hosp
where Doctor_no in
```

```
(select Doctor_no
 from Doctor, Hospital
where Doctor.City = Hospital.City);
```

2. Find to which Hospital "Dr. Joshi " has visited.

```
Select Hospital_no
from Doc_Hosp
where Doctor_no =
        (select Doctor_no
        from Doctor
        where Doctor_name ='Dr.Joshi');
```

3. Count no of Doctors visited to "Shree Clinic" on 1st March 2003.

```
Select count(*)
from Doc_Hosp, Hospital
where  Date = 20030301 AND Hospital.Name = 'Shree Clinic';
```

4. Find out How many Files 'Dr. Joshi' has visited in 'Shree Clinic'.

```
Select count (*)
from Doc_Hosp, Hospital
where Doctor_no =
        (select Doctro_no
        from Doctor
        where Doctor.Doctor_Name = 'Joshi' AND
        Hospital.Name = 'Shree Clinic');
```

EXAMPLE 3

Consider the following database.

1) Student (roll_no, name, address).
2) Subject (sub_code, sub_name).
3) Marks (roll_no, sub_code, marks).

Construct the following Queries.

1. Find out the average marks of each Student along with name of the Student.

```
select avg(marks), name
from Student, Marks
where Student.roll_no = Marks.roll_no;
```

2. Find out how many students have failed i.e. obtained less than 40 marks in 'DBMS'.

```
Select count (*)
from Marks
 where marks < 40 AND
        sub_code in (select sub_code
                from Subject
                where sub_name = 'DBMS');
```

EXAMPLE 4

Consider the given database

Project(project-id,proj-name,chief-arch)
Employee(emp-id,emp-name)
Assigned-to(project-id,emp-id)

Find SQL queries for the following statements:

1) Find the employee no. of employees wokring on project ‘P100’

```
Select emp-id
From Assigned-to
Where project-id=’P 100’;
```

2) Find details of employees working on project ‘P100’

```
Select emp-id,emp-name
From employee
where emp-id in
        ( select emp-id
        from Assigned-to
        where project-id=’P100’);
```

3) Find details of employees working on ‘Banking Project’

```
Select emp-id,emp-name
From employee
Where emp-id
    (select emp-id
    from assigned-to,project
    where assigned-to.project-id=project.project-id
    and proj-name=’Database’);
```

4) Find details of employees working on both ‘P100’ and ‘P200’ projects.

```
Select emp-id,emp-name
From employee
where emp-id in
        ( select emp-id
        from Assigned-to
        where project-id=’P100’ and project-id=’P 200’);
```

5) Find the employee numbers of employees who do not work on project ‘P210’

```
Select emp-id,emp-name
From employee
where emp-id in
```

```
( select emp-id
from Assigned-to
where project-id <> 'P210') ;
```

6) Find the employee details working on all projects.

```
Select emp-id
From assigned-to
Where project-id=all
        (select project-id
        from project);
```

7) Find the employee numbers who work on at least all those projects that employee 'E100' works on.

```
(Select emp-id
From assigned-to
Where project-id=all
        (select project-id
        from assigned-to
        where emp-id='E100'))
        minus E100);
```

EXAMPLE 5

Consider the following database

```
employee(employee-name, street, city)
works(employee-name, company-name, salary)
company(company-name, city)
manages(employee-name, manager-name)
```

For each of the following queries, give an expression in SQL.

a. Find the names of all employees who work for First Bank Corporation.

```
Select employee-name
From works
Where company-name='First Bank Corporation';
```

a. Find the names and cities of residence of all employees who work for First Bank Corporation.

```
Select employee.employee-name,city
From works,employee
Where employee.employee-name = works.employee-name
and company-name='First Bank Coropration';
```

b. Find the names, street address, and cities of residence of all employees who work for First Bank Corporation and earn more than Rs. 10,000 per annum

```
Select employee.employee-name,city
From works,employee
Where employee.employee-name = works.employee-name
```

```
and company-name='First Bank Coropration'
and salary >10000;
```

c. Find the names of all employees in this database who live in the same city as the company for which they work.

```
Select employee-name
From employee,company,works
Where employee.employee-name=works.employee-name
and company.company-name=works.company-name
employee.city=company.city;
```

d. Find the names of all employees in this database who do not work for First Bank Corporation.

```
Select employee-name
From employee
Where employee-name not-in
        (select employee-name
        from works
        where company-name='First Bank Corporation');
```

e. Find the names of all employees who earn more than every employee of Small Bank Corporation.

```
Select employee-name
From works
Where salary > (select max(salary)
                From works
                Where company-name='First Bank Corporation');
```

EXAMPLE 6

Consider the following database
Item(Item_no,description,price)_
Order(Order_no,Item_no,Salesman_id,Qty)
Salesman(Salesmand_Id,Name,Address,Telno)

i) Find all the items orderd by salesman 'BOB' having quantity on order greater than 100.

```
select  item_no
From order,salesman
Where  order.salesman_id=salesman.salesman_id and
            Name='BOB';
```

ii) Find all the salesman whose name starts with 'B'.

```
Select salesman_id,name
From salesman
Where name like 'B%';
```

iii) Find all the salesman who order all the items.

```
Select salesman_id,name
From salesman
Where Item_no = all(select Item_no
                    From item);
```

iv) Find all salesman who order the same Item no. with same quantity

```
select salesman_Id,name
From salesman
Where salesman-id in
        (select salesman-id
            from order
            where order-no=qty);
```

EXAMPLE 7

Consider the following database
Members(Name,address,balance)
Orders(Order-no,name,item,quantity)
Suppliers(Supplier-name,supplier-address,item,price)
Give an expression in SQL.

a) Find the names and addresses of suppliers who supply either milk or icecream.

```
Select supplier-name,supplier-address
From suppliers
Where item='milk' or item='icecream';
```

b) Find the suppliers that supply every item ordered by Mr. Patel.

```
Select supplier-name
From supplier
Where item=all ( select item from orders where name ='Mr Patel');
```

c) Find the supplier-name , item and prices of all suppliers that supply atleast one item orderd by Mr. Patel.

```
Select supplier-name
From supplier
Where item=some( select item from orders where name ='Mr Patel');
```

d) Find the names and addresses of members who are having balance greater than the average balance

```
Select name,address
From members
Where balance > (select avg(balance) from members);
```

EXAMPLE 8

Given the following database
Enroll(S#,C#,Section) - S# represents Student no.
Teach(Prof,C#,Section) - S# represents Student no.
Guides(Prof,S#) - Prof is project guide of S#

Student(S#,Sname) - Sname is student name
Express following queries in SQL.

a) List all students taking course with Prof. Rao.

```
Select Sname
From Student,Enroll,Teach
Where  Student.S#=Enroll.S#
        And Enroll.C#=Teach.C#
        And Prof='Rao';
```

b) List all students taking at least one course that their project guide teaches.

```
Select sname ,S#
From Student,Teach,Guides
Where Guide.Prof =Teach.Prof
And Student.S# = Guide.S#;
```

EXAMPLE 9

Consider the following relations concerning driving school
Student(St-name,Class#,Theroy-Mark,Driving-Mark)
Student-Driving_Teacher(St-Name,Dr-T-Name)
Teacher-Theory-Class(Class#,Th-T-Name)
Teacher-Vehicle(Dr-T-Name,Licence#)
Vehicle(License#,Make,Model,Year)

A student takes one theory class as well as driving lessons and at the lessons and at the end of session receives marks for theory and driving. A teacher may teach theory, driving or both. Write the following queries in SQL.

a) Find the list of teachers who teach theory and give driving lessons on all the vehicles.

```
Select  Th-T-Name
From Teacher-Theory-Class,Teacher-vehicle,Vehicle
Where Teacher-Theory-class.Th-T-Name=Teacher-Vehicle.Dr-T-Name
And Teacher-vehicle.License#=Vehicle.Licence#;
```

b) Find the list of teachers who can drive all the vehicles.

```
Select Dr-T-Name
From Teacher-vehicle,vehicle
Where Teacher-vehicle.License#=Vehicle.Licence#;
        OR
Select Dr-T-Name
From Teacher-vehicle,
Where License#=all(select Licence# from Teacher-Vehicle);
```

c) Find the list of students who have scored more marks in theory classes than their driving lessons.

```
Select St-name
From student
Where Theory-Mark >( select Driving-Mark from Student);
```

d) Find the list of students who have scored more than average marks in theory class.

```
Select st-name
From student
Where Theory-Mark >( select avg(Theory-Mark) from Student);
```

EXAMPLE 10

Consider the following database:
Students(**sid**, sname, gender)
Takes(**sid, cid**, grade)
Courses(**cid**, cname, dept, year)
Give an SQL expression for each of the following operations.

a. Find the names of all students who take the course called "Introduction to DBMS".

```
select sname
from Students, Takes, Courses
where cname = "Introduction to DBMS"
and Takes.cid = Courses.cid
 and  Takes.sid = Students.sid;
```

b. Find the names of all students whose average grade is above 3.5.

```
select sname
from Students, Takes
where Students.sid = Takes.sid
group by Takes.sid
having avg(grade) > 3.5;
```

c. Find the sid's of all students who take at least six 4th-year courses from the department of Computer Science.

```
select sid from
Takes, Courses
where Takes.cid = Courses.cid
and dept = "computer science"
and year = 4
group by sid
having count(distinct cid) >= 6;
```

d. numbers of (distinct) male and female students who take at least one course from the department of Computer Science.

```
select gender, count(distinct Takes.sid)
from Students, Takes, Courses
where dept = "computer science"
and Takes.cid = Courses.cid
and Takes.sid = Students.sid
group by gender;
```

e. Find the highest grade of each computer science course.

```
select Courses.cid, max(grade)
```

```
from Takes, Courses
where dept = "computer science" and Courses.cid = Takes.cid
group by Courses.cid;
```

f. Find the names of all courses taken by student "RAKESH".

```
select cname
from Students, Takes, Courses
where Takes.cid = Courses.cid and
   Takes.sid = Students.sid and
   sname = "RAKESH";
```

g. Find the ID's of all courses that are taken by at least 100 students in the year 1995.

```
select cid
from Takes, Courses
where Takes.cid = Courses.cid and year = 1995
group by cid
having count(sid) >= 100;
```

h. Find the names of all students whose lowest grade is at least 3.5

```
select sname
from Students, Takes
where Students.sid = Takes.sid
group by Takes.sid
having min(grade) >= 3.5
```

EXAMPLE 11

Part(Part-no,Part-name,color,weight,city)
Supplier(Supp-no,Supp-name,Status,city)
Supplied-parts(Supp-no,Part-no,Qty)

1) Get name of all parts supplied

```
Select part-name
From part,ssuplied-parts
Where part.part-no=supplied-parts.part-no;
```

2) Get the supplier no of suppliers from Dhule with status greater than 10

```
Select  supp-no
From  supplier
Where city='Dhule'
& status>10;
```

3) Get all name & pno from parts supplied

```
Select part-name ,part-no
From part,supplied-part
```

Where part.no=supplied-parts.part-no;

4) Get the supplier no & status for the supplier in Dhule in decending order by status

```
Select supp-no,status
From supplier
 Where city =’Dhule’
 Order by status  DESC;
```

5) For each part supplied get the part no & name of cities supply in that parts

```
Select part-no,part.city
From supplied-part,supplier
 Where supplied-part.part-no=supplier.part-no;
```

6) Get the supplier name to supply part-no 10

```
Select supp-name
From supplier,supplied-parts
 Where supplier.sno=supplied-part.supp-no
  AND  part-no=10;
```

7) Get the supplier name for the supplier to supply ‘WHITE’ parts

```
Select supp-name
 From supplier,supplied-parts
                Where supplier.supp-no=supllied-part.supp-no and
                part-no in( select part-no
                 From part
                  Where color =’WHITE’)
```

8) Get the part no for the part having weight grater than 1kg but not supplied by supp no=10

```
 Select part-no
 From part
 Where weight>1
 Minus
 Select part-no
 From supplied-parts
Where supp-no=10;
```

9) Get the part-no of the parts that either weight more than 1kg or are currently by supplier no. 10

```
Select part-no
From part
Where weght>1
UNION
Select part-no
From supplied-parts
Where supp-no=10;
```

10) Find out the parts having weight greater than 1kg &supplied by supplier 10.

```
Select part-no
From part
```

```
Where weight>1
INTERSECT
Select part-no
From supplied-parts
Where supp-no=10;
```

11) Find out the no. of supplier

```
Select count (*)
From supplier;
```

12) Find out the no. of supplier from Dhule

```
Select count (*)
   From supplier
   Where city='Dhule';
```

13) Find minimum weight of all parts

```
Select min(weight )
  From part;
```

14) Find the sum of all weight in p

```
Select sum(weight)
   From part;
```

15) Find the supp-no which is having max-status

```
Select supp-no
   From supplier
   Where status =(select max(status)
                  From supplier);
```

16) Find the average of st. of the suppiler

```
Select AVG(status )
  From supplier;
```

17) Find the part supplied get the part-no & qty supplied by the supplier

```
Select part-no,sum(qty)
 From supplied-parts;
 Group by part-no;
```

18) Get the part-no for all parts supplied by more than one supplier

```
Select part-no
   From supplied-parts
  Group by part-no
  Having count (*) >1;
```

Example 12

Consider the database schema

Gives(Student,seminar,Marks)

Seminar(Seminar,Guide)

Guide(Guide,Department)