1. Create the following Tables and insert the shown data ( This table will be used in the subsequent Lab sessions )

**Department**

|  |  |  |
| --- | --- | --- |
| **Dept\_no** | **Dept\_name** | **location** |
| d1 | Research | Dallas |
| d2 | Accounting | Seattle |
| d3 | Marketing | Dallas |

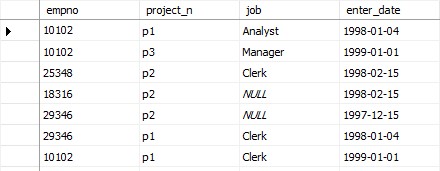
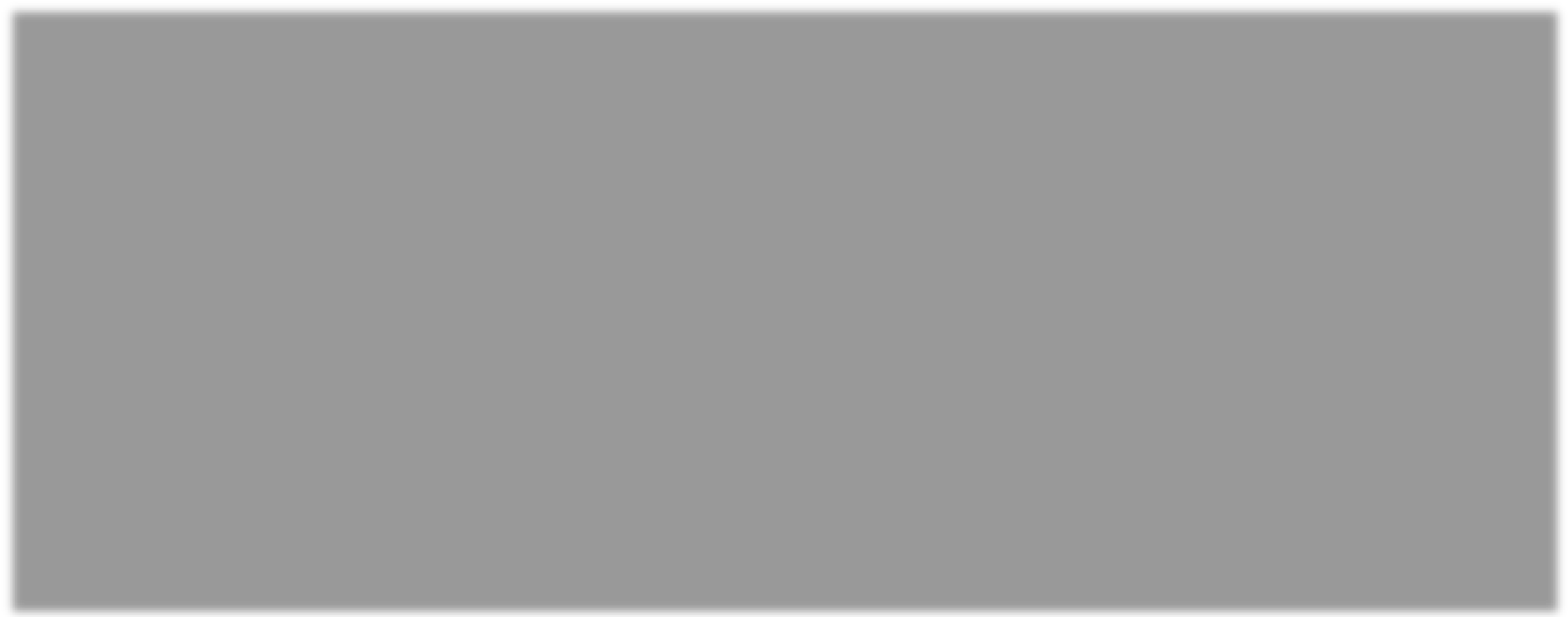
**Employee**

|  |  |  |  |
| --- | --- | --- | --- |
| **emp\_no** | **emp\_fname** | **emp\_lname** | **dept\_no** |
| 25348 | Matthew | Smith | d3 |
| 10102 | Ann | Jones | d3 |
| 18316 | John | Barrimore | d1 |
| 29346 | James | James | d2 |

**Project**

|  |  |  |
| --- | --- | --- |
| **project\_no** | **project\_name** | **Budget** |
| p1 | Apollo | 120000 |
| p2 | Gemini | 95000 |
| p3 | Mercury | 185600 |

**Works\_on**



create database assignments;

create table Dept (

Dept\_no varchar(23) primary key,

Dept\_name varchar(23),

locations varchar(23)

)

insert into Dept values('d2','Accounting','Seattle')

insert into Dept values('d3','Marketing','Dallas')

select \* from dept

create table emp(

emp\_no int primary key,

emp\_fname varchar(23),

emp\_lname varchar(23),

dept\_no varchar(23),

constraint fk\_Dept foreign key(dept\_no) references Dept(Dept\_no)

)

insert into emp values(25348,'Mattheq','Smith','d3'),

(10102,'Ann','jones','d3'),(18316,'John','Barrimore','d1'),

(29346,'James','James','d2')

select \* from emp

create table project(

project\_no varchar(23) primary key,

project\_name varchar(23),

Budget int

)

insert into project values

('p1','Apollo',120000),('p2','Gemini',95000),('p3','Mercury',185600)

select \* from project

CREATE TABLE works\_on (

emp\_no INT ,

project\_no VARCHAR(23),

job VARCHAR(23),

enter\_date DATE,

CONSTRAINT fk\_emp FOREIGN KEY (emp\_no) REFERENCES emp(emp\_no),

CONSTRAINT fk\_project FOREIGN KEY (project\_no) REFERENCES project(project\_no)

);

insert into works\_on values

(10102,'p3','Manager','1999-01-01'),(25348,'p2','clerk','1998-02-15'),

(29346,'p1','clerk','1998-01-04'),(10102,'p1','clerk','1999-01-01')

insert into works\_on(emp\_no,project\_no,enter\_date) values (18316,'p2','1998-02-15'),

(29346,'p2','1997-12-15')

select \* from works\_on

# Simple Queries

1. Get the employee numbers for all clerks

select emp\_no from works\_on where job='clerk'

1. Get the employee numbers for employees working in project p2, and having employee numbers smaller than 10000. Solve this problem with two different but equivalent SELECT statements.

select w.emp\_no from works\_on as w

join project as p on w.project\_no = p.project\_no

where p.project\_no ='p2' and w.emp\_no>10000

1. Get the employee numbers for all employees who didn’t enter their project in 1998.

Ans) SELECT emp\_no

FROM works\_on

WHERE emp\_no NOT IN (

SELECT emp\_no

FROM works\_on

WHERE EXTRACT(YEAR FROM enter\_date) = 1998

);

1. Get the employee numbers for all employees who have a leading job( i.e., Analyst or Manager) in project p1

SELECT w.emp\_no

FROM works\_on w

JOIN project p ON w.project\_no = p.project\_no

WHERE p.project\_no = 'p1' AND w.job IN ('Analyst', 'Manager');

1. Get the enter dates for all employees in project p2 whose jobs have not been determined yet.

SELECT enter\_date

FROM works\_on

WHERE project\_no = 'p2' AND (job IS NULL OR job = '');

1. Get the employee numbers and last names of all employees whose first names contain two letter t’s.

select emp\_no,emp\_fname from emp

where emp\_lname like '%t%t%'

1. Get the employee numbers and first names of all employees whose last names have a letter *o* or *a* as the second character and end with the letters *es.*

select emp\_no,emp\_fname from emp

where (emp\_lname like '\_o%es' or emp\_lname like '\_a%es')

1. Get the employee numbers of all employees whose departments are located in Seattle.

select e.emp\_no from emp as e join dept as d

on e.dept\_no=d.dept\_no where d.locations = 'Seattle'

1. Group all departments using their locations.

select locations, count(dept\_no) as department\_id

from dept

group by locations

1. Find the biggest employee number.

select max(emp\_no) as biggest\_emp\_no from works\_on

1. Get the jobs that are done by more than two employees.

select job from works\_on

group by job having count(distinct emp\_no)>2

1. Find the employee numbers of all employees who are clerks or work for department d3.

SELECT e.emp\_no

FROM emp e

JOIN works\_on w ON e.emp\_no = w.emp\_no

WHERE w.job = 'Clerk' OR e.dept\_no = 'd3';

**Complex Queries**

1. Get the employee numbers and job titles of all employees working on project Gemini

select w.emp\_no, w.job from works\_on w

join project p on p.project\_no = w.project\_no

where project\_name ='Gemini'

1. Get the first and last names of all employees that work for departments *Research* or *Accounting.*

select e.emp\_fname,e.emp\_lname from emp e join

dept d on d.dept\_no=e.dept\_no

where dept\_name in ('Research', 'Accounting')

1. Get the enter dates of all clerkthat belong to the department d1.

select w.enter\_date from works\_on w join emp e

on e.emp\_no = w.emp\_no

where e.dept\_no='d1' and w.job='clerk'

1. Get the names of projects on which two or more clerks are working.

select p.project\_name from project as p join

works\_on as w on w.project\_no=p.project\_no

where w.job='clerk'

group by p.project\_name

having count(w.emp\_no)>=2

1. Get the first and last names of the employees that are manager and that work on project Mercury.

select e.emp\_fname,e.emp\_lname from emp e

join works\_on w on e.emp\_no =w.emp\_no

join project p on p.project\_no=w.project\_no

where w.job='Manager' and p.project\_name='Mercury'

1. Get the first and last names of all employees who entered the project at the same time as at least one other employee.

select e.emp\_fname,e.emp\_lname from emp e

join works\_on w on w.emp\_no = e.emp\_no

where w.enter\_date in(

select enter\_date from works\_on

group by enter\_date

Having count(emp\_no)>1

)

1. Get the employee numbers of the employees living in the same location and belonging to the same department as one another.

select e1.emp\_no from emp e1

join emp e2 on e1.dept\_no = e2.dept\_no and e1.emp\_no <> e2.emp\_no

join dept d on e1.dept\_no=d.dept\_no

where d.locations=d.locations

1. Get the employee numbers of all employees belonging to the Marketing department.

select e.emp\_no

from emp e

join dept d on e.dept\_no=d.dept\_no

where d.dept\_name = 'Marketing'