-- Department table

create table DEPARTMENT (

deptid number primary key,

deptname varchar2(50)

);

-- Employee table

create table EMPLOYEE (

empid number primary key,

empname varchar2(50),

deptid number,

managerid number,

hiredate date,

salary number,

foreign key (deptid) references DEPARTMENT(deptid),

foreign key (managerid) references EMPLOYEE(empid)

);

-- Project table

create table PROJECT (

projid number primary key,

projname varchar2(50),

empid number,

foreign key (empid) references EMPLOYEE(empid)

);

-- Student table

create table STUDENT (

studentid number primary key,

studentname varchar2(50),

city varchar2(50),

courseid number

);

-- Course table

create table COURSE (

courseid number primary key,

coursename varchar2(50),

teacherid number

);

-- Teacher table

create table TEACHER (

teacherid number primary key,

teachername varchar2(50),

subjectid number,

city varchar2(50)

);

-- Subject table

create table SUBJECT (

subjectid number primary key,

subjectname varchar2(50)

);

-- Customer table

create table CUSTOMER (

customerid number primary key,

customername varchar2(50)

);

-- Orders table

create table ORDERS (

orderid number primary key,

customerid number,

orderdate date,

amount number,

foreign key (customerid) references CUSTOMER(customerid)

);

-- Departments

insert into DEPARTMENT values (1, 'IT');

insert into DEPARTMENT values (2, 'HR');

insert into DEPARTMENT values (3, 'Finance');

-- Employees

insert into EMPLOYEE values (101, 'Kinza', 1, null, date '2018-11-15', 672689);

insert into EMPLOYEE values (102, 'SNazia', 2, 101, date '2021-05-12', 556560);

insert into EMPLOYEE values (103, 'Farooq', 2, 101, date '2019-07-16', 367689);

insert into EMPLOYEE values (104, 'Marya', null, null, date '2023-03-15', 877675);

-- Projects

insert into PROJECT values (201, 'AI Project', 102);

insert into PROJECT values (202, 'DB Project', 103);

-- Students

insert into STUDENT values (301, 'Alisha', 'Islamabad', 401);

insert into STUDENT values (302, 'Zara', 'Karachi', 402);

insert into STUDENT values (303, 'Maha', 'Lahore', 401);

-- Courses

insert into COURSE values (401, 'Database Systems', 501);

insert into COURSE values (402, 'Programming for AI', 502);

-- Teachers

insert into TEACHER values (501, 'Miss Kinza', 601, 'Lahore');

insert into TEACHER values (502, 'Sir Rahim', 602, 'Karachi');

-- Subjects

insert into SUBJECT values (601, 'Databases');

insert into SUBJECT values (602, 'Artificial Intelligence');

-- Customers

insert into CUSTOMER values (701, 'Customer A');

insert into CUSTOMER values (702, 'Customer B');

-- Orders

insert into ORDERS values (801, 701, date '2023-01-05', 2000);

insert into ORDERS values (802, 701, date '2023-02-10', 3500);

-- Q11

select s.studentname, t.teachername, s.city from student s join teacher t on s.city = t.city;

-- Q12

select e.empname as employee, m.empname as manager from employee e left join employee m on e.managerid = m.empid;

-- Q13

select e.empname from employee e left join department d on e.deptid = d.deptid

where d.deptid is null;

-- Q14

select d.deptname, avg(e.salary) as avgsalary from department d join employee e on d.deptid = e.deptid

group by d.deptname having avg(e.salary) > 50000;

-- Q15

select e.empname, e.salary, d.deptname from employee e join department d on e.deptid = d.deptid

where e.salary > (

select avg(salary)

from employee

where deptid = e.deptid

);

-- Q16

select d.deptname from department d join employee e on d.deptid = e.deptid

group by d.deptname having min(e.salary) >= 30000;

-- Q17

select s.studentname, c.coursename from student s

join course c on s.courseid = c.courseid where s.city = 'Karachi';

-- Q18

select e.empname, m.empname as manager, d.deptname from employee e left join employee m on e.managerid = m.empid

join department d on e.deptid = d.deptid where e.hiredate between date '2021-01-01' and date '2023-01-01';

-- Q19

select s.studentname, c.coursename from student s join course c on s.courseid = c.courseid

join teacher t on c.teacherid = t.teacherid where t.teachername = 'Sir Rahim';

-- Q20

select e.empname, m.empname as manager, d.deptname from employee e

join employee m on e.managerid = m.empid join department d on e.deptid = m.deptid

where e.deptid = m.deptid;