-- 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);

-- Q1

select e.empname, d.deptname from employee e cross join department d;

-- Q2

select d.deptname, e.empname from department d left outer join employee e on d.deptid = e.deptid;

-- Q3

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

-- Q4

select e.empname from employee e left join project p on e.empid = p.empid

where p.empid is null;

-- Q5

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

-- Q6

select c.customername, o.orderid from customer c left outer join orders o on c.customerid = o.customerid;

-- Q7

select d.deptname, e.empname from department d left outer join employee e on d.deptid = e.deptid;

-- Q8

select t.teachername, s.subjectname from teacher t cross join subject s;

-- Q9

select d.deptname, count(e.empid) as totalemployees from department d left join employee e on d.deptid = e.deptid

group by d.deptname;

-- Q10

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

join teacher t on c.teacherid = t.teacherid;