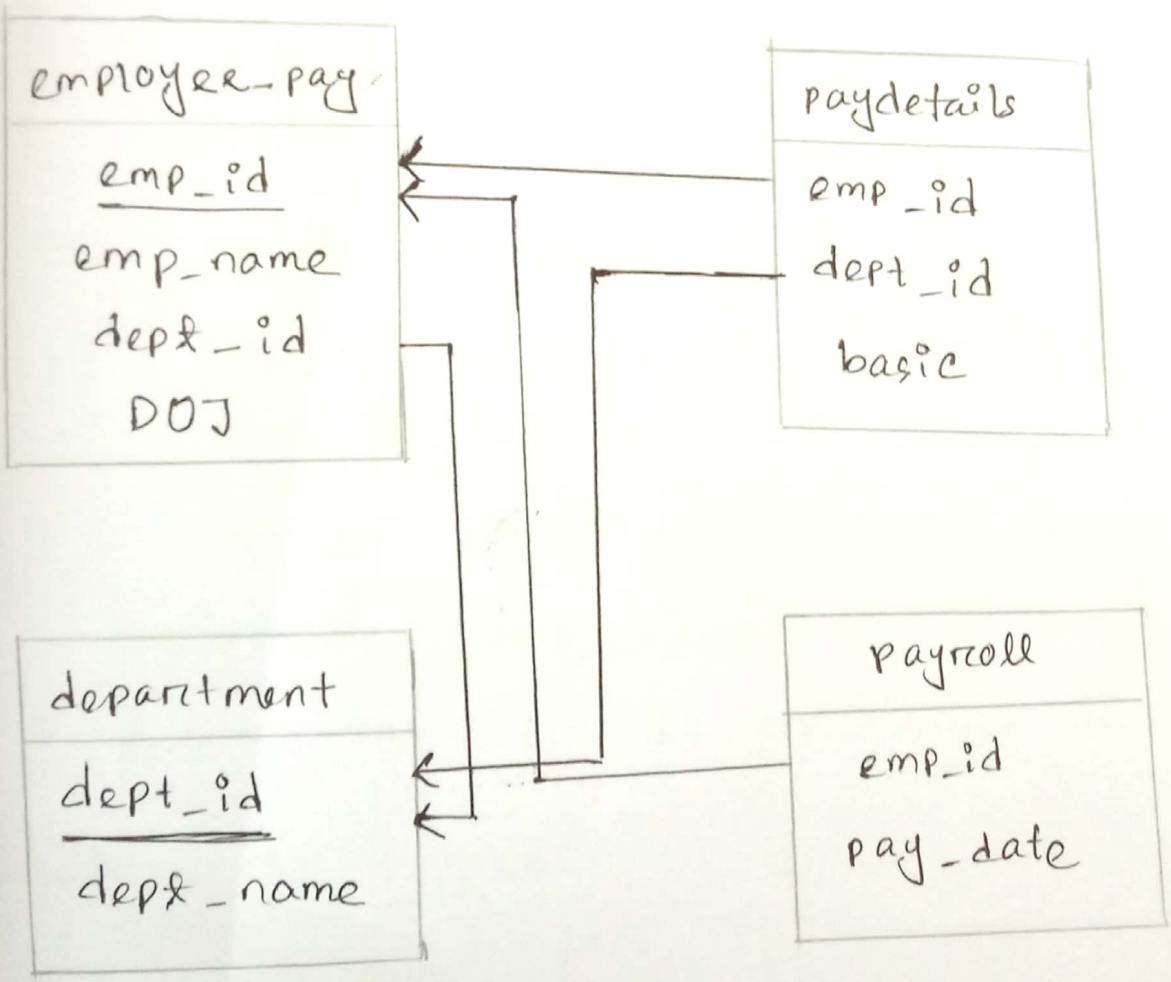
Problem Title:

Design database schema and populate the database with appropriate datasets.

Introduction:

The database schema is its structure described in a formal language supported by the database management system (DBMS).

Logical Model:



Query for database design:

```
create table employee
    ( emp_id    int(11),
      emp_name  varchar(150),
      dept_id   int(11),
      DOJ       date,
     primary key (emp_id),
     foreign key (dept_id) references department);

create table department
    ( dept_id   int(11),
      dept_name varchar(30),
      primary key (dept_id));

create table paydetails
    ( emp_id    int(11),
      dept_id   int(11),
      basic     int(11),
     foreign key (emp_id) references employee,
     foreign key (dept_id) references department);

create table payroll
    ( emp_id    int(11),
      pay_date  date,
      foreign key (emp_id) references employee);
```

SQL query for the output:

1. insert into department
values ((1, 'EEE'), (2, 'ME'), (3, 'CSE'), (4, 'EIE'));

insert into employee
values ((1, 'Ashrafuel Alam Amit', 3, '2014-05-01'),
(2, 'Bijoy Deb Nath', 3, '2016-01-02'), (3, 'Ismat Jahan Shila', 1, '2013-06-01'), (4, 'Sudipta Progga Islam', 3, '2018-04-03'), (5, 'Shoumit Das', 2, '2017-04-01'), (6, 'Tanvir Mahin', 1, '2013-07-02'), (7, 'Fahmida Islam', 4, '2020-02-01'), (8, 'Rifa Tabassum', 1, '2013-05-02'), (9, 'Israt Jahan Liza', 2, '2013-03-02'), (10, 'Rubayet Hossain Saad', 2, '2021-04-03'));

insert into paydetails
values ((1,3,6000), (2,3,9000), (3,1,5000), (4,3,6000), (5,2,9000), (6,4,10000), (7,4,4000), (8,1,5000), (9,2,8000), (10,2,3000));

insert into payroll.
values ((1, '2014-06-01'), (2, '2016-02-02'), (3, '2013-07-01'), (4, '2018-05-03'), (5, '2017-05-02'), (6, '2013-08-02'), (7, '2020-03-01'), (8, '2015-06-02'), (9, '2013-04-02'), (10, '2021-05-03'));

2. select * from employee join department where employee.dept_id = department.dept_id and dept_name = 'CSE';

emp_id	emp_name	dept_id	DOJ	dept_name
1	Ashrafal Alam Amit	3	2014-05-01	CSE
2	Bijoy Deb Nath	3	2016-01-02	CSE
4	Sudipta Progga Islam	3	2018-04-03	CSE

3. select emp_name from employee join department where employee.dept_id = department.dept_id and dept_name = 'CSE' and DOJ > '2015-02-01';

emp_name
Bijoy Deb Nath
Sudipta Progga Islam.

4. select emp_name from employee join paydetails where employee.emp_id = paydetails.emp_id and and basic + basic * 0.5 - basic * 0.1 + 1500 > 10000;

emp_name

Bijoy Deb Nath
Shoumit Das
Tanvir Mahin
Israt Jahan Liza

5. select emp_name, dept_name, DOJ, basic + basic * 0.5 - basic * 0.1 + 1500 as salary, pay_date from employee, department, paydetails, payroll where employee.dept_id = department.dept_id and employee.emp_id = paydetails.emp_id and employee.emp_id = payroll.emp_id and dept_name = 'CSE';

emp_name	dept_name	DOJ	salary	pay_date
Ashrabul Alam Amit	CSE	2014-05-01	9900.0	2014-06
Bijoy Deb Nath	CSE	2016-01-02	14100.0	2016-02-02
Sudipta Progga Islam	CSE	2018-04-03	9900.0	2018-05-03

6. Select dept_name, count(emp_name) from employee, department where employee.dept_id = depatetment.dept_id group by employee.dept_id;

dept_name	count(emp_name)
EEE	2
ME	3
CSE	3
ETE	2

Conclusion:

The database was created with standard queries. All the outputs were shown as per direction.