



2. What is need for Normalization ? Explain 2NF. Consider the relation EMP_PROJ as EMP_PROJ = { SSN, Pnumber, Hours, Ename, Pname, Plocation} Assume {SSN, Pnumber} as Primary Key.

The dependencies are

SSn, Pnumber \rightarrow {Hours}

SSn \rightarrow {Ename}

Pnumber \rightarrow {Pname, Plocations}

Normalize the above Relation into 2NF.

3. Consider the following tables :

WORKS (Pname, Cname, Salary)

LIVES (Pname, Street, City)

LOCATED_IN (Cname, City)

MANAGER (Pname, Mgname)

Write SQL Query for the following :

- 1) Find the names of all persons who live in the city 'MUMBAI'.
 - 2) Retrieve the names of all persons whose salary is between Rs. 30,000 and Rs. 50,000.
 - 3) Find the names of all persons who live and work in the same city.
 - 4) List the names of the people who work on Project X.
 - 5) Find the average salary of all the employees.
4. Discuss two-phase locking protocol used in concurrency control.
5. Justify the problems that can occur when concurrent transactions are executed with examples.
6. What is indexing ? Why is it necessary for Database Management System ? Discuss types of Indexes with necessary sketches.