Normalization

Normalization -- Normalization is a process of organizing our data. It is a multi-step process that sets the data into tabular form and removes the duplicated data from the relational tables.

OR

Normalization is a technique to remove or reduce redundancy from a table. Redundancy means **having multiple copies of same data in the database**. This problem arises when a database is not normalized.

They are of 3 Types :--

(1.) First Normalization Form (1NF) --> Table should not contain any multivalued attributee.

Table --> This table is not in one normal form because student course has more than one value as it should only have one value .

sID	sName	sCourse
1	Amit	Spring Boot/Angular
2	Yash	Java/React
3	Nitin	Java

sID	sName	sCourse1	sCourse2
1	Amit	Spring Boot	Angular
2	Yash	Java	React
3	Nitin	Java	null

sID	sName
1	Amit
2	Yash
3	Nitin

sID	sCourse
1	Spring Boot
1	Angular
2	Java
2	React
3	Java

```
create database studentdata;
```

```
use studentdata;
```

```
create table student(sId int primary key auto_increment,sName varchar(20));
```

```
insert into student(sName) value("Amit");

insert into student(sName) value("Yash");

insert into student(sName) value("Nitin");


desc student;

select * from student;


create table course(sId int,sCourse varchar(20));

desc course;

select * from course;


alter table course add foreign key (sId) references student(sId);


insert into course values(1,"Spring Boot");

insert into course values(1,"Angular");

insert into course values(2,"Java");

insert into course values(2,"React");

insert into course values(3,"Java");


select * from student inner join course on student.sId = course.sId;


select student.sId,student.sName,course.sCourse from student inner join course on student.sId = course.sId;
```

(2.) Second Normalization Form (2NF) --> Table should be in 1NF. Table should not contain any partial dependency. All non-prime attributes should be fully functionally dependent on candidate key(composite primary key).
There should not be any partial dependency.

(3.) Third Normalization Form (3NF) --> Table must be in 2NF and there should be no transitive dependency in the table.