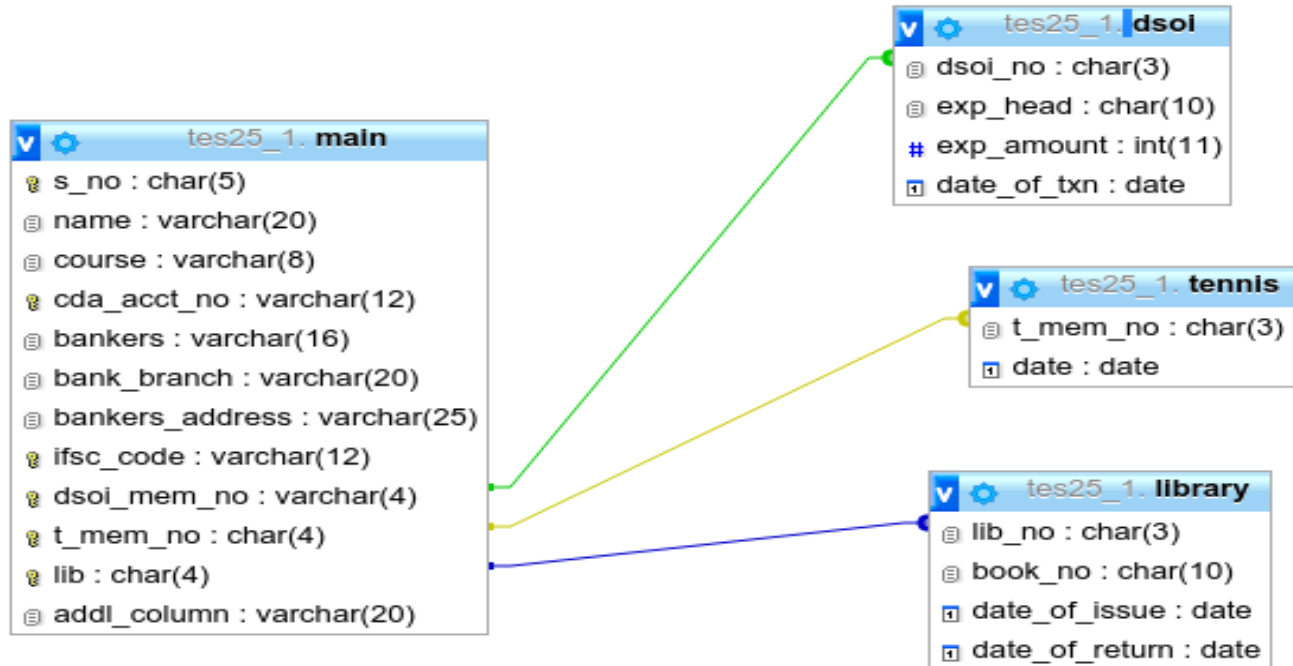

Keys and Indexes in DBMS

Index

- An Index is used for speedy and efficient sorting.
 - An Index can be unique or not unique.
 - Index can be made on any number of fields.
-

A Typical Database Schema



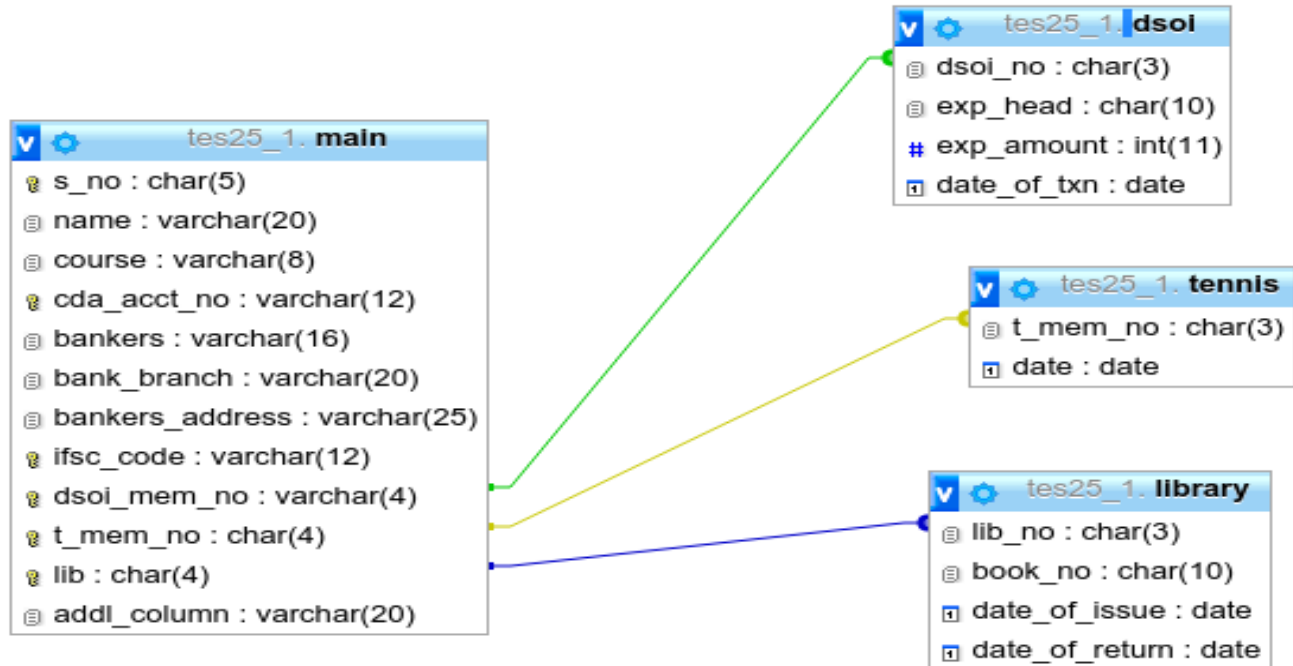
Purpose of Keys

- Link Various tables efficiently so that all operations like edit , update and delete can take place smoothly.
 - Any data is entered only once and subsequently ,it is retrieved through linking of tables
-

Primary Key

- It is a set of one or more attributes (fields) that can uniquely identify a record within the Table.
- A primary Key field is Unique.
- A primary Key field cannot be NULL.
- A Primary Key is only one in a table

A Typical Database Schema



Another view of the tables

s_no	name	course	cda_acct_no	bankers	bank_branch	bankers_	ifsc_code	dsoi_mem_	t_mem_	lib
01287	s reddy	tes26	19/453/87567	sbi	bose rd	chennai	sbin000127	qp3		9
01285	a joe	tes26	18/145/98765	hdfc bank	palasia	indore	hdfc000123	qp8	t35	8
01257	b singh	sode104	17/132/23456	icici bank	palasia	indore	icic000987	qp5	t72	7
01237	g k jha	sode104	16/143/87898	pnb	main street	mhow	pnb000124	qp7		6
01234	a singh	sode104	15/132/12345	pnb	mg rd	mhow	pnbi000345	qp1	T20	5
01233	b sharma	tes26	14/124/76778	icici bank	mount rd	chennai2	icic000123	qp4	t21	4

dsoi_no	exp_head	exp_amou	date_of_txn
qp8	liq	100	2014-09-01
qp5	catering	300	2014-08-23
qp5	liq	150	2014-08-30
qp4	catering	90	2014-08-25
qp4	liq	100	2014-08-31
qp3	liq	50	2014-08-20
qp2	liq	200	2014-12-10
qp1	catering	100	2014-08-18

Candidate Key

- All attributes combinations inside a relation that can serve as primary key.
 - One of the Candidate keys is selected as primary Key
-

Foreign Key

- A foreign key (FK) is a column or combination of columns that is used to establish and enforce a link between the data in two tables to control the data that can be stored in the foreign key table .
-

Alternate Key

- A Candidate Key that is not selected as primary Key



constraints

- NOT NULL
 - UNIQUE
 - PRIMARY KEY
 - CHECK
-

Constraints

Implementation

Syntax - column level constraint

- CREATE TABLE People(Id INTEGER, LastName TEXT NOT NULL, FirstName TEXT NOT NULL, City VARCHAR(55));
 - CREATE TABLE Brands(Id INTEGER, BrandName VARCHAR(30) UNIQUE);
 - CREATE TABLE Brands(Id INTEGER PRIMARY KEY, BrandName VARCHAR(30));
 - CREATE TABLE Books(BookId INTEGER PRIMARY KEY, Title VARCHAR(50), AuthorId INTEGER, FOREIGN KEY(AuthorId) REFERENCES Authors(AuthorId));
-

Syntax - column level

constraint

- CREATE TABLE works_on (emp_no INTEGER NOT NULL,
- project_no CHAR(4) NOT NULL,
- job CHAR (15) NULL,
- enter_date DATETIME NULL,
- CONSTRAINT prim_works PRIMARY KEY (emp_no, project_no),



A Typical create table statement

```
CREATE TABLE `main` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `date_1` date NOT NULL,  
  `equity` int(11) NOT NULL,  
  `debt` int(11) NOT NULL,  
  `cash` int(11) NOT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=15 DEFAULT CHARSET=utf8mb4
```
