Semester Project Report

Department of Computer Science& Information Technology

University of Sargodha

Project Advisor

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Project Members

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Abdussamad (154)

Class BSITF13 4th (SS3)

Submission Date 19june 2015

PROJECT NAME

Data Base of LIBRARY MANMAGMENT SYSTEM in SQL SERVER 2012

GOURP MEMEBERS NAME & CONTACT NO

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ACKNOWLEDGEMENT

"IN THE NAME OF ALLAH WHO IS THE

MOST BENIFICAL MERCIFUL AND COMPASSIONATE"

First of all we will thanks to ALMIGHTY ALLAH who gave us the strength, power, wisdom and complete the project.

Secondly we would like to thank our subject SIR HAFIZ FAISAL

He guides us in each and every step of this project

DEDICATION

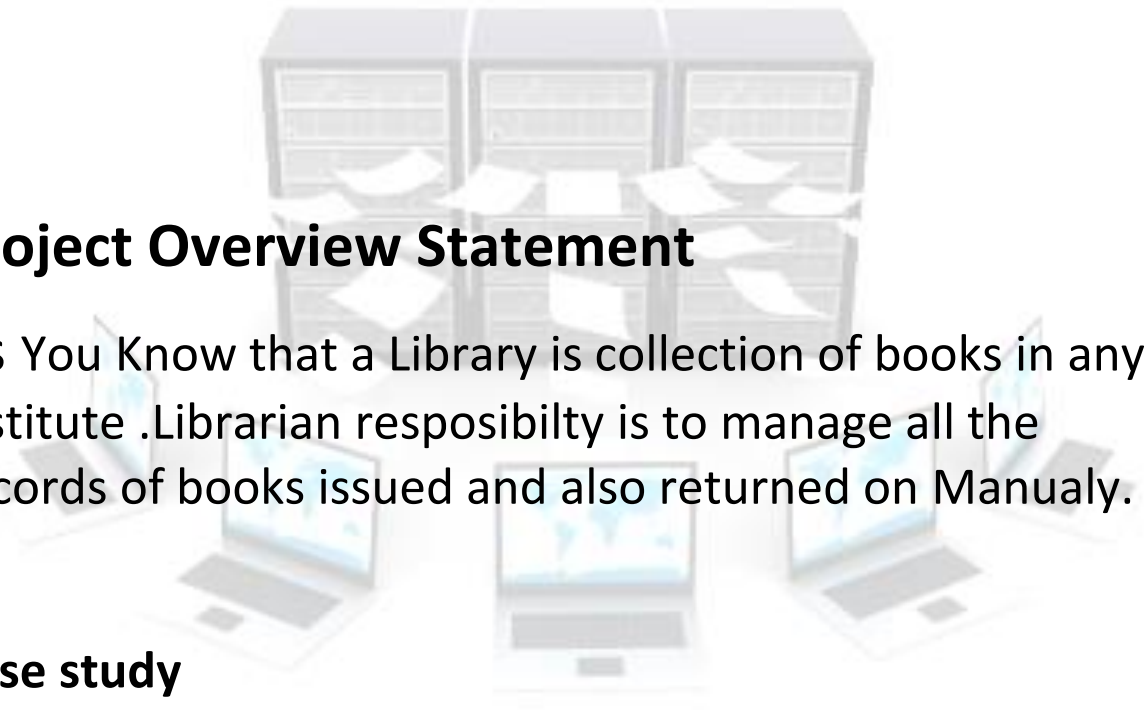
“To our beloved PARENTS”

&

“Mr. Hafiz Faisal”

Project Title:-

Database system for Library Management system



Project Overview Statement

As You Know that a Library is collection of books in any institute .Librarian resposibilty is to manage all the records of books issued and also returned on Manualy.

Case study

Current system:

All the Transaction(books issues & books returned) are manualy recorded(registars.)

Students search books by racks it so time consuming

And there is no arrangement.

Also threat of losing recorde.

Project Aim and Objective

The project aim and objective are:

To eliminate the paper –work in library

-to record every transaction in computerized system so that problem such as record file missing won't happen again

Backgroud of Project

Library Management system is an application refer to other library system and is suitable to use by small and medium size libray .

It is use by librarian and libray admin to manage the library using a computerized system .

The system was designed to help librain record every book transcation so that the problem such as file missing will not happened again.

Development Enivornment

Operating system:

windows 7, window 8.1

Database :

Microsoft Sql server 2012

Hardware

Processor : Dual core or core i3

Ram : upto 2Gb

Design view

The library has the following tables in its database;

1. Books (book_id, ISBN,bookName, BOOKAUTHOR and bookedition)

2. student (student_id, studentname, student_email, student_address)

3. Staff (staff_id, staff_name, staff_address, staff_gender, staff_phone)

4. department (department_id, branch_name)

5. Issue (issue_id, issue_date, expiry_date, book_name, book_id)

6. Return (return_id, expiry_date, isuue_date, book_id)

NORAMALIZATION OF TABLE

Why Normalization:

Database normalization is the process of removing redundant data from your tables in
order to improve storage efficiency, data integrity, and scalability. Normalization generally involves splitting existing tables into multiple ones, which must be
re-joined or linked each time a query is issued.

Given table is converted to its 1NF as follows.

- STEP NUMBER 1:

  elimination of duplicative columns from table 1.
- Step number 2:

  create separate table for each group of related data and identify each row with unique column (primary key).

2nd normal form

A table is in first normal form and each non-key field is functionally dependent upon primary key.
Now we'll take the table above and design new tables that will eliminate the repeted date in non key _field

To decide what fields belong together in a table, think about which field determines the
values in other fields.

Create a table for those fields and enter the sample data.

Think about what the primary key for each table would be and about the relationship between the tables.

Mark the primary key for each table and make sure that you do not have repeated data in non-key fields.

Third normal form (3NF) requires that there are no functional dependencies of non-key attributes on something other than a candidate key.

A table is in 3NF if all of the non primary-key attributes are mutually independent

There should not be transitive depeinces.

Normalization of Tables in Database

ISSue_id	Book_id	Student_id
1122	110,120,320	bitE183

In the **ISSUE Table** there is repating book_id . A student has issued 3 books.

After first Normalization

ISSUE_ID	book_id	Student_id
1122	**110**	**bitE183**
1122	**320**	**bitE183**
1122	**120**	**bitE183**

Second normalized Form:

In the following Student relation all attributes are dependent on the primary key StudID

Student_id	Name	Depid	Issue_date	Expairy_date	Phone
BITf13E183	**Azhar**	**20**	**17-6-15**	**1-7-15**	**312 7400558**

We can create two other relations from Student Table one is Department fields are fully dependent on the primary keys DEp_id

DEp_id	Dep_name
11	**CS & IT Department**
22	**Education Department**
33	**Economics Department**
44	**Laaw Department**

Student_id	Name	Issue_date	Expairy_date	Phone
BITf13E183	Azhar	15-6-15	1-7-15	312-7400558

Before third normal form

Staff_id	Name	Gender	Designation	Address	City	state	cell
1101	Shaid	M	Librarian	House no 12 street 6	Sargodha	punjab	300-1234567

1345	Riaz	m	Data entery	Statilete town	Sargodha	Punjab	0346-1234567
2264	Arshad	m	Naib qaisd	Raza garden	Sargodha	Punjab	0333-1234567

After 3rd Normalization

Staff table

Staff_id	Name	Gender

Staff conatact

Staff_id	Address	City	State	Telephone	cell

STUDENT Table before Third normalized Form :

Std_id	Name	Gender	Address	City	State	Phone	Dep_id

After third normal

Student_id	Dep_id	Department
IT-113	**C-26**	**Cs & IT**
Lm-456	**L-11**	**Law**
Eng-98	**E-41**	**ENGLISH**

Studentcontact table:

Student_id	Address	City	State	Phone
IT-111	Statlite twon	Sargodha	Punjab	312-1234567
Cs-786	Sahiwal	sargoda	punjab	300-1234567

Student table:

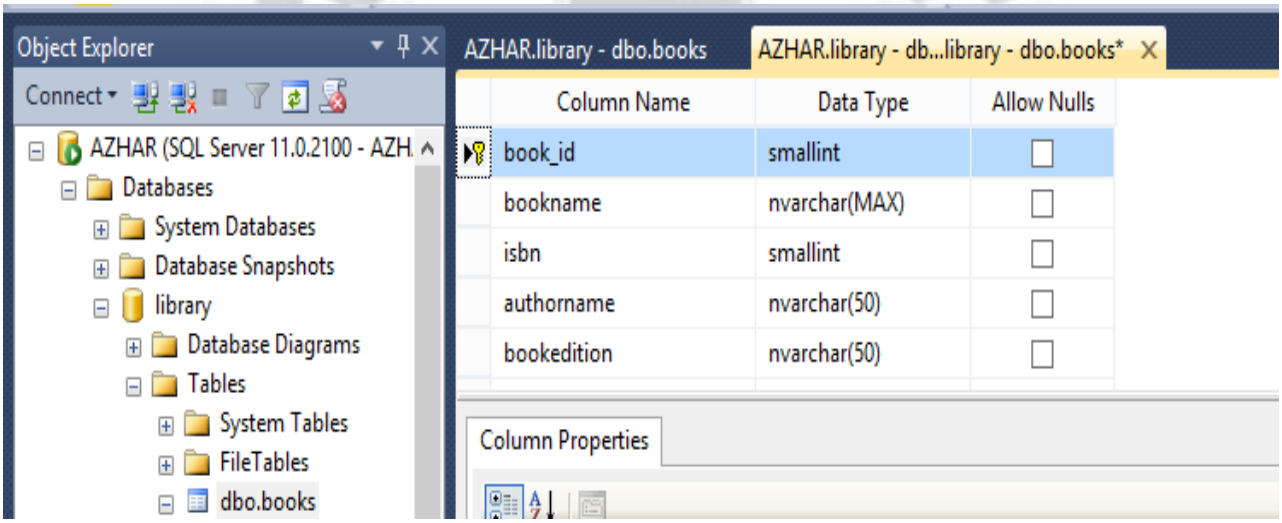
Student_id	Name	Gender	studentDepartment

Normalization End

ARCHITECTURE OF TABLES IN SQL SEERVER 2012 AND RECORD

FIRST TABLE IS BOOK

Design view



Records

AZHAR.library - dbo.books X | AZHAR.library - db...library - dbo.books*

	book_id	bookname	isbn	authorname	bookedition
	1141	web pentration	4151	azhar	first
	2567	Linux commond	5678	javed	second
	4352	Ethical Hacking	5652	ramzan	first
	5632	Hack the netwo...	9875	Mazhar	third
▶*	NULL	NULL	NULL	NULL	NULL

2nd table Issues

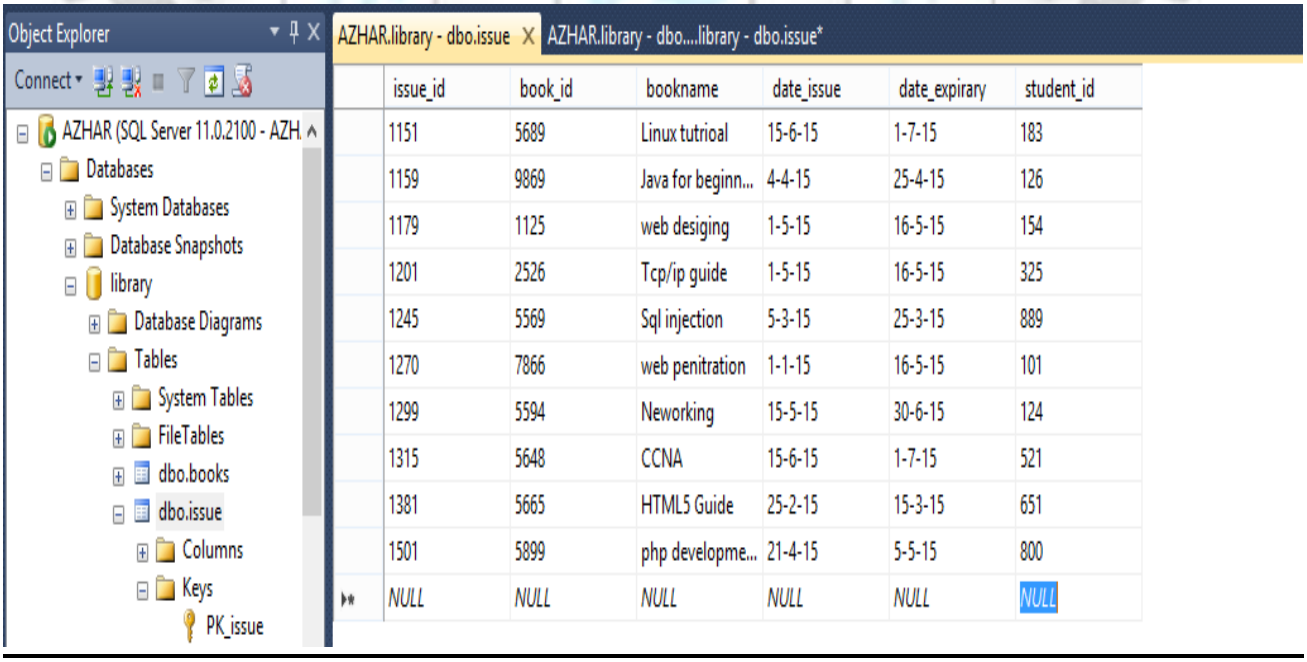
Design view

AZHAR.library - dbo....library - dbo.issue

Column Name	Data Type	Allow Nulls
issue_id	smallint	☐
book_id	smallint	☐
bookname	nvarchar(50)	☐
date_issue	nvarchar(50)	☐
date_expirary	nvarchar(50)	☐
student_id	smallint	☐

Student _id is forigen key in book table

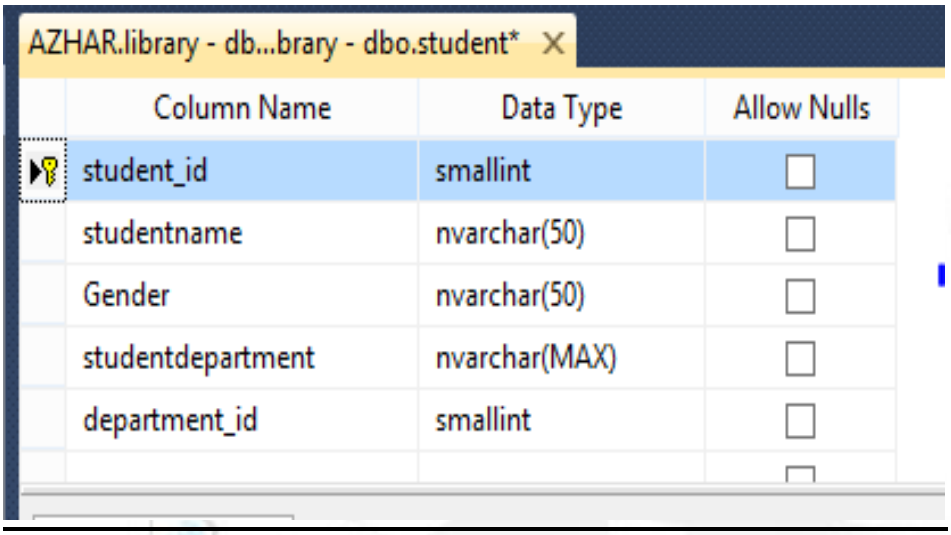
Record



issue_id	book_id	bookname	date_issue	date_expirary	student_id
1151	5689	Linux tutrioal	15-6-15	1-7-15	183
1159	9869	Java for beginn...	4-4-15	25-4-15	126
1179	1125	web desiging	1-5-15	16-5-15	154
1201	2526	Tcp/ip guide	1-5-15	16-5-15	325
1245	5569	Sql injection	5-3-15	25-3-15	889
1270	7866	web penitration	1-1-15	16-5-15	101
1299	5594	Neworking	15-5-15	30-6-15	124
1315	5648	CCNA	15-6-15	1-7-15	521
1381	5665	HTML5 Guide	25-2-15	15-3-15	651
1501	5899	php developme...	21-4-15	5-5-15	800
NULL	NULL	NULL	NULL	NULL	NULL

3rd table student

Design view



Dep_id is forign key in student table

Record view

AZHAR.library - dbo.student | AZHAR.library - db...brary - dbo.student*

student_id	studentname	Gender	studentdepartment	departmer
126	ramzan	male	CS&IT department	12
154	abdusamad	male	cs&it department	12
183	azhar javaid	male	cs&it department	12
1097	tabish	male	Law department	16
1526	murtaza	male	commerce	17
1627	Ali	male	commerce	17
2026	Qasim	male	Economics	21
2125	Anas	male	BBA	23
2397	mazhar	male	English	25
2529	shazab	male	physics	26
NULL	*NULL*	*NULL*	*NULL*	*NULL*

Student contact

Design view

AZHAR.library - db...bo.student contact*

Column Name	Data Type	Allow Nulls
student_id	smallint	☐
address	nvarchar(50)	☐
city	nvarchar(50)	☐
state	nvarchar(50)	☐
phone	smallint	☐

Record

AZHAR.library - dbo.student contact | AZHAR.library - db...bo.student contact

student_id	address	city	state	phone
126	chack 81	sargodha	punjab	3008136255
154	raza town	sargodha	punjab	3075408811
183	behria twon	sargodha	punjab	3127400558
196	block 12	sargodha	punjab	3001234567
224	block 4	sargodha	punjab	31212345678
231	block6	sargodha	punjab	3331234567
236	block 11	sargodha	punjab	3451234567
NULL	*NULL*	*NULL*	*NULL*	*NULL*

Department table

Design view

AZHAR.library - db...y - dbo.department

Column Name	Data Type	Allow Nulls
Dep_id	smallint	☐
Departmentname	nvarchar(50)	☐
student_id	smallint	☐
		☐

Here student_id is forigen key

Record view

AZHAR.library - dbo.department | AZHAR.library - db...y - dbo.department

	Dep_id	Departmentna...	student_id
	11	IT Department	183
	13	physics	315
	14	chemistry	501
	17	commerce	751
	18	business	901
	19	economics	1171
	21	food science	1401
	22	english	1655
	23	math	1831
	24	islamic	2101
	25	urdu	2405
	26	education	2627
▶*	NULL	NULL	NULL

Return table

AZHAR.library - dbo.Table_1*

Column Name	Data Type	Allow Nulls
return_id	smallint	☐
book_id	smallint	☐
issue_date	date	☐
expairy_date	date	☐
return_date	date	☐
student_id	smallint	☐
staff_id	nvarchar(50)	☐
issue_id	smallint	☐
		☐

Here book_id,issue_id, staff_id ,student_id are forigen keys

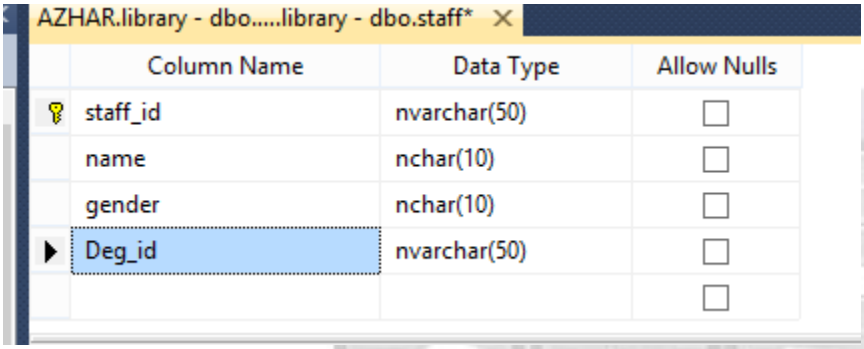
Record view

AZHAR.library - dbo.return | AZHAR.library - dbo...ibrary - dbo.return

return_id	book_id	issue_date	expairy_date	return_date	student_id	staff_id	issue_id
5645	456	2015-01-03	2015-03-10	2015-09-03	115	sf12	2156
5699	1122	2015-01-05	2015-05-01	2015-07-04	526	sf15	556
5756	2654	2015-01-06	2015-01-15	2015-01-15	556	sf13	556
NULL	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*	*NULL*

Staff table

Design view



Deg_id is forigen key

Record view

AZHAR.library - dbo.staff | SQLQuery4.sql - A...hammad Azhar (52)) | AZHAR.library - dbo.....library - dbo.sta

staff_id	name	qender	Deq_id
sf12	arshad	male	dg56
sf15	latif	male	dg60
sf16	irfan	male	dg65
sf17	faisal	male	dg66
sf18	roqia	femal	dg69
sf19	saira	female	dg70
sf20	muazamel	male	dg71
sf21	furqan	male	dg72
NULL	*NULL*	*NULL*	*NULL*

Staff deginations table

Design view

AZHAR.library - dbo.designation | AZHAR.library - db...y - dbo.designation

Column Name	Data Type	Allow Nulls
Dg_id	nvarchar(50)	☐
designation	nchar(10)	☐
staff_id	nvarchar(50)	☐
		☐

Staff_id is forigen key

Record view

AZHAR.library - dbo.designation | AZHAR.library - db...y - dbo.designation

Dq_id	desiqnation	staff_id
dg3	naibqasid	sf15
dg4	sweeper	sf10
dg5	bookkeeper	sf11
dg11	librairan	sf13
dg12	clerk	sf16
NULL	*NULL*	*NULL*

Staff contact table

Design view

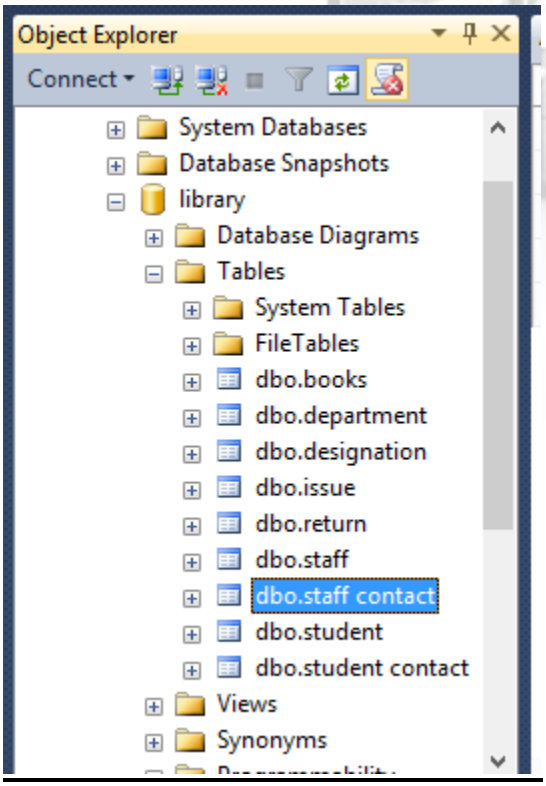
AZHAR.library - dbo...- dbo.staff contact*

Column Name	Data Type	Allow Nulls
staff_id	nvarchar(50)	☐
address	nvarchar(50)	☐
city	nchar(10)	☐
state	nchar(10)	☐
phone	numeric(18, 0)	☑

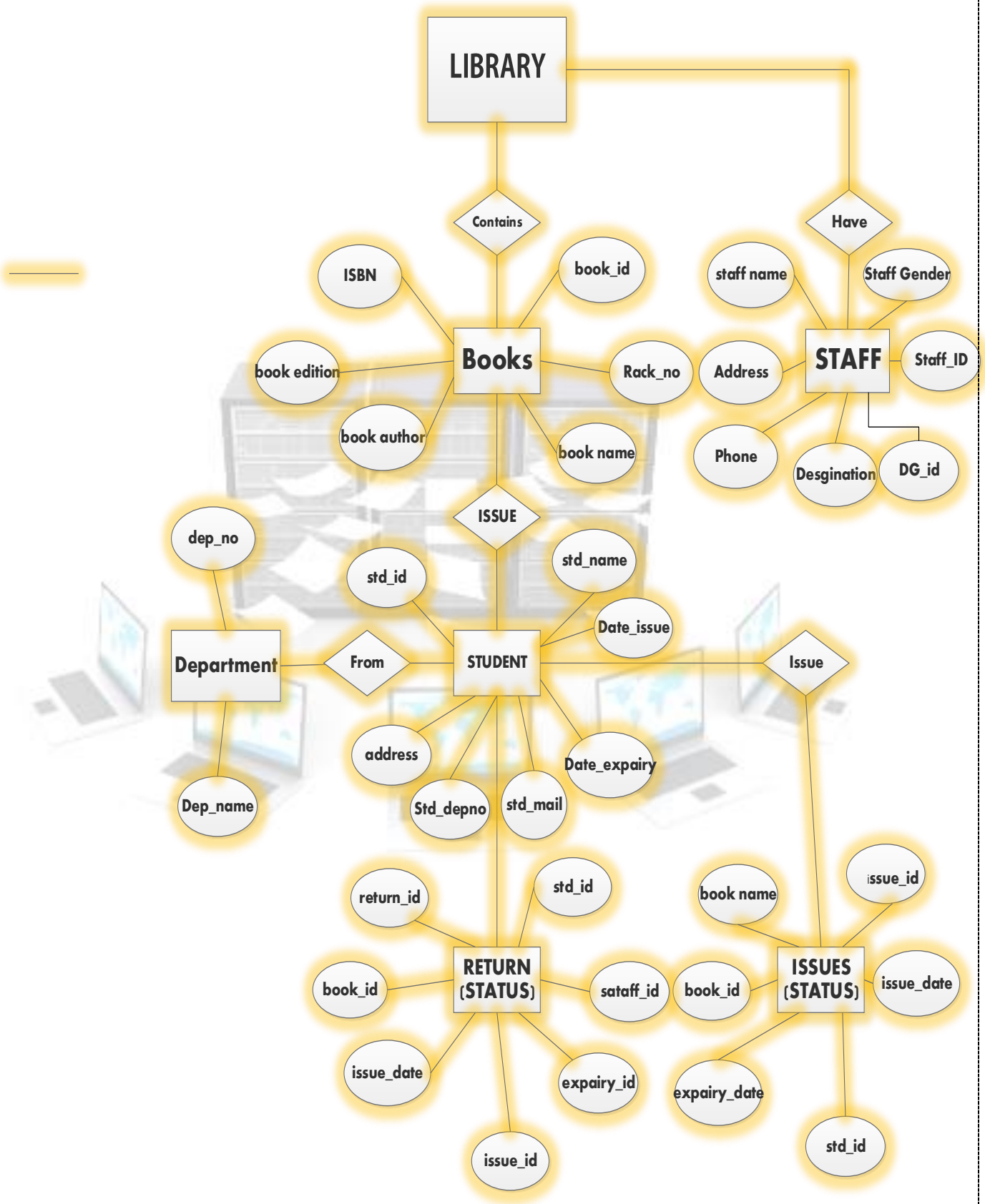
Record view

AZHAR.library - dbo.staff contact | AZHAR.library - dbo...- dbo.staff contact*

staff_id	address	city	state	phone
sf12	block 4	sargodha	punjab	3001234567
sf15	main city	sargodha	punjab	3121234567
sf17	green twon	sargodha	punjab	3331234567
sf26	raza twon	sargodha	punjab	3461234567
NULL	*NULL*	*NULL*	*NULL*	*NULL*



ER Diagram in visio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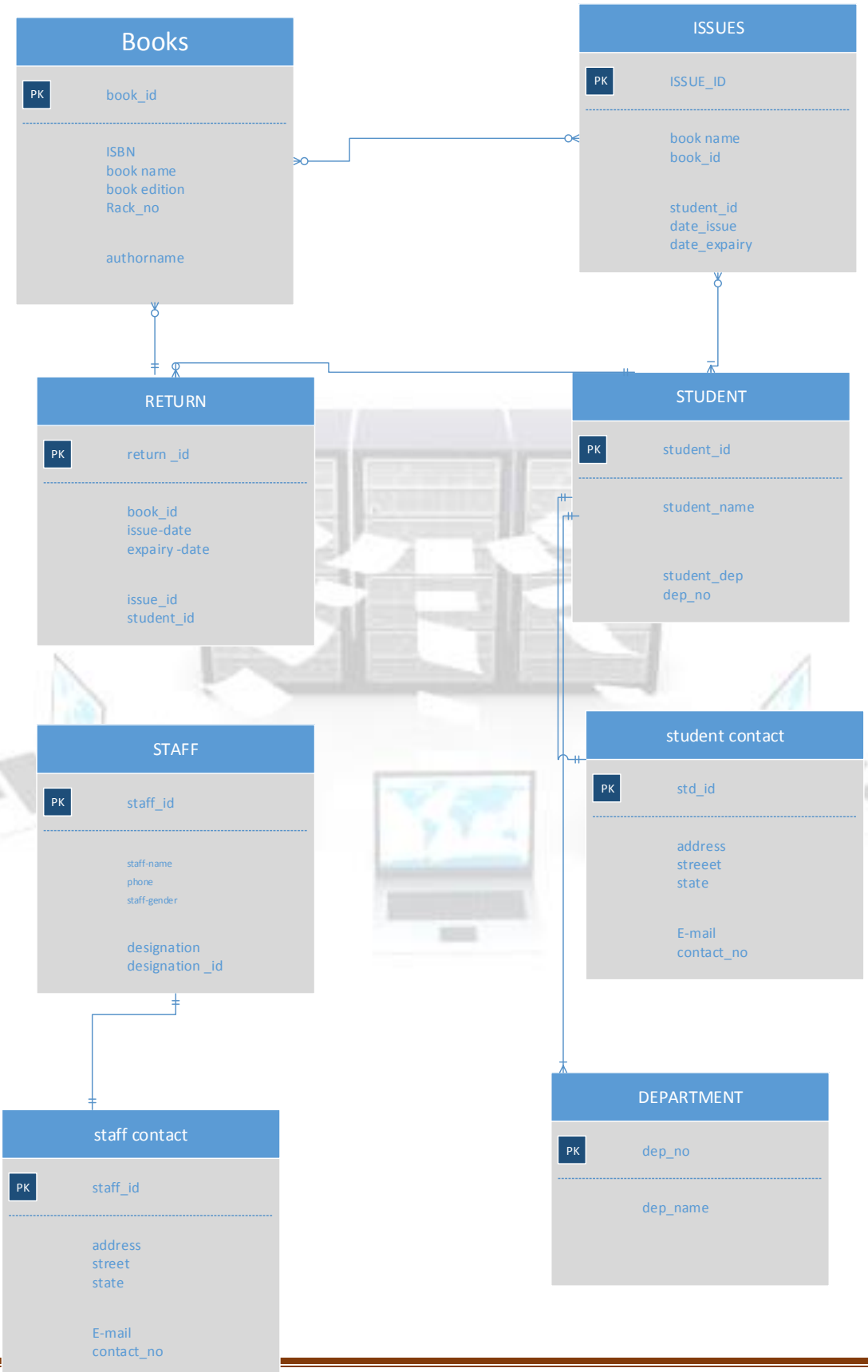
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contact_no

Relational Model of ERD

Staff contact

Staff_id	Address	City	State	Phone

Staff

Staff_id	Name	Desgination	Gender

Designation

Designation_id	Designation

Student contact

Student_id	Address	City	State	phone

Student

Sttudent_id	Name	Gender	Student_dep

Department

Dep_id	Department name

Book

Book_id	Isbn	Book_name	Edition	Author name	Rack_no

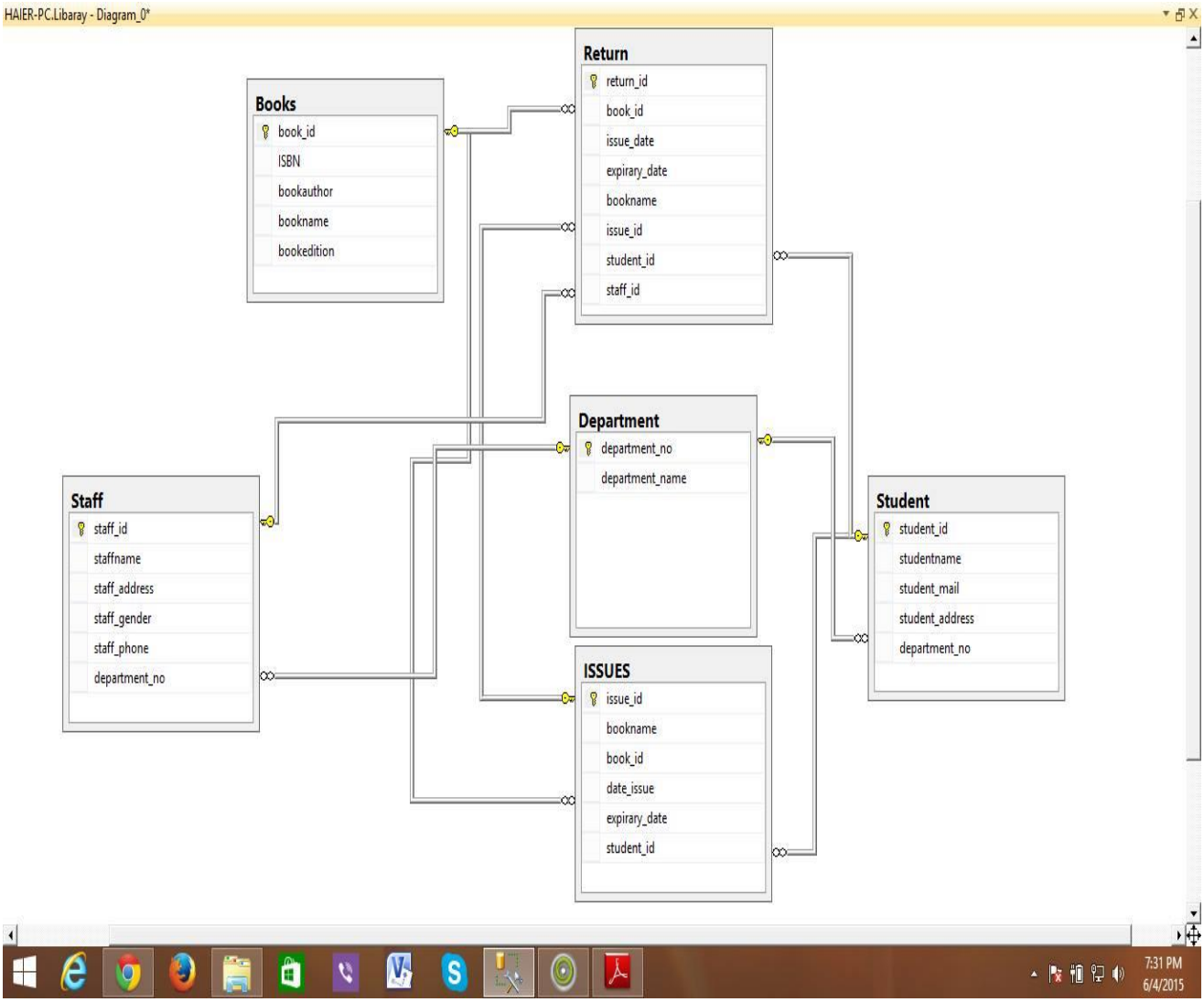
ISSUEs

Issue_id	Book_name	Book_id	Stud_id	Issue_date	Expairy_date

RETURN

Return_id	Book_id	Issues_date	Retuen_date

Entity Relationship Model in SQL SERVER 2012



I hv tried to eliminate error & mistakes but There would be some error or mistakes in project.

In case of error/ mistakes plz informe me Regard M Azhar……