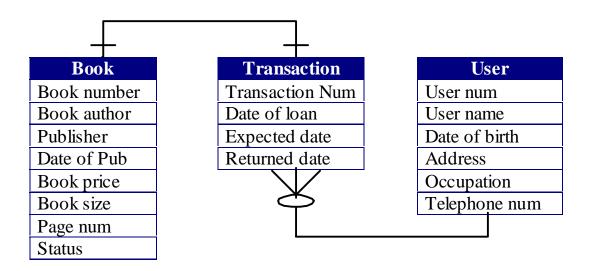
Appendix LIBRARY MANAGEMENT SYSTEM CONC EPTUAL DESIGN



BOOK

B-Num	B-Titl	B-Author	B-Publ	B-Date	B-Price	B-Size	B-Page	B-Status

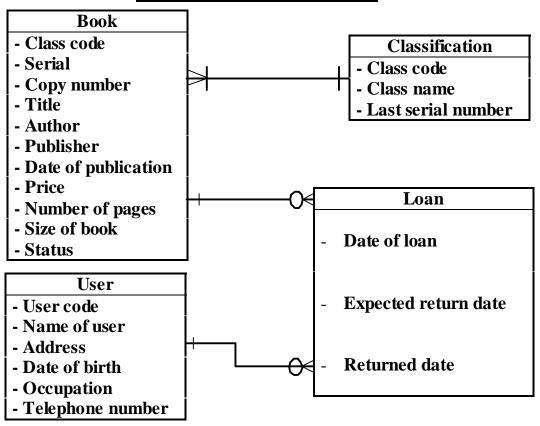
TRANSACTION

<u>T-Num</u>	D-Loan	Epx-Date	Re-Date	B-Num	U-Num

USER

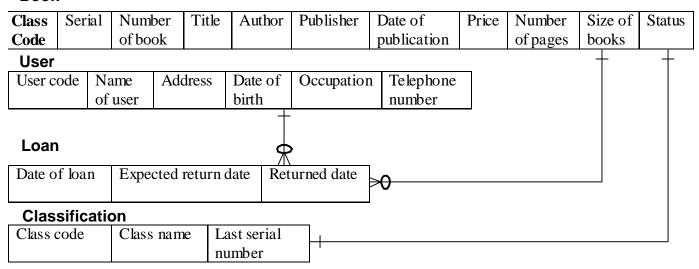
<u>U-Num</u>	U-Name	U-Birth	U-Add	U-Add	U-Occu	U-Phone

<u>Ver 1. Conceptual design</u> Entity Attribute Relationships



Logical design

Book



Logical design: UnNormalized Form

Book										/
Class Code	Serial	Copy number	Title	Author	Publisher	Date of publication	Price	Number of pages	Size of books	Status
User										

User code	Name	Address	Date of	Occupation	Telephone
	of user		birth		number

Loan

Date of loan	Expected	Returned	Load number	Class	Serial	Number	User code
	return date	date		code		of book	

Classification

Class code	Class name	Last serial
		number

First Normalization

Book

Class	Serial	Title	Author	Publisher	Date of	Price	Number	Size of
Code					publication		of pages	books

Book library

Class	Serial	Copy	Status
code		number	

User

User code	Name	Address	Date of	Occupation	Telephone
	of user		birth		number

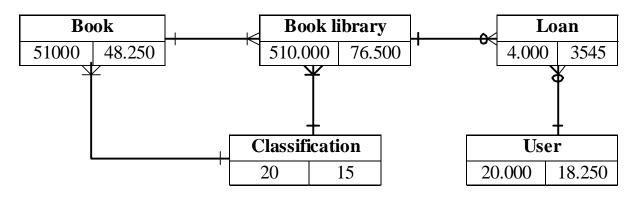
Loan

Date of loan	Expected	Returned	Load number	Class	Serial	Number	User code
	return date	date		code		of book	

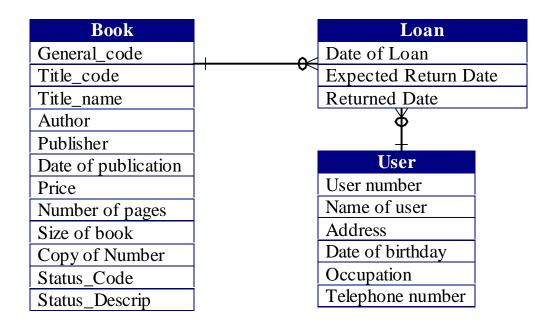
Classification

Class code	Class name	Last serial
		number

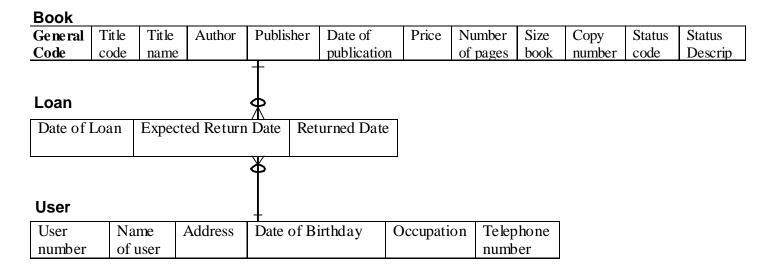
Process Design: The Entity Volume Diagram

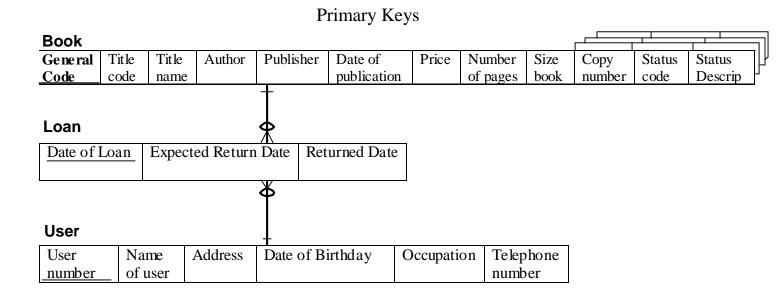


Ver 2. Library Management System (Conceptual Model)

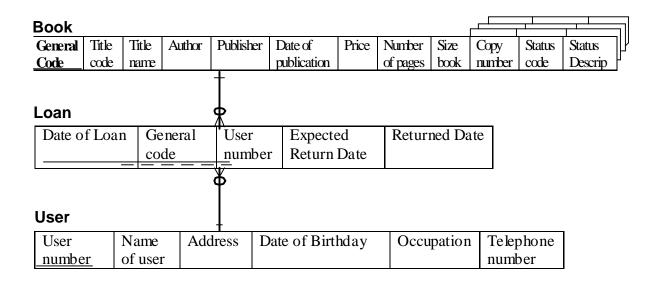


Logical Design





Foreign keys



(First Normal Form)

Book

General	Title	Title	Author	Publisher	Date of	Price	Number	Size
Code	code	name			publication		of pages	book

Book_Ident

General	Copy	Status	Status
code	Number	code	Descrip

Loan

General	Copy	Date of Loan	User	Expected	Returned Date
code	number		number	Return Date	

User

User	Name of	Address	Date of birthday	Occupation	Telephone
number	user				number

Second Normal Form

Book														
General Code	Title code			Author	2 0001201101		2	Date of oublication		Price		mber pages	Size book	
Book_Ident Status														
General	C	Copy		Status		S	Status		Status					
code	Number		<u>. </u>	code		code		_	Descrip					
Loan			-					•						
General	Co	ру	Da	te of Loai	n Us	User			Expected			Returned Date		
code	nu	number			nu	number			Return Date					
User	1		1								1			
User number		Name of user		Address	Date of		f birthday		Occupat		tion Teleph numbe		L	

Third Normal Form

Book													
General	Title	Title Author Publishe		r	Date of		Pric	e l	Number		Siz	æ	
Code	code					publication			C	of pages		boo	ok
						<u> </u>			<u> </u>				
Book_Ident Title Status													
General	Co	Copy Status Title Tit		Title	•	Status				Status			
code	Nu	mber	<u>c</u>	ode	<u>code</u> nar		nam	e	code		:		Descrip
Loan			·										
General	Cop	У	Da	te of Loan	User			Exp	Expected			Returned Date	
code	number		number Ret			Return Date							
Llear	Ilaa												
			0 1			- 0						_	
User	N	ame o	of	Address		Date of birtho		lay Oc		Occupation		Ί	elephone
number	us	er										n	umber
User User	User Name of Address			Address					1		on		elephon umber