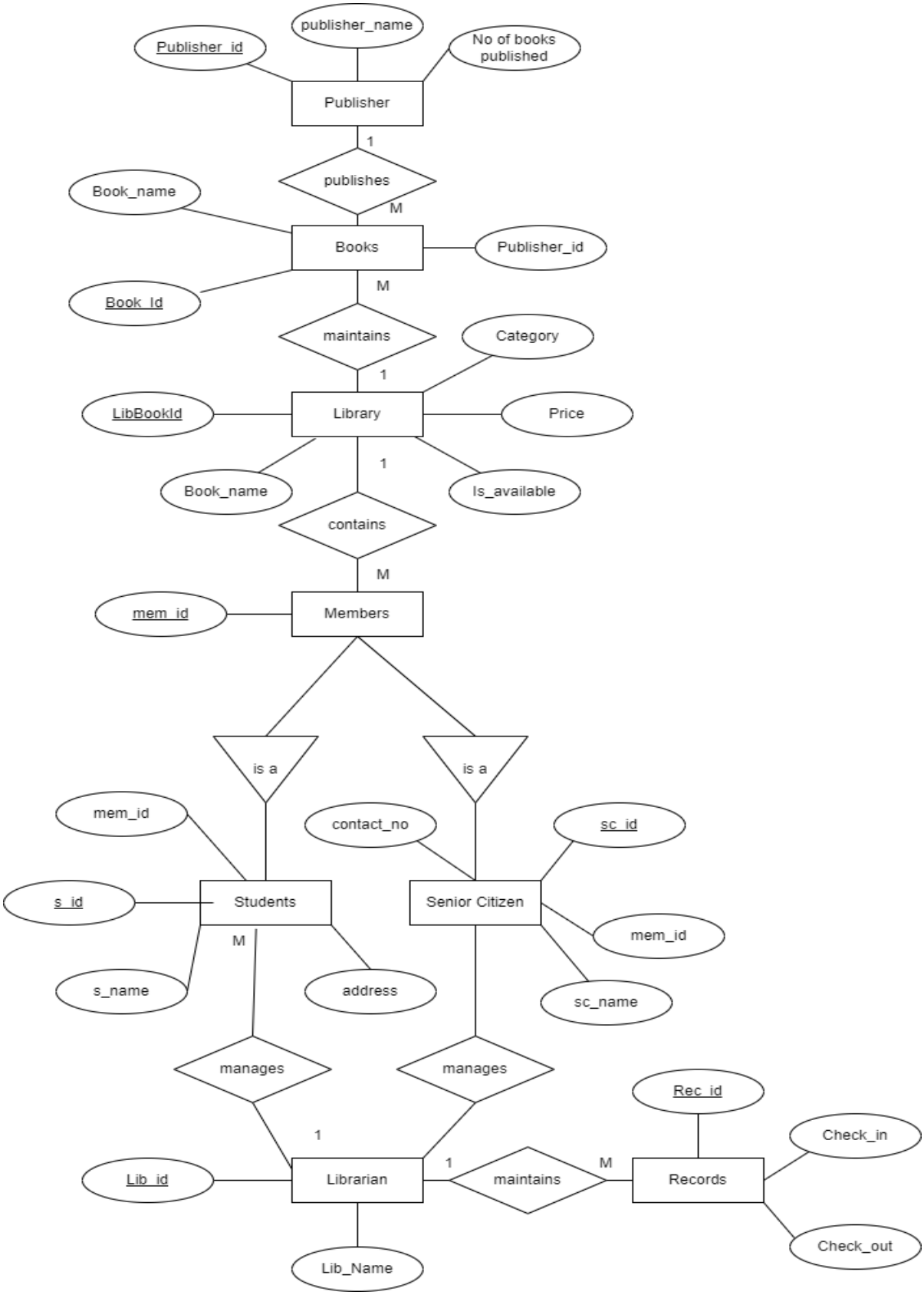
publisher_name
Publisher_id
No of books published
Publisher
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publishes
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Books
Publisher_id
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Category
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Is_available
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Records
Check_out
Lib_Name

DESCRIPTION :

ENTITY	ATTRIBUTES	RELATIONSHIPS WITH
Publisher	publisher_id,publisher_name, No._of_books_published	Books
Books	book_id,book_name,publisher_id	Library
Library	lib_book_id,book_name,category,price,is_available	Members
Students	s_id,s_name,address,mem_id	Librarian
Librarian	lib_id,lib_name	Student, Senior Citizen,Records
Records	Rec_id, check_in,check_out	Librarian
Senior Citizen	sc_id,sc_name,phone_no,mem_id	Librarian

1) Publisher publishes Books . Relation here is one to many as one publisher may publish any number of books.
2) Another relation is Library maintains Books . Relation here is one to many as one Library may contains many Books.
3) Library also has Members . So relation is Library contains Members. Members are specialized into Students and Senior Citizens.
4) Another relation is Librarian manages Students and also Librarian manages Senior Citizens. Relation here is one to many in both cases . As Only One librarian is associated with many members.
5) Librarian maintains Records is another relationship . It is One to many as Librarian maintains many records.

BEFORE MINIMIZATION :

PUBLISHER TABLE :

publisher_id	publisher_name	No._of_books_published

BOOKS TABLE :

book_id	book_name	publisher_id

LIBRARY TABLE :

lib_book_id	book_name	category	price	is_available

STUDENTS TABLE:

s_id	s_name	address	mem_id

SENIOR CITIZENS TABLE:

sc_id	sc_name	phone	mem_id

LIBRARIAN TABLE :

lib_id	lib_name

RECORDS TABLE :

rec_id	check_in	check_out

AFTER MINIMIZATION :

1) **Publisher publishes Books (1 to M, So 2 tables are req.) :**

PUBLISHER TABLE :

Publisher_id (PK)	publisher_name	No._of_books_published

Books Table :

Book_id (PK)	book_name	publisher_id(FK)

2) **Library maintains Books (1 to M , So 2 Tables are required):**

Library Table :

lib_book_id(PK)	book_name	category	price	is_available

Books Table :

book_id(PK)	book_name	publisher_id	Lib_book_id (FK)

3) **Library Contains Members (1 to M , 2 tables are req.):**

Library Table :

lib_book_id(PK)	book_name	category	price	is_available

Members Table :

mem_id(PK)	lib_book_id(FK)

4) Librarian manages Students (1 to M , So 2 Tables are required):

Library Table :

lib_book_id(PK)	book_name	category	price	is_available

Students TABLE:

S_id (PK)	s_name	address	mem_id	lib_book_id(FK)

5) Librarian manages Senior Citizens (1 to M , So 2 Tables are required) :

Library Table :

lib_book_id(PK)	book_name	category	price	is_available

SENIOR CITIZENS TABLE:

sc_id(PK)	sc_name	phone	mem_id	lib_book_id(FK)

6) Librarian maintains Records (1 to M , So 2 Tables are required) :

Library Table :

lib_book_id(PK)	book_name	category	price	is_available

Records TABLE :

Rec_id (PK)	check_in	check_out	lib_book_id(FK)