

Database-homework

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November 2019

1 Q1

1.1 1

The diagram is in ER-model-diagram.pdf file in the same folder.

1.2 2

The names are the names of the entities and the relations I am assuming one publisher can publish multiple books, and same book can be published by different publishers. as it is discussed here

<https://writing.stackexchange.com/questions/4605/can-a-book-be-published-by-more-than-one-publisher>

I am assuming one user can borrow one book at a time.

Book(ISBN, *publication_year*, *title*, *author*, *number_of_pages*, *our_library*)

Belong(*Book_ISBN*, *Category_name*)

Publish(*publisher_name*, *publisher_location*, *book_ISBN*)

Publisher(*publisher_name*, *location*)

contain(*category_name*, *parent_category_name*)

Category(*category_name*)

Borrows(*Reader_number*, *ISBN*, *copy_number*, *return_date*)

Readers(*reader_number*, *birth*, *city*, *name*)

Copy(*ISBN*, *copy_number*, *location*)

Register(*our_library*, *reader_number*)

2 Q2

$(Teaches \bowtie_{courses.dept=teaches.dept \wedge courses.number=teaches.number} Courses) \bowtie_{courses.uid=instructor.uid}$
 $(Instructor - \sigma_{Instructor.user_name="AnhDinh"} (Instructor) - \sigma_{Instructor.uesr_name="CyrilleJegourel"} (Instru$

3 Q3

1.

$\pi_{name}(\pi_{sid}(\sigma_{color==red}(Part) \bowtie Catalog) \bowtie Supplier)$

2.

$\rho(A1, \pi_{pid}(\sigma_{color=red}(Part)))$

$\rho(A2, \pi_{pid}(\sigma_{color=blue}(Part)))$

$\pi_{sname}((A1 \cap A2) \bowtie Catalog \bowtie Supplier)$

3.

$\pi_{pid}(\sigma_{count>1}(pid F_{count(sid)}(Catalog)))$