ENTITY- RELATIONSHIP DIAGRAM

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12. E-R Diagram of Library Management System.

- Construct an ER diagram.
- List your assumptions and clearly indicate the cardinality mappings as well as any role indicators in your ER diagram.
- Map the ERD in the relational model corresponding to the described application.
- Also make sure to have the primary keys and foreign keys clearly.
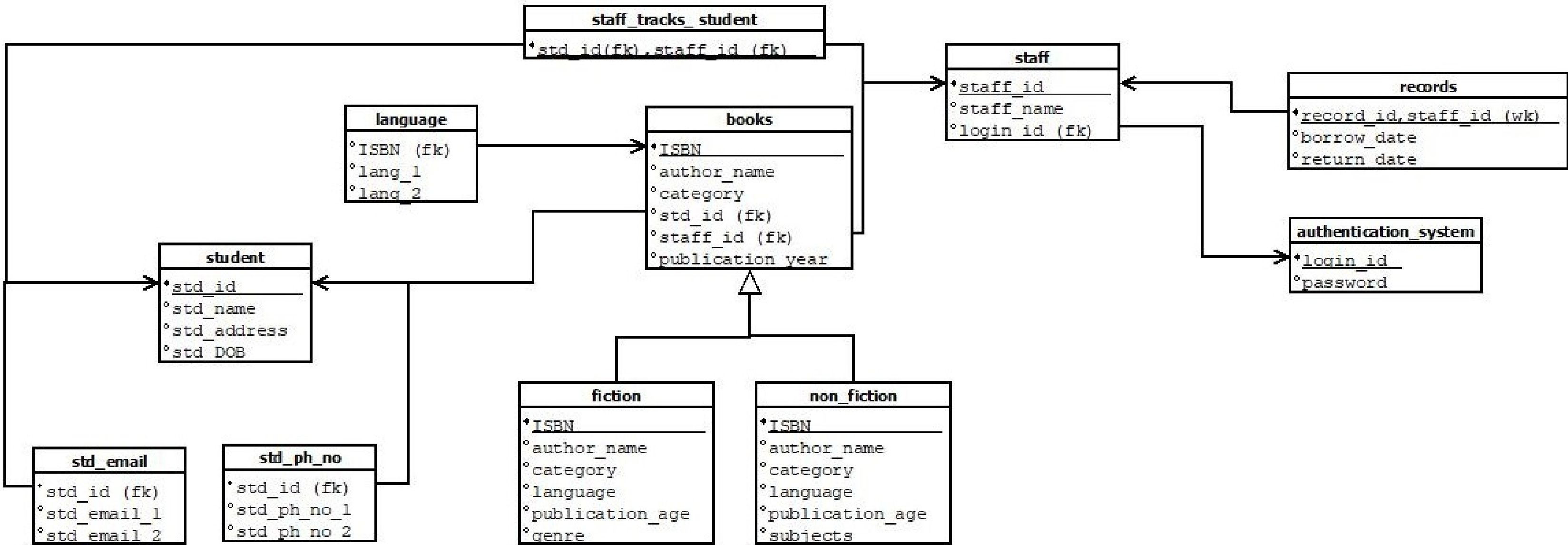
E-R DIAGRAM:
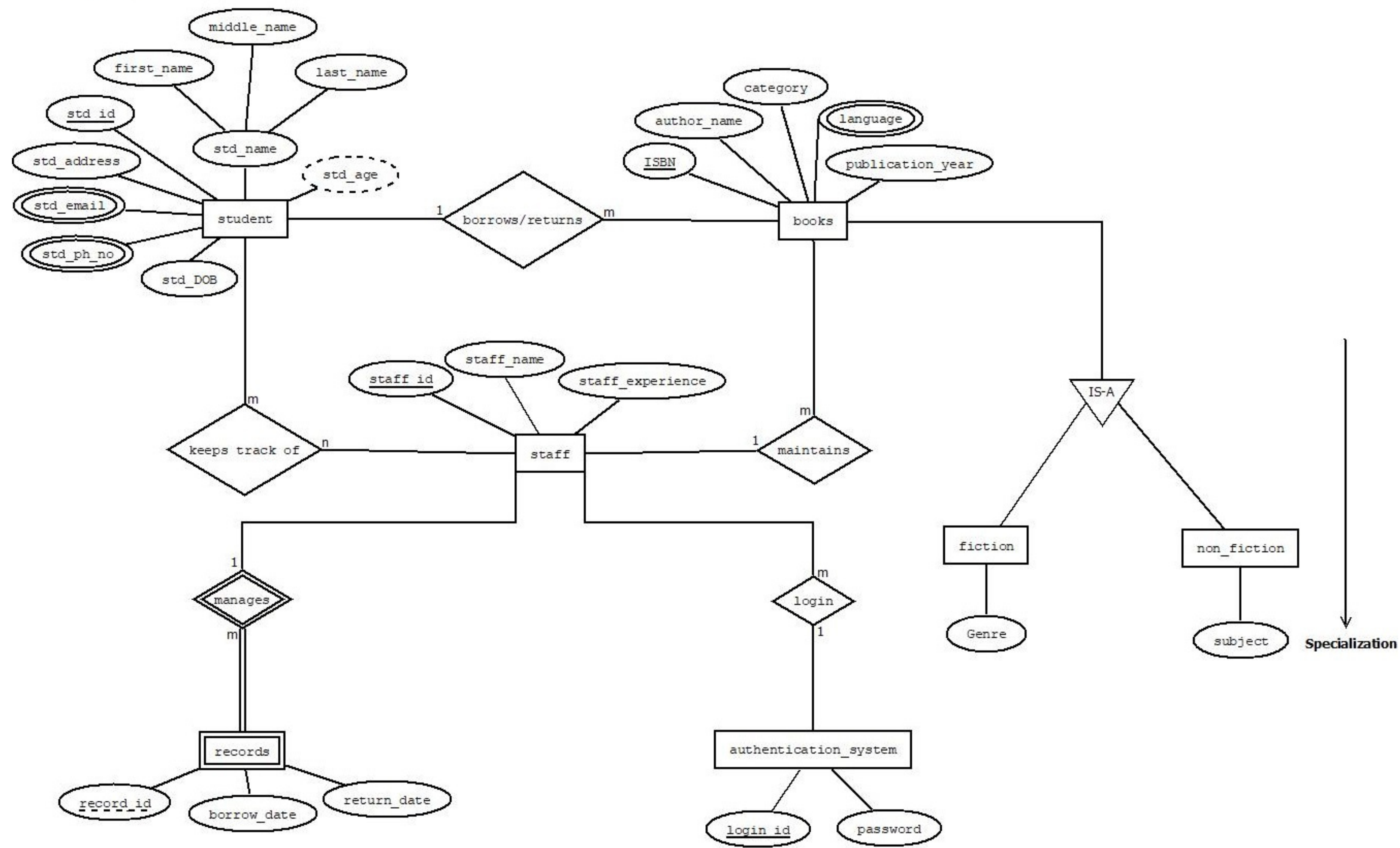
Entities, Attributes and Assumptions:

- <u>Entities and their Attributes:</u>
  - books {<u>ISBN</u>, author_name, category, language, publication_age}
  - fiction {<u>ISBN</u> ,author_name, category, language, publication_age, genre}
  - non_fiction {<u>ISBN</u>, author_name, category, language, publication_age, subjects}
  - student {<u>std_id</u>, std_name, std_address, std_email, std_ph_no, std_age}
  - staff {<u>staff_id</u>, staff_name, staff_experience}
  - records {<u>record_id</u>, borrow_date, return_date}
  - authentication_system{<u>login_id</u> , password}
- <u>Assumptions:</u>
  - A student can borrow many books but one book can be borrowed by only one student. The relationship 1:m.
  - staff keeps track of students. The relationship is m:n.
  - staff maintains multiple Books. The relationship 1:m.
  - staff maintains multiple records. The relationship 1:m.
  - authentication_system provides login to multiple staffs. The relation is 1:m.

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RELATIONAL DATA MODEL:

staff_tracks_ student
- std_id(fk),staff_id (fk)

language
- ISBN (fk)
- lang_1
- lang_2

books
- ISBN
- author_name
- category
- std_id (fk)
- staff_id (fk)
- publication year

staff
- staff_id
- staff_name
- login_id (fk)

records
- record_id,staff_id (wk)
- borrow_date
- return_date

authentication_system
- login_id
- password

student
- std_id
- std_name
- std_address
- std_DOB

std_email
- std_id (fk)
- std_email_1
- std_email_2

std_ph_no
- std_id (fk)
- std_ph_no_1
- std_ph_no_2

fiction
- ISBN
- author_name
- category
- language
- publication_age
- genre

non_fiction
- ISBN
- author_name
- category
- language
- publication_age
- subjects

THANK YOU!