

## Assignment-3

Dhananjay Abirwal

EN19CS301110

1. ER diagram of Library management System?

Ans. The library management system database keeps tracks of readers with following consideration -

- The system keeps track of the staff with a single point authentication system comprising login id & password.
- Staff maintain the book catalog with its ISBN, Book title, price (in ₹), category (Novel, general, story), edition, author Number & detail.
- A publisher has publisher id, year when the book was published & name of the book.
- Staff also generate report that has reader id, registration no of report, book no & return/issue info.

Entities & their Attributes

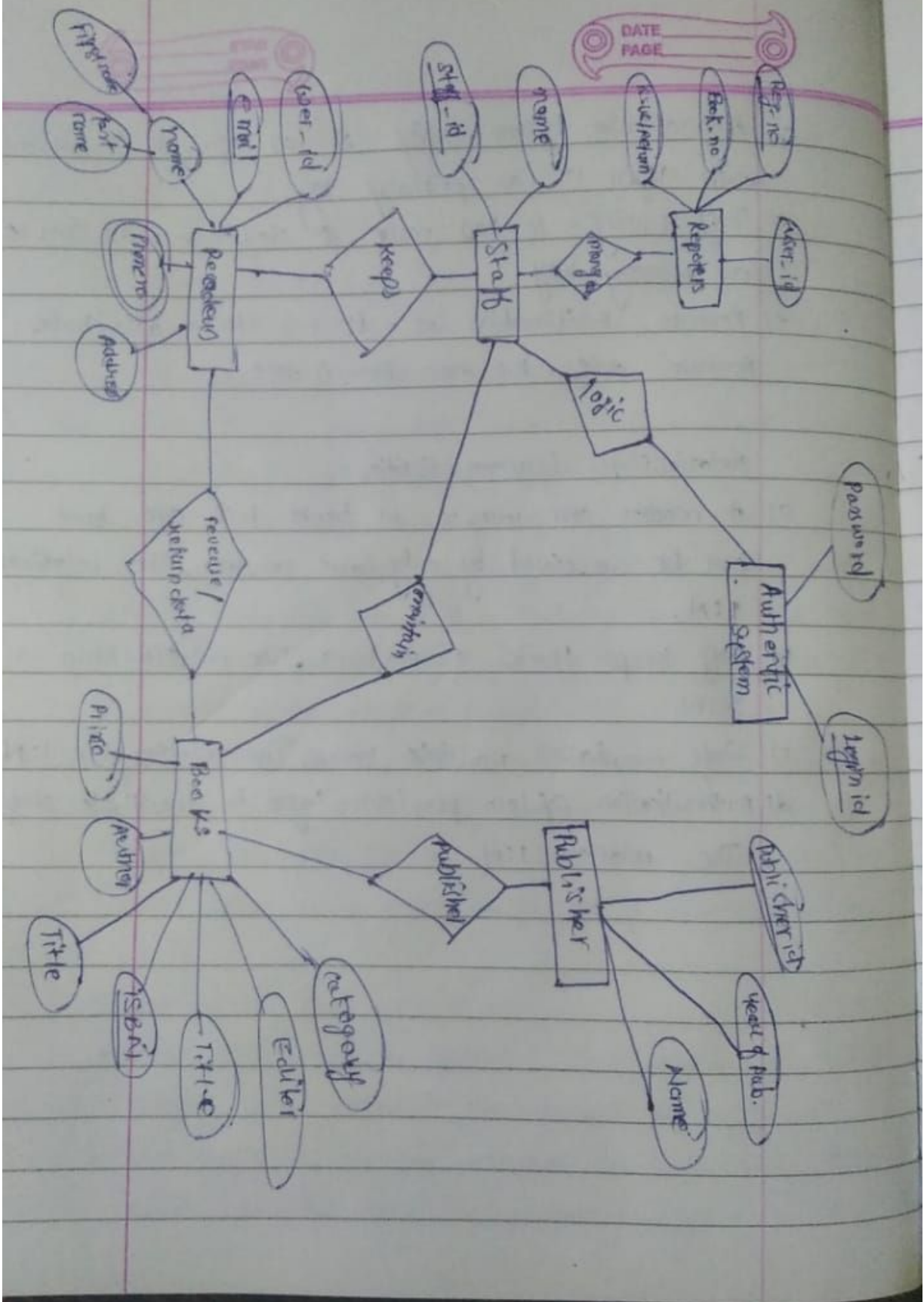
- Book Entity - It has authors, ISBN number, title, edition, category, price. ISBN is the primary key book entity.
- Publisher Entity - It has publisher id, year of publication, name, publisher id is the primary key.

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- DATE \_\_\_\_\_
- PAGE \_\_\_\_\_
- c) Authentication System Entity - It has login ID & password with login ID as primary key.
  - d) Staff Entity - It has name & staff-ID with staff ID as primary key.
  - e) Reverse Relationship Set - It has three attributes: Reverse date, Due date, Return date.

#### Relationships between Entities:

- a) A reader can reserve N books but one book can be reserved by only one reader. The relationship is 1:N.
- b) Staff keeps track of readers. The relationship is M:N.
- c) Staff maintains multiple books. The relationship is 1:N.
- d) Authentication system provides login to multiple staffs. The relation is 1:N.





2. ER Diagram of a company?

Ans: Company has several departments.

- b) Each department may have several locations.
- c) Department are identified by a name, D.no, location.
- d) A manager control a particular department.
- e) An employee works in only one department but can work on several project.
- f) We also keep track of numbers of hours worked by an employee on a single sheet/project.
- g) Each employee has department.

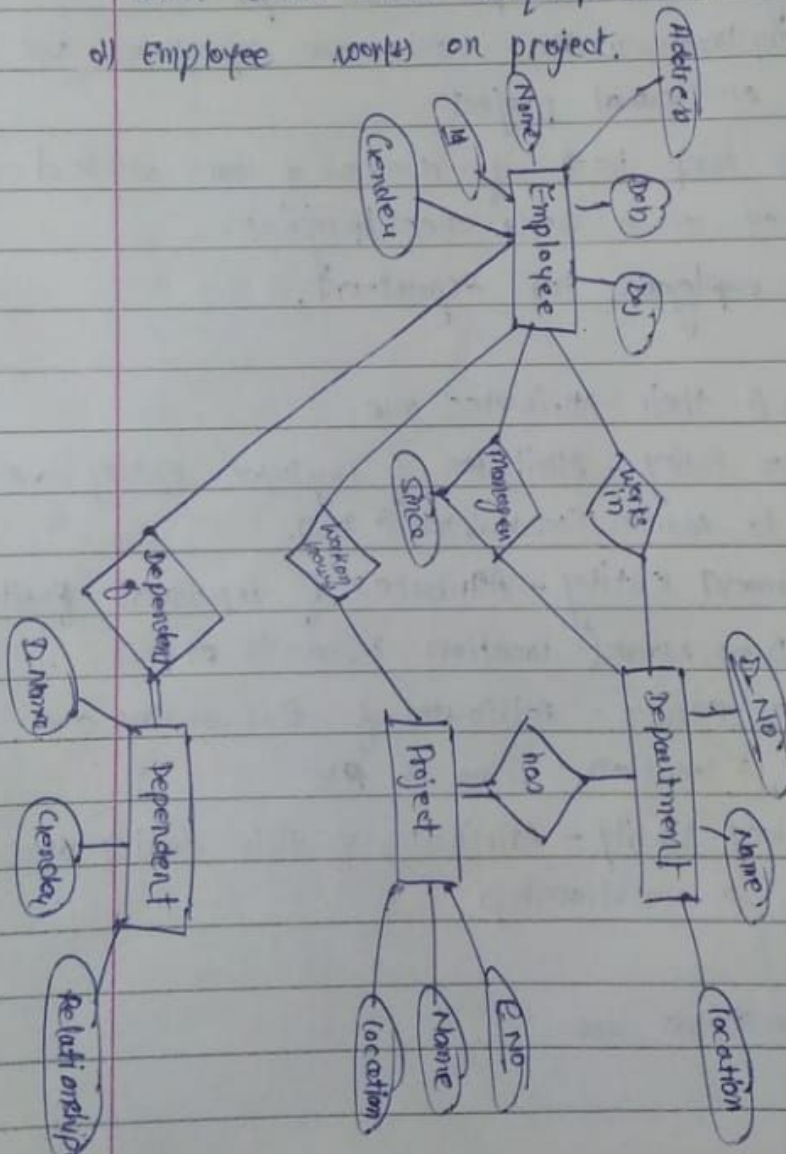
Entities & their Attributes are

- a) Employee Entity - Attributes of Employee Entity are Name, Id, Address, Gender, DOB & DOJ.
- b) Department Entity - Attributes of Department Entity are D.no, Name & location. D.no. is PK.
- c) Project Entity - Attributes of this entity are P.No, Name & location. P.no is PK.
- d) Dependent Entity - Attributes of this entity are D.no, Gender & relationship.

Relationships are



- Employees works in departments; but vice versa is not possible
- Manager controls department.
- One department has many projects but one project can't comes under many department.
- Employee works on project.



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a)

$M: m_1, m_2, m_3$

$P: p_1, p_2$

$N: N_1, N_2$

So, 3 tables seg<sup>n</sup>

b)

$A: a_1, a_2$

$B: b_1, b_2$

$C: c_1, c_2$

So, 3 tables seg<sup>n</sup>

c) A:  $a_1, a_2$

B:  $b_1, b_2$

C:  $c_1, c_2$

D:  $d_1, d_2$

So, 4 tables req<sup>n</sup>

d) E<sub>1</sub>:  $a_1, a_2$

E<sub>2</sub>:  $b_1, b_2, b_3$

E<sub>3</sub>:  $c_1, c_2$  (So, 3 tables req<sup>n</sup>)

e) Account: Ac-no, Balance

Branch: b-name, b-city, Assets

Loan: L-no, Amt

Customer: c-city, c-name, c-street  
So, 4 tables req<sup>n</sup>