

**Pir Mehr Ali Shah Arid Agriculture University Rawalpindi**

**University Institute of Information Technology**

**BSSE-4(A/B)**

**Evening**

**Fall – 2023**

**Database System**

**CS-400**

**Assignment**

**Question no 1**

Case Study

ERD Case Studies

1. A professor teaches zero, one or many classes and a class is taught by one professor.

A course may generate zero, one or many classes and a class comes from one course.

A class is held in one room but a room has many classes.

2. Each Company operates four departments, and each department belongs to one company. Each department employs one or more employees, and each employee works for one department. Each of the employees may or may not have one or more dependents, and each dependant belongs to one employee. Each employee may or may not have an employment history.

3. The video rental company has several branches throughout the Pakistan. The data held on each branch is the branch address made up of street, city, and zip code, and the telephone number. Each branch is given a branch numbei, which is unique throughout the company. Each branch is allocated staff. The data held on a member of staff is his or her name, position and salary. Each member of staff is given a staff number, which is unique throughout the company. Each branch has a stock of videos.

The data held on a video is the catalog number, video number, title, category, daily rental, cost, status, and the names of the main actors and the director. The catalog number uniquely identifies each video. However, in most cases, there are several copies of each video at a branch, and the individual copies are identified using the video number. Before renting a video form the company, a customer must first register as a member of registered at a branch. Each member is given a member number, which is unique throughout all branches of the company. Once registered, a member is free to rent videos, up to maximum of ten at any one time. The data held on each video rented is the rental number, the full name and number of the member, the video number, title, and daily rental, and the dates the video is rented out and returned. The rental number is unique throughout the company.

4. an invoice is written by one salesrep but a salesrep writes many invoices. a vendor sells many products but a product is bought from one vendor. an invoice has one or many products and a product is found on zero, one or many invoices.

5. A book is written by one or more than one authors. Each author has written at least one book. There will be no book which have no author. Each book is published by exactly one publisher. There will be no publisher who have not published any book.

For authors; au id, au name, au \_add are to be stored. For book; b\_id, b \_title, b \_category have to be stored. For publisher; p\_id, p\_name, p\_add have to be stored.

Each book belongs to exactly one library; library contains at least one book. For library; start time, closed time, location have to be stored. A student can borrow at most one book. Also each book is issued to at most one student. For student s\_id, s name, s class have to be stored. Issue date, return date and fine amount also have to be stored. A faculty member can borrow one or more than one book. There are some faculty members who have not borrowed any book. Each book can be borrowed by at most one faculty member. For faculty members; f-Id, f name has to be stored. borrow date & return date have also to be stored.