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## Computer Science Department

## Database Management Systems 333

**Library Database**

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The library database information:

* The member entity has id, first name, last name, phone number(s), birth date, gender and financial balance. And each user must have an account from login page which need password.
* User is a member with fees.
* Admin is a member who has salary and employment date.
* Employee is a member who has salary and employment date.
* Role is an entity with name, id and the description.
* Each admin must have one role and one role can be achieved by one admin.
* Each employee do one or more roles and each role can be worked by one employee or more.
* Monthly employee is an employee which worked each month. And he has deduction, vacation days and allowed vacation’s days.
* Hourly employee is an employee who worked by hour. And he has working hour and his salary per one hour.
* Book has id, name, number of copies in the library, borrowing price per day and price.
* Each copies of one book type can borrow by members. And each member can borrow one or more books. For each borrowing operation there is one employee should lead the operation.
* For each borrowing operation, there should be a date of borrow, the end date of borrow, the return date and the number of late days.
* Author has id and name. And each one write one or more books, and each book written by one or more authors.
* Publisher has id and name. Each one publishes one or more books but each book must publish from one publisher. And for each book there is a year of publish.