

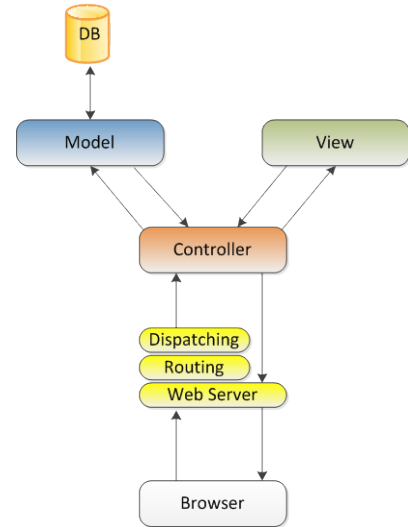
PHP Programming Assignment 3

1. Describe the three separate responsibilities in the MVC pattern and how each interacts with the other.

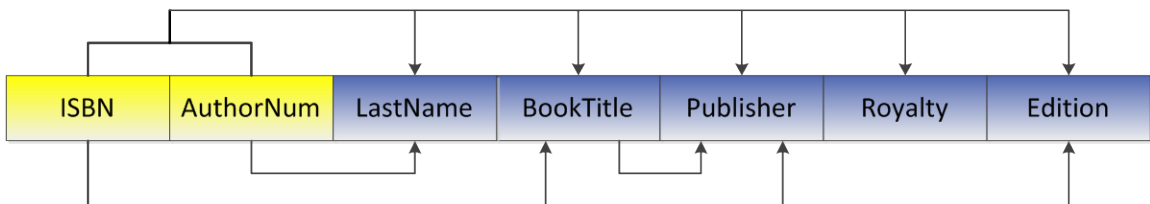
ANSWER:

The controller is responsible for receiving the request and validating the input, the model interacts with the database, and the view produces human-consumable renderings of the result of the request. The sequence of interaction is that:

- a. The controller receives the request and validates the inputs
- b. The controller invokes the model to query or update the database.
- c. The model returns the requested data.
- d. The controller transforms the data into something the view can use and forwards the data to the view.
- e. The view renders the result in a human-readable format and returns it to the controller.
- f. The controller returns the rendered HTML to the web server.

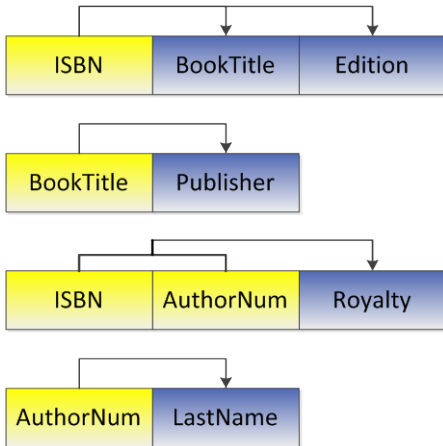


2. Given the following dependency diagram, restructure into third normal form and show an ERD.

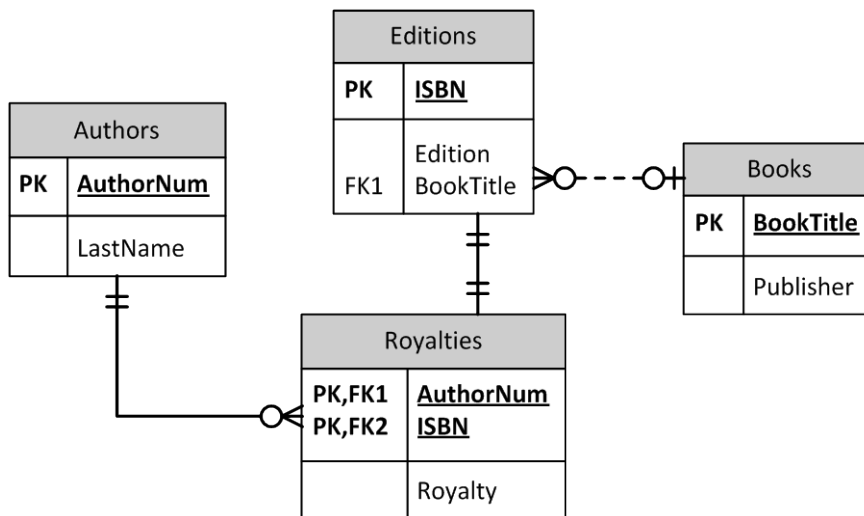


ANSWER:

Third normal form



ERD



3. Given the MicroUniversity.db3 database in SQLite, write queries that answer the following.
 - a. List all the students' first and last names along with their advisor's first and last names.

ANSWER:

```

select
  STU_FNAME || " " || STU_LNAME as STUDENT,
  EMP_FNAME || " " || EMP_LNAME as ADVISOR
from
  STUDENT, EMPLOYEE
where
  STUDENT.EMP_NUM = EMPLOYEE.EMP_NUM
order by
  STU_LNAME, STU_FNAME

```

- b. List the course code, class section, and course description for all the classes taught by Preston Yukon.

ANSWER:

```
select
  COURSE.CRS_CODE, CLASS.CLASS_SECTION, COURSE.CRS_DESCRIPTION
from
  EMPLOYEE, CLASS, COURSE
where
  COURSE.CRS_CODE = CLASS.CRS_CODE and
  CLASS.EMP_NUM = EMPLOYEE.EMP_NUM and
  EMPLOYEE.EMP_FNAME = "Preston" and
  EMPLOYEE.EMP_LNAME = "Yukon"
```

- c. For each class taught in the business school, list the professor, course name, class section, and total enrollment for that class.

ANSWER:

```
select
  EMPLOYEE.EMP_FNAME || " " || EMPLOYEE.EMP_LNAME as PROFESSOR,
  COURSE.CRS_DESCRIPTION,
  CLASS.CLASS_SECTION,
  COUNT(ENROLL.CLASS_CODE) as TOTAL_ENROLLMENT
from
  ENROLL, EMPLOYEE, CLASS, COURSE, DEPARTMENT, SCHOOL
where
  ENROLL.CLASS_CODE = CLASS.CLASS_CODE and
  EMPLOYEE.EMP_NUM = CLASS.EMP_NUM and
  CLASS.CRS_CODE = COURSE.CRS_CODE and
  COURSE.DEPT_CODE = DEPARTMENT.DEPT_CODE and
  DEPARTMENT.SCHOOL_CODE = SCHOOL.SCHOOL_CODE and
  SCHOOL.SCHOOL_CODE = "BUS"
group by
  CLASS.CLASS_CODE
order by
  EMPLOYEE.EMP_LNAME, EMPLOYEE.EMP_FNAME
```

1. Using the MicroUniversity.db3 database and an MVC structure, create a set of web pages that will allow for the listing and view of employees. In particular the "employee/list" URL should list all employees using their name, and the "employee/view/X" URL should show all the details of employee with EMP_NUM equal to X. On the employee list page, link the employee's name to

the view URL to see the details of the employee. Create an “index.php” that merely redirects the browser to the employee list.

Sample screenshots are given below:



Figure 1: Employee listing. Note that these are in alphabetical order.

Viewing employee

ID number: 155
First name: Annelise
Last name: Ritula
Middle initial:
Birth date: May 24, 1957
Hire date: August 1, 1990
Job Code: PROF

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Figure 2: Viewing a selected employee. Notice that the dates are nicely formatted.

ANSWER:

There are many ways to implement this, depending on the MVC structure used.