AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

WEB TECHNOLOGIES

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Section: A

ASSIGNMENT ON

MVC FOR BOOK BORROWING SYSTEM

Supervised By

Nazmus Sakib Shan

Submitted By

FATEMA AKTER TRIPTY

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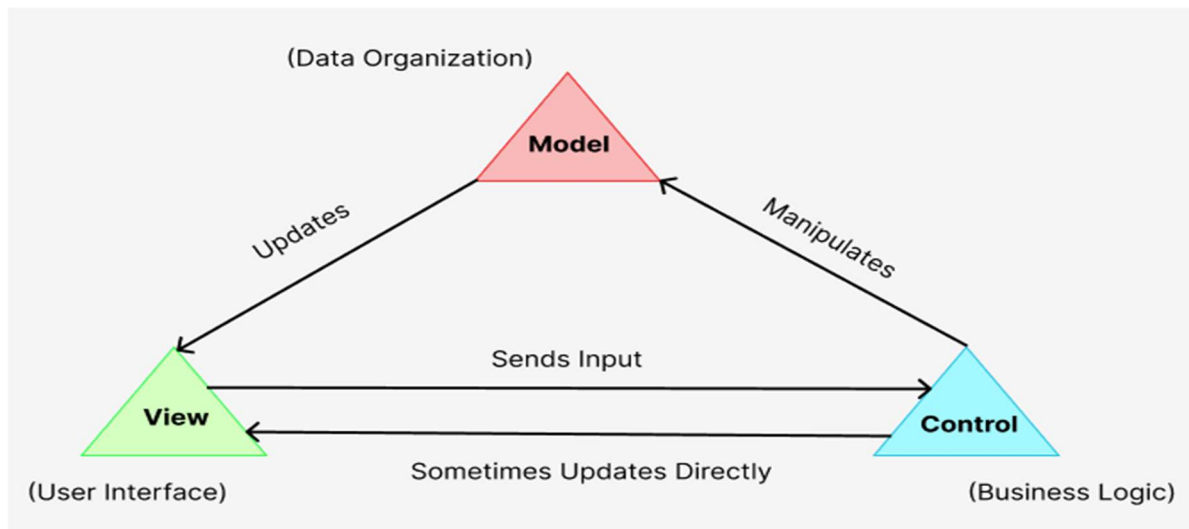
MVC For Book Borrowing System:

Figure: MVC

Models

Book.php

- **Purpose:** Represents a book in the library system.
- **Attributes:**
    - **book_id:** Unique identifier for the book.
    - **title:** Title of the book.
    - **author:** Author of the book.
    - **publisher:** Publisher of the book.
    - **year:** Year of publication.
- **Specification:**
    - Retrieves details of a specific book from the database.
    - Updates the availability status of a book in the database.

Student.php

- **Purpose:** Represents a student who can borrow books.
- **Attributes:**
    - student_id: Unique identifier for the student.
    - name: Name of the student.
    - phone: Phone number of the student.
    - email: Email address of the student.
    - dob: Date of birth of the student.
- **Specification:**
    - Retrieves details of a specific student from the database.
    - Registers a new student in the database.

BorrowRecord.php

- **Purpose:** Represents a borrowing record of books.
- **Attributes:**
    - record_id: Unique identifier for the borrowing record.
    - student_id: Identifier of the student who borrowed the book.
    - book_id: Identifier of the borrowed book.
    - borrow_date: Date when the book was borrowed.
    - return_date: Date when the book was returned.
- **Specification:**
    - Creates a new borrowing record in the database.
    - Retrieves borrowing records for a specific student.
    - Updates the return date for a borrowing record in the database.

Views

index.html

- **Purpose:** Introduction page requested by the librarian.
- **Contents:**
  - A form with fields for Student ID, Name, Phone Number, Email, and Date of Birth.
  - Links to other pages such as login, signup, borrow book, and return book.

login.html

- **Purpose:** Login page for students and librarians.
- **Contents:**
  - A form with fields for Email and Password.

signup.html

- **Purpose:** Signup page for new students.
- **Contents:**
  - A form with fields for Name, Phone Number, Email, Date of Birth, and Password.

borrow_book.html

- **Purpose:** Page for borrowing a book.
- **Contents:**
  - A form with fields for Student ID, Book ID, Borrow Date, and Return Date.

return_book.html

- **Purpose:** Page for returning a borrowed book.
- **Contents:**
  - A form with fields for Record ID and Return Date.

Controllers

StudentController.php

- **Purpose:** Handles student-related requests and updates.
- **Specification:**
  - Handles student registration, validates input. If registration is successful, it redirects to login.html.
  - Handles student login, validates input, and authenticates the student.

BookController.php

- **Purpose:** Handles book-related requests and updates.
- **Specification:**
  - Retrieves details of a specific book and updates the view.
  - Updates the availability status of a book based on borrow/return actions.

BorrowRecordController.php

- **Purpose:** Handles borrowing and returning of books.
- **Specification:**
  - Validates input, creates a borrowing record, and updates book availability.
  - Validates input, updates the return date in the borrowing record, and updates book availability.

DatabaseController.php

- **Purpose:** Manages database operations.
- **Specification:**
  - Executes SQL queries with parameters and returns results.

Interaction Flow

1. **Student Registration:**
   o User accesses signup.html.
   o User fills out the registration form and submits it.
   o StudentController.php handles the form submission, and validates input.
   o If registration is successful, the user is redirected to login.html.

2. **Student Login:**
   o User accesses login.html.
   o User fills out the login form and submits it.
   o StudentController.php handles the form submission, validates input, and authenticates the student.
   o If authentication is successful, the user is redirected to index.html.

3. **Borrowing a Book:**
   o User accesses borrow_book.html.
   o User fills out the borrow book form and submits it.
   o BorrowRecordController.php handles the form submission, and validates input.
   o BookController.php updates the book's availability status.

4. **Returning a Book:**
   o User accesses return_book.html.
   o User fills out the return book form and submits it.
   o BorrowRecordController.php handles the form submission, validates input
   o BookController.php updates the book's availability status.