

You are designing a **Library Management System** web application. Since you studied **MVC** in class, you know it is the recommended architecture for a web application. For now, you just have to support user requests to **view all books** and allow the librarian to **view all library members**. Your task as a web engineer is to decide the structure of your MVC based application and **define routes** for the following requests:

[Http://localhost:3030/books/list-books](http://localhost:3030/books/list-books)

[Http://localhost:3030/members/list-members](http://localhost:3030/members/list-members)

In the future we may need to add more routes for books and members so it would be a good idea to have them in separate route files/modules. It is recommended to mount the router module for books on the **/books** path in the application. You should also mount the router module for members on the **/members** path in the application.

Right now your book and member data will come from the middleware. Book data should include call number, title, author and keywords. Members data should include ID, Name, Role, Books Issued. (keywords and books issued are arrays!)

- 1) List the MVC based folder structure of your application and mention the file names.
- 2) Write the code for the app.js file specifically the part where the mount paths are defined and router modules are mounted on a path in the app.
- 3) Write the code for the router files which are used by the app.js file
- 4) Write the code for the controller files which are used by router files. The middleware should send a response to the client and send the appropriate data.

You don't have to write the code for the views but you have to name the files so that you can refer to those files in the middleware.

- 5) Draw the figure indicating the data flows between the files of your application.

Quiz 2 Solution

- 1) Library System
- ↳ app-server
 - ↳ controllers
 - ↳ books.js
 - ↳ members.js
 - ↳ routes
 - ↳ books.js
 - ↳ members.js
 - ↳ views
 - ↳ booklist.pug
 - ↳ memberlist.pug

app.js

- 2)
- ```
var express = require("express");
var app = express();

var booksRouter = require("./app-server/routes/books");
var membersRouter = require("./app-server/routes/members");
app.use("/books", booksRouter);
app.use("/members", membersRouter);

module.exports = app;
```
- app.js

- 3)
- ```
var express = require("express");  
var router = express.Router();  
var ctrlBooks = require("../controllers/books");  
router.get("/list-books", ctrlBooks.bookList);  
module.exports = router;
```
- app-server/routes/books.js

3) app-server/routes/members.js

```
var express = require("express");
var router = express.Router();
var ctrlMembers = require("../controllers/members");
router.get("/members-list", ctrlMembers.membersList);
module.exports = router;
```

4) app-server/controllers/books.js

```
module.exports.booksList = function(req, res) {
  res.render("books list", {
    books: [
      { callNumber: "ABC 123",
        title: "Mastering Node.js",
        author: "Mark Johnson",
        keywords: ["Node", "express", "angular"]
      },
      { callNumber: "xyz 123",
        title: "Shikwa",
        author: "Adawa Iqbal",
        keywords: ["Khudi", "Allah", "insaan"]
      }
    ]
  });
}
```

```

4 > | app-sched / controllers / members.js |
module.exports.membersList = function (req, res) {
  res.render ( "membersList", {
    members : [
      {
        ID : "L16 40405",
        Name : "Nimra Ijaz",
        Role : "Student",
        Books Issued : [ "ABC 123", "XYZ.123" ]
      },
      {
        ID : "F14",
        Name : "Shamra Aidi",
        Role : "Faculty Visiting",
        Books Issued : [ "AXZ 999" ];
      }
    ]
  } );
}

```

