**Authentication Endpoints:**

**Signup Endpoint (POST /signup):**

**Functionality**: Registers a new user.

**Error Handling**:

- If the provided email already exists, it throws an error indicating 'Email already exists'.

- If any unexpected error occurs during the signup process, it responds with a generic 'Failed to sign up' message.

**Response Structure**:

- Successful signup: Returns a status code 201 with a JSON response indicating 'Signed up successfully'.

- Error case: Returns a status code 500 with a JSON response containing the specific error message.

**Login Endpoint (POST /login):**

**Functionality**: Logs in a user.

**Error Handling**:

- If the user is not found, it responds with a 404 status code and a message 'User not found'.

- If there's an error during password comparison or session creation, it responds with specific error messages.

**Response Structure**:

- Successful login: Returns a status code 200 with a JSON response 'Logged in successfully'.

- Incorrect password: Returns a status code 401 with a message 'Invalid username or password'.

- Error case: Returns a status code 500 with a JSON response containing the specific error message.

**Change Password Endpoint (POST /changePassword)**

**Functionality**: Allows a user to change their password.

**Error Handling:**

- Handles missing required parameters (email, password, newPassword) with a 400 status and a message.

- Validates the user and updates the password if the provided password matches the existing one.

**Response Structure:**

- Successful password update: Returns a status code 200 with a JSON response 'Password updated successfully'.

- Incorrect credentials: Returns a status code 401 with a message 'Invalid username or password'.

- Error case: Returns a status code 500 with a JSON response containing the specific error message.

**Logout Endpoint (DELETE /logout)**

**Functionality**: Logs out a user and deletes all their sessions.

**Error Handling**:

- Handles cases where no sessions are found for the user with a 404 status and a message.

- Handles errors during session deletion with a 500 status and a specific error message.

**Response Structure**:

- Successful logout: Returns a status code 200 with a JSON response 'Logged out successfully'.

- No sessions found: Returns a status code 404 with a message 'No sessions found for the user'.

- Error case: Returns a status code 500 with a JSON response containing the specific error message.

**Books Endpoints:**

**Endpoint: POST /books**

**Functionality**:

Adds a New Book:

Validates and adds a new book associated with the logged-in user (publisher).

**Error Handling:**

Validation Errors:

Missing or invalid title or isbn fields result in a 400 status with specific error messages.

Non-existent publisher ID triggers a 400 status with an appropriate error.

General Errors:

Any unexpected error leads to a 500 status with detailed error information.

**Response Structure:**

Successful Book Addition:

Returns a 201 status with a JSON response indicating 'Book added successfully'.

Error Responses:

Validation or publisher errors return a 400 status with a JSON response containing specific error messages.

Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: GET /books**

**Functionality:**

- Gets All Books:

Retrieves all books with detailed information (including publishers and comments)

**Error Handling**:

General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure**:

- Successful Book Retrieval:

Returns a 200 status with a JSON response containing book details.

- Error Responses:

Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: GET /books/:id**

**Functionality:**

- Gets a Specific Book by ID:

Retrieves a specific book by its ID along with associated publisher and comments.

- Gets Top-Rated Books:

Fetches top-rated books if bookId is not a valid number.

**Error Handling:**

Book Not Found:

If the requested book is not found, it returns a 404 status with an appropriate error message.

General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

Successful Book Retrieval:

Returns a 200 status with a JSON response containing book details.

Error Responses:

Book not found returns a 404 status with an error message.

Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: PUT /books/:id**

**Functionality**:

Updates a Book by ID:

Updates a book's details if the logged-in user is the book's publisher.

**Error Handling**:

- Unauthorized Access:

If the logged-in user is not the book's publisher, it triggers a 400 status with an appropriate error message.

- General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Update:

Returns a 200 status with a JSON response indicating 'Book updated successfully'.

- Error Responses:

Unauthorized access or unexpected errors return a 400 or 500 status, respectively, with detailed error information.

**Endpoint: DELETE /books/:id**

**Functionality:**

Deletes a Book by ID:

Deletes a book if the logged-in user is the book's publisher.

**Error Handling:**

- Unauthorized Access:

If the logged-in user is not the book's publisher, it triggers a 400 status with an appropriate error message.

- General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Deletion:

Returns a 200 status with a JSON response indicating 'Book deleted successfully'.

- Error Responses:

Unauthorized access or unexpected errors return a 400 or 500 status, respectively, with detailed error information.

**Publishers Endpoints:**

**Endpoint: POST /publishers**

**Functionality**:

Adds a New Publisher:

Validates and adds a new publisher.

**Error Handling**:

- Validation Errors:

Missing or invalid name field results in a 400 status with a specific error message.

If the publisher name already exists, it triggers a 400 status with an appropriate error.

- General Errors:

Any unexpected error leads to a 400 status with detailed error information.

**Response Structure**:

- Successful Publisher Addition:

Returns a 201 status with a JSON response containing the newly created publisher.

- Error Responses:

Validation or duplication errors return a 400 status with a JSON response containing specific error messages.

- Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: GET /publishers**

**Functionality:**

Gets All Publishers:

Retrieves all publishers.

**Error Handling:**

General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Publisher Retrieval:

Returns a 200 status with a JSON response containing an array of publishers.

- Error Responses:

Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: GET /publishers/:id**

**Functionality**:

Gets a Specific Publisher by ID:

Retrieves a specific publisher by its ID.

**Error Handling:**

- Publisher Not Found:

If the requested publisher is not found, it returns a 404 status with an appropriate error message.

- General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Publisher Retrieval:

Returns a 200 status with a JSON response containing publisher details.

- Error Responses:

Publisher not found returns a 404 status with an error message.

- Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: DELETE /publishers/:id**

**Functionality:**

Deletes a Publisher by ID:

Deletes a publisher if there are no associated books.

**Error Handling:**

- Associated Books Exist:

If associated books are found, it triggers a 400 status with an appropriate error.

- General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Deletion:

Returns a 200 status with a message indicating 'Publisher deleted successfully'.

- Error Responses:

Associated books exist or unexpected errors return a 400 or 500 status, respectively, with detailed error information.

**Endpoint: GET /publishers/:id/books**

**Functionality:**

Gets Books by Publisher ID:

Retrieves books associated with a specific publisher.

**Error Handling:**

- Publisher Not Found:

If the requested publisher is not found, it returns a 500 status with an appropriate error message.

- General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Book Retrieval:

Returns a 200 status with a JSON response containing an array of books associated with the publisher.

- Error Responses:

Publisher not found or unexpected errors return a 500 status with a JSON response containing detailed error information.

**Comments Endpoints:**

**Endpoint: POST /comments**

**Functionality:**

Adds a New Comment:

Validates and adds a new comment.

**Error Handling:**

- Validation Errors:

Missing or invalid book\_id field results in a 500 status with an appropriate error message.

- If the associated book with the given ID does not exist, it triggers a 500 status with an appropriate error.

- General Errors:

Any unexpected error leads to a 500 status with detailed error information.

**Response Structure:**

- Successful Comment Addition:

Returns a 201 status with a JSON response containing the newly created comment.

- Error Responses:

Validation or book not found errors return a 500 status with a JSON response containing specific error messages.

- Unexpected errors return a 500 status with a JSON response containing detailed error information.

**Endpoint: DELETE /comments/:id**

**Functionality:**

Deletes a Comment by ID:

Deletes a comment based on its ID.

**Error Handling:**

General Errors:

Any unexpected error returns a 500 status with detailed error information.

**Response Structure:**

- Successful Deletion:

Returns a 200 status with a message indicating 'Comment deleted successfully'.

- Error Responses:

Unexpected errors return a 500 status with a JSON response containing detailed error information.