

## Assignment: Build a RESTful API using Node.js and Express (100 marks)

### Objective:

Create a simple RESTful API for managing a list of users, testing concepts such as routing, middleware, HTTP methods, status codes, error handling, and interaction with a data source.

### Requirements:

#### 1. Initialize a Node.js project: (5 marks)

- Set up a new Node.js project.
- Install Express.

#### 2. Define a REST API with the following routes: (25 marks)

- `GET /users` – Fetch the list of all users.
- `GET /users/:id` – Fetch details of a specific user by ID.
- `POST /user` – Add a new user.
- `PUT /user/:id` – Update details of an existing user.
- `DELETE /user/:id` – Delete a user by ID.

#### 3. Sample User Object Structure:

```
{
  "id": "1",
  "firstName": "Anshika",
  "lastName": "Agarwal",
  "hobby": "Teaching"
}
```

#### 4. Middleware: (30 marks)

- Use middleware to log the details of each request (e.g., method, URL, status code). (15 marks)
- Implement validation middleware to check for required fields in the `POST` and `PUT` routes. (15 marks)

#### 5. Error handling: (10 marks)

- Return appropriate HTTP status codes (e.g., 200, 404, 201, 400).
- Handle errors (e.g., book not found, invalid input) and respond with meaningful error messages.

#### 6. Data source:

- Store users data in-memory (using an array) for simplicity.

### Submission Guidelines : (30 marks)

- Include clear comments in the code explaining the logic. (5 marks)

- Test your API using Postman or ThunderClient and include screenshots of the test results. (25 marks)

Submit zip folder of your code and a document containing screenshots of your test results.