

Fullstack Test-

Section 1: Node.js and RESTful APIs (30 Marks)

1. API Development Task (20 Marks)

Create a simple RESTful API using **Node.js** and **Express** to manage a list of products.

Each product should have the following fields:

- id (string)
- name (string)
- price (number)
- category (string)

Implement the following endpoints:

- GET /products – Retrieve all products.
- POST /products – Add a new product.
- DELETE /products/:id – Delete a product by ID.

Ensure you:

- Use **Express** for routing.
- Include basic error handling.
- Use an in-memory array for storing products.

2. Short Answer (10 Marks)

Explain what **middleware** is in Express and provide an example of a use case.

Section 2: React.js (30 Marks)

1. React Component (20 Marks)

Create a React component to display a list of products. The component should:

- Display the name, price, and category of each product.
- Have a button to delete a product from the list.

Sample product data:

javascript

Copy code

```
const products = [  
  { id: '1', name: 'Laptop', price: 1000, category: 'Electronics' },  
  { id: '2', name: 'Shoes', price: 50, category: 'Fashion' },  
  { id: '3', name: 'Watch', price: 200, category: 'Accessories' }  
];
```

2. Short Answer (10 Marks)

What are **React hooks**? Briefly describe the `useState` and `useEffect` hooks with examples.

Section 3: NoSQL Databases (20 Marks)

1. MongoDB Query Task (10 Marks)

Write a MongoDB query to:

- Find all products with a price greater than 100.
- Update the category of a product with a specific id to "Updated Category".

2. Short Answer (10 Marks)

Explain the difference between **SQL** and **NoSQL** databases. Provide an example of when you would prefer NoSQL over SQL.

Section 4: Additional Skills (20 Marks)

1. Git Commands (5 Marks)

Write the Git commands to:

- Clone a repository.
- Create a new branch named feature-login.
- Push the new branch to a remote repository.

2. Docker Basics (5 Marks)

What is **Docker**, and how does it benefit developers? Provide a basic Dockerfile to containerize a Node.js application.

3. Debugging & CI/CD (10 Marks)

- Explain two common debugging techniques in a fullstack application.
 - What is a **CI/CD pipeline** and why is it important in software development?
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Submission Guidelines

- Include all necessary files in your submission.
- Ensure your code is well-commented.
- If using a Git repository, provide the link.