

# Web Application Development Assignment

**Department of Information Technology**

**Subject:** Web Application Development (2024–25)

**Topic:** Mocha

**Student Name:** Atharva Bhusal

**Roll Number:** 9

## Q.1) Illustrate the need for Mocha package

Mocha is a popular JavaScript test framework that simplifies and organizes the testing process for Node.js and browser-based applications. It enables developers to verify the correctness of their code through structured, automated tests, ensuring that applications work as expected.

**The need for Mocha arises due to:**

- **Structured Testing:** Mocha organizes tests into suites (`describe`) and test cases (`it`) for better clarity.
- **Asynchronous Support:** It supports asynchronous testing with callbacks, promises, or `async/await`.
- **Customizable Reporting:** Developers can choose or create custom reporters to visualize test results effectively.
- **Early Bug Detection:** It helps find bugs early during development, saving time and effort later.
- **Easy Integration:** Mocha works well with assertion libraries like Chai and coverage tools like NYC.

Thus, Mocha plays a vital role in building robust, reliable, and maintainable JavaScript applications.

## Q.2) Implement a small application which will make use of the mentioned package (I/p, O/p)

**Step 1: Install Mocha Locally**

```
npm install --save-dev mocha
```

### Step 2: Create a JavaScript File (math.js)

```
function add(a, b) {  
    return a + b;  
}  
module.exports = add;
```

### Step 3: Create a Test File (test.js)

```
const assert = require('assert');  
const add = require('./math');  
  
describe('Addition Function', function() {  
    it('should return 5 when adding 2 and 3',  
    function() {  
        assert.strictEqual(add(2, 3), 5);  
    });  
});
```

### Step 4: Run the Tests Using Mocha

```
npx mocha
```

#### Expected Output:

```
Addition Function  
  ✓ should return 5 when adding 2 and 3  
  
1 passing (20ms)
```

## Q.3) Illustrate the need for code of ethics

A code of ethics is critical in software development for ensuring that professionals act responsibly and prioritize the well-being of users and society.

#### The need for a Code of Ethics:

- **User Data Protection:** Safeguarding privacy and ensuring secure handling of information.
- **Fairness and Non-Discrimination:** Building inclusive and unbiased software.
- **Accountability:** Developers are responsible for the quality and consequences of their code.
- **Professional Integrity:** Honest communication about software limitations and capabilities.

- **Prevention of Harm:** Designing systems that minimize risks to users and society.

By following a code of ethics, developers contribute positively to society and uphold the reputation of the software engineering profession.