

Assignment

Q.1. Illustrate the need of Jest Package.

Jest is a powerful JavaScript testing framework developed and maintained by Meta (formerly Facebook). It is widely used for testing JavaScript codebases, especially in React and Node.js applications. Jest provides an easy and efficient way to write, organize, and run tests, making code more reliable and maintainable.

Need of Jest Package:

1. Automated Testing:

- Jest allows developers to write test scripts that automatically verify the correctness of code.
- This eliminates the need for manual testing, saving time and effort.

2. Early Bug Detection:

- With automated test cases, Jest helps in identifying bugs and logical errors during development.
- This reduces the chances of errors appearing in production.

3. Code Reliability and Stability:

- Regular testing with Jest ensures that code performs as expected.
- It builds trust in the application's reliability, especially after making changes or adding new features.

4. Supports Test-Driven Development (TDD):

- Jest supports the TDD approach, where developers write tests before writing actual code.
- This leads to better design and code structure.

Q.2. Illustrate the small application which will make use of Jest package.

counter.js

```
let count = 0;  
  
function increment() {
```

```
    count += 1;

    return count;
}

function reset() {
    count = 0;

    return count;
}

module.exports = { increment, reset };
```

counter.test.js

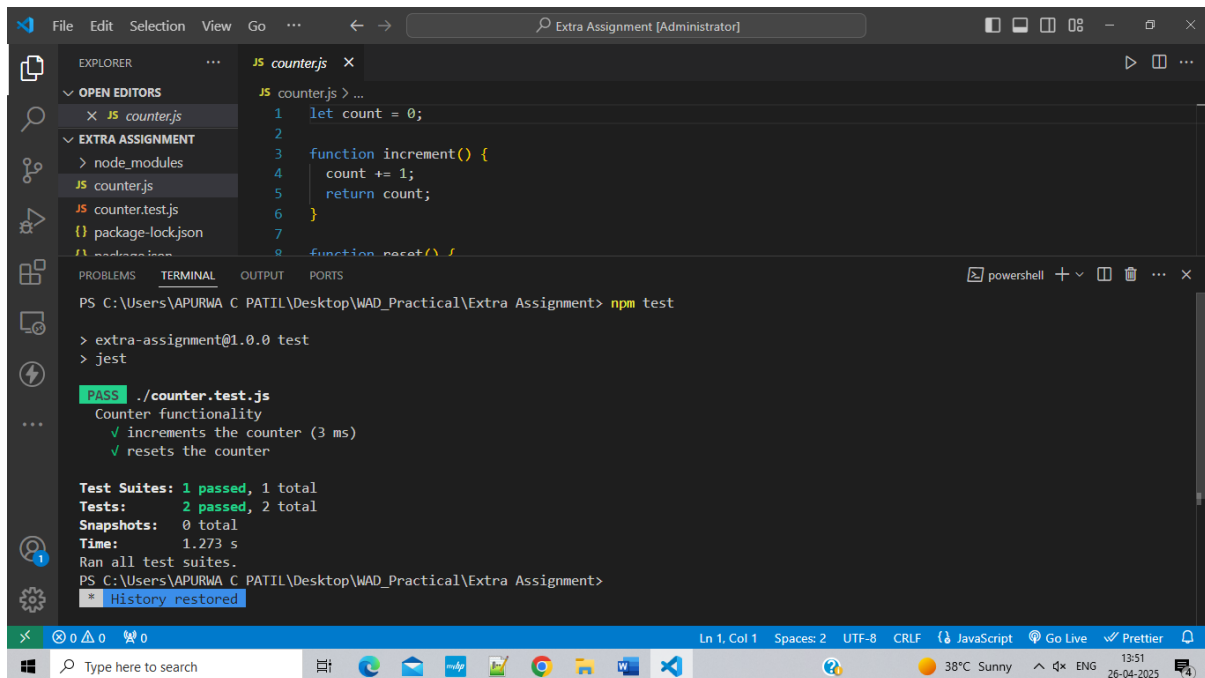
```
const { increment, reset } = require('./counter');

describe('Counter functionality', () => {
    beforeEach(() => {
        reset();
    });

    test('increments the counter', () => {
        expect(increment()).toBe(1);
        expect(increment()).toBe(2);
    });

    test('resets the counter', () => {
        increment();
        expect(reset()).toBe(0);
    });
});
```

OUTPUT:



The screenshot shows a Visual Studio Code editor window titled 'Extra Assignment [Administrator]'. The Explorer sidebar on the left shows a project structure with 'EXTRA ASSIGNMENT' containing 'node_modules', 'counter.js', 'counter.test.js', 'package-lock.json', and 'package.json'. The main editor area displays the content of 'counter.js', which includes a variable 'count' initialized to 0, an 'increment' function that increases 'count' by 1, and a 'reset' function that sets 'count' back to 0. The bottom panel shows the 'TERMINAL' tab with the following output:

```
PS C:\Users\APURWA C PATIL\Desktop\WAD_Practical\Extra Assignment> npm test

> extra-assignment@1.0.0 test
> jest

 PASS  ./counter.test.js
  Counter functionality
    ✓ increments the counter (3 ms)
    ✓ resets the counter

Test Suites: 1 passed, 1 total
Tests:       2 passed, 2 total
Snapshots:   0 total
Time:        1.273 s
Ran all test suites.
PS C:\Users\APURWA C PATIL\Desktop\WAD_Practical\Extra Assignment>
```

The status bar at the bottom indicates the current file is 'counter.js' at line 1, column 1, using UTF-8 encoding with CRLF line endings. It also shows the active language is JavaScript and that Prettier is configured for formatting.

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

The need for a code of ethics is essential in any profession to ensure responsible behavior, maintain public trust, and promote integrity among individuals and organizations. A code of ethics serves as a formal guideline that outlines acceptable conduct, values, and principles which professionals are expected to follow. It helps distinguish right from wrong, offering a moral compass when facing difficult or unclear situations.

In the context of technology and web development, for example, a code of ethics ensures that developers handle user data responsibly, respect privacy, avoid plagiarism, and produce secure and honest work. It also promotes fairness, discouraging discrimination, and encourages collaboration and transparency within teams. Without such a code, actions could be driven purely by profit or personal gain, potentially leading to unethical decisions that harm users, clients, or society.

Moreover, having a clearly defined code of ethics builds trust between professionals and the public. It enhances the reputation of an industry or organization and protects stakeholders from misconduct. In summary, a code of ethics is necessary to uphold professionalism, ensure accountability, and create a standard of excellence and fairness in any field.

