# Department of Information Technology

## Assignment

**Date:** 22/04/2025                **Subject:** Web Application Development (2024-25)

 Q.1) Illustrate the need Grunt Package
Ans: The Grunt package is a JavaScript task runner used in web development for automating repetitive tasks.
The need for Grunt includes:
1. Task Automation
Manual tasks like:
- Minifying JS/CSS files
- Compiling Sass/LESS
- Optimizing images
- Copying files to production folders

2. Build Process Optimization
Grunt helps prepare your code for production by:
- Reducing file sizes through minification
- Combining multiple files into one (concatenation)
- Removing unused code This makes your website load faster and improves user experience.

3. Consistency and Reliability
Every team member can run the exact same build process, ensuring the application behaves consistently across development and production environments.

4. Watch and Live Reload
Grunt can watch files for changes and automatically re-run tasks. For example:
- If you change a .js file, Grunt can automatically minify it again.
- Combined with tools like LiveReload, the browser can auto-refresh.
This boosts productivity during development.

5. Large Ecosystem of Plugins
Grunt has thousands of plugins for almost any task:
- grunt-contrib-uglify – Minifies JS
- grunt-contrib-cssmin – Minifies CSS
- grunt-contrib-watch – Watches files for changes
- grunt-contrib-clean – Deletes files/folders This makes it flexible and powerful for many project types.

6. Custom Workflows
You can define custom tasks suited to your project. For instance:

- A task to clean old files
- Then compile Sass
- Then minify JavaScript
- Then deploy to a server

All these steps can be run together automatically, reducing manual mistakes.

7. Error Detection and Reporting

Grunt can help catch syntax errors and code quality issues early using linters like grunt-eslint, ensuring cleaner, safer code.

Q.2) Implement small application which will make use of Grunt package (I/p, O/p)

Ans:

gruntfile.js ✕

gruntfile.js > ...

```javascript
module.exports = function(grunt) {
    grunt.initConfig({
        uglify: {
            build: {
                src: 'src/script.js',
                dest: 'dist/script.min.js'
            }
        }
    });

    grunt.loadNpmTasks('grunt-contrib-uglify');
    grunt.registerTask('default', ['uglify']);
};
```

JS script.js ✕

src > JS script.js > ...

```javascript
function greet(name) {
    console.log("Hello, " + name + "!");
}
greet("User");
```

```
JS script.min.js ✕

dist > JS script.min.js > ⊘ greet
    1    function greet(e){console.log("Hello, "+e+"!")}greet("User");
```

Q3) Illustrate the need for code of ethics.
Ans:
A code of ethics is essential for guiding professionals in making moral decisions and maintaining integrity within their field. Here's why it's important:

1.  Establishes Professional Standards:
    It sets clear guidelines for behavior, ensuring that all members follow a shared standard of conduct, which fosters trust and respect.
2.  Protects Stakeholders:
    A code of ethics helps protect the interests of clients, customers, and society by promoting ethical decision-making that avoids harm and ensures fairness.
3.  Enhances Accountability:
    It holds individuals and organizations accountable for their actions, helping to prevent unethical behavior and promoting transparency in operations.
4.  Promotes Trust:
    When professionals adhere to a code of ethics, it builds public confidence in their services or products, knowing that their work is guided by principles of honesty and responsibility.
5.  Guides Difficult Decisions:
    It provides a framework for professionals to navigate situations where the right course of action may not be immediately obvious, such as in conflicts of interest or ethical dilemmas.
6.  Encourages Ethical Culture:
    It creates a culture of ethical awareness within organizations, encouraging ethical behavior at all levels and reducing the risk of misconduct.