Assignment: Exploring NPM (Node Package Manager)

Objective: The objective of this assignment is to gain proficiency in utilizing NPM (Node Package Manager) for managing dependencies, automating tasks, and enhancing web development workflows.

1. **Background Research:**
   - Conduct research on NPM, its purpose, features, and significance in modern web development.
   - Explore the role of NPM in managing dependencies, package installation, version control, and package publishing.
2. **Installation and Setup:**
   - Install Node.js and NPM on your local machine if you haven't already done so.
   - Verify the installation and check the NPM version using terminal/command prompt.
3. **Basic Usage:**
   - Initialize a new Node.js project using **npm init** command and follow the prompts to create a **package.json** file.
   - Install commonly used packages such as **lodash**, **axios**, or any other package of your choice using **npm install** command.
   - Explore different options and flags available with **npm install** command, such as **--save**, **--save-dev**, **--global**, etc.
4. **Managing Dependencies:**
   - Add, update, and remove dependencies in your **package.json** file manually.
   - Utilize **npm install** and **npm uninstall** commands to manage dependencies effectively.
   - Understand the concept of semantic versioning (**^**, **~**, *****) and its impact on dependency management.
5. **Package Scripts:**
   - Define custom scripts in the **scripts** section of your **package.json** file to automate common tasks such as compiling, testing, and deploying your project.
   - Execute the defined scripts using **npm run** command and observe the output.
6. **Using NPM Packages:**
   - Explore popular NPM packages relevant to web development such as **webpack**, **babel**, **gulp**, **eslint**, **jest**, etc.
   - Install and configure a selected NPM package in your project and experiment with its features and functionalities.
7. **Publishing Packages:**
   - Learn how to create and publish your own NPM package/module.
   - Follow the NPM publishing guidelines and best practices to publish your package to the NPM registry.
8. **Documentation and Community Engagement:**
   - Read the official NPM documentation to understand advanced features, commands, and best practices.
   - Participate in online forums, communities, and discussions related to NPM to learn from others' experiences and share your knowledge.
9. **Assignment Submission:**
   - Write a comprehensive report summarizing your learning experience with NPM.

- Include details about the installation process, usage of basic and advanced NPM commands, management of dependencies, creation and publication of NPM packages, and any challenges faced during the assignment.
- Provide examples, screenshots, or code snippets to illustrate your understanding and implementation of NPM concepts.
- Submit your report along with any additional files or resources used during the assignment.

Assessment Criteria:

- Understanding of NPM fundamentals and concepts.
- Proficiency in managing dependencies and package installation.
- Ability to automate tasks using package scripts.
- Exploration of advanced NPM features and packages.
- Clarity and coherence of the assignment report.

Additional Notes:

- This assignment is designed to provide hands-on experience with NPM and enhance your skills in web development tooling and automation.
- Experiment with different NPM packages and workflows to deepen your understanding and proficiency.
- Seek help from online resources, tutorials, and documentation whenever needed, and don't hesitate to ask questions or seek clarification from instructors or peers.

Submission Deadline: [26th Feb 2024]