**INTRODUCTION TO NODE.JS**

Node.js is an open-source, cross-platform, server-side runtime environment that allows developers to execute JavaScript code outside the web browser. It was initially created by Ryan Dahl in 2009 and has since gained tremendous popularity in the web development community. Node.js is built on the Chrome V8 JavaScript engine, which provides fast and efficient execution of JavaScript code.

One of the key features of Node.js is its event-driven, non-blocking I/O model. This means that it can handle concurrent operations without getting blocked, making it highly scalable and ideal for handling real-time applications and data-intensive tasks. Node.js uses an event loop that allows asynchronous operations, such as file I/O and network requests, to be processed efficiently.

Node.js is commonly used for building server-side applications, especially web servers, due to its lightweight nature and ability to handle a large number of concurrent connections. Developers can use a vast array of modules available through the Node Package Manager (NPM) to extend the functionality of their applications and streamline development.

Additionally, Node.js has played a significant role in promoting the concept of a full-stack JavaScript ecosystem, where developers can use the same language for both front-end and back-end development, facilitating code sharing and maintenance across different layers of a web application.

**EXPERIMENT 1: Download and Install Node.js and NPM**

STEP 1: Visit the official Node.js website: Go to the Node.js website (https://nodejs.org/) in your web browser.

STEP 2: Choose the appropriate version: Node.js has two main distributions: LTS (Long-Term Support) and Current. For most users, it's recommended to install the LTS version, as it is more stable and suitable for production environments. The Current version contains the latest features but may not be as thoroughly tested.

STEP 3: Download the installer: On the Node.js website, you'll see the LTS and Current versions as prominent buttons. Click on the version you want to download, and it will automatically detect your operating system.

STEP 4: Install Node.js: Once the installer is downloaded, double-click on it to start the installation process. Follow the on-screen instructions and select the desired installation options. The default settings are generally suitable for most users.

STEP 5: Verify the installation: After the installation is complete, open a command prompt or terminal and type ‘node’ command to check if it is correctly installed.