

Experiment 1

Node.js: Setting Up Coding Environment

Experiment 1: Setting Up Node.js Environment

Lab Objective: Set up a Node.js development environment.

Step 1: Install Node.js

The screenshot shows the Node.js download page with the title "Download Node.js®". It features a navigation bar with dropdown menus for "v22.19.0 (LTS)", "for Windows", "using Docker", and "with npm". A green info banner states: "Want new features sooner? Get the latest Node.js version instead and try the latest improvements!". Below this, a code block contains the following instructions:

```
1 # Docker has specific installation instructions for each operating system.
2 # Please refer to the official documentation at https://docker.com/get-started/
3
4 # Pull the Node.js Docker image:
5 docker pull node:22-alpine
6
7 # Create a Node.js container and start a Shell session:
8 docker run -it --rm --entrypoint sh node:22-alpine
9
10 # Verify the Node.js version:
11 node -v # Should print "v22.19.0".
12
13 # Verify npm version:
14 npm -v # Should print "10.9.3".
```

Below the code block, there is a "PowerShell" label and a "Copy to clipboard" button. A note at the bottom states: "Docker is a containerization platform. If you encounter any issues please visit [Docker's website](#)". At the bottom of the page, there are options to "Or get a prebuilt Node.js® for Windows running a x64 architecture." with buttons for "Windows Installer (.msi)" and "Standalone Binary (.zip)".

Verify Installation:

```
C:\Users\91959>node -v
v22.17.1

C:\Users\91959>npm -v
11.4.2
```

Step 2: Set Up a Project Directory

```
PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend> mkdir my-node-app

Directory: C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend

Mode                LastWriteTime         Length Name
----                -
d-----          02-09-2025   20:38             my-node-app

PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend> cd my-node-app
PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app> |
```

Step 3: Initialize a Node.js Project

```
● PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app> npm init -y
Wrote to C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app\package.json:

{
  "name": "my-node-app",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "type": "commonjs"
}
```

Step 4: Install Dependencies

```
● PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app> npm install express

added 67 packages, and audited 68 packages in 4s

14 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

Step 5: Create Your First Node.js File

```
● PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app> touch app.js
Touching app.js
```



```
1  const http = require("http");
2  const hostname = "127.0.0.1";
3  const port = 3000;
4  const server = http.createServer((req, res) => {
5      res.statusCode = 200;
6      res.setHeader("Content-Type", "text/plain");
7      res.end("Hello World\n");
8  });
9  server.listen(port, hostname, () => {
10     console.log(`Server running at http://${hostname}:${port}/`);
11 });
```

Step 6: Run the Node.js Application

```
PS C:\Users\91959\Desktop\Collage\3rd_year\Gulsan_Sir\Backend\my-node-app> node app.js
Server running at http://127.0.0.1:3000/
```

