NODE.JS

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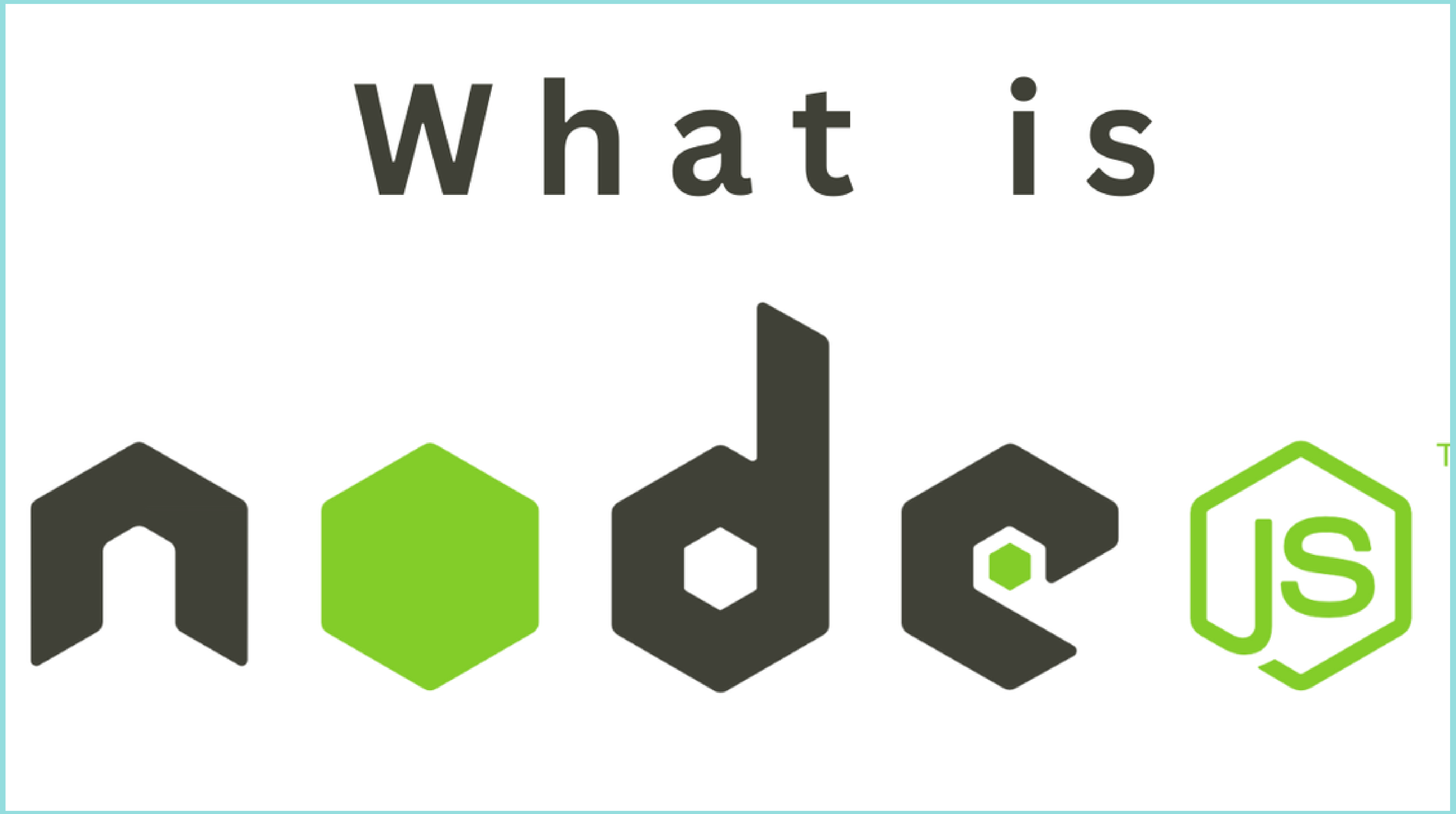
What is Node.js?

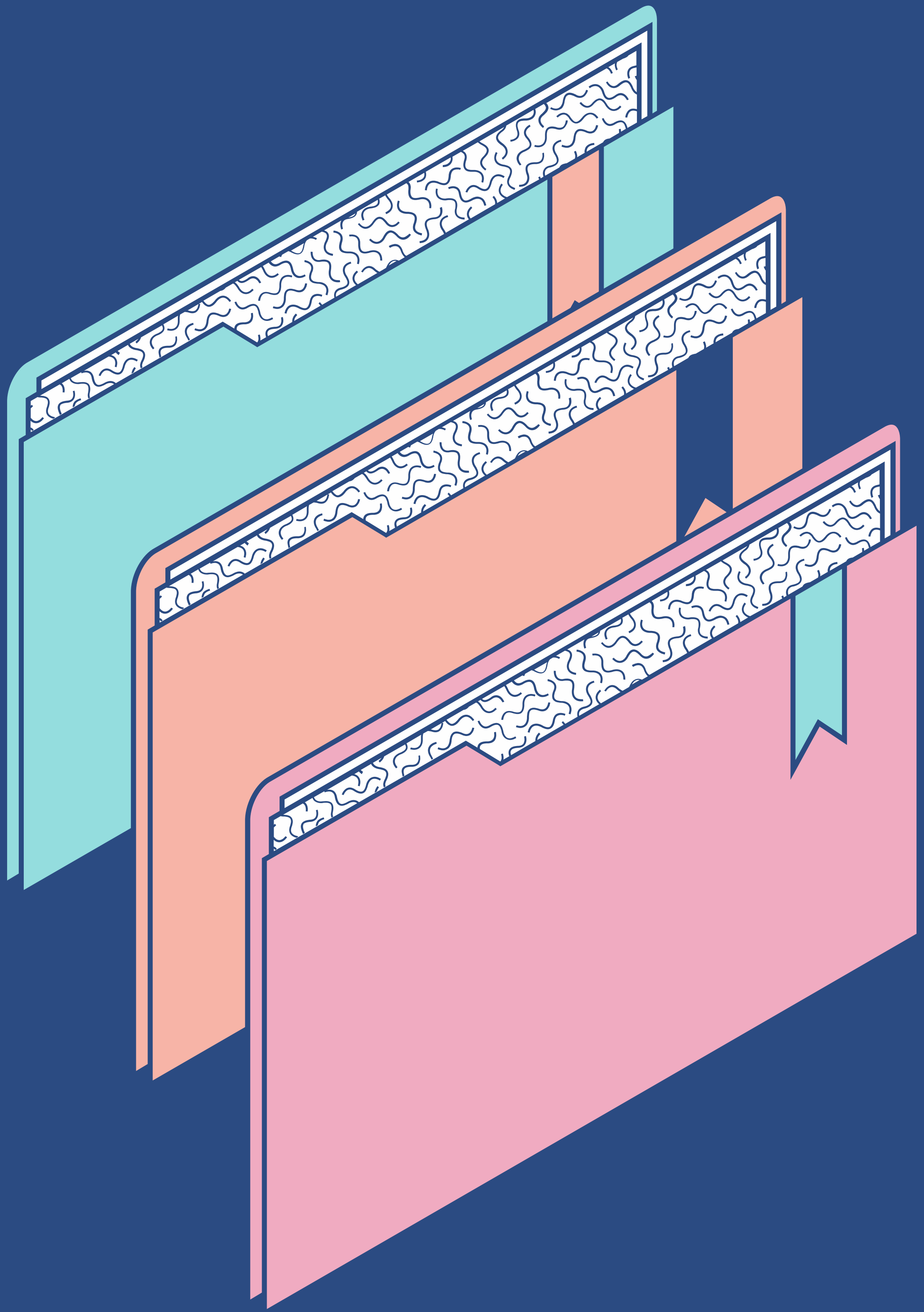


- JavaScript runtime: Node.js is an open-source JavaScript runtime built on Chrome's V8 JavaScript engine.

- Cross-platform: Node.js is designed to be cross-platform, allowing you to develop and deploy applications on various operating systems.

- Large and active community: Node.js has a thriving and supportive community of developers. This active community contributes to the growth of Node.js by creating libraries, frameworks, tools, and sharing best practices.

Downloading and Installing Node.js



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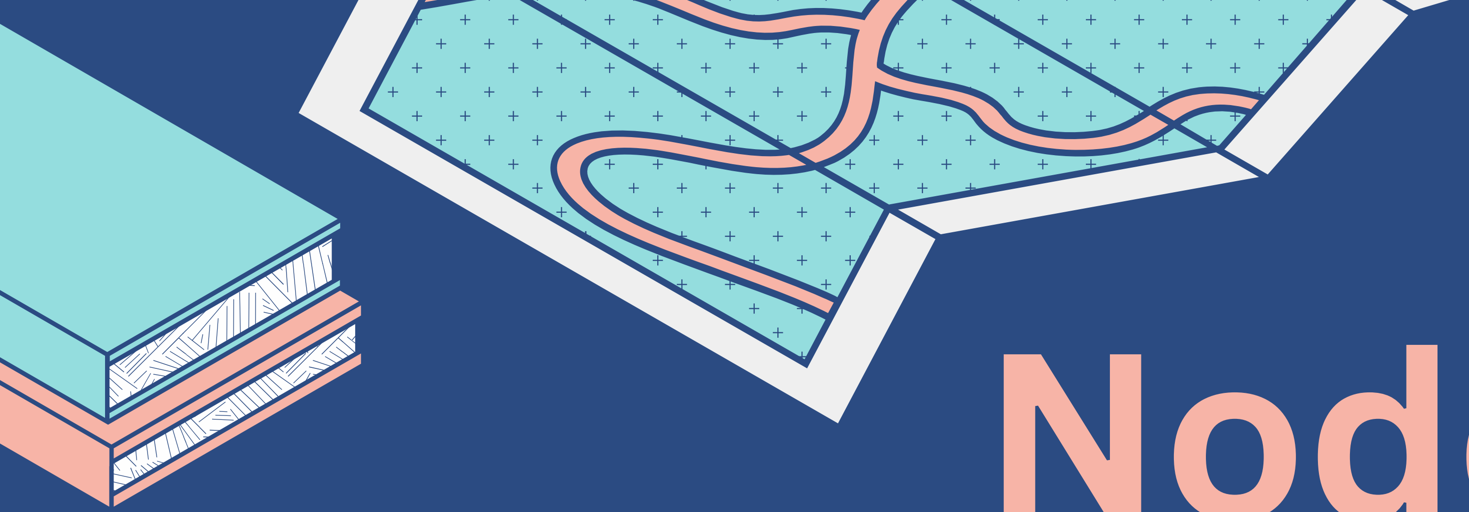
Verifying Installation using the terminal to check if Node.js is properly installed
Use command - node -v or node --version



Node.js Modules

Modules are like small units of code that can be reused and separated into individual files, making it easier to manage and maintain large applications.

- Modularity - Node.js promotes a modular code organization. Each module has specific functionality.
- Reusability - Modules can be reused across applications. Vital for efficient code development.
- Node.js provides a set of core modules that are built-in 'fs' (File System), 'http' (HTTP server/client functionality), and 'path' (file path manipulation)

Some Modules of Node.js

01 FS

The **fs** module provides file system-related operations, allowing you to read from and write to files, create directories, and perform other file system-related tasks.

02 http

The **http** module allows you to create HTTP servers and make HTTP requests. It provides the necessary functionality to interact with the HTTP protocol, handle requests, and send responses.

03 path

The **path** module provides utilities for working with file and directory paths. It helps in resolving and manipulating file paths, handling platform-specific path conventions, and more.

04 url

The **url** module provides utilities for working with URLs. It allows you to parse URLs, resolve relative URLs, and manipulate URL components like hostname, path, query parameters, etc.

NPM - Node Package Manager

- NPM which stands for Node Package Manager is a package manager for Node.js packages, or modules

- It is the default package manager for the JavaScript runtime environment Node.js.

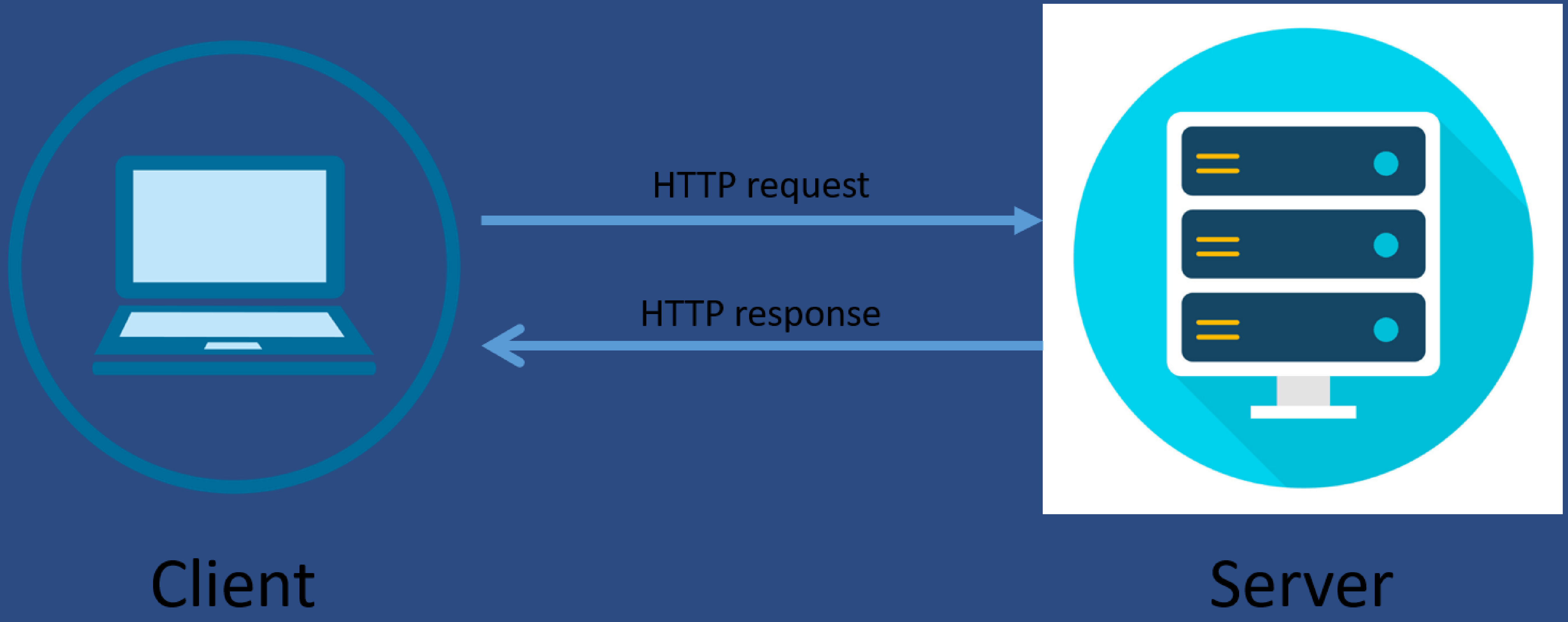
- It consists of a command line client, also called npm, and an online database of public and paid-for private packages, called the npm registry.

- Using that particular chunk handle(ID) the client can go to that specific chunkserver and read data from there.

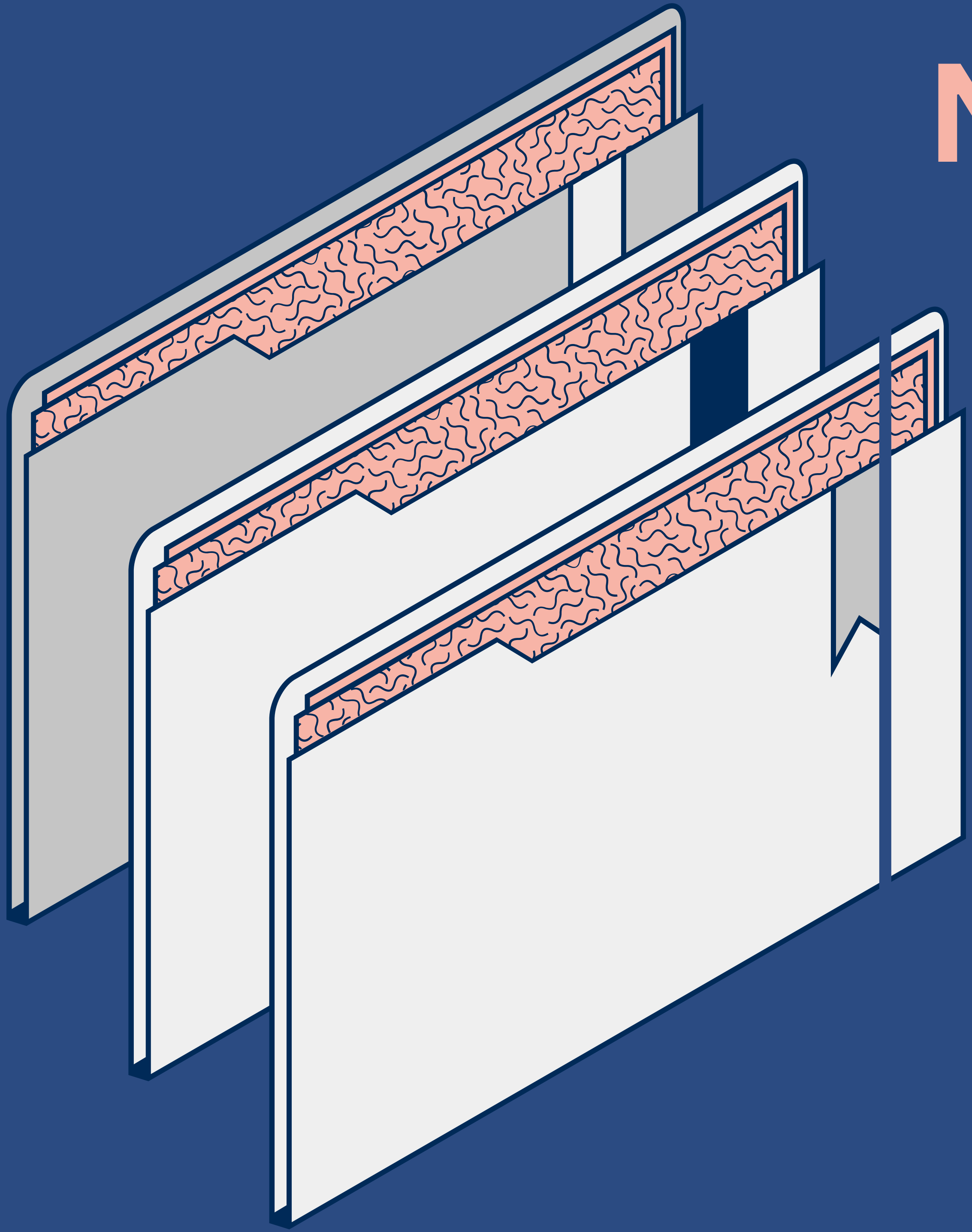
Some NPM commands -

- *npm init* :- Used to initialize a new Node.js project or package.
- *npm install <package name>* :- installs package locally.
- *npm update <package name> -g* :- Updates the package globally. Without "-g" it updates locally
- *npm uninstall <package name> -g* :- Uninstalls the previously downloaded package.
- *npm install <package name> --save* :- Another command to download a package.
- *npm help*- Gives a list of all commands that can be used.

Setting up a Basic Web Server



Working with the File System in Node.js



- fs' module allows us to read files synchronously and asynchronously.
- Synchronous reading: fs.readFileSync() blocks the event loop. Useful for simple scripts and command-line tools.
- Asynchronous reading: fs.readFile() is non-blocking, suitable for web servers and real-time applications

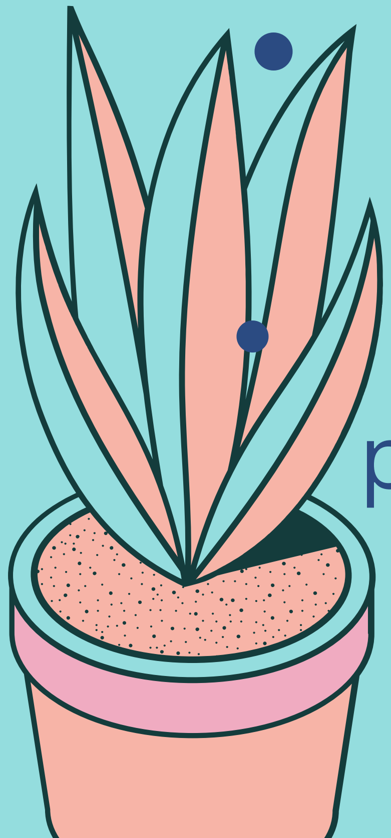
Express.js

- Express.js is a powerful web framework for building web applications and APIs.
- It simplifies server-side development by providing features like routing, middleware, and request/response handling.
- Create a simple RESTful API with Express.js.

Serving Static Resources in Express.js

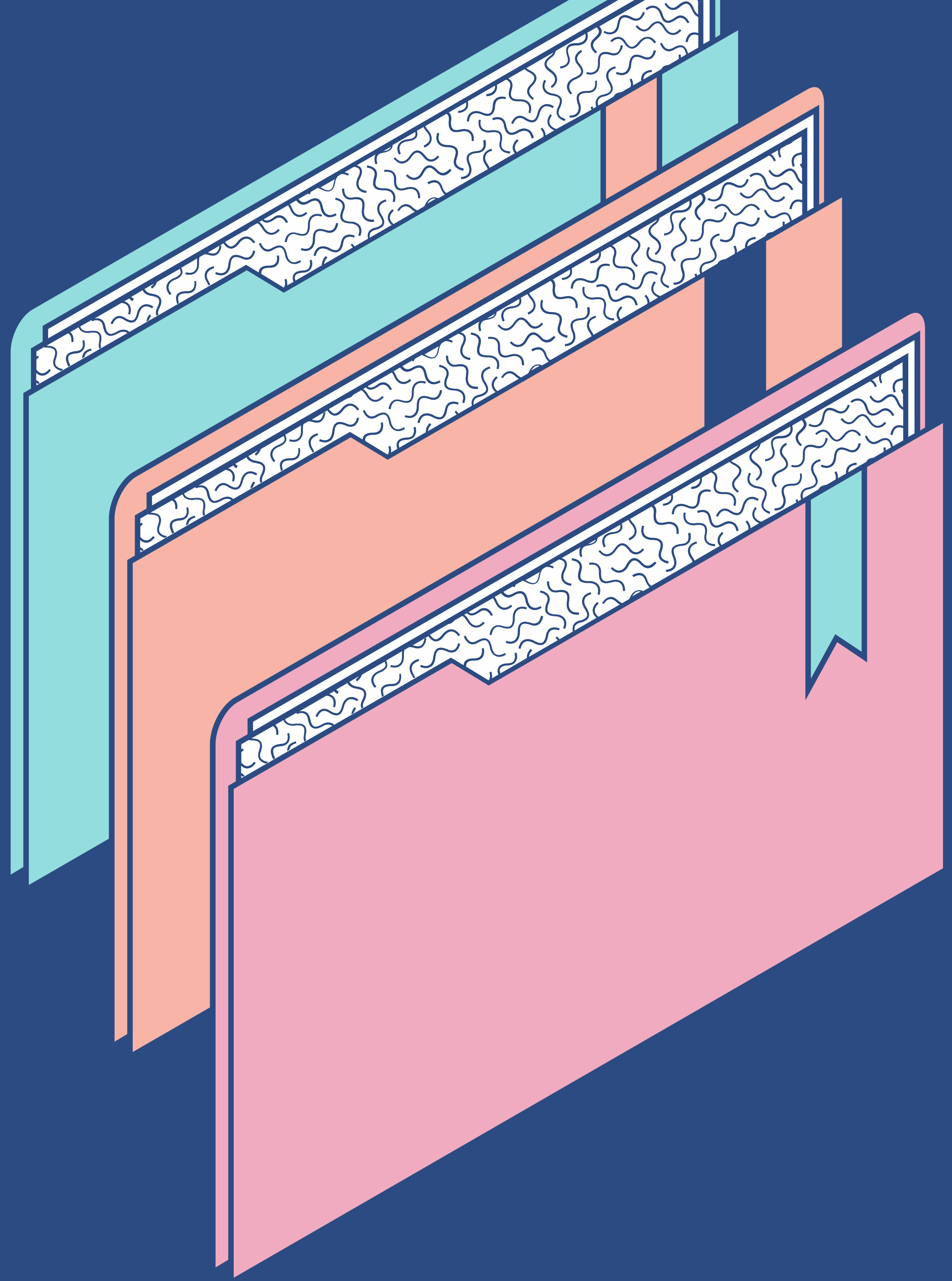
- Express.js provides a straightforward way to serve static files
- Static resources are: files that don't change on the server's end (e.g., HTML, CSS, JavaScript, images).

Why separating static and dynamic content is beneficial?
Faster load times: Browsers can cache static resources.
Easier maintenance: Separation makes code organization cleaner, Scalability.



- **app.use(express.static('public'));**

- express.static('public'): express.static is a built-in middleware function provided by Express.js for serving static files. In this code, it is configured to serve static files from the "public" directory.



DATABASE CONNECTIVITY

- Databases store and manage data critical for application functionality.
- There always a need for efficient and secure database connectivity.
- Types of databases: SQL (relational) and NoSQL (non-relational).
- Popular databases like MongoDB and SQL databases require specific libraries for connectivity.

REFERENCES

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https://www.w3schools.com/nodejs/nodejs_npm.asp#:~:text=NPM%20is%20a%20package%20manager,when%20you%20install%20Node.js

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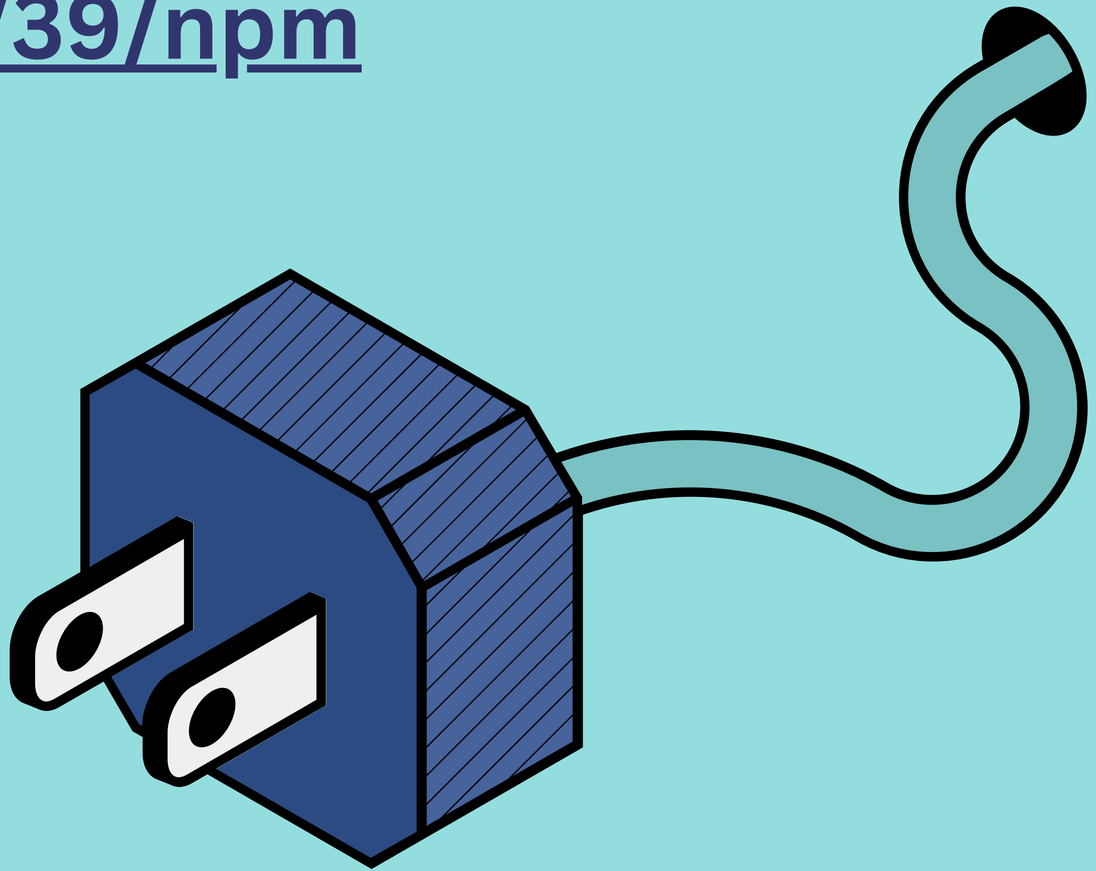

Thank You!

Happy Coding!