

# Node.js – Learning Documentation (Beginner to Basic)

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## Front Page

**Topic:** Learning Node.js

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## Index

1. Introduction to Node.js
  2. Prerequisites
  3. Installing Node.js
  4. First Node.js Program
  5. How Node.js Works (Diagram Explanation)
  6. Core Concepts of Node.js
  7. Creating a Web Server
  8. Introduction to Express.js
  9. Simple API Example
  10. What to Learn Next
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## 1. Introduction to Node.js

Node.js is a runtime environment that allows JavaScript to run outside the browser. It is mainly used to build backend servers and APIs.

In simple words, Node.js lets JavaScript work on the server.

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## 2. Prerequisites

Before learning Node.js, you should know:

- Basic JavaScript
  - Basic HTML
  - How files and folders work
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### 3. Installing Node.js

Download Node.js (LTS version).

To check installation:

```
node -v  
npm -v
```

If versions appear, Node.js is installed.

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### 4. First Node.js Program

Create a file `app.js`

```
console.log("Hello Node.js");
```

Run using:

```
node app.js
```

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### 5. How Node.js Works (Diagram Explanation in Words)

**Diagram Explanation:**

User → Browser / App → Node.js Server → Database → Node.js → User

**Explanation:**

The user sends a request. Node.js processes it, fetches data if needed, and sends a response back.

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## 6. Core Concepts of Node.js

- JavaScript runtime
  - Event loop
  - Asynchronous execution
  - Single-threaded but fast
  - npm (Node Package Manager)
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## 7. Creating a Simple Web Server

```
const http = require("http");

const server = http.createServer((req, res) => {
  res.write("Hello from Node.js Server");
  res.end();
});

server.listen(3000);
```

Open browser: <http://localhost:3000>

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## 8. Introduction to Express.js

Express.js is a framework that simplifies Node.js development.

Install Express:

```
npm init -y
npm install express
```

Basic Express App:

```
const express = require("express");
const app = express();

app.get("/", (req, res) => {
  res.send("Hello from Express");
});
```

```
app.listen(3000);
```

---

## 9. Simple API Example

```
app.get("/api/student", (req, res) => {  
  res.json({ name: "Abhijnan", class: 9 });  
});
```

This API sends data in JSON format.

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## 10. What to Learn Next

- Express routing
  - Middleware
  - Database (MongoDB / Firebase)
  - Authentication
  - Building real projects
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## Conclusion

Node.js helps developers build fast and scalable backend applications using JavaScript.