Node.js
Cheat Sheet

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1. Setup & Run

```
node -v          # check version
npm init -y      # create package.json
node index.js    # run file
```

2. Core Modules

```javascript
const fs = require('fs');
const path = require('path');
const os = require('os');

// Reading file
fs.readFile('file.txt', 'utf8', (err, data) => {
  console.log(data);
});

// Writing file
fs.writeFile('file.txt', 'Hello Node', () => {});
```

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3. Creating a Server

```javascript
const http = require('http');

http.createServer((req, res) => {
  res.write('Hello World');
  res.end();
}).listen(3000);
```

4. Express.js Basics

```javascript
const express = require('express');
const app = express();

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

app.listen(3000);
```

5. Middleware in Express

```javascript
app.use(express.json());      // built-in middleware

// Custom middleware
app.use((req, res, next) => {
  console.log('Request received');
  next();
});
```

6. REST API with Express

```js
app.get('/users', getUsers);
app.post('/users', addUser);
app.put('/users/:id', updateUser);
app.delete('/users/:id', deleteUser);
```

7. Working with JSON

```js
const data = {
  name: "Node",
  version: "18"
};

const str = JSON.stringify(data);
const obj = JSON.parse(str);
```

8. Module System

```js
// utils.js
function greet(name) {
  return `Hello ${name}`;
}
module.exports = greet;

// index.js
const greet = require('./utils');
console.log(greet('Nikhil'));
```

9. Environment Variables

```
# .env file
PORT=5000

// index.js
require('dotenv').config();
console.log(process.env.PORT);
```

10. Error Handling

```
app.use((err, req, res, next) => {
  res.status(500).send({ message: err.message });
});
```

11. File Uploads

```
const multer = require('multer');
const upload = multer({ dest: 'uploads/' });

app.post('/upload', upload.single('file'), (req, res) => {
  res.send('File uploaded');
});
```

12. JWT Authentication

```javascript
const jwt = require('jsonwebtoken');

const token = jwt.sign({ id: 1 }, 'secret', { expiresIn: '1h' });

jwt.verify(token, 'secret', (err, decoded) => {
  console.log(decoded);
});
```

13. Async / Await

```javascript
async function getData() {
  try {
    const res = await fetch('url');
    const data = await res.json();
  } catch (err) {
    console.error(err);
  }
}
```

14. Connecting to MongoDB

```javascript
const mongoose = require('mongoose');

mongoose.connect('mongodb://localhost/test')
  .then(() => console.log('Connected'))
  .catch(err => console.error(err));
```

15. Events & EventEmitter

```javascript
const EventEmitter = require('events');
const emitter = new EventEmitter();

emitter.on('message', () => {
  console.log('Message event triggered');
});

emitter.emit('message');
```

16. Nodemon (Auto-reload)

```
npm install -D nodemon
# package.json
"scripts": {
  "dev": "nodemon index.js"
}
npm run dev
```

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