

# Backend Development Basics

Web App Dev Guide · Module 6 of 8 · CHERIEDU Dev Series

## 1. What is the Backend?

The backend is the server-side of your application. It handles business logic, database operations, authentication, and APIs that the frontend calls. Users never see it, but everything depends on it.

## 2. REST API Design

HTTP Method	Action	Example Endpoint
GET	Read data	GET /api/students
POST	Create data	POST /api/students
PUT	Update data	PUT /api/students/123
DELETE	Delete data	DELETE /api/students/123

## 3. Node.js + Express API

```
const express = require("express");
const app = express();
app.use(express.json());

// GET all students
app.get("/api/students", async (req, res) => {
  const students = await db.query("SELECT * FROM students");
  res.json(students);
});

// POST new student
app.post("/api/students", async (req, res) => {
  const { name, grade, email } = req.body;
  await db.query("INSERT INTO students VALUES (?, ?, ?)", [name, grade, email]);
  res.json({ success: true });
});
app.listen(3000);
```

## 4. JWT Authentication

```
// Login endpoint
app.post("/api/login", async (req, res) => {
  const user = await findUser(req.body.email);
  if (!user || !bcrypt.compareSync(req.body.password, user.hash))
    return res.status(401).json({ error: "Invalid credentials" });
  const token = jwt.sign({ id: user.id, role: user.role }, SECRET);
  res.json({ token });
});
```



## 5. Backend Technologies Compared

Tech	Language	Best For	Used By
Node.js + Express	JavaScript	APIs, real-time apps	Netflix, LinkedIn
ASP.NET Core	C#	Enterprise apps	Microsoft, Stack Overflow
Django	Python	Data-heavy apps, AI	Instagram, Pinterest
Spring Boot	Java	Large enterprise systems	Amazon, Uber

### PROJECT

Build a REST API for a school management system with endpoints: GET /students, POST /students, GET /fees, POST /fees/pay. Add JWT authentication so only logged-in users can access the endpoints.

