

# Build Telegram Bots with Node.js

Build Telegram bots with Node.js. Bot API, message handling, and production deployment.

**DevOps** Instructor: Derek Holtzman • 5 sections • 40 lessons • 13.50h total

[View this course online](#) [Browse all courses](#)

## About this course

---

This course teaches you how to build Telegram bots using Node.js. You will learn to set up a bot, handle messages and commands, work with the Telegram Bot API, and deploy your bot to production. Includes hands-on coding exercises and real project examples.

# Course curriculum

---

## Foundations and Bot Setup

- **How the Telegram Bot API Actually Works (12m)**  
We'll demystify the core concepts of polling vs. webhooks and how your Node.js server communicates with Telegram.
- **Creating Your First Bot with BotFather (8m)**  
A step-by-step guide to getting your API token and setting up the basic bot profile for our projects.
- **Setting Up Your Node.js Development Environment (15m)**  
Install necessary libraries like Telegraf or node-telegram-bot-api and structure your project folder correctly.
- **Handling Your First Message: The Echo Bot (18m)**  
Write the code to listen for user messages and send a response. A real case study in basic bot logic.
- **Understanding Updates: Polling vs. Webhooks Explained (22m)**  
A practical deep dive into which method to choose and a problem-solving session on common setup errors.
- **Deploying Your Bot to a Live Server (25m)**  
Learn how to host your Node.js bot on a cloud service so it runs 24/7, using a downloadable server config template.
- **Essential Security: Managing Your Bot Token (9m)**  
Best practices for keeping your API keys safe and why you should never commit them to a public repository.

## Core Bot Logic and User Interaction

- **Bot Commands and Arguments (16m)**  
How to parse user commands like /start or /search with parameters to make your bot interactive.
- **Building Interactive Menus and Buttons (28m)**  
A step-by-step guide to creating inline keyboards and reply markups for a better user experience.
- **Handling Callback Queries and State Management (24m)**  
Learn how to track user choices and manage conversation flow, complete with a state machine template.
- **Sending Rich Media: Photos, Videos, and Files (14m)**  
We'll show you how to send more than just text, including captions and file attachments.
- **Formatting Your Messages: Markdown and HTML (10m)**  
A practical guide to making your bot's responses look clean and professional with bold, italic, and links.
- **Working with Chat Context and User Data (19m)**  
How to access chat ID, user info, and other metadata to personalize your bot's responses.
- **Error Handling for a Robust Bot (13m)**  
A problem-solving session on catching errors gracefully so your bot doesn't crash on unexpected input.

- **Creating a Persistent Bot with a Database (32m)**  
Integrate a simple database like SQLite or MongoDB to save user preferences and data between sessions.
- **Building a Poll and Quiz Bot (21m)**  
A real-world case study on using Telegram's native poll feature and collecting responses.

## **Advanced Features and Integrations**

- **Setting Up a Webhook with SSL and Express (35m)**  
A deep dive into configuring a secure webhook, a critical step for high-performance bots.
- **Handling Middleware and Authentication (26m)**  
Learn how to use middleware to check user permissions and protect certain bot commands.
- **Integrating External APIs: Weather and News Bots (29m)**  
A practical project where we fetch data from a third-party API and format it for Telegram users.
- **Building a Search Bot with an Index (23m)**  
How to create a bot that can search a predefined list of items and return the best match.
- **Automating Tasks with Cron Jobs and Your Bot (17m)**  
A step-by-step guide to scheduling messages and sending daily reminders using node-cron.
- **Handling Payments with Telegram's Payment API (31m)**  
A real case study on integrating a payment gateway to sell products or services directly through your bot.
- **Managing Groups and Channels: Admin Rights and Events (20m)**  
Learn how to build bots that can manage groups, welcome new members, and handle admin actions.

## **Testing, Scaling, and Optimization**

- **Writing Unit Tests for Your Bot Logic (18m)**  
A practical guide to using testing frameworks to ensure your commands and handlers work as expected.
- **End-to-End Testing with a Local Tunnel (22m)**  
How to test webhooks locally before deploying, using a downloadable ngrok template.
- **Logging and Monitoring for Production Bots (15m)**  
Set up simple logging to track errors and user activity for debugging and analytics.
- **Optimizing for High Traffic and Rate Limits (25m)**  
A problem-solving session on handling thousands of users without hitting Telegram's API limits.
- **Structuring a Large Codebase for Scalability (20m)**  
Learn how to organize your bot into modules and handlers as it grows in complexity.
- **Managing User Sessions Efficiently (14m)**  
Best practices for session management to avoid memory leaks and ensure a smooth user journey.
- **Deploying with Docker for Consistency (27m)**  
A step-by-step guide to containerizing your Node.js bot for easy deployment across different servers.
- **Introduction to Bot Analytics and User Insights (11m)**  
Simple methods to track key metrics like daily active users and command usage to inform your updates.

## Real-World Projects and Monetization

- **Project 1: Building a Customer Support Ticket Bot (38m)**  
A comprehensive real-world case study on creating a bot that logs user issues and notifies a support team.
- **Project 2: Creating a Content Delivery Bot (News/Updates) (33m)**  
Learn how to build a bot that scrapes a website or RSS feed and delivers updates to subscribed channels.
- **Project 3: A Multi-Functional Utility Bot (40m)**  
A deep dive into combining multiple features like reminders, weather, and search into one cohesive bot.
- **Monetization Strategies: Donations, Subscriptions, and Ads (16m)**  
A practical discussion on different ways to generate revenue from your bot's user base.
- **Marketing Your Bot and Growing Your User Base (19m)**  
Actionable steps on how to promote your bot on Telegram, social media, and other platforms.
- **Gathering Feedback and Planning Updates (12m)**  
How to effectively collect user feedback and create a roadmap for future features.
- **Common Pitfalls and How to Avoid Them (15m)**  
A problem-solving session covering the most common mistakes developers make when launching a bot.
- **Your Next Steps: Open Source and Community (10m)**  
How to contribute to the Telegram bot ecosystem and continue your learning journey.
- **Course Wrap-Up and Final Checklist (8m)**  
A downloadable checklist to review before you launch your first public bot.

---

## Discover our blog

Learn more with free articles written by our professors and guest experts.

Latest article: **[Flight Attendant Preparation: What to Study Before You Apply](#)**

[Visit the blog](#)   [All courses](#)   [This course](#)