

Advanced DevOps Course: Individual Project Ideas/Proposal Template

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Instructions

The goal of this course is to apply advanced DevOps principles to a real-world project. You will build, deploy, and maintain a web application of your own choosing. This project will be your personal sandbox for learning everything from containerization to automated cloud deployment.

Please complete this proposal to outline your project idea. Your idea should be for a **web application** that is interesting to you but also meets the technical requirements of the course. Think of a problem you want to solve, a service you wish existed, or a hobby you want to build a tool for.

Part 1: The Project Idea

1. Project Title:

(Give your project a creative and memorable name.)

TaskFlow - Personal Project Management Hub

2. The "Elevator Pitch" (1-3 Sentences):

(In simple terms, what is your project? What problem does it solve or what value does it create?)

TaskFlow is a streamlined project management tool designed for individual developers and small teams who find existing solutions too complex or expensive. It combines task tracking, time logging, and progress visualization in a clean, distraction-free interface that helps users stay focused on what matters most.

3. Core Features (The "What"):

(List the 3-5 essential features your application will have. Be specific. This is the most important part of your proposal.)

- **Example:** For a "Book Review" app:
 - *Feature 1: Users can create an account and log in.*
 - *Feature 2: Users can search for books using an external API (like Google Books).*
 - *Feature 3: Logged-in users can write and post a review for a book.*
 - *Feature 4: All users can view a list of books and read their reviews.*

- **Your Project's Core Features:**

- Feature 1: Users can create an account, log in, and manage their personal dashboard with secure authentication.
- Feature 2: Users can create projects and add tasks with priorities, due dates, and detailed descriptions.
- Feature 3: Users can track time spent on tasks with a built-in timer and view time analytics per project.
- Feature 4: (Optional) Users can visualize their productivity through charts showing completed tasks, time spent, and project progress over time.
- Feature 5: (Optional) Users can set daily/weekly goals and receive progress notifications to stay motivated.

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Part 2: The Technical Fit (The "How")

This section ensures your project is a good fit for the DevOps topics we will cover. Your application must have the following three characteristics.

1. Data Persistence:

(Your application must need to store data in a database. What kind of data will it store?)

- **Example:** *The "Book Review" app will store user accounts, book information, and the review text itself in a PostgreSQL database.*

The application will store user accounts (username, email, hashed passwords), project information (name, description, creation date), tasks (title, description, priority, due date, completion status), and time tracking data (start/end times, duration, associated task) in a PostgreSQL database.

2. User Interaction (The "Write" Path):

(There must be a way for a user or system to create or change data. This is what makes automating deployments interesting. How do users add information to your app?)

- **Example:** *Users create data by signing up, posting reviews, and rating books.*

Users create and modify data by registering accounts, creating new projects, adding and updating tasks, starting/stopping timers for time tracking, marking tasks as complete, and setting personal goals. All of these actions modify the database.

3. Data Presentation (The "Read" Path):

(There must be a way for users to view the data. This is the main purpose of the application.)

- **Example:** *The app presents data by showing book details, lists of reviews, and user profiles.*

The application presents data through a personalized dashboard showing active projects, upcoming deadlines, and daily progress. Users can view detailed project pages with task lists, time tracking summaries with charts and graphs, and productivity analytics.

Part 3: Project Brainstorming Checklist

Use this checklist to help you generate ideas. A good project will check most of these boxes.

Project Idea Checklist	Yes/No	Notes / My Idea
Is this a web application? (Not a mobile-only or desktop app)	Yes	Built as a responsive web app accessible from any browser
Does it solve a problem I personally find interesting?	Yes	What problem? A simple project management tool that's not overwhelming like Jira but more structured than basic to-do lists
Does it need a database? (e.g., to store users, posts, events)	Yes	What will it store? Users, projects, tasks, time entries, goals, user preferences
Is there a "create/update" action? (e.g., posting, uploading)	Yes	What action? Creating projects/tasks, updating task status, logging time entries, setting goals
Is there a "read" action? (e.g., viewing a dashboard, reading)	Yes	What will users see? Dashboard with projects, task lists, time reports, progress charts
Is the scope small enough to be completed in 7 weeks?	Yes	
(Optional) Does it interact with an external API? (e.g., weather)	Yes	Which API? GitHub API for importing issues as tasks, and possibly email notifications via SendGrid API

Project Tech Stack

- **Backend:** Node.js with Express.js framework and PostgreSQL database
- **Frontend:** React.js with Chart.js for data visualization and Tailwind CSS for styling
- **Other:** Docker for containerization, GitHub Actions for CI/CD, AWS for deployment

Sample Project Ideas to Get You Started

- **Personal Blog Platform:** A simple platform where you can write and publish articles.
 - **Event Listing Site:** A site that lists local tech meetups or community events.
 - **Recipe Finder:** An application to store and search for your favorite recipes.
 - **Personal Finance Tracker:** A simple tool to log your daily expenses by category.
 - **Workout Logger:** An app to track your gym workouts, including exercises, sets, and reps.
 - **URL Shortener:** A service like bit.ly that takes a long URL and creates a short one.
 - **Simple Polling App:** A tool where you can create polls and let others vote.
 - **Habit Tracker:** A dashboard to mark off daily habits you want to build.
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