Cod.le

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Demo Site | Repo

Description:

Cod.le builds on the FakeStackOverflow (FSO) platform, offering a **gamified learning environment** that includes: **authentication, a daily coding challenge with a fully functional IDE and live code execution, solution publishing, and admin-level management.**

Users can engage with the community to complete daily problems in a built-in editor, receive real-time execution feedback from our Docker-based code runner, and browse accepted solutions from the community.

Users who are admins can manage problems, test sets, and scheduling through a portal for designated admins.

Tech Stack and Design:

BACKEND: new schemas and routes support problem scheduling, test-set updates, submissions, real-time result streaming, and solution publishing.

FRONTEND: Daily Problem page with a built-in IDE, solution browsing, user score display, and an Admin page for creating and editing problems and test sets.

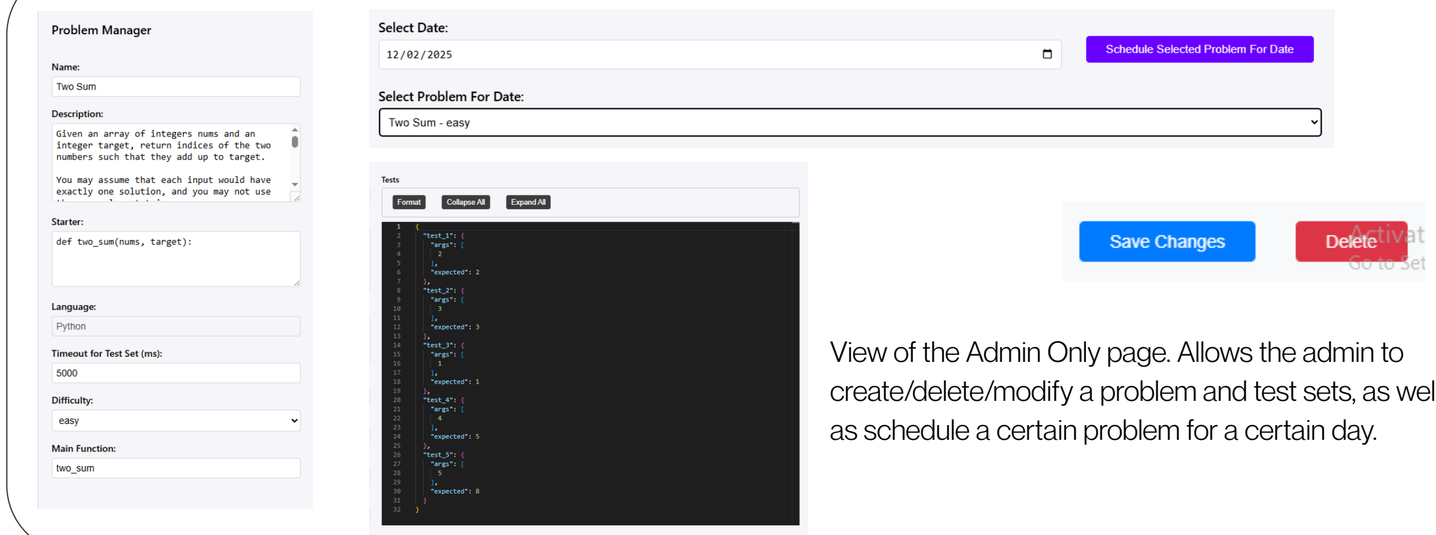
AUTHENTICATION: Auth0, syncing new users into MongoDB and enabling admin-only access.

CODE-RUNNER: offloaded to an isolated Python/Docker service on an EC2 VM, where a load balancer distributes submissions across containers that scale automatically and safely contain crashes or timeouts.

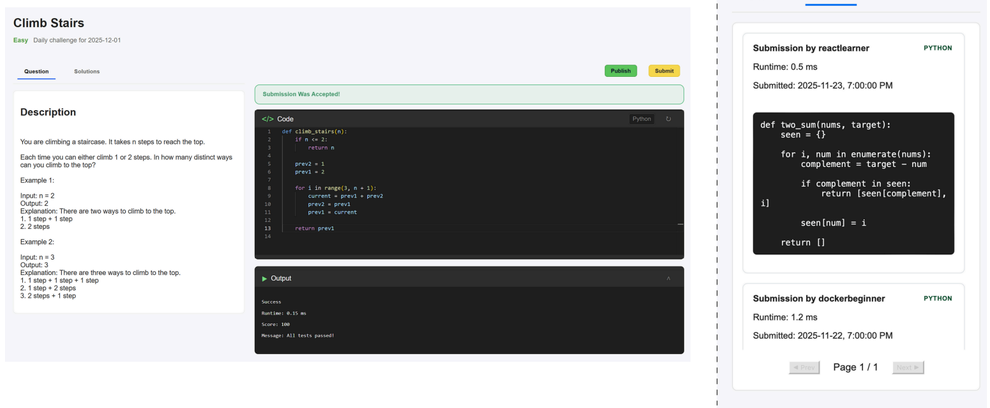
CI/CD relied on GitHub, schema validation, Docker diagnostics, and integration testing across sprints.

Future Work:

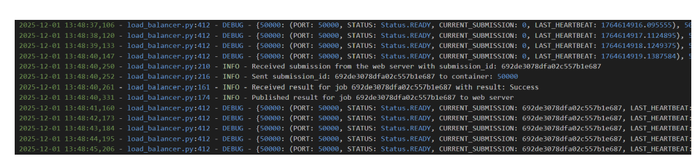
Future improvements to Cod.le include expanding the platform to **support multiple programming languages**, and adding a **leaderboard** that ranks users by their accumulated coding scores across all accepted submissions.



View of the Admin Only page. Allows the admin to create/delete/modify a problem and test sets, as well as schedule a certain problem for a certain day.



View of the daily coding challenge, complete with an IDE (with auto-fromatting), and a solutions page



Code-runner console log outputs