Syllabus: Fractal Bootcamp (Fa2024)

Fractal Bootcamp is a 12-week, 56 hours-per-week immersive coding course. The class is largely project-based, consisting of many small projects in the first six weeks, and four capstone projects in the final six weeks of the bootcamp, along with a deployed personal site to show off the projects.

Daily Schedule

Weekday classes are held Monday - Friday, from **9am - 7pm**.
Saturday classes are held from **10am - 4pm**.

All classes are held at Fractal Tech: **111 Conselyea St, Brooklyn, NY 11211**.

Weekday classes will have the following structure:

Time	Activity
8:30 - 9:00	Coffee Time
9:00 - 10:30	Class
10:30 - 12:00	Project Work + 1st PR
12:00 - 1:00	Lunch
1:00 - 6:30	Project Work
6:30 - 7:00	Closing Work

Saturday classes will have the following structure:

Time	Activity
9:30 - 10:00	Coffee Time
10:00 - 10:20	Standup
10:20 - 12:00	Project Work
12:00 - 1:00	Lunch
1:00 - 4:00	Project Work

The structure is approximate and may change on a given day for special events, guest speakers, or other extenuating circumstances. **Change and dynamism is a feature of our program, not a bug**. Please give direct feedback when a system is not working; we change systems when they don't work, just like a company.

Attendance Requirements

Students are expected to show up **prior to the daily start time** each day. Attendance will be taken within the first five minutes of class, and showing up after attendance is taken will result in an absence. Three tardies result in an absence, and a maximum of three absences are allowed per student during the course.

Excused absences are treated on a case-by-case basis, but are not easily given. We maintain rigorous attendance to respect the time and hard work of all the students, catching up is not easy.

Performance Requirements

Student performance is evaluated on several metrics:
- Daily number of Pull Requests* (PRs) opened
- Daily average (per week) of PRs opened
- Daily number of PRs reviewed
- Midpoint technical check-in
- Capstone project completion

Daily PR Count

Students are expected to ship between three and five meaningful, net-new pull requests each day.

Daily PR Average

Students are expected to have a minimum daily average of three meaningful, net-new pull requests each week. A high-performing student will have a daily average of four or more PRs each week. A maximum of one week below a Daily PR Average of three is allowed.

Daily PR Review Count

Students are expected to review at minimum three Pull Requests (PRs) each day.

Midpoint Technical Check-in

After six weeks, students will be given a technical assessment which will be designed to measure their progress in the course and core concepts. The technical assessment will be straightforward for all students who have consistently met performance requirements.

Capstone Project Completion

Students will be expected to complete and deploy all capstone projects by the end of the course. Capstone completion requirements are specific on a project-by-project basis, and will be outlined in individual project documents.

*Pull Requests - For PR counts, we count meaningful, net-new pull requests. This is a pull request that adds a new feature, fixes a problematic bug, creates a new project, or otherwise meaningfully adds or alters a codebase.

Scheduled Breaks

There will be two scheduled breaks in the course, November 1st - November 2nd, and November 27th - November 30th, inclusive.

There will be no other scheduled breaks, including for holidays or other events.

Full Course Schedule

Week	Topic	Description	Example Projects
1 Sept 23rd - Sept 28th	Intro Week	Kicking off the class, we'll start by spinning up a personal site, going over CRUD best practices, and making your first portfolio project! By the end of the first week, most students should be able to pass the "Calculator Exam", a hiring test Jake gave to all junior candidates at Tenet.	- Personal Site - Survey App
2 Sept 30th - Oct 5th	Full Stack CRUD Development	Your new skills will be put to the test with rapid development of an online multiplayer game from scratch, complete with authentication.	- Login/Signup Page - Online Multiplayer Tic Tac Toe
3 Oct 7th - Oct 12th	UI, Testing, Scripting	Polishing our projects with advanced styling and animations, and setting up a full stack test suite.	- Animations - Test Suite Setup
4 Oct 14th - Oct 19th	Algorithms	A crash course in algorithms and data structures, along with a class-wide project for visualizing algorithms.	- File Converter - Algorithm Visualizer
5 Oct 21st - Oct 26th	Creative Engineering	Half-art half-software projects, leveraging your new algorithms knowledge and generative AI.	- 3D Generative Art Project - Live Coding Music
6 Oct 28th - Oct 31st	Deployment + Infrastructure (Part 1) **2-DAY BREAK**	How to productionize our services, set up cron jobs and automations, and do a deeper dive on deployed environments.	- Cron Jobs and Automations

7 Nov 4th - Nov 9th	Hacking	How do you build meaningful, productive things while writing the least amount of software?	- Web scraper - Full stack low-code product
8 Nov 11th - Nov 16th	Advanced Backend	**CAPSTONE** Covering advanced backend concepts, like DDD and 3NF, and building an APIaaS using best practices around service architecture, database modeling, and API design.	- API-as-a-Service
9 Nov 18th - Nov 23nd	Product Clone	**CAPSTONE** Pick your favorite product and build a high-quality, functional clone.	- Quality clone product
10 Nov 25th - Nov 26th	Deployment + Infrastructure (Part 2) **4-DAY BREAK**	How to productionize our services, set up cron jobs and automations, and do a deeper dive on deployed environments.	- Zapier CLI tool
11 Dec 2nd - Dec 7th	Ecommerce	**CAPSTONE** A full stack ecommerce platform, which allows you to manage items and inventory, as well as search for and purchase items.	- Ecommerce site
12 Dec 9th - Dec 14th	AI SaaS Product	**ULTIMATE CAPSTONE** A full stack SaaS product, leveraging an AI (or multiple AI) integration(s) to support the core functionality, with pricing integrated so that you can generate revenue.	- Stripe-enabled AI SaaS product
13 Dec 16th - Dec 21st	AI SaaS Product (Cont'd)	**ULTIMATE CAPSTONE (CONT'D.)** A full stack SaaS product, leveraging an AI (or multiple AI) integration(s) to support the core functionality, with pricing integrated so that you can generate revenue.	