



YeetCode Final Business Analysis

Phillip Chau, Lynn Chen, Christopher Elliott, Natalie Yee, Jason Zhang

University of Pennsylvania

CIS 4010: Senior Design

Dr. Jonathan M. Smith, Dr. Sangeeta Vohra

May 1, 2023



The Jerome Fisher Program
in Management & Technology

Executive Summary

YeetCode is an online, game-based competitive programming platform designed to introduce underserved students to computer science and help them increase their algorithmic programming proficiency. Our mission is to give historically underrepresented students in the industry the skills and the confidence to pursue careers in tech. While there are a number of incumbent players in the online computer science education industry, we believe few are positioned to simultaneously address the needs of beginner coders while providing a platform for all users to engage in collaborative learning through competition. YeetCode's customers will include coding camps, such as Kode with Klossy, Girls Who Code, and AI4ALL, as well as educators in public and private schools. By employing a tiered subscription model, we will be able to generate stable recurring revenues to fund future product development and continue our mission of increasing programming literacy.

I. Company Overview & Value Proposition

YeetCode is an online, game-based learning platform that engages high school students with real-time competitive programming practice. The platform enables users to create rooms and compete against friends on programming problems. It was designed to introduce underserved students to computer science and competitive programming and help them increase their algorithmic programming proficiency. YeetCode gamifies coding practice and enhances collaborative learning, which has been shown to increase the retention of students in computer science.

YeetCode users can create rooms and invite friends, likely of similar skill levels, to their game by entering a room code. Once the game starts, users can solve a customized number of

easy, medium, or hard programming problems, depending on how long they plan to play the game. Passing test cases and completing problems quickly will earn users points, as they will compete against one another to earn as many points as possible. The room leaderboard will be displayed once the game ends.

YeetCode's value proposition is that it makes it easy for users to quickly set up programming contests to compete against users of similar skill levels. It enables students to practice programming with their friends, which we hope will build communities of young coders. In addition, the gamification is designed to appeal to a younger user base, as we recognize the importance and positive outcomes associated with learning to program early. Our problems are modeled after common technical interview problems and are designed to introduce historically underrepresented students to software engineering and to help them land roles at tech companies that use these problems as assessment tools.

II. Industry Overview

We conducted Porter's Five Forces analysis to assess the attractiveness of the computer science education industry. While there are a number of incumbent players (see Competitors section), we believe few are positioned to simultaneously address the needs of beginner coders while providing a platform for users to compete against one another. Companies in this space typically occupy their own niche, which means that rivalry is low. However, there are low barriers to entry, which means that the threat of new entrants is inherently high. The threat of substitutes is also high as there are other strategies individuals can utilize to gain coding skills and practice programming. Furthermore, the bargaining power of customers is high, given the

low switching costs between platforms. However, we do not have any suppliers and do not expect to incur any costs aside from web hosting.

A number of venture capital and private equity investors are interested in the EdTech space, and we forecast growing demand from educators in North America and beyond. EdTech businesses are highly scalable, and the demand for tools to assist in delivering coding education has grown, given the explosion in demand for software engineering roles across a number of industries.

III. Customer Segment

YeetCode's customers will include coding camps, such as Kode with Klossy, Girls Who Code, and AI4ALL, as well as educators in public and private schools. Coding camps provide in-person and virtual programming to students in high school and have access to a large network of students interested in programming. We expect these programs, which are non-profits, to pay for access to our platform for their students. Public and private school educators, especially those in underserved areas, are looking for tools to enhance their teaching and help students practice their skills outside of the classroom. We believe there are positive tailwinds from state and federal initiatives to increase coding literacy in schools. In July of last year, 50 US governors signed the Compact To Expand K-12 Computer Science Education, committing to expanding access to computer science education nationally through increased funding and focusing on traditionally underserved populations. This is just one of many initiatives underway as legislators realize the importance of computer science and technology in future generations.

An additional segment YeetCode provides significant value for is after-school enrichment centers, especially those that specialize in coding. These academies provide classes for students

to attend after school or on the weekends to teach extracurricular skills, such as computer science, competition math, and art. Within this broad group resides a fast-growing subgroup of coding academies, such as The Coder School and Code Ninjas, with hundreds of locations nationally that exclusively teach computer science to students ranging from elementary to high school. Given their dual focus on teaching coding skills and building community, YeetCode is the perfect tool to support their mission.

We distinguish our customers from our end-users through our B2B business model. Our users will be high school students who want to work on their programming skills alongside their peers through play. Aside from coding camps and public and private schools, we plan to employ a grassroots approach to user acquisition by promoting our platform at national coding competitions, including MLH Hackathons, Pennapps, and other online competitions and communities.

IV. Market Research

The global EdTech market is growing at a CAGR of 18% and is expected to register an incremental growth of over \$133 billion between 2021 and 2026. There is significant demand for gamified coding education platforms from educators and students alike, and we believe our application is the first of its kind: no other platform enables quick game set-up and fast-paced gameplay that makes it accessible to beginner coders.

From interviews with ~30 high school students and coding educators from Toronto, Orange County, and Seattle, we determined that there are no tools on the market that are currently being used by students to learn to program alongside their friends. From studies, we know that paired learning dramatically improves learning outcomes and that students who get an

early start in computer science are more likely to stay in the field. This emphasizes the importance of introducing coding at an early age to have a sizable influence on the number of students that are not only more technologically literate but might also go on to pursue computer science-related fields of study or careers. Respondents were consulted in the feature development process, and we plan to continue further beta testing with ~5 students from the pool in the spring.

V. Stakeholders

Key stakeholders include educators, high school students, and tech companies interested in recruiting more diverse talent. For instance, educators we surveyed in Toronto felt ill-equipped to help students continue learning to program beyond the provincial curriculum. Students we surveyed often came from schools that did not have a robust coding curriculum and often felt like they were navigating their programming education alone through platforms like Codecademy. While students and educators are our two core stakeholders, our mission is to increase the number of underserved students in tech, and we believe that tech companies stand to benefit from hiring more diverse candidates from a variety of backgrounds.

There are a number of state-level and federal initiatives to further coding literacy, and we believe that it is imperative to introduce students to the field, especially given the proliferation of next-generation technologies such as ChatGPT.

VI. Competition

YeetCode competes with incumbent coding education platforms, including Codecademy, LeetCode, and Codeforces. However, YeetCode offers a number of features designed to address

market white spaces with regard to our target market of high school students, especially those in traditionally underserved areas.

Codecademy offers free coding classes in 12 different programming languages, including Python, Java, and C++, LeetCode enables people to practice solving coding problems to prepare for technical interviews, and Codeforces hosts competitive programming contests online. While these websites have sizable user bases, we believe they do not adequately address the needs of the younger population of high school students who are beginning to program as platforms like these with a focus on rigorous competition are intimidating.

We have highlighted the key differences between YeetCode and its competitors in the following table:

	YeetCode	LeetCode	Codeforces	Codecademy
Autograder	Submissions are auto-graded	Submissions are auto-graded	Submissions are auto-graded	Submissions are auto-graded
Programming problems	Users can select from easy, medium, and hard programming problems based on their skill level	Users can select from easy, medium, and hard programming problems based on their skill level	Users solve advanced programming problems	Users cannot select programming problems; courses are focused on languages rather than problem-solving
Competitions	Users can create rooms to compete with friends whenever; users are of similar skill level	Weekly contests with participants of varying skill levels; beginners are unlikely to place	Weekly contests with participants of varying skill levels; beginners are unlikely to place	Does not support competitions
Ranking	Users are ranked against those in their room; users	Users are ranked against all other users on the	Users are ranked against all other users on the	No leaderboard

	are of similar skill level	platform	platform	
--	----------------------------	----------	----------	--

Codecademy, while beginner-friendly, is not designed for users looking to practice their programming skills. It does not have a library of programming problems and does not support competitions. LeetCode and Codeforces are designed for more advanced programmers, with LeetCode targeting young professionals preparing for technical interviews and Codeforces targeting competitive programmers who are looking to compete with advanced programmers around the world. These platforms can discourage beginners, and their competitions are not suitable for high school students, given their size and target audience.

YeetCode is a tool designed to introduce high school students who have historically been underrepresented in the competitive programming community to the space. The platform aims to give these students the skills and confidence to apply for internships and jobs in tech, given that tech companies assess candidates using technical interviews consisting of similar programming problems.

VII. Cost Structure and Revenue Model

By employing a tiered subscription model, YeetCode will be able to generate stable recurring revenues to fund future product development and continue our mission of increasing programming literacy. Note that we will adopt a B2B business model given our customer base of coding education programs.

As a SaaS business, we will be able to quickly scale given our relatively fixed costs. Our major cost buckets are associated with website hosting, personnel, and marketing. We plan to host our platform using AWS. In addition, we will employ a team of 2-3 full-time coders to

maintain the website and develop new functionality. Finally, we will hire 2 people to lead B2B sales and customer support to help us quickly grow and build partnerships with key clients.

We expect to incur higher development costs while building our initial product and investing in sales and scaling. After establishing key partnerships in our first year, we believe that we can scale our proven product with larger organizations, such as major school districts. While we will continue to conduct research into pricing for these clients, we expect to achieve a gross margin of 70-80% by year two. We will charge based on the number of user accounts from their organization registered on the platform and develop three distinct pricing tiers to accommodate partners of different sizes, with the option of accessing premium features such as adding custom problem sets and additional evaluation and grading tools for educators.