

shareholder letter Q3 2022

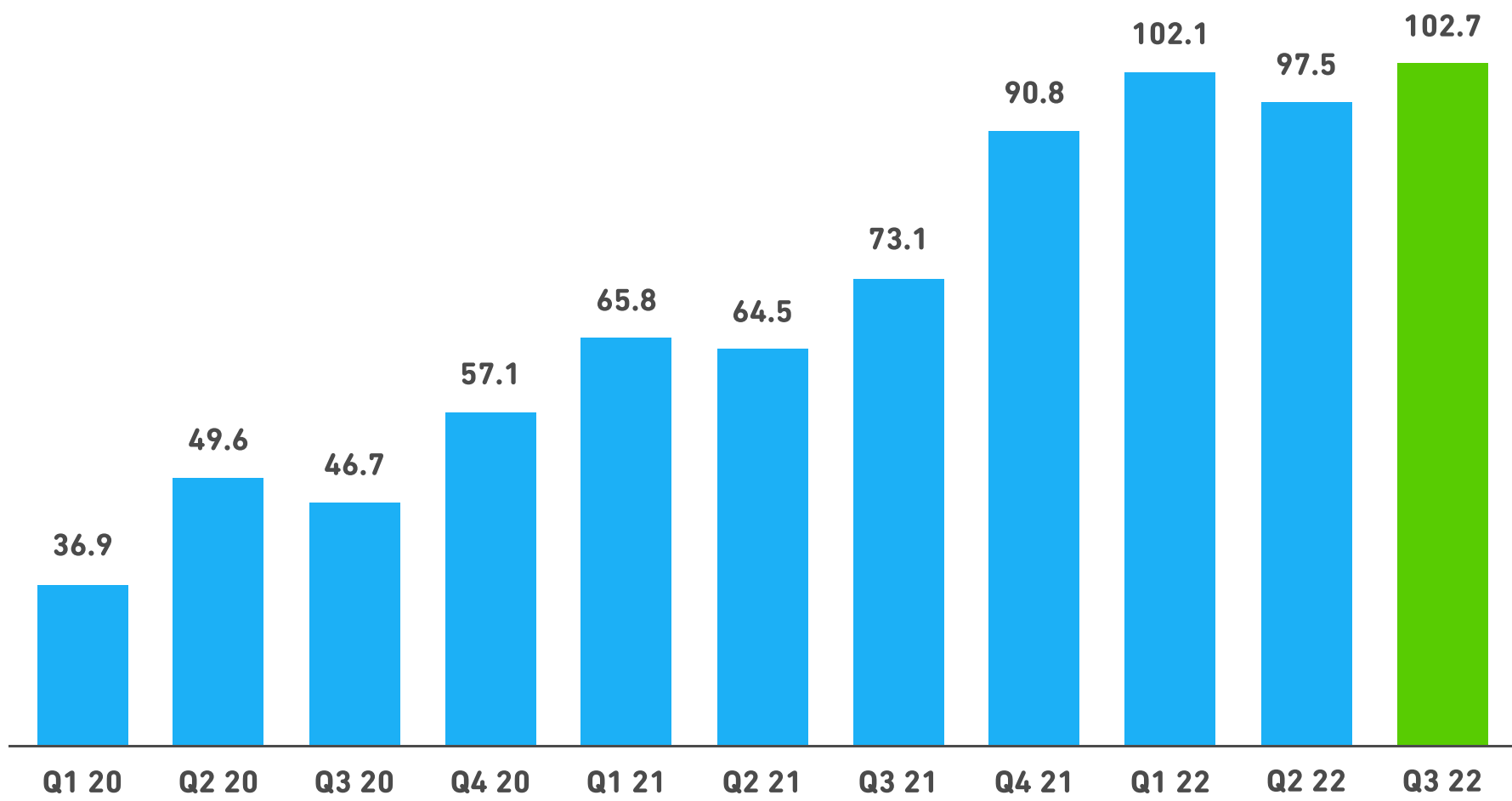
our mission is
to develop the
best education
in the world
and make it
universally
available.



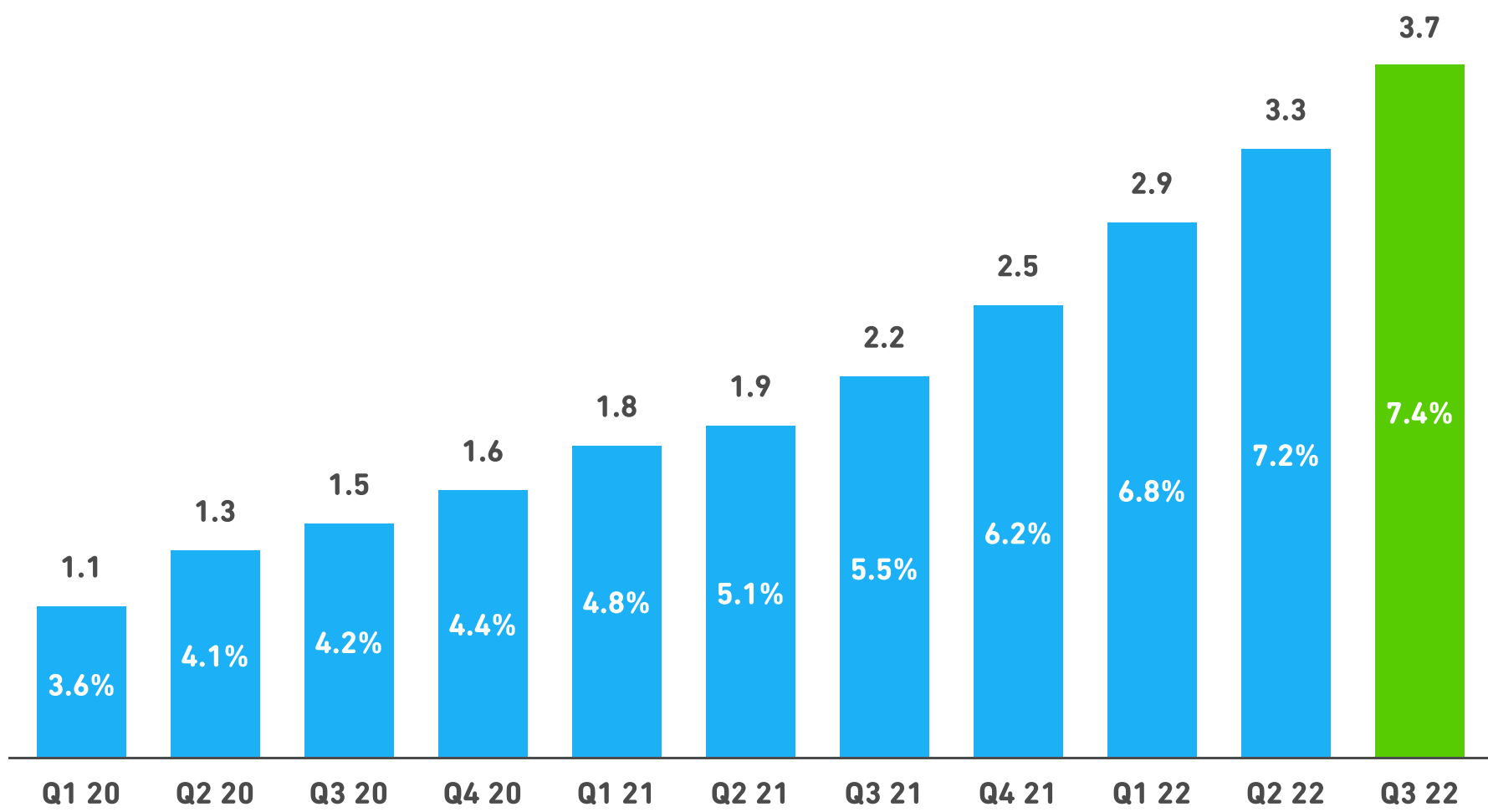
Q3 highlights

	Q3 2021	Q3 2022
Daily Active Users	9.8M	14.9M +51% YoY
Monthly Active Users	41.7M	56.5M +35% YoY
Paid Subscribers at period end	2.2M	3.7M +68% YoY
Revenue	\$63.6M	\$96.1M +51% YoY
Total Bookings	\$73.1M	\$102.7M +41% YoY
Net Loss	\$(29.0)M	\$(18.4)M
Adjusted EBITDA	\$(6.0)M	\$2.1M

Total Bookings (\$M)



Paid Subscribers (M) and Subscriber Penetration as % of MAU*



*LTM MAU

Dear shareholders,

In the third quarter we delivered strong learner, subscriber, and bookings growth, while also being Adjusted EBITDA positive. Based on this outperformance, we are raising our guidance for full year 2022.

- For the fifth quarter in a row, we saw accelerating user growth on Duolingo: DAUs increased 51% to 14.9 million and MAUs increased 35% to 56.5 million, compared to the prior year quarter;
- Paid Super Duolingo subscribers increased 68% to 3.7 million, compared to the prior year quarter;
- Total company bookings grew 41% and revenue grew 51%, compared to the prior year quarter.

I'm particularly proud that we continue to improve Duolingo's engagement metrics, as we know that daily usage leads to better learning outcomes. For example, our DAU to MAU ratio is now 26%, up from 24% a year ago. Features like our streak mechanic, which rewards consecutive days of activity, are a big reason why learners continue to stay engaged day after day. Today, 2.3 million of our DAUs have a streak longer than 365 days, and 10 million have a streak longer than 7 days.

Our mission to develop the best education in the world and make it universally available drives everything we do, including the core elements of our strategy: grow users, teach better, grow subscribers, become the proficiency standard, and expand beyond language learning. In this letter, I will update you on how we are executing against each of these elements.

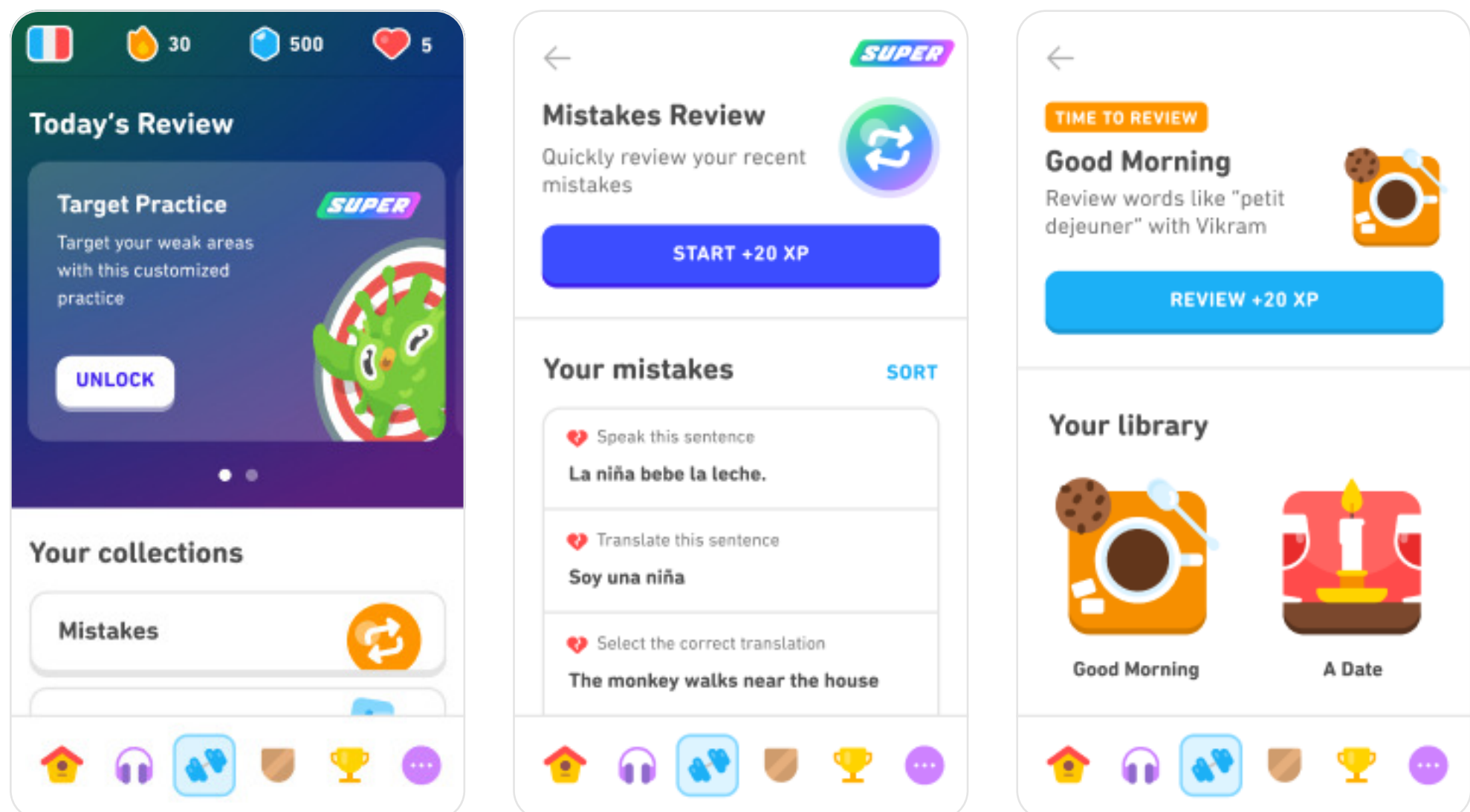
Product Improvements Drive Monetization

Super Duolingo subscriptions accounted for 75% of our revenue in Q3. As I've mentioned in the past, we're still in the early days of monetization and our main strategy element to increase it is to **Grow Subscribers**. There are three main ways you can expect us to grow subscribers over the next few years:

1. Increase our number of active users, as they create a bigger pool of potential paid subscribers;
2. Increase conversion from free to paid users by making Super Duolingo more valuable through premium features and better in-app merchandising like purchase page optimization, packaging and pricing, and Super Duolingo advertisements in the app;
3. Increase retention of paid users through product improvements and a shift to higher retaining plans such as the family plan.

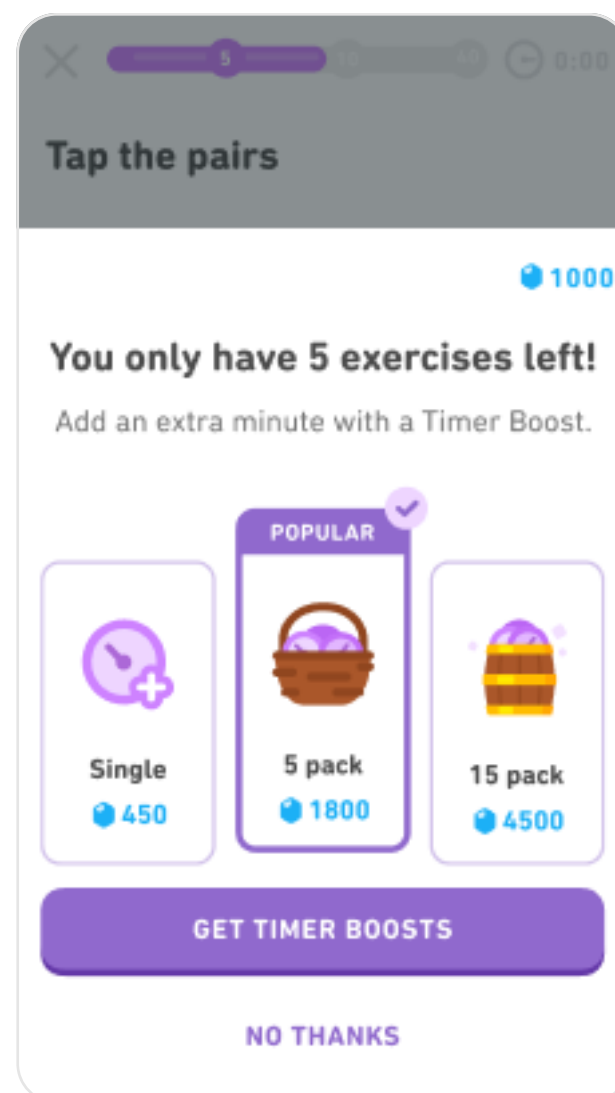
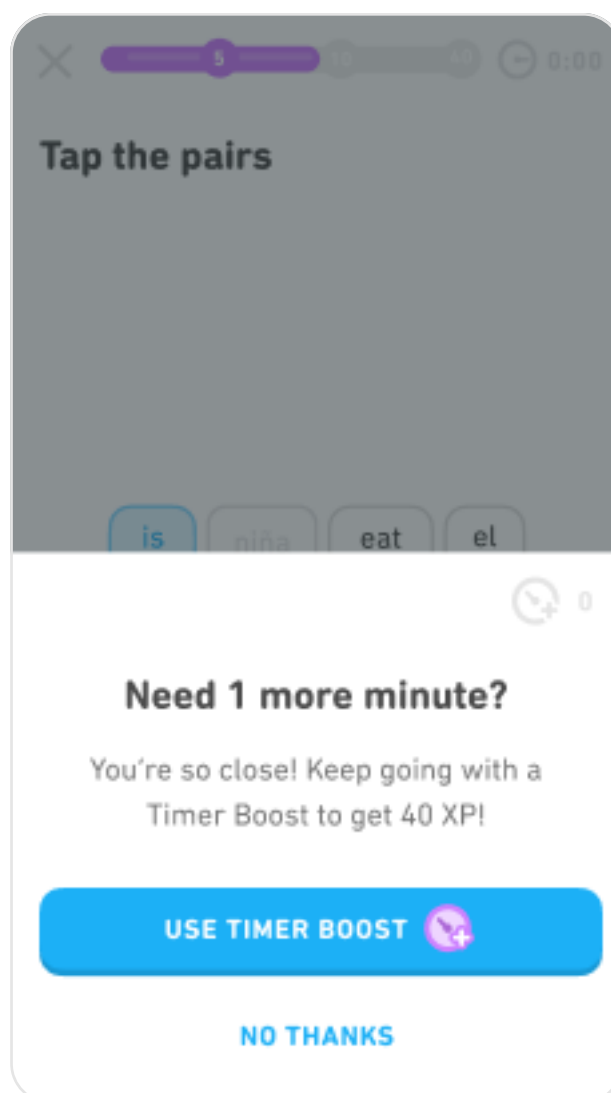
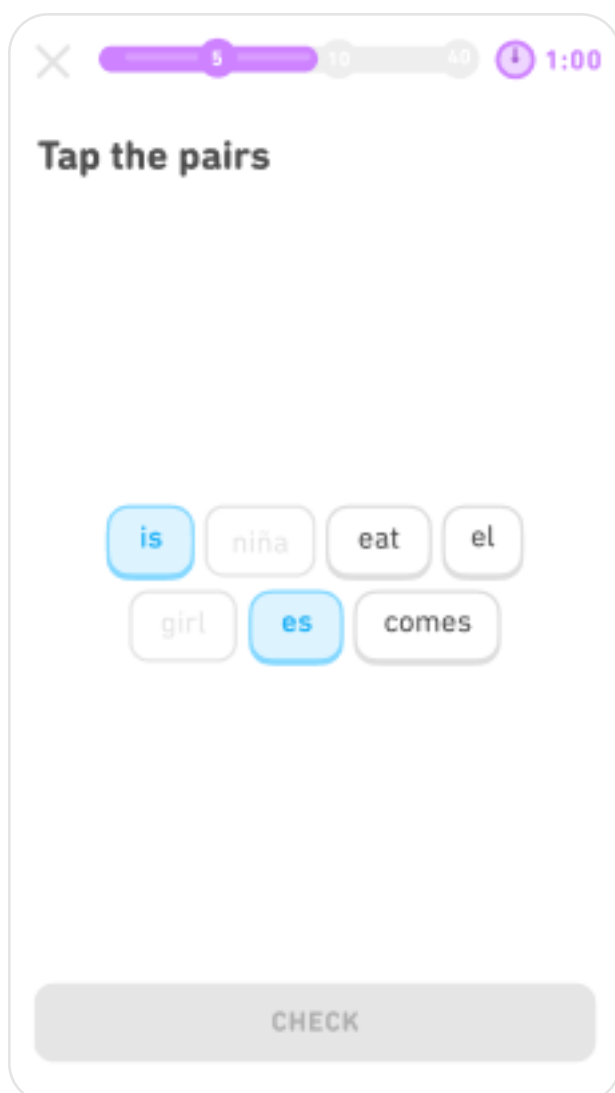
Practice Makes Perfect

Practice Hub is an example of a premium feature that makes Super Duolingo more valuable to subscribers. This quarter, [we've redesigned this feature](#) to serve as the home for all modes of personalized review, where learners can easily practice recent mistakes and work on areas of development. Additionally, the new Practice Hub introduces two daily drills that review past Units and give more practice with speaking and listening, the two most requested skills.

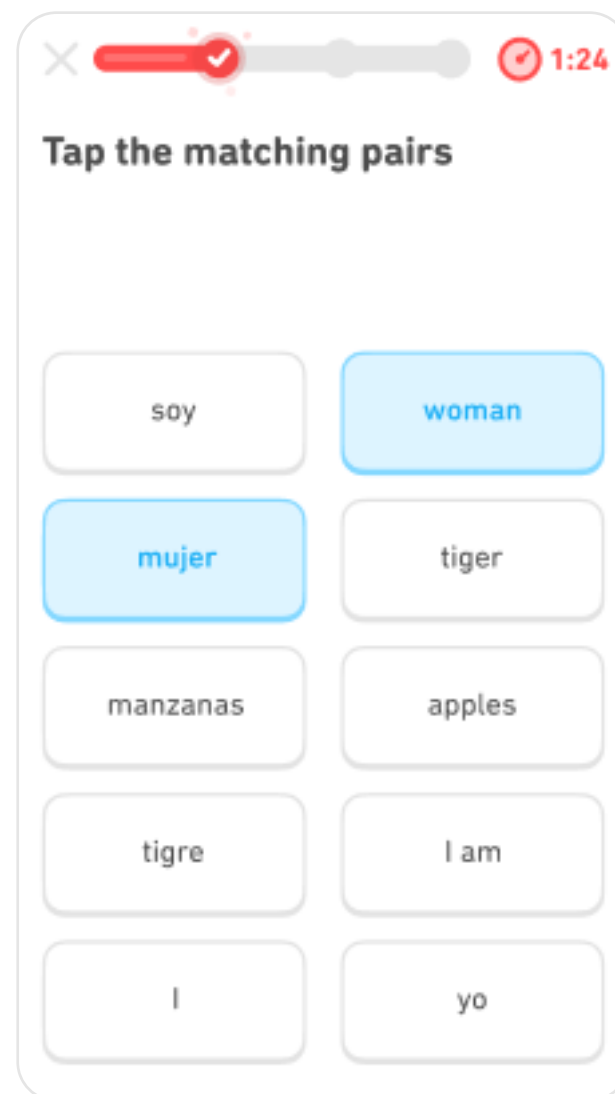
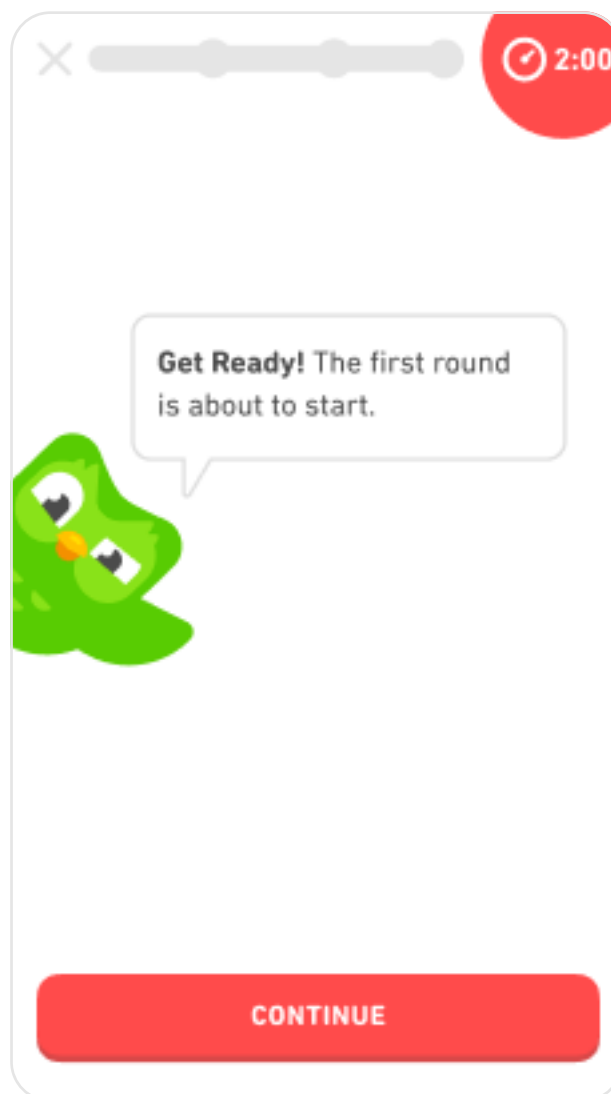
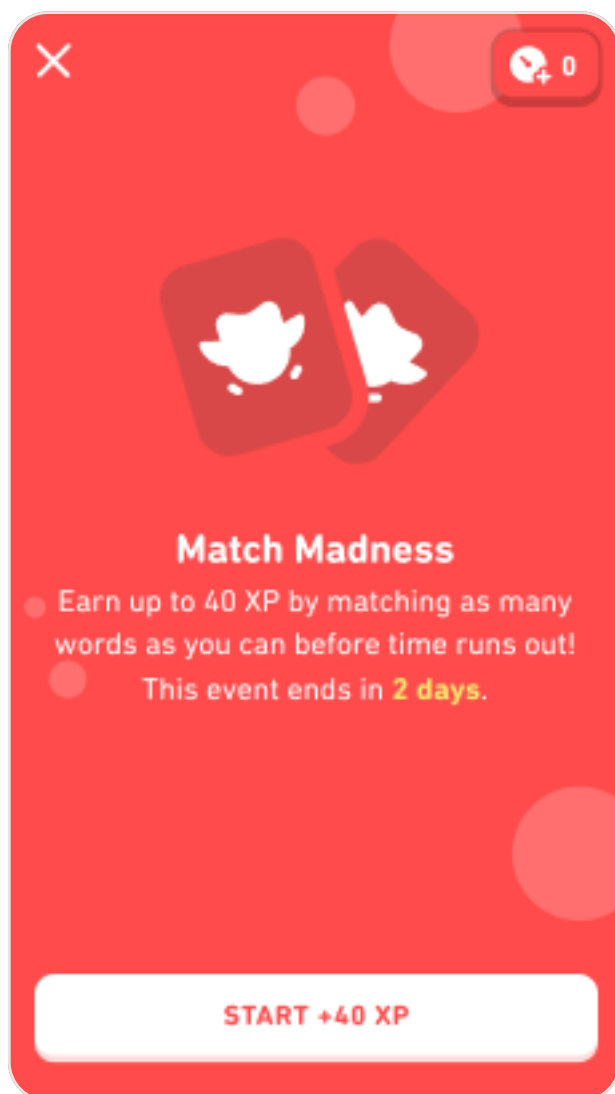


Timed Challenges Call for More Gems!

Beyond Super Duolingo, we also monetize our free and paying learners through in-app purchases (IAPs). In the past, our monetization team's focus was mainly the subscription product, but we have recently started devoting more energy to boosting IAPs, which now make up 5% of our bookings (up from about 3% a year ago). The main source of IAPs is learners buying "gems," a virtual currency that can also be earned as a reward for doing well in lessons. Gems can be used to get power-ups and access gamified learning experiences.



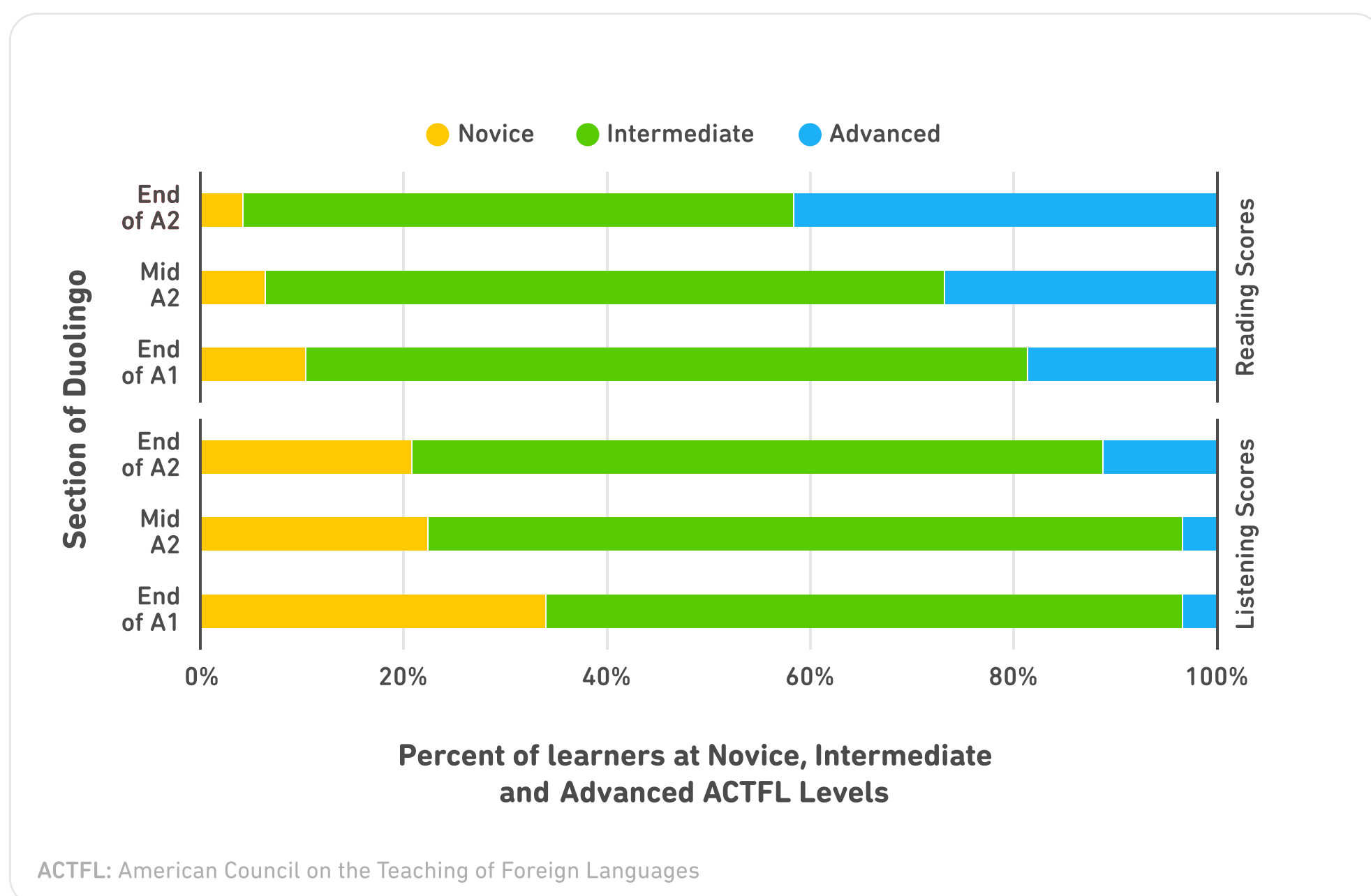
An exciting new gem feature that we recently launched is Match Madness, a flashcard-inspired challenge where learners match as many words to their translations as possible before the timer runs out. Learners can use gems to purchase timer boosts and climb to higher levels, earning progressively more XP, or experience points, along the way. We've been optimizing this challenge through A/B testing, and it's become a popular feature that's increasing in-app purchases.



Measuring Efficacy

Another key part of our strategy is to **Teach Better**. Our goal is to get learners to **B2 on the CEFR scale**, which is generally the minimum proficiency level required to get a knowledge job using that language. About half of our learners are learning English, so I'm proud to highlight our [latest research study](#) that shows strong learning outcomes in English. In particular, the results showed that learners reached high-intermediate levels for reading, and mid-intermediate levels for listening.

We've achieved these efficacy results by investing heavily in course improvements over the last few years. For example, we've redesigned many of our existing English courses, adding more advanced content and new exercise types that more effectively immerse learners in the language so that they shift from "translating in their heads" to "thinking in English." Coupled with high engagement, these course improvements are helping learners reach their language goals.



As we continue to teach better, add more advanced content, and get our learners to higher levels of proficiency, we are making meaningful progress towards our goal of **Becoming the Proficiency Standard**, which I'll discuss later in this letter.

Building an Iconic Brand with Efficient Marketing

Marketing campaigns that center around cultural trends have proven to be a cost effective way to **Grow Users**. This is why we partnered with HBO to promote learning High Valyrian on Duolingo ahead of the launch of *House of the Dragon*, one of the biggest TV shows of 2022. This partnership has been our most successful PR campaign to date, generating hundreds of press mentions, and millions of social media video views and impressions. We attracted hundreds of thousands of new users to the High Valyrian course, and based on what we've seen in the past, nearly half of these learners will stick around to learn another language with Duolingo. In total, we spent less than \$150 thousand on this entire campaign.



Expanding Adoption of the Duolingo English Test

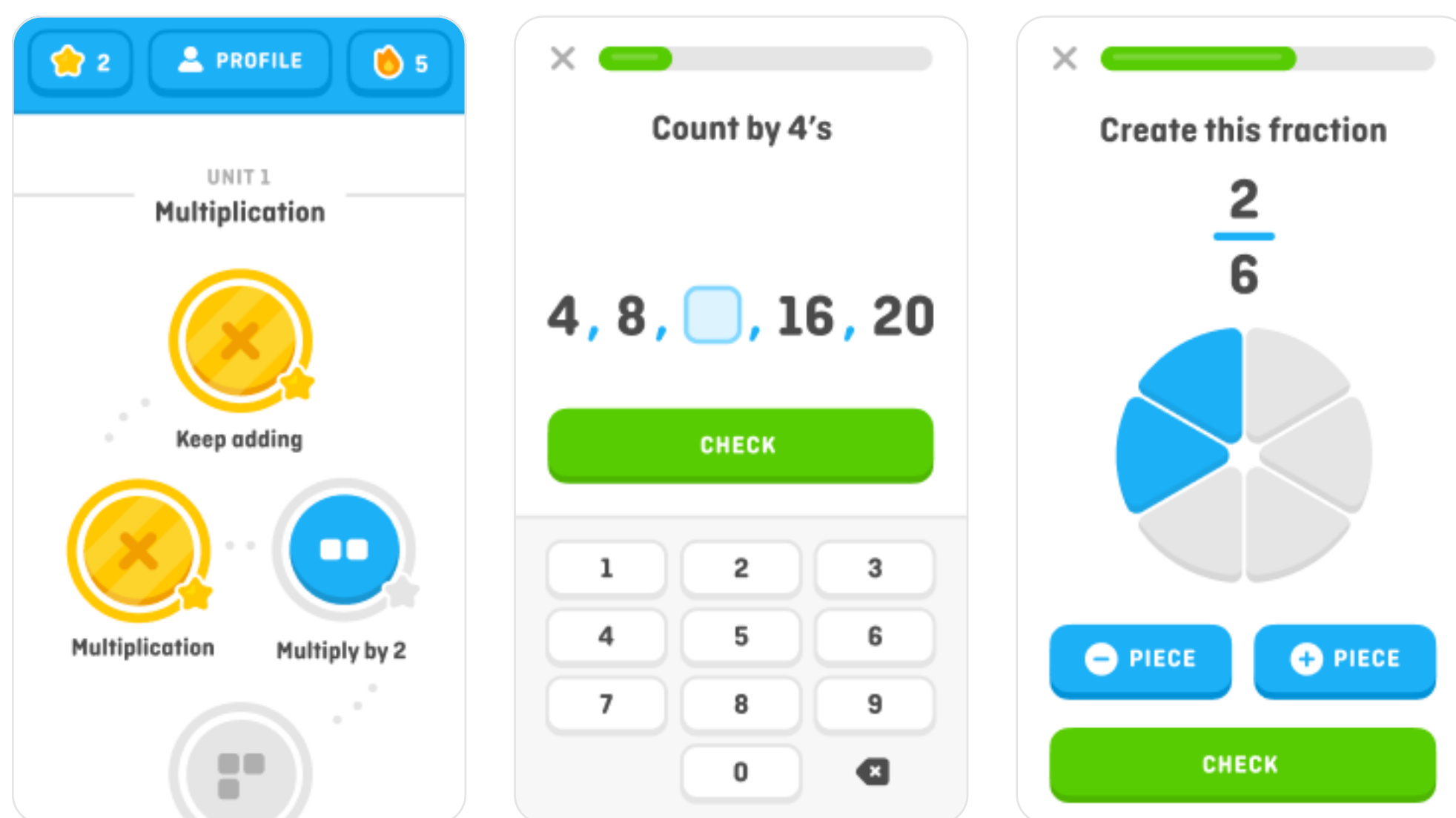
We continue making progress towards **Becoming the Proficiency Standard** in English testing with the Duolingo English Test (DET). Our goal is to lower the barriers to education by providing a more accessible option for students around the world to demonstrate their English skills. The Duolingo English Test is delivered online, without a testing center, and is available on demand, 24 hours a day, for only USD\$49. Today the Duolingo English Test is accepted by over 3,800 higher education programs.

This quarter, we added a major innovation to the test by expanding our pool of questions using human-in-the-loop artificial intelligence to create and launch over 1,200 new test questions. Having a larger pool of questions increases test security by reducing the rate at which questions are exposed, thus lowering the likelihood of cheating.

Duolingo English Test revenue growth was 22% in Q3 2022, down from 66% in the prior quarter. Our year over year growth decelerated, but as we have said before, the DET operates in a complex ecosystem, so it will have less linear or predictable growth in any given quarter than the Duolingo language learning app. Over the long term, we believe that the future of standardized assessment is online, and there is enormous potential for growth in this market.

Duolingo Math... Out Now!

One of our strategy elements is to **Expand Beyond Language Learning**, and I'm proud to share that our newest app, Duolingo Math, is now on the Apple App Store. The math app joins Duolingo ABC, our early childhood literacy app, as one of our products teaching new subjects. While it's too soon to report on the performance of the Math app, you can read more about it in our [latest blog post](#). Better yet, [download it now](#) and try it for yourself!



The Gunner Acquisition

In October we announced the acquisition of Gunner Made LLC, a Detroit-based design and animation studio. Gunner has been our partner since 2020, animating and bringing life to our products and our brand marketing campaigns. Art and animation are foundational to our brand and help make Duolingo a beloved daily habit for millions of learners, so we're excited to level-up our art and animation teams with Gunner. Here is a recent example of their work promoting Duocon 2022:



In terms of our capital strategy, our first priority will remain reinvesting in our business in order to continue driving organic growth. After that, we will selectively deploy capital against strategic M&A, and Gunner is a great example of this.

New Year's is Just Around the Corner

There is a lot to look forward to as we approach the end of the year. We're excited about our year-end marketing campaigns and our New Year's promotion, since we expect that they will drive significant subscriber growth.

In closing, I'd like to thank the entire Duolingo team for shipping great work this quarter, from the Product, Design, and Engineering Teams' launches, to the Marketing Team's creative campaigns, to the People Team's successful integration of our first acquisition.

Until next time, don't forget to do your daily lessons!



Luis von Ahn
CEO and Co-Founder

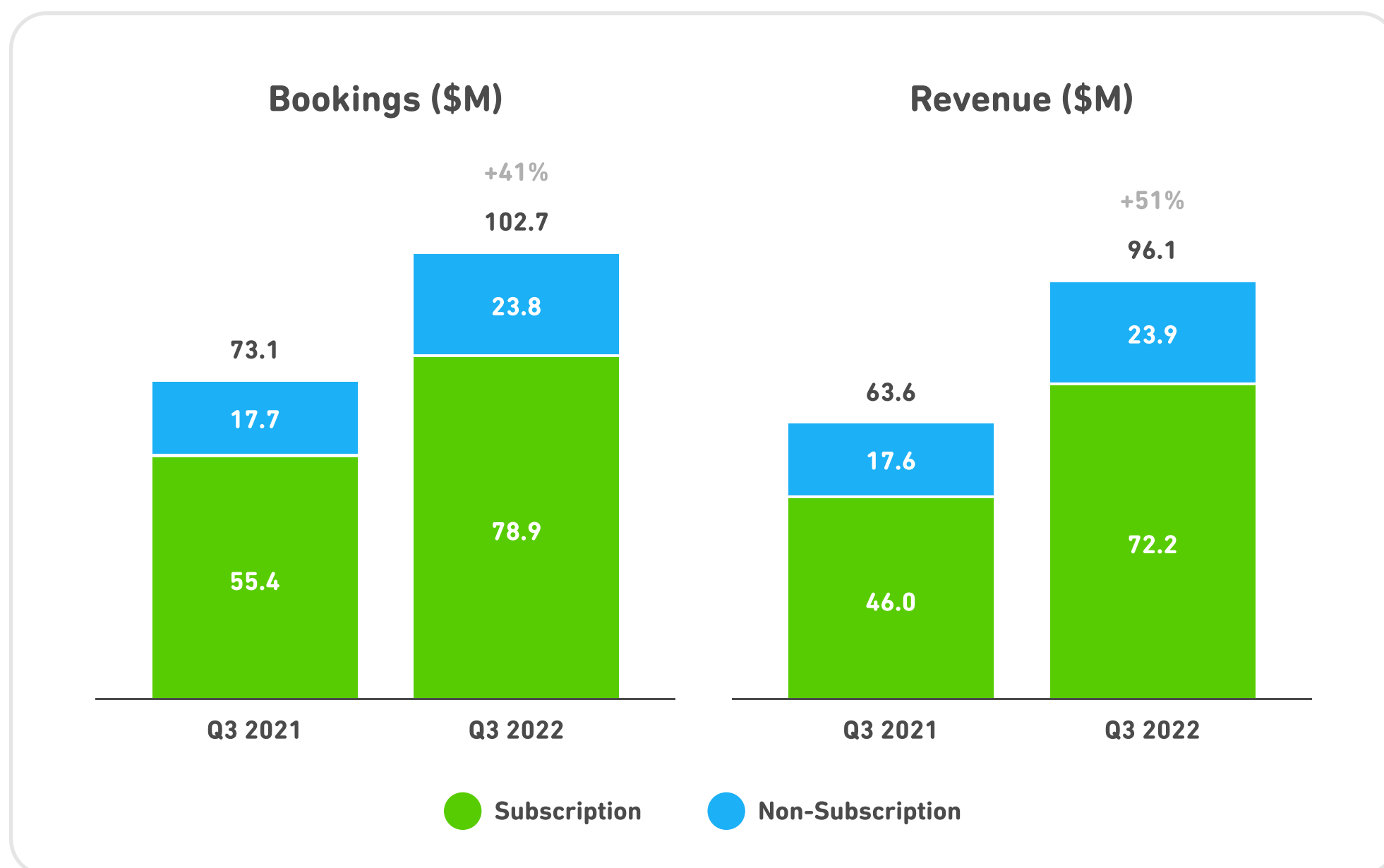
financial performance and outlook

Summary of financial and operating metrics

(in millions)	Q3 2021	Q3 2022	YoY
Operating Metrics			
Monthly active users (MAUs)	41.7	56.5	35%
Daily active users (DAUs)	9.8	14.9	51%
Paid subscribers (period end)	2.2	3.7	68%
Total bookings	\$73.1	\$102.7	41%
Subscription bookings	\$55.4	\$78.9	42%
GAAP Financial Metrics			
Revenues	\$63.6	\$96.1	51%
Gross profit	\$45.5	\$69.8	53%
Gross margin (%)	71.6%	72.6%	100 bps
Net loss	(\$29.0)	(\$18.4)	nm
Net cash from operating activities	\$4.5	\$8.8	94%
Non-GAAP Financial Metrics (1)			
Adjusted EBITDA	(\$6.0)	\$2.1	nm
Free cash flow	\$5.2	\$6.1	17%

(1) Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.

Amounts reported in millions are computed based on the amounts in thousands. As a result, the sum of the components reported in millions may not equal the total amount reported in millions due to rounding. In addition, percentages presented are calculated from the underlying numbers in thousands and may not add to their respective totals due to rounding.



In the third quarter, total bookings grew 41% year over year (about 48% on a constant currency basis) to \$102.7 million. Subscription bookings grew 42% year over year to \$78.9 million, driven by the growth in first-time and renewal subscriptions, and the continued shift to annual and family plan subscriptions, which together comprise 90% of total subscribers versus 82% in the prior year quarter.

In the third quarter, revenues grew 51% year over year to \$96.1 million, driven primarily by growth in subscription revenue, which comprised 75% of total revenue in Q3 and grew 57% year over year. The increase in subscription revenue was primarily driven by the increase in the average number of paid subscribers during the period. The table below provides revenues by product type:

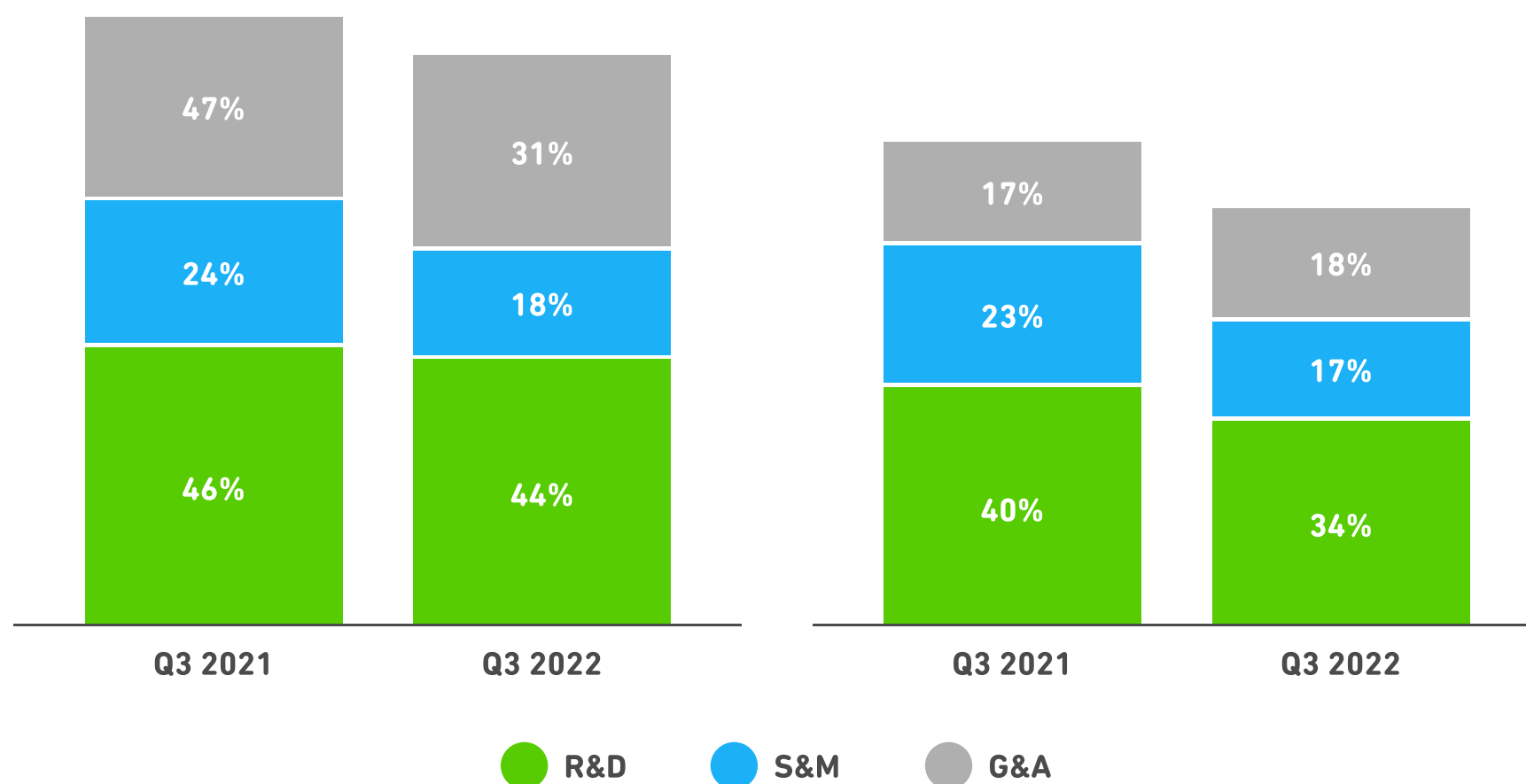
(in millions)	Q3 2021	Q3 2022	Change	% Change
Subscription	\$46.0	\$72.2	\$26.1	57%
Advertising	9.0	10.6	1.6	18%
Duolingo English Test	6.7	8.2	1.5	22%
Other *	1.8	5.1	3.2	176%
Total revenues	\$63.6	\$96.1	\$32.5	51%

Gross margin increased by 100 basis points year over year to 72.6%, primarily driven by higher subscription margins, which were offset by lower margins in advertising.

*Other primarily includes in-app sales of virtual goods.

GAAP Operating Expenses (% of Revenue)

Non-GAAP Operating Expenses (% of Revenue)



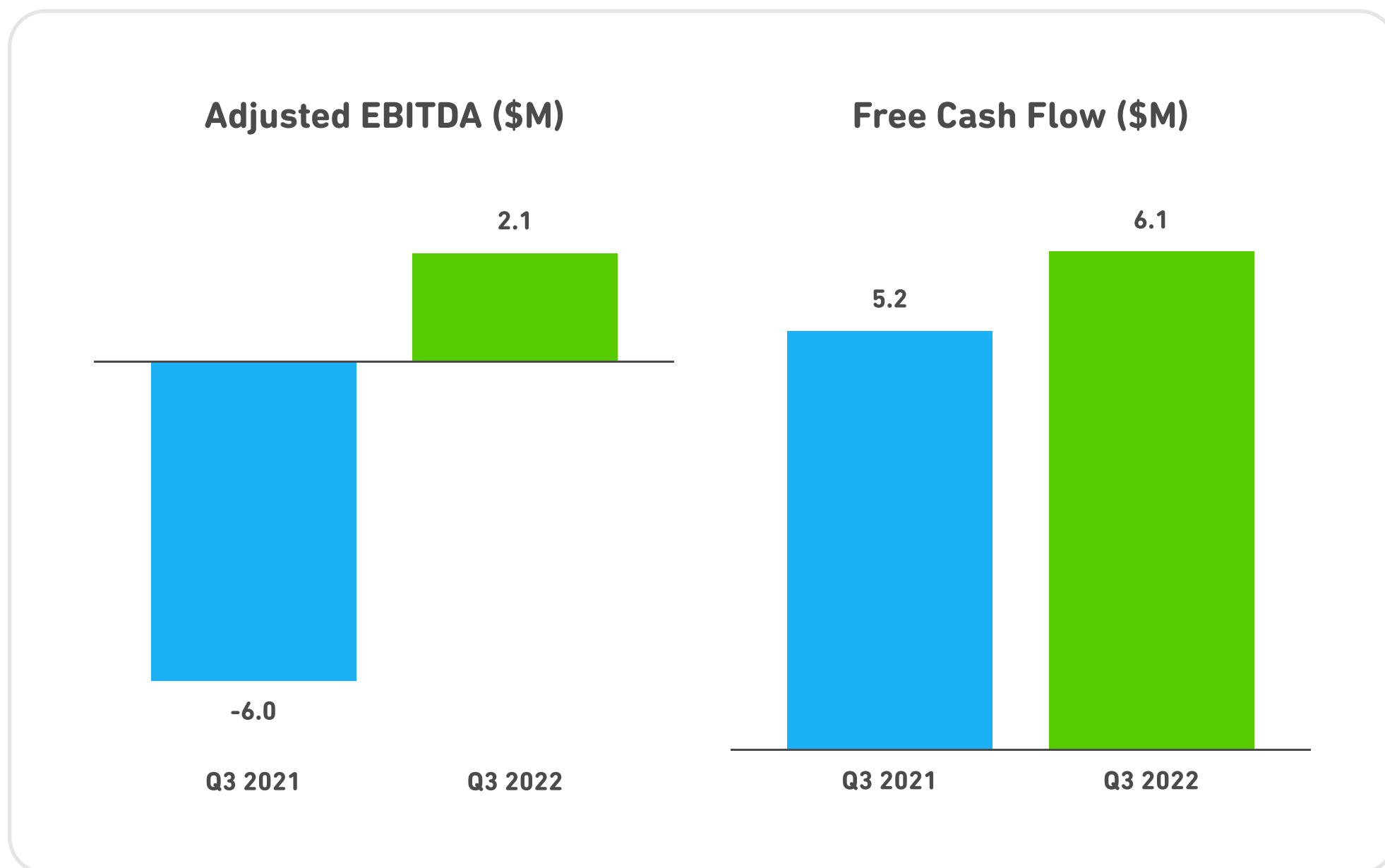
We report three categories of operating expenses: Research and development (R&D), Sales and marketing (S&M), and General and administrative (G&A). Non-GAAP operating expenses† represent GAAP expenses adjusted for depreciation, amortization, stock-based compensation, and IPO and public company costs, as well as other expenses. In Q3 2022, we recognized \$20.5 million in stock-based compensation, roughly a third of which was related to founder equity awards.

GAAP R&D expense decreased from 46% to 44% of revenue year over year. In absolute dollar terms, GAAP R&D increased by \$12.6 million or 43% year over year, to \$42.0 million, primarily due to our growth in headcount. On a non-GAAP basis, R&D expenses decreased from 40% to 34% of revenue year over year. The absolute dollar increase in non-GAAP R&D expense was \$7.4 million, or 29% growth. We continue to prioritize investments in engineering and product talent. This is what drives our product improvements, which we believe in turn drive organic user growth and engagement, higher free to paid conversion, and stronger retention of our subscribers.

GAAP S&M expense decreased from 24% to 18% of revenue year over year. In absolute dollar terms, GAAP S&M expense increased by \$2.5 million, or 16% over the prior year quarter, to \$17.7 million, driven by higher marketing headcount and slightly higher external marketing spend. On a non-GAAP basis, S&M expenses declined from 23% to 17% of revenue year over year. In absolute dollar terms, non-GAAP S&M expense increased \$2.1 million, or 15%, over the prior year quarter.

GAAP G&A expense decreased from 47% to 31% of revenue year over year. In absolute dollar terms, GAAP G&A expense increased \$0.6 million, or 2% to \$30.2 million. Increases in travel and meals, facilities costs, headcount expenses, professional fees, transactions costs, and sales and VAT taxes were offset primarily by a decrease in stock based compensation, which was higher last year due to an acceleration of founder stock options upon the IPO and RSU expense. On a non-GAAP basis, G&A expenses increased from 17% to 18% of revenue year over year. In absolute dollar terms, non-GAAP G&A expense increased \$6.6 million or 59% to \$17.7, due primarily to higher headcount, professional fees, rent, web services, and travel and meals expenses.

†Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.



Adjusted EBITDA† increased by \$8.1 million to \$2.1 million in the third quarter compared to the prior year quarter. The increase was primarily driven by growth in revenue and gross margin.

During the third quarter, we generated \$6.1 million in free cash flow†, an increase of \$0.9 million over the prior year quarter, driven by an increase in cash from operations. As a reminder, we define free cash flow as net cash provided by operating activities, reduced by capitalized software development costs and purchases of property and equipment, and increased by IPO and public company costs, taxes paid related to stock-based compensation equity awards and other costs, as we believe they are not indicative of future liquidity.

†Please refer to the Appendix at the end of this letter for a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measure.

Q4 and FY 2022 guidance

Duolingo is providing the following guidance for the fourth quarter and the full year ending December 31, 2022.

(in millions)	Q4 2022	FY 2022
Bookings	\$112 - 115	\$414 - 417
YoY Bookings Growth	23% - 27%	41% - 42%
Revenues	\$98 - 101	\$364 - 367
YoY Revenue Growth	34% - 38%	45% - 46%
Adjusted EBITDA	\$(3) - 0	\$7 - 10

With regards to the Non-GAAP Adjusted EBITDA outlook provided above, a reconciliation to GAAP net loss, the most directly comparable financial measure presented in accordance with GAAP, has not been provided as the quantification of certain items included in the calculation of GAAP net loss cannot be calculated or predicted at this time without unreasonable efforts. For example, the non-GAAP adjustment for stock-based compensation expenses related to equity awards requires additional inputs such as number of shares granted and market price that are not currently ascertainable, and the non-GAAP adjustment for certain legal, tax and regulatory reserves and expenses depends on the timing and magnitude of these expenses and cannot be accurately forecasted. For the same reasons, we are unable to address the probable significance of the unavailable information, which could have a potentially unpredictable, and potentially significant, impact on our future GAAP financial results.

Video Webcast

Duolingo will host a video webcast to discuss its quarterly results today, November 10, 2022, at 5:30 p.m. ET. This live webcast and related materials will be publicly available and can be accessed at investors.duolingo.com. A replay will be available on the Investor Relations website two hours following completion of the webcast and will remain available for a period of one year.

About Duolingo

Duolingo is the leading mobile learning platform globally. Its flagship app has organically become the world's most popular way to learn languages and the top-grossing app in the Education category on both Google Play and the Apple App Store. With technology at the core of everything it does, Duolingo has consistently invested to provide learners a fun, engaging, and effective learning experience while remaining committed to its mission to develop the best education in the world and make it universally available.

Definitions

Subscription Bookings and Total Bookings. Subscription bookings represent the amounts we receive from a purchase of a subscription to Super Duolingo (formerly called Duolingo Plus). Total bookings represent the amounts we receive from a purchase of a subscription to Super Duolingo, a purchase of a Duolingo English Test, an in-app purchase for a virtual good, and from advertising networks for advertisements served to our users. We believe bookings provide an indication of trends in our operating results, including cash flows, that are not necessarily reflected in our revenues because we recognize subscription revenues ratably over the lifetime of a subscription, which is generally from one to twelve months.

Monthly Active Users (MAUs). MAUs are defined as unique Duolingo users who engage with our mobile language learning application or the language learning section of our website each month. MAUs are reported for a measurement period by taking the average of the MAUs for each calendar month in that measurement period. MAUs are a measure of the size of our global active user community on Duolingo.

Daily Active Users (DAUs). DAUs are defined as unique Duolingo users who engage with our mobile language learning application or the language learning section of our website each calendar day. DAUs are reported for a measurement period by taking the average of the DAUs for each day in that measurement period. DAUs are a measure of the consistent engagement of our global user community on Duolingo.

Throughout this document, the measurement period for MAUs and DAUs is the three months ended September 30, 2022 and the same period in the prior year where applicable, and the analysis of results is based on those periods.

Paid Subscribers. Paid subscribers are defined as users who pay for access to Super Duolingo, including subscribers who pay for a family plan, and had an active subscription as of the end of the measurement period. Each unique user account is treated as a single paid subscriber regardless of whether such user purchases multiple subscriptions, and the count of paid subscribers does not include users who are currently on a free trial, or who are non-paying members of a family plan.

Non-GAAP Financial Measures

We use certain non-GAAP financial measures to supplement our consolidated financial statements, which are presented in accordance with GAAP. These non-GAAP financial measures include Adjusted EBITDA. Please refer to the definitions and reconciliation at the end of this letter. We use these non-GAAP financial measures for financial and operational decision-making and as a means to evaluate period-to-period comparisons. By excluding certain items that may not be indicative of our recurring core operating results, we believe that Adjusted EBITDA provides meaningful supplemental information regarding our performance. Accordingly, we believe these non-GAAP financial measures are useful to investors and others because they allow for additional information with respect to financial measures used by management in its financial and operational decision-making and they may be used by our institutional investors and the analyst community to help them analyze the health of our business. However, there are a number of limitations related to the use of non-GAAP financial measures, and these non-GAAP measures should be considered in addition to, not as a substitute for or in isolation from, our financial results prepared in accordance with GAAP. Other companies, including companies in our industry, may calculate these non-GAAP financial measures differently or not at all, which reduces their usefulness as comparative measures.

Forward-Looking Statements

This Shareholder Letter contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements other than statements of historical facts contained in this letter, including without limitation, statements regarding our business model and strategic plans and our financial outlook for the fourth quarter and fiscal year 2022 are forward-looking statements. Without limiting the generality of the foregoing, you can identify forward-looking statements because they contain words such as "may," "will," "shall," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential," "goal," "objective," "seeks," or "continue" or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans, or intentions. Such forward-looking statements are neither promises nor guarantees, but involve a number of known and unknown risks, uncertainties and assumptions, and actual results, performance or achievements may differ materially from those expressed or implied in the forward-looking statements due to various factors, including, but not limited to: our ability to retain and grow our users and sustain their engagement with our products; competition in the online language learning industry; our limited operating history; our ability to achieve profitability; our ability to manage our growth and operate at such scale; the success of our investments; our reliance on third-party platforms to store and distribute our products and collect revenue; our reliance on third-party hosting and cloud computing providers; our ability to compete for advertisements; acceptance by educational organizations of technology-based education; our ability to access, collect, and use personal data about our users and payers, and to comply with applicable data privacy laws; potential intellectual property-related litigation and proceedings; our ability adequately obtain, protect and maintain our intellectual property rights; and the other important factors more fully detailed under the caption "Risk Factors" in our Quarterly report on Form 10-Q for the quarterly period ended June 30, 2022, as any such factors may be updated from time to time, including, without limitation, in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2022 and in our other filings with the SEC, accessible on the SEC's website at www.sec.gov and the Investor Relations section of the Company's website at investors.duolingo.com. All forward-looking statements speak only as of the date of this letter. While we may elect to update such forward-looking statements at some point in the future, we disclaim any obligation to do so, even if subsequent events cause our views to change.

Website Information

We routinely post important information for investors on the Investor Relations section of our website, investors.duolingo.com, and also from time to time may use social media channels, including our Twitter account twitter.com/duolingo and our LinkedIn account linkedin.com/company/duolingo, as an additional means of disclosing public information to investors, the media, and others interested in us. It is possible that certain information we post on our website and on social media could be deemed to be material information, and we encourage investors, the media, and others interested in us to review the business and financial information we post on our website and on the social media channels identified above, in addition to following our press releases, SEC filings, public conference calls, presentations, and webcasts. The information contained on, or that may be accessed through, our website and our social media channels is not incorporated by reference into, and is not a part of, this document.

DUOLINGO INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands)	December 31, 2021	September 30, 2022
Cash and cash equivalents	\$553,922	\$599,967
Accounts receivable	33,163	30,197
Deferred cost of revenues	24,219	30,258
Prepaid expenses and other current assets	7,967	7,909
Non-current assets	42,040	45,368
Total Assets	\$661,311	\$713,699
Accounts payable	\$7,818	\$3,363
Deferred revenues	98,267	134,944
Other current liabilities	13,046	17,323
Long-term liabilities	29,124	24,243
Total liabilities	148,255	179,873
Total stockholders' equity	513,056	533,826
Total liabilities, convertible preferred stock and stockholders' equity	\$661,311	\$713,699

DUOLINGO INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

(in thousands)	Three Months Ended September 30,	
	2021	2022
Revenues	\$63,595	\$96,065
Cost of revenues	18,078	26,302
Gross profit	45,517	69,763
Operating expenses:		
Research and development	29,345	41,976
Sales and marketing	15,267	17,721
General and administrative	29,605	30,228
Total operating expenses	74,217	89,925
Loss from operations	(28,700)	(20,162)
Other income (expense), net	(219)	1,770
Loss before provision for income taxes	(28,919)	(18,392)
Provision for income taxes	51	53
Net loss and comprehensive loss	\$(28,970)	\$(18,445)

DUOLINGO INC. AND SUBSIDIARIES
UNAUDITED CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Nine Months Ended	
	September 30,	
	2021	2022
Net loss	\$(42,618)	\$(45,644)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation and amortization	1,969	3,426
Stock-based compensation	26,120	53,188
Changes in assets and liabilities	23,267	31,078
Net cash provided by operating activities	<u>8,738</u>	<u>42,048</u>
Net cash used for investing activities	<u>(5,098)</u>	<u>(9,229)</u>
Net cash provided by financing activities	<u>425,310</u>	<u>13,226</u>
Net increase in cash and cash equivalents	428,950	46,045
Cash and cash equivalents - Beginning of period	120,490	553,922
Cash and cash equivalents - End of period	<u>\$549,440</u>	<u>\$599,967</u>

appendix

Reconciliation: Adjusted EBITDA

Adjusted EBITDA is defined as net loss excluding interest (income) expense, net, income tax provision, depreciation and amortization, stock-based compensation expenses related to equity awards, Initial Public Offering ("IPO") and public company costs and transaction costs related to an acquisition. Adjusted EBITDA is used by management to evaluate the financial performance of our business and we present Adjusted EBITDA because we believe that it is helpful in highlighting trends in our operating results and that it is frequently used by analysts, investors and other interested parties to evaluate companies in our industry. The following table presents a reconciliation of our net loss, the most directly comparable financial measure presented in accordance with GAAP, to Adjusted EBITDA.

(in thousands)	Q3 2021	Q3 2022
Net Income (Loss)	\$(28,970)	\$(18,445)
Less: Interest Income	(4)	(2,260)
Plus: Provision for Income Taxes	51	53
Plus: Depreciation & Amortization	733	1,482
Plus: Stock-based compensation expenses related to equity awards (1)	20,662	21,123
Plus: IPO and Public Company Costs (2)	1,560	-
Plus: Transaction costs (3)	-	177
Adjusted EBITDA	\$(5,968)	\$2,130

Reconciliation: Free Cash Flow

Free cash flow represents net cash provided by operating activities, reduced by purchases of property and equipment, capitalized software development costs, and increased by taxes paid related to stock-based compensation equity awards, IPO and public company costs, transaction costs related to an acquisition and other costs, as we believe they are not indicative of future liquidity. We believe that free cash flow is a measure of liquidity that provides useful information to our management, investors and others in understanding and evaluating the strength of our liquidity and future ability to generate cash that can be used for strategic opportunities or investing in our business. The following table presents a reconciliation of net cash provided by operating activities, the most directly comparable financial measure calculated in accordance with GAAP, to free cash flow.

(in thousands)	Q3 2021	Q3 2022
Net cash provided by operating activities	\$4,511	\$8,759
Less: Capitalized Software Development Costs	(379)	(1,437)
Less: Purchases of Property and Equipment	(1,085)	(2,079)
Plus: Taxes Paid Related to Stock-Based Compensation Equity Awards (1)	-	635
Plus: IPO and Public Company Costs (2)	1,560	-
Plus: Transaction Costs (3)	-	177
Plus: Other (4)	577	-
Free Cash Flow	\$5,184	\$6,055

(1) In addition to stock-compensation expense, this includes costs incurred related to taxes paid on equity transactions.

(2) IPO and public company costs include costs associated with IPO readiness incurred in 2021 and costs associated with the establishment of our public company structure and processes, including consultant costs, a one-time fee associated with the set-up of our initial proxy statement, and fees paid to consultants and Deloitte for work in connection with remediation of the material weakness disclosed in our Annual Report on Form 10-K.

(3) Represents costs incurred related to an acquisition, including integration costs.

(4) Represents one-time cash awards to Duolingo contributors under our non-employee volunteer program.

Reconciliation: GAAP to Non-GAAP Operating Expense

(in thousands)	Q3 2021	Q3 2022
Total GAAP Operating Expense	\$74,217	\$89,925
Less: Depreciation & Amortization	(733)	(1,208)
Less: Stock-based Compensation	(20,656)	(20,477)
Less: Other Adjustments	(1,560)	(812)
Non-GAAP Operating Expense	\$51,268	\$67,428

Reconciliation: GAAP to Non-GAAP R&D Expense

(in thousands)	Q3 2021	Q3 2022
Total GAAP R&D Expense	\$29,345	\$41,976
Less: Depreciation & Amortization	(99)	(627)
Less: Stock-based Compensation	(3,533)	(8,030)
Less: Other Adjustments	(46)	(213)
Non-GAAP R&D Expense	\$25,667	\$33,106

Reconciliation: GAAP to Non-GAAP S&M Expense

(in thousands)	Q3 2021	Q3 2022
Total GAAP S&M Expense	\$15,267	\$17,721
Less: Depreciation & Amortization	(201)	(286)
Less: Stock-based Compensation	(408)	(786)
Less: Other Adjustments	(139)	(13)
Non-GAAP S&M Expense	\$14,519	\$16,636

Reconciliation: GAAP to Non-GAAP G&A Expense

(in thousands)	Q3 2021	Q3 2022
Total GAAP G&A Expense	\$29,605	\$30,228
Less: Depreciation & Amortization	(433)	(295)
Less: Stock-based Compensation	(16,715)	(11,661)
Less: Other Adjustments	(1,375)	(586)
Non-GAAP G&A Expense	\$11,082	\$17,686

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