

Duolingo

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Introduction

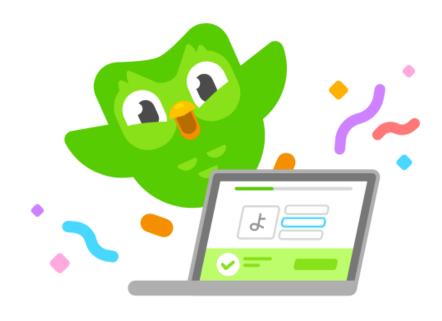
- Duolingo was founded in 2011 and the app was launched in 2012.
- Duolingo's mission is to "develop the best education in the world and make it universally available."
 - Our aim is to expand Duolingo's usability and profitability
 - This presentation outlines our commitment to creating opportunities for Duolingo to grow into the market of certified language exams and further advertising through product placement.



Duolingo Press Room. (n.d.). https://press.duolingo.com/#about

Objectives

- Personalized education
- Make learning fun
- Universally accessible



Project scope

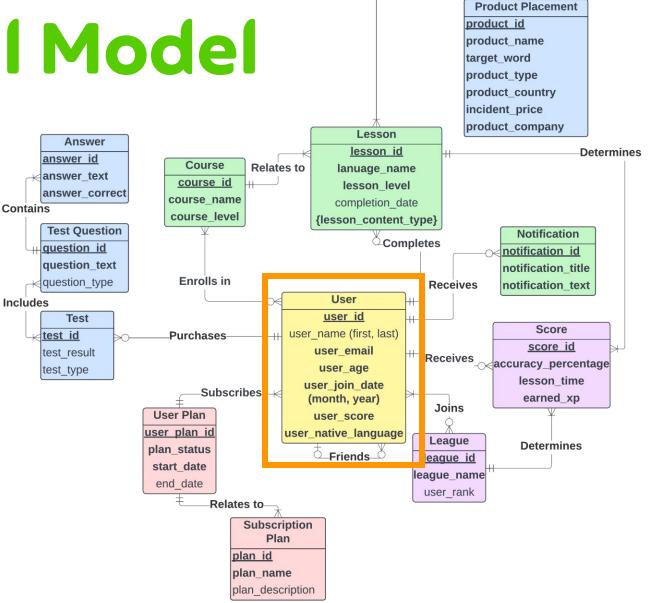
Essential functions of Duolingo app

- Enable users to register and customize their profiles
- Provide a wide range of courses
- Organize lessons into different levels
- Track progress, scores, and milestones
- Connect with friends and compete in leagues
- Offer subscription plans



Conceptual Model

- The 'User' entity is the center of the model
- Focused on users, learning, statistics, subscriptions, and 2 new business requirements
- Product placement in the conceptual model
- Tests in the conceptual model



Includes

Key

User Profile

Learning

Statistics

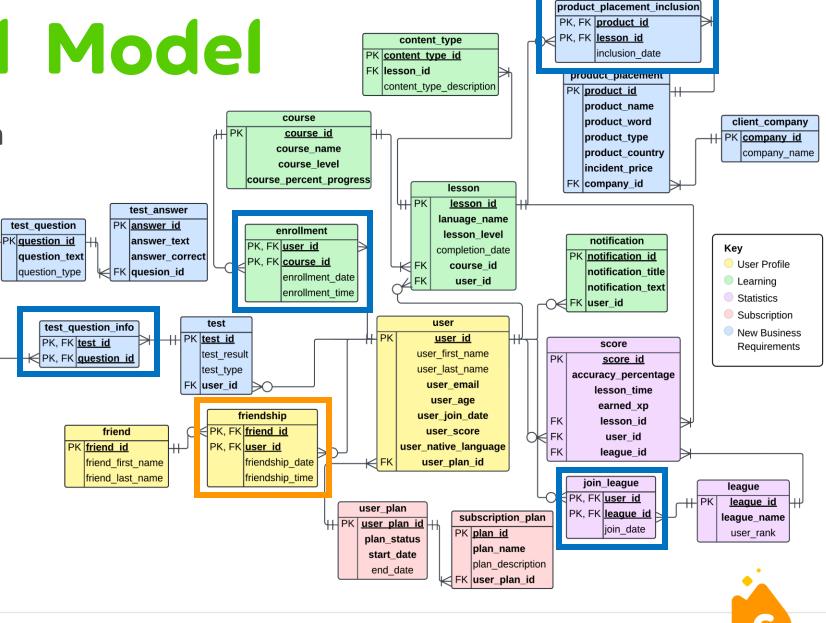
Subscription

New Business

Requirements

Relational Model

- Primary keys and foreign keys are defined for each entity to ensure data consistency.
- For each binary manyto-many relationship type, we split it into a new table.
- For unary relationship type, we handle user friendships through the friendship table.



Physical Model

friend

friend first name VARCHAR(100)

friend last name VARCHAR(100

PK friend id

VARCHAR(25)

friendship

friendship date DATE

friendship time DATE

VARCHAR(25

VARCHAR(25)

PK, FK friend id

PK, FK user id

inclusion date DATE content_type product placement Shifting to the physical model PK content type id INTEGER PK product id INTEGER content_type_description VARCHAR(200) VARCHAR(200) product name client_company adds detail, specifying data FK lesson id **INTEGER** VARCHAR(200) product word course HPK company id INTEGER VARCHAR(200 product type course id INTEGER company name VARCHAR(200) types, constraints, and VARCHAR(200) product_country course name VARCHAR(200) DECIMAL incident price course level INTEGER relationships for efficient lesson FK company_id **INTEGER** course_percent_progress | DECIMAL lesson id INTEGER storage and integrity. lanuage_name | VARCHAR(100) enrollment lesson level INTEGER PK, FK user id VARCHAR(25) notification completion_date DATE PK, FK course id User Profile INTEGER PK notification id INTEGER enrollment date DATE course id INTEGER Learning VARCHAR(100) notification title VARCHAR(25) enrollment time TIME user id VARCHAR(1000) Statistics notification text FK user id VARCHAR(25) Subscription test answer PK answer id INTEGER New Business test_question score answer text VARCHAR(200) Requirements INTEGER score id H PK question id answer_correct BOOLEAN accuracy_percentage INTEGER question text VARCHAR(200) INTEGER FK quesion id duo user question_type VARCHAR(200 lesson time TIME VARCHAR(25) user id earned xp INTEGER user first name VARCHAR(100) INTEGER FK lesson id test VARCHAR(100) user last name test_question_info user id VARCHAR(25) INTEGER H PK test id user email VARCHAR(250) league id INTEGER INTEGER ച test id test result DECIMAL INTEGER user age VARCHAR(100) join league DATE user join date question id INTEGER VARCHAR(25) FK user id PK, FK user id VARCHAR(25) league INTEGER user score PK, FK league id INTEGER league id INTEGER VARCHAR(100) user_native_language

user plan id

plan status

start date

end date

user_plan

user plan id INTEGER

INTEGER

VARCHAR(50)

DATE

DATE

product placement inclusion

INTEGER :

PK, FK product id

PK, FK lesson id

DATE

INTEGER

INTEGER

VARCHAR(100)

ioin date

subscription plan

plan description VARCHAR(1000)

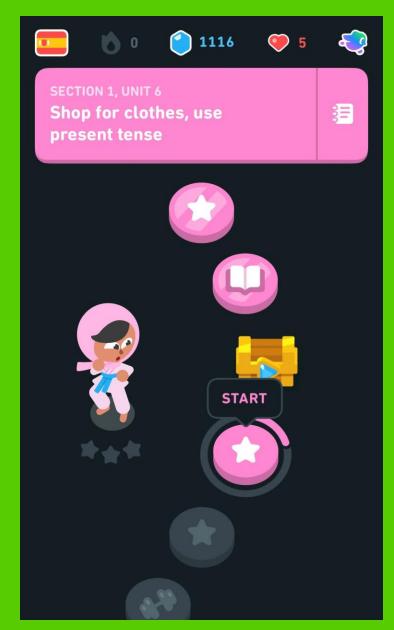
PK plan id

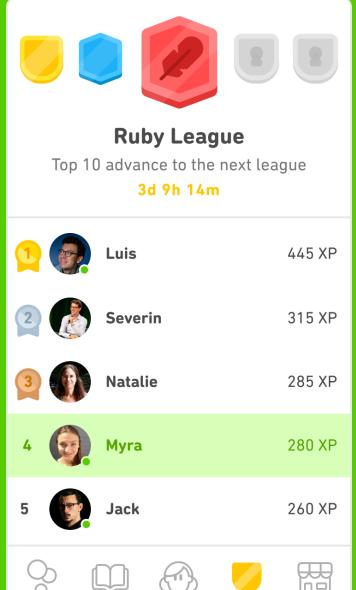
plan name

FK user plan id

VARCHAR(100)

INTEGER







■lesson | Enter a SQL expression to filter results (use Ctrl+Space)

Grid	•	123 lesson_id	A-z lanuage_name	123 lesson_level	•	② completion_date ▼	123 course_id	A-z user_id ▼
	1	1	Spanish		1	2023-03-15	1 ♂	☑ user001
	2	2	French		2	2023-04-20	2 ☑	☑ user002
Text	3	3	German		3	2023-06-25	3 ☑	☑ user004
Ê	4	4	Spanish		1	2023-07-15	1 ♂	☑ user005
	5	5	French		2	2023-08-10	2 ☑	☑ user006
	6	6	Italian		1	2023-09-15	4 ☑	☑ user005
	7	7	Portuguese		2	2023-10-10	5 ☑	☑ user006
	8	8	Japanese		3	2023-11-20	6 ☑	☑ user007
	9	9	Korean		1	2023-12-05	7 ☑	☑ user008
	10	10	Chinese		2	2023-12-15	8 🗹	☑ user009
		1						



■ league | Est Enter a SQL expression to filter results (use Ctrl+Sp.

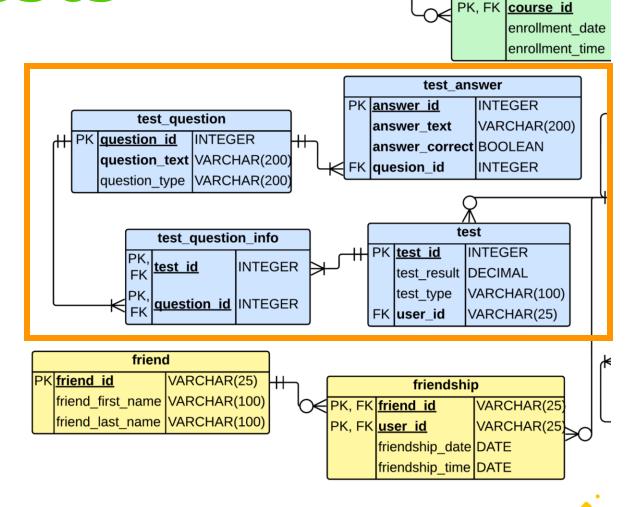
Grid	•	123	league_id	•	A-z league_name	123 user_rank	•
	1			1	Bronze League		1
¥	2			2	Silver League		2
Text	3			3	Gold League		3
Ê	4			4	Platinum League		4
	5			5	Diamond League		5
	6			6	Emerald League		6
	7			7	Ruby League		7
	8			8	Sapphire League		8
	9			9	Amethyst League		9
	10			10	Obsidian League		10

■ course | Enter a SQL expression to filter results (use Ctrl+Space)

Grid	•	123 course_id	A-Z course_name	123 course_level	123 course_percent_progress T
	1	1	Spanish for Beginners	1	20.5
ţ	2	2	French Intermediate	2	45
Text	3	3	German Advanced	3	70
Ê	4	4	Italian for Beginners	1	15
	5	5	Portuguese Intermediate	2	50
	6	$ $ ϵ	Japanese Advanced	3	80
	7	7	Korean for Beginners	1	25
	8	8	Chinese Intermediate	2	60
	9	g	Russian Advanced	3	75
	10	10	English for Spanish Speakers	1	30

Certification Tests

- The Duolingo English Test (DET) is an affordable and convenient alternative to traditional exams like IELTS and TOEFL, available entirely online.
- Bring DET test to mobile devices, allowing users to prepare anytime, anywhere.
- Expand to offer language certification tests for other languages like TOPIK or JLPT, creating a comprehensive exam preparation platform.

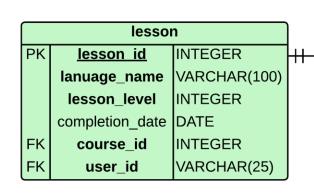


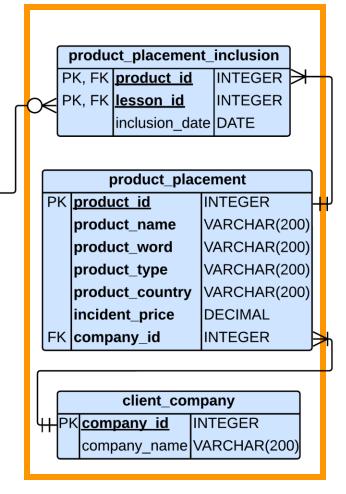
enrollmen

PK, FK user id

Product Placement

- Product placement offers businesses to integrate branded words into lessons, enhancing user familiarity and brand recognition.
- Brands engage learners directly, boosting recall in educational and life settings.
- Creates a new revenue stream and empowers user's functional vocabulary.







Database Queries

```
--Query to Get the Top-Performing Users Based on XP Earneds

SELECT u.user_first_name, u.user_last_name, SUM(s.earned_xp) AS total_xp

FROM duo_user u

JOIN score s ON u.user_id = s.user_id

GROUP BY u.user_first_name, u.user_last_name

ORDER BY total_xp DESC
```

```
Market Line | Market Line |
                                                                                                                                                                                                                                                                                                                                                                                                     A-z user_last_name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123 total_xp
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                                       Jane
                                     Frank
                                                                                                                                                                                                                                                                                                                                                                                                 Clark
                                                                                                                                                                                                                                                                                                                                                                                                 Doe
                                     John
```

```
--Query to Find top Revenue by Company
SELECT c.company_name, SUM(p.incident_price) AS total_revenue
FROM product_placement p
JOIN client_company c ON p.company_id = c.company_id
GROUP BY c.company_name
ORDER BY total_revenue DESC
```

•	A-z company_name ▼	123 total_revenue
1	Learnify	1,184.7
2	EduWorld	909.15
3	LanguageCorp	730.23



Summary

