



BelajarIndo

Learn Indonesia language easily

BACKEND *

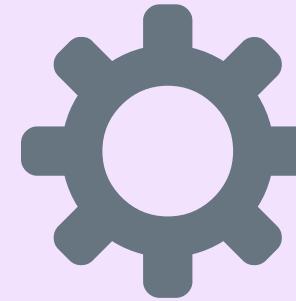


Tugas Virtual Lab Lanjutan

TUJUAN

Membangun backend untuk virtual lab BelajarIndo yang sebelumnya udah punya frontend (HTML, CSS, JS)

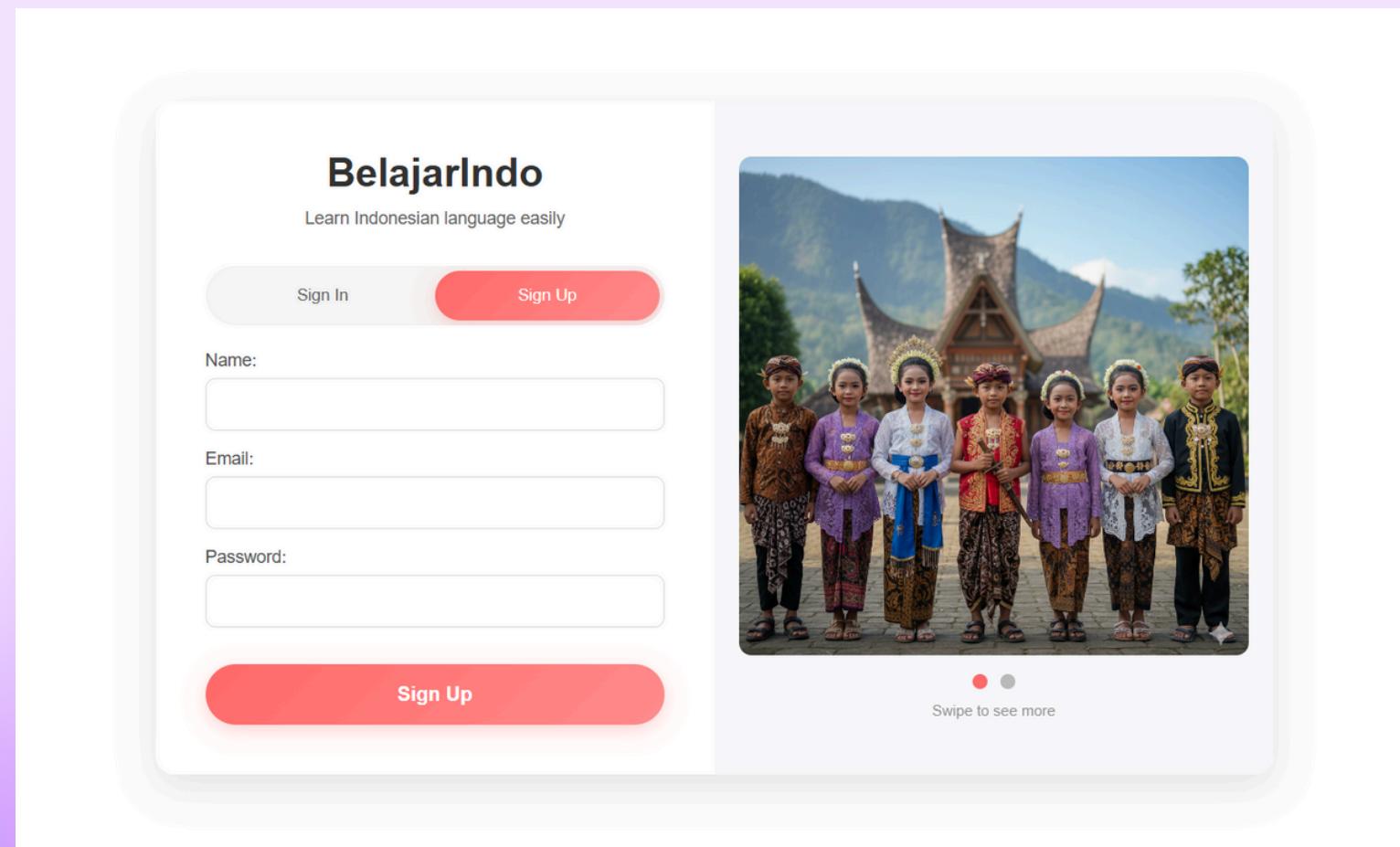
- 01** Autentikasi pengguna (login & register)
- 02** Penyimpanan state pengguna yang udah login
- 03** Menyimpan progress pengguna di virtual lab (hasil quiz) dan menyimpan hasil simulasi & nilai quiz
- 04** Menyediakan data penting terkait aktivitas user



TECH STACK

- **Frontend:** HTML, CSS, JS
- **Backend:** Node.js + Express.js
- **ORM:** Prisma
- **Database:** Postgree
- **Hosting:**
 - Frontend → Vercel
 - Backend → Vercel (terpisah)
- **Database :** Neon

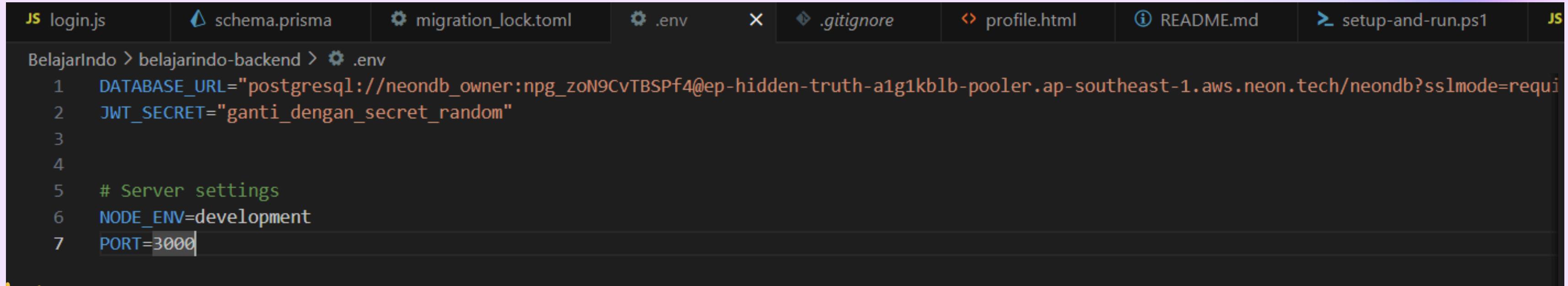
PENDAHULUAN BELAJAR INDO



Belajar Indo adalah salah satu kebebasan belajar kapan pun dan di mana pun. Menyediakan fitur pembelajaran 24/7 tanpa batasan waktu, materinya bisa diakses di waktu kapan aja. Ditambah lagi, ada audio pronunciation untuk setiap kosakata yang akan membantu melatih listening skill secara mandiri.

DATABASE ONLINE

NEON



```
JS login.js      ⚡ schema.prisma   🛡 migration_lock.toml   🛡 .env   ✎ .gitignore   🔗 profile.html   ⓘ README.md   ➔ setup-and-run.ps1   JS
BelajarIndo > belajarindo-backend > 🛡 .env
1 DATABASE_URL="postgresql://neon_db_owner:npg_zoN9CvTBSPf4@ep-hidden-truth-a1g1kblb-pooler.ap-southeast-1.aws.neon.tech/neon_db?sslmode=require
2 JWT_SECRET="ganti_dengan_secret_random"
3
4
5 # Server settings
6 NODE_ENV=development
7 PORT=3000
```



Insight Neon

Neon digunakan sebagai database PostgreSQL online agar backend dapat berjalan tanpa server lokal.

Koneksi dikonfigurasi melalui **DATABASE_URL** dengan **SSL** untuk keamanan.

Backend menggunakan Prisma ORM untuk mengelola data pengguna, kuis, dan progres belajar langsung ke Neon.

Hasil verifikasi menunjukkan koneksi berhasil dan database dapat diakses melalui Prisma Studio serta endpoint API backend.

Aspek

Penjelasan



Keamanan

Koneksi menggunakan SSL, dan kredensial disimpan sebagai environment variable, bukan di repo.



Serverless

Neon hanya aktif saat dibutuhkan, efisien dan gratis untuk skala kecil.



Akses Online

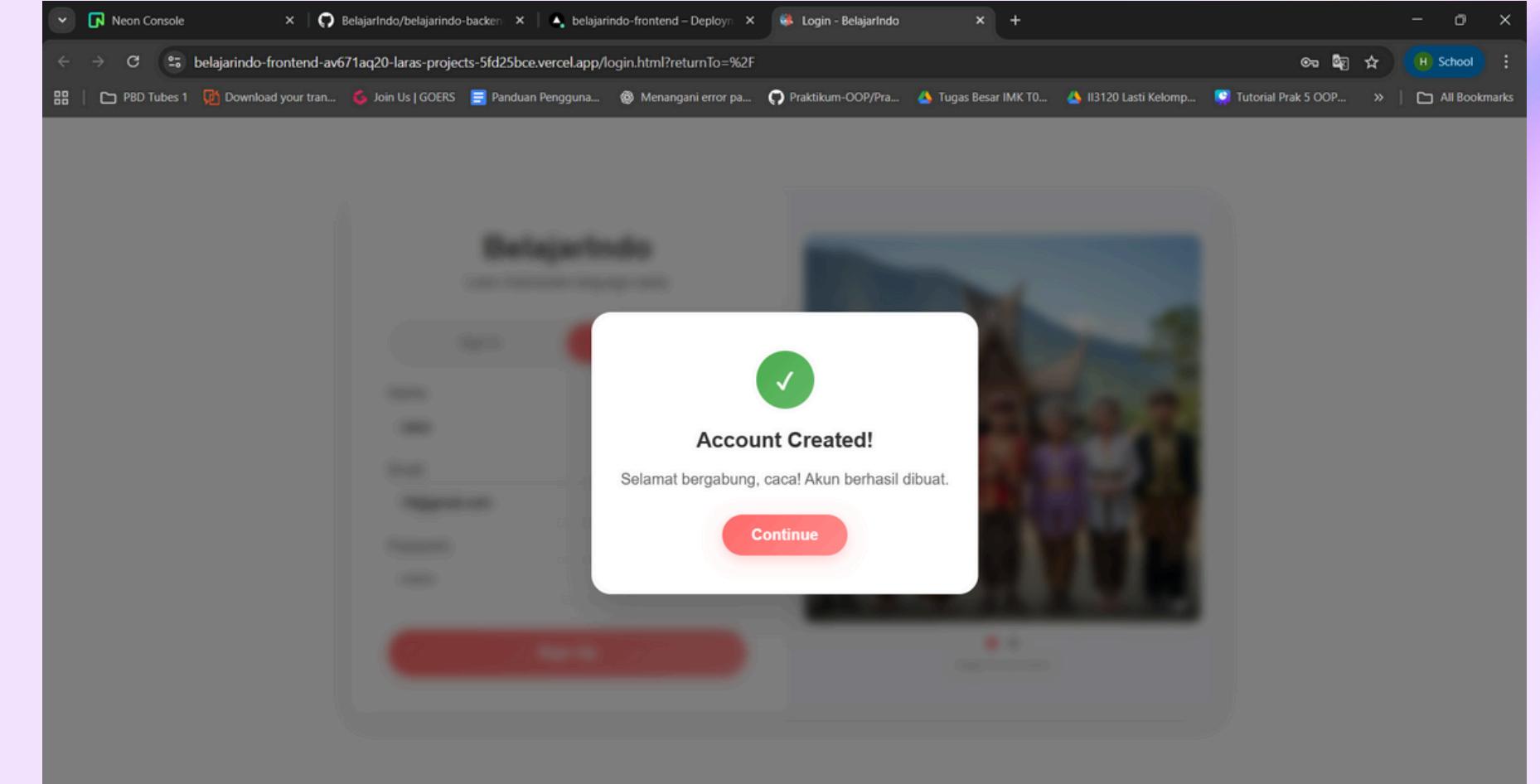
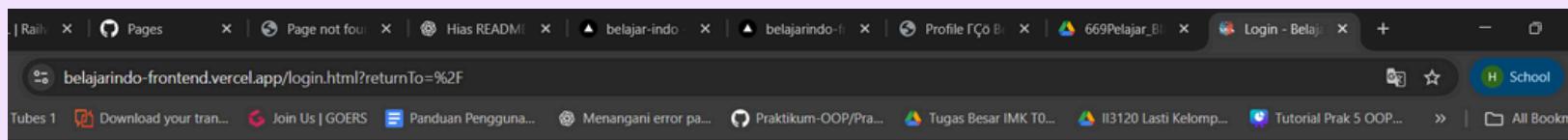
Backend bisa diakses dari mana saja tanpa menjalankan PostgreSQL lokal.

SIGN IN - SIGN UP

AUTENTIKASI LOGIN/REGISTER

PENYIMPANAN STATE PENGGUNA YANG LOGIN

INTERASI DIGITAL

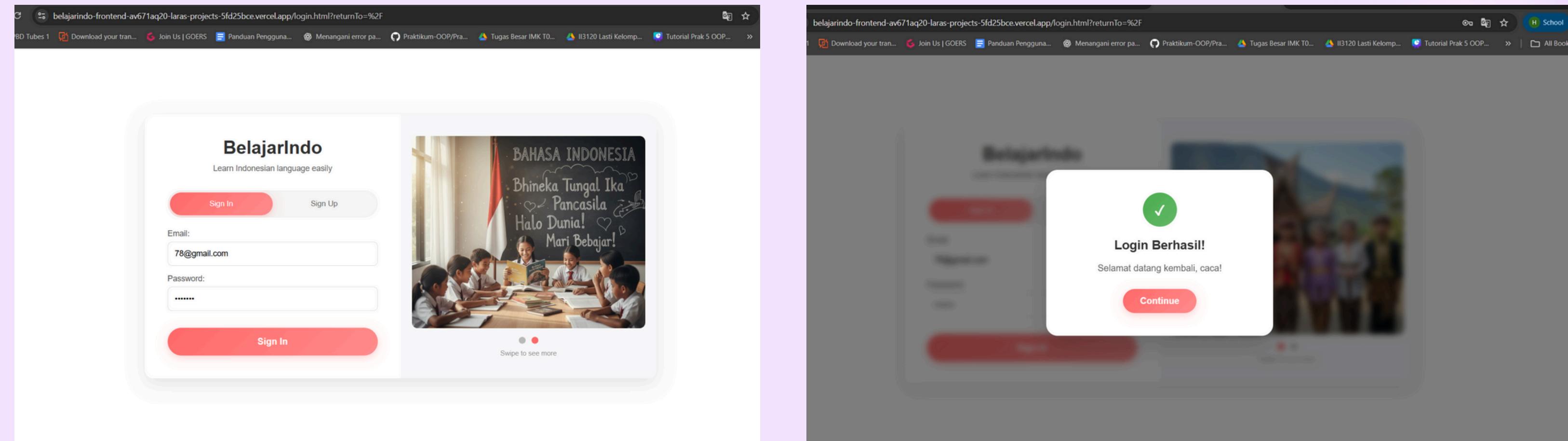


User pertama kali buka, ditampilkan dua tombol utama:

- Sign Up → buat akun baru
- Sign In → login ke akun yang udah ada

Keduanya ngarah ke form input yang terhubung ke backend lewat fetch() (API call)

INTERASI DIGITAL



Begitu user login (misalnya user: Caca), frontend nerima respons dari backend, Frontend langsung menampilkan pop-up “Selamat datang, Caca!” dan menyimpan data user ke neon Storage.

- lalu redirect ke halaman /profile.html.

INTERASI DIGITAL

Begitu user daftar → Neon nge-insert data ke tabel User

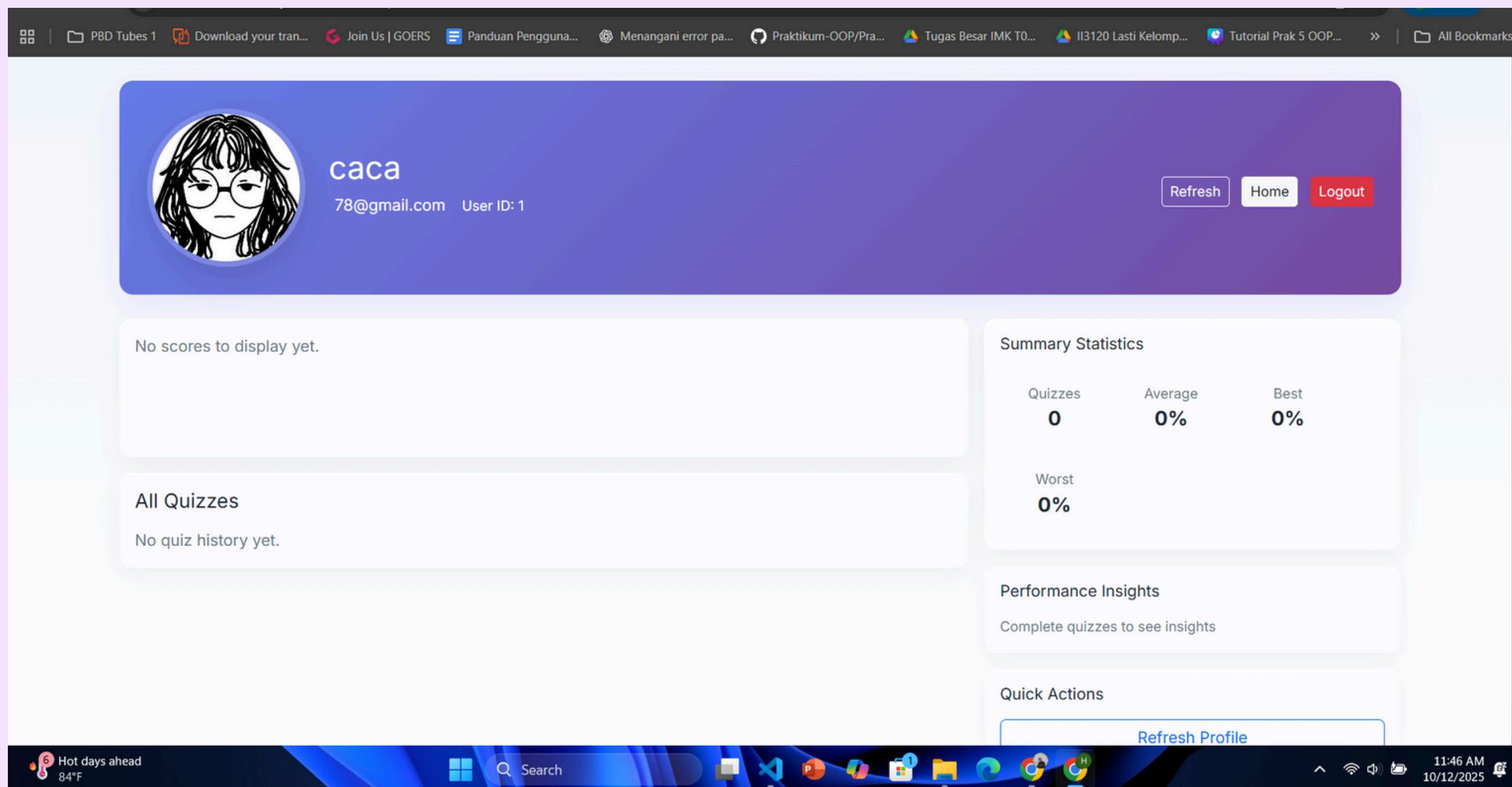
The screenshot shows the Neon web interface at console.neon.tech/app/projects/round-frost-81868987/branches/br-proud-wave-a1kjplv9/tables. The left sidebar shows the project structure with 'Dashboard', 'Branches', 'Integrations', 'Auth', and 'Settings'. Under 'Branch', 'main' is selected. The 'Tables' section lists '_prisma_migrations', 'QuizProgress', 'QuizResult', 'User' (which is highlighted in blue), and 'VocabProgress'. The main area displays the 'User' table with the following data:

	name text	email text	password text	salt text	createdAt timestamp
1	ka	8@gmail.com	\$2b\$10\$A941znG6j7z40AT...	\$2b\$10\$A941znG6j7z40AT...	2025-10-13 07:16:38.46
2	ka	89@gmail.com	\$2b\$10\$fJukzNBbIj/wQJh...	\$2b\$10\$fJukzNBbIj/wQJh...	2025-10-13 07:17:01.39
3	laras	4@gmail.com	\$2b\$10\$qnbAl3Bqoo90MxL...	\$2b\$10\$qnbAl3Bqoo90MxL...	2025-10-13 07:53:13.96
4	laras	cape@gmail.com	\$2b\$10\$DitDyhPP2wyuVYZ...	\$2b\$10\$DitDyhPP2wyuVYZ...	2025-10-13 10:10:23.84
5	laras	=@gmail.com	\$2b\$10\$owtJK3dtS8RsU8f...	\$2b\$10\$owtJK3dtS8RsU8f...	2025-10-13 10:15:06.24
6	aca	17@gmail.com	\$2b\$10//nw8.Mmsbb5.A1...	\$2b\$10//nw8.Mmsbb5.A1...	2025-10-15 01:16:29.73
7	caca	78@gmail.com	\$2b\$10\$02sL98vURTzcfBM...	\$2b\$10\$02sL98vURTzcfBM...	2025-10-16 07:38:56.18

PROFILE

MENYEDIAKAN DATA PENTING TERKAIT AKTIVITAS USER

INTERASI DIGITAL

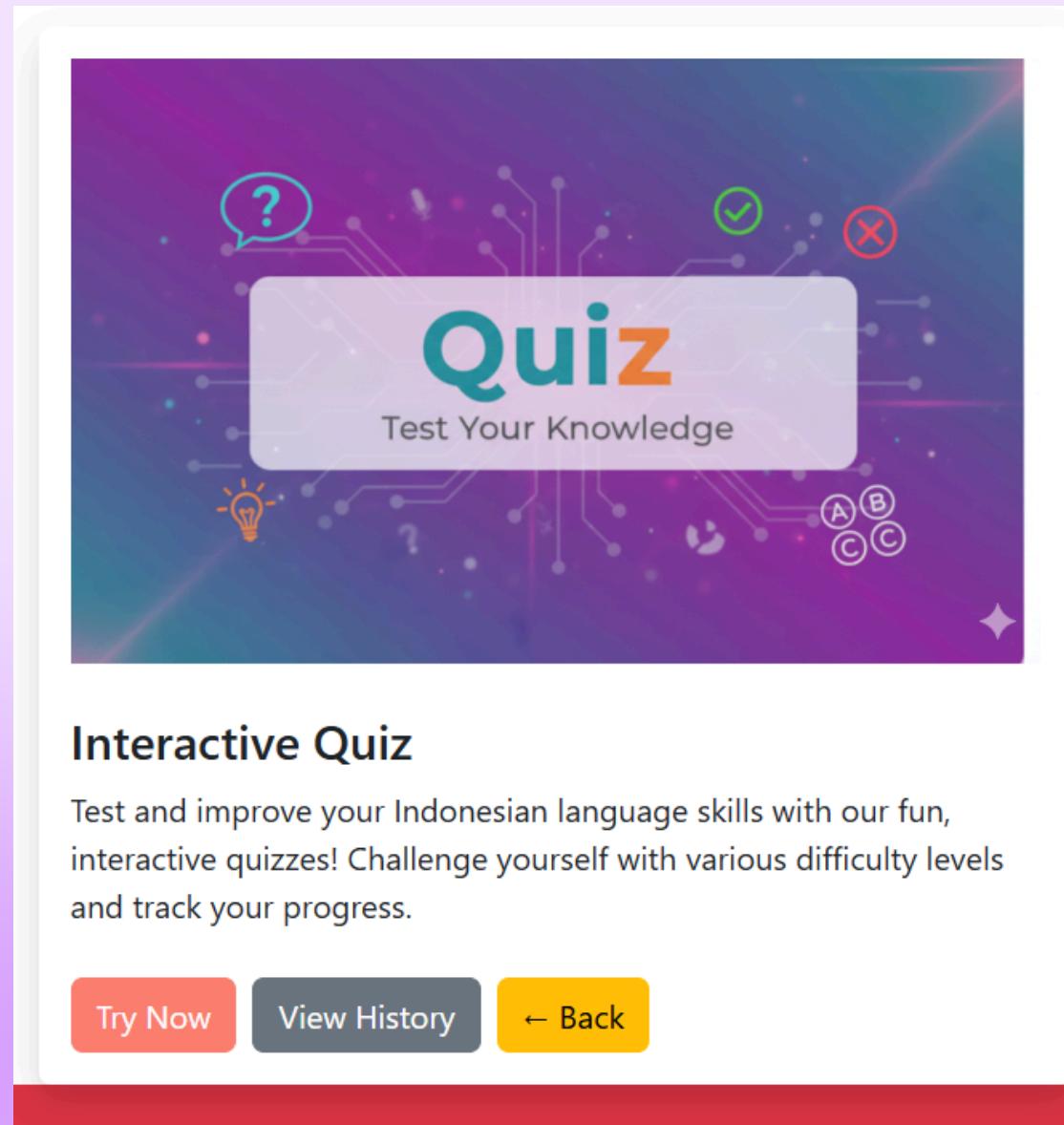


Begitu profile.html dibuka, script-nya langsung manggil data user dari backend
biar data paling baru yang ditampilkan.

QUIZ

***MENYIMPAN PROGRESS PENGGUNA DI VIRTUAL LAB
(HASIL QUIZ) DAN MENYIMPAN HASIL SIMULASI & NILAI
QUIZ***

FITUR QUIZ



Interactive Quiz

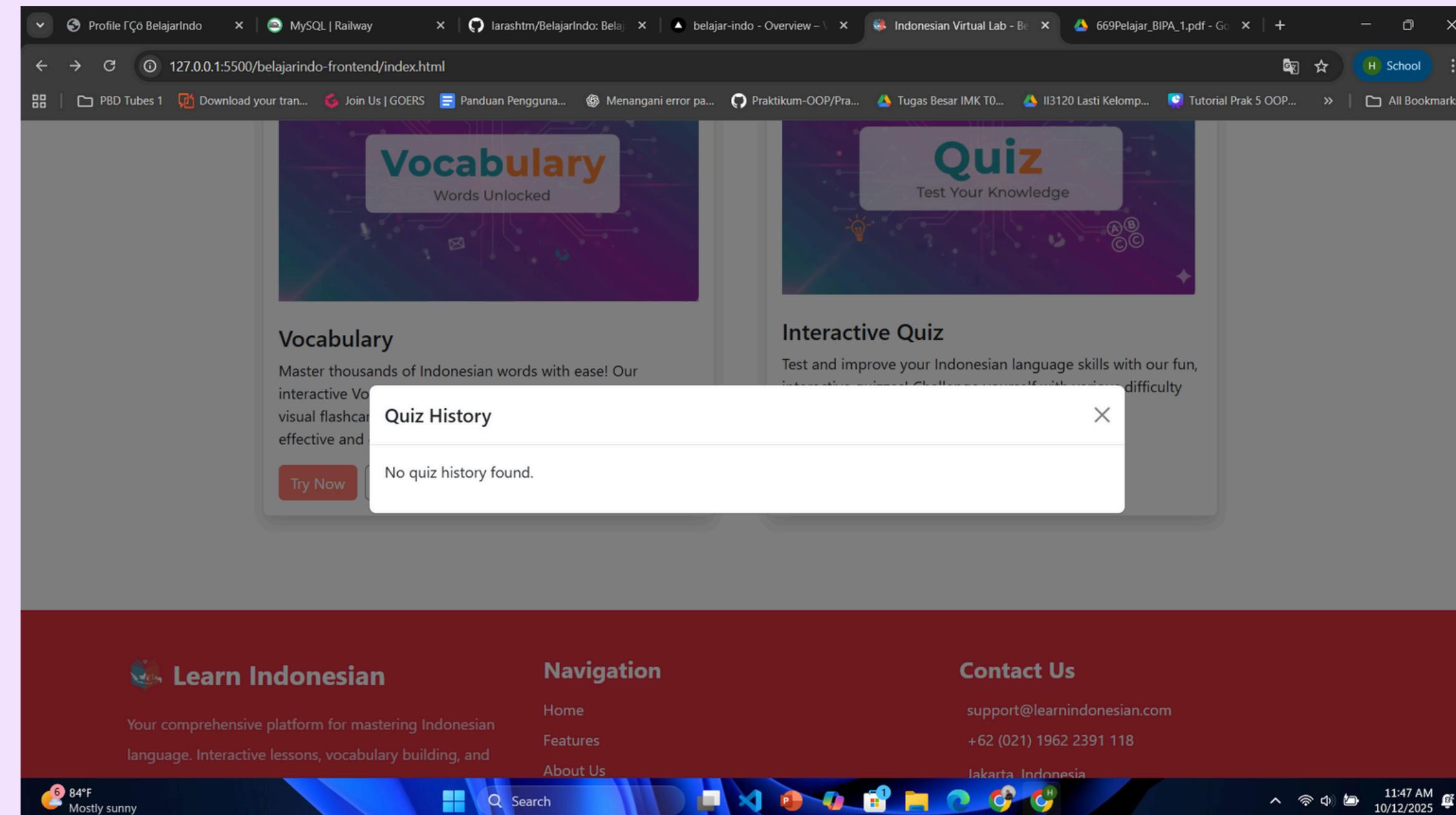
Test and improve your Indonesian language skills with our fun, interactive quizzes! Challenge yourself with various difficulty levels and track your progress.

Fitur Kuis pada aplikasi BelajarIndo berfungsi untuk menguji pemahaman pengguna terhadap kosakata dan materi Bahasa Indonesia yang telah dipelajari melalui flashcard. Fitur ini terhubung langsung dengan backend melalui API untuk menyimpan dan menampilkan hasil kuis.

ALUR KERJA

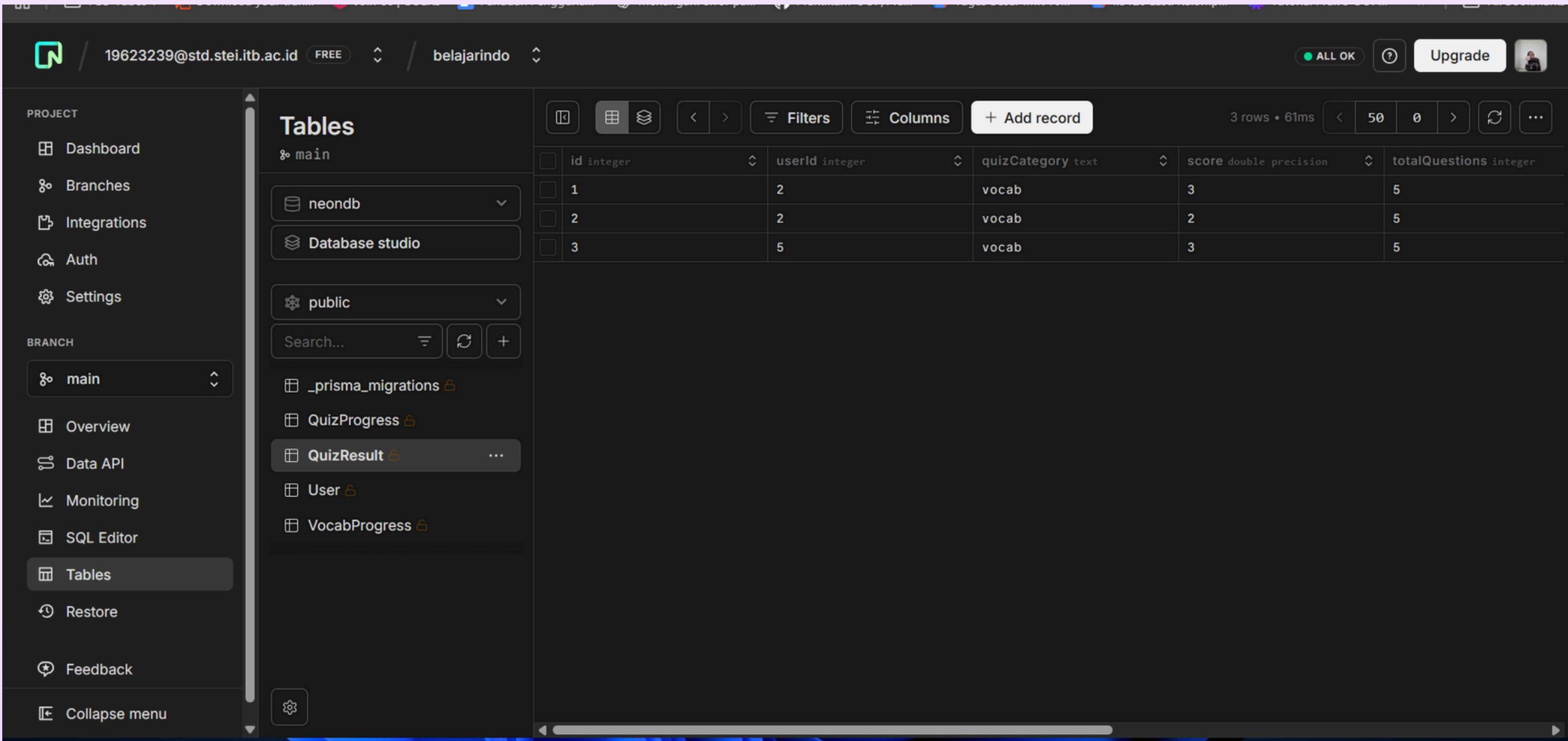
- 1** Pengguna memilih menu "Quiz" di halaman utama.
→ Sistem menampilkan soal-soal pilihan ganda (multiple choice) yang diambil dari database.
- 2** Pengguna menjawab setiap pertanyaan, lalu mengirim hasilnya setelah selesai.
→ Hasil skor dan detail jawaban dikirim ke backend melalui endpoint:
`POST /api/quiz/submit`
- 3** Backend menyimpan hasil ke database (Neon PostgreSQL) menggunakan Prisma ORM.
→ Data disimpan dalam tabel hasil kuis yang terhubung ke ID pengguna.
- 4** Riwayat kuis dapat dilihat melalui nenon

INTERASI DIGITAL



Berikut adalah tampilan quiz history yang nantinya akan ke update seiring riwayat penggunaan quiz.

INTERASI DIGITAL



The screenshot shows a digital database interface with a dark theme. On the left, a sidebar menu includes 'Dashboard', 'Branches', 'Integrations', 'Auth', 'Settings', 'main' (selected), 'Overview', 'Data API', 'Monitoring', 'SQL Editor', 'Tables' (selected), 'Restore', 'Feedback', and 'Collapse menu'. The main area is titled 'Tables' and displays a table named 'main'. The table has columns: id (integer), userId (integer), quizCategory (text), score (double precision), and totalQuestions (integer). The data shows three rows:

	id integer	userId integer	quizCategory text	score double precision	totalQuestions integer
1	1	2	vocab	3	5
2	2	2	vocab	2	5
3	3	5	vocab	3	5

Below the table, there are sections for '_prisma_migrations', 'QuizProgress', 'QuizResult' (selected), 'User', and 'VocabProgress'. The top right corner shows 'ALL OK', a user profile icon, and an 'Upgrade' button.

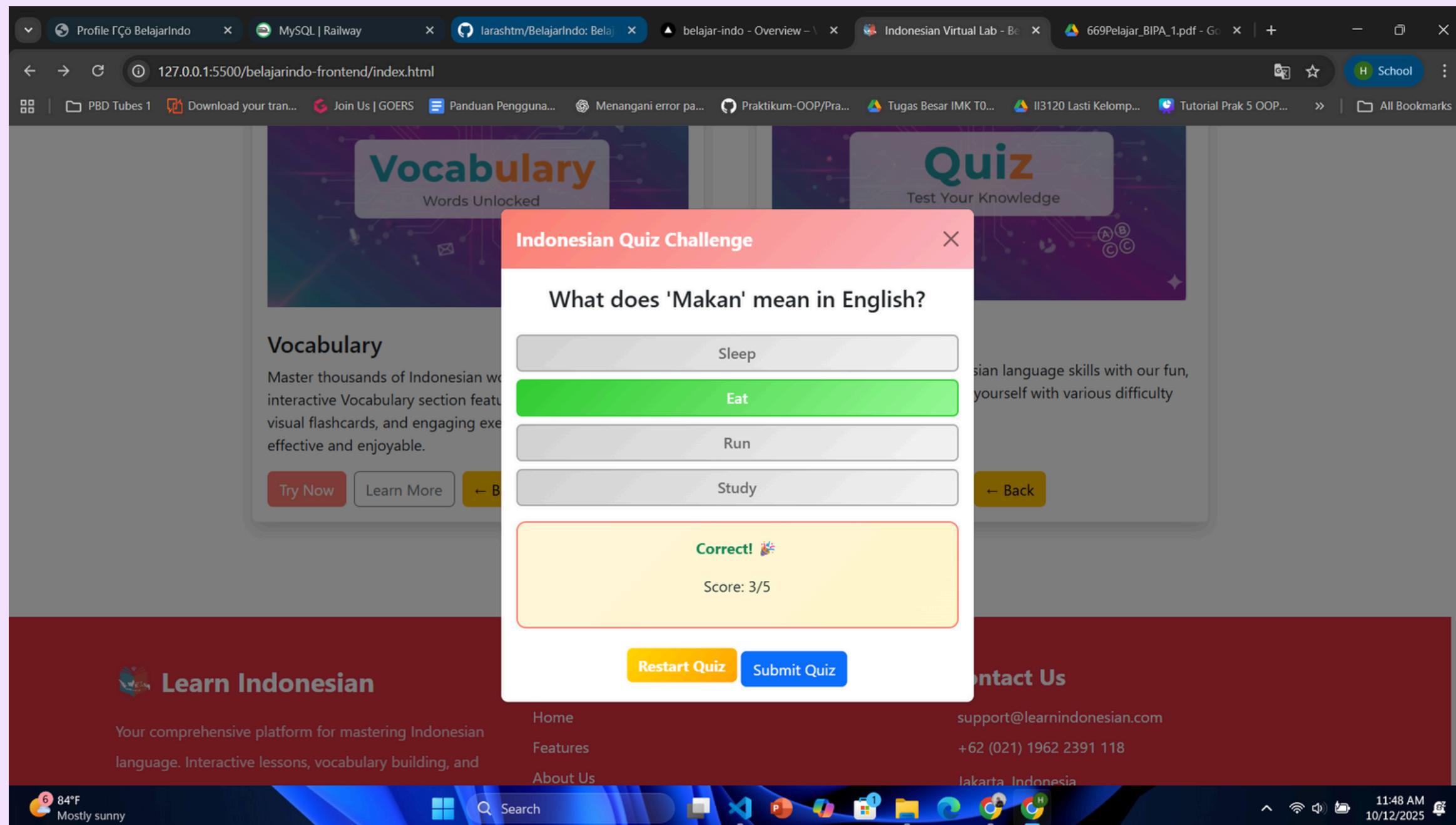
Daftar database quiz result

INTERASI DIGITAL

The screenshot shows a dark-themed database management interface. On the left, a sidebar titled "Tables" lists several tables: _prisma_migrations, QuizProgress, QuizResult, User, and VocabProgress. The VocabProgress table is currently selected and highlighted with a grey bar at the bottom of its row. The main panel displays the schema of the VocabProgress table. At the top of this panel are buttons for "Tables" (grid icon), "Columns" (grid with columns icon), "Filters" (filter icon), "Columns" (grid icon), "+ Add record" (button), and a row counter "0 rows • 44ms". Below these are the table columns: id (integer), userId (integer), category (text), wordsLearned (jsonb), and lastAccessed (timestamp). The "wordsLearned" column is currently selected, indicated by a blue border. At the bottom of the main panel, it says "No rows limit 50 offset 0".

Daftar database vocab proses

INTERASI DIGITAL



Tampilan Progress pengguna di virtual lab (hasil quiz)

INTERASI DIGITAL

The screenshot displays a digital interface for a user named 'caca'. The top navigation bar includes a user icon, the name 'caca', the email '78@gmail.com', and User ID '1'. It also features 'Refresh', 'Home', and 'Logout' buttons. The main area shows a list of 'All Quizzes' under the 'vocab' category, each with a date and time (e.g., 10/12/2025, 11:48:24 AM), a percentage score (e.g., 2%, 60%, 60%), and a 'Show Details' link. To the right, a 'Summary Statistics' box provides an overview: 3 quizzes taken, an average of 40.7%, and a best score of 60%. Below this is a 'Performance Insights' box with a trend of 'Pting Å Stable', a recent average of 41%, and a best category of 'vocab (41%)'. A message encourages users to 'Keep practicing to improve!'. The bottom of the screen shows a Windows taskbar with weather (84°F, Mostly sunny), search, and various application icons.

Quizzes	Average	Best
3	40.7%	60%

Worst
2%

Performance Insights

Trend: Pting Å Stable

Recent Avg: 41%

Best Category: vocab (41%)

Keep practicing to improve!

Menyimpan hasil simulasi & nilai quiz

INTERASI DIGITAL

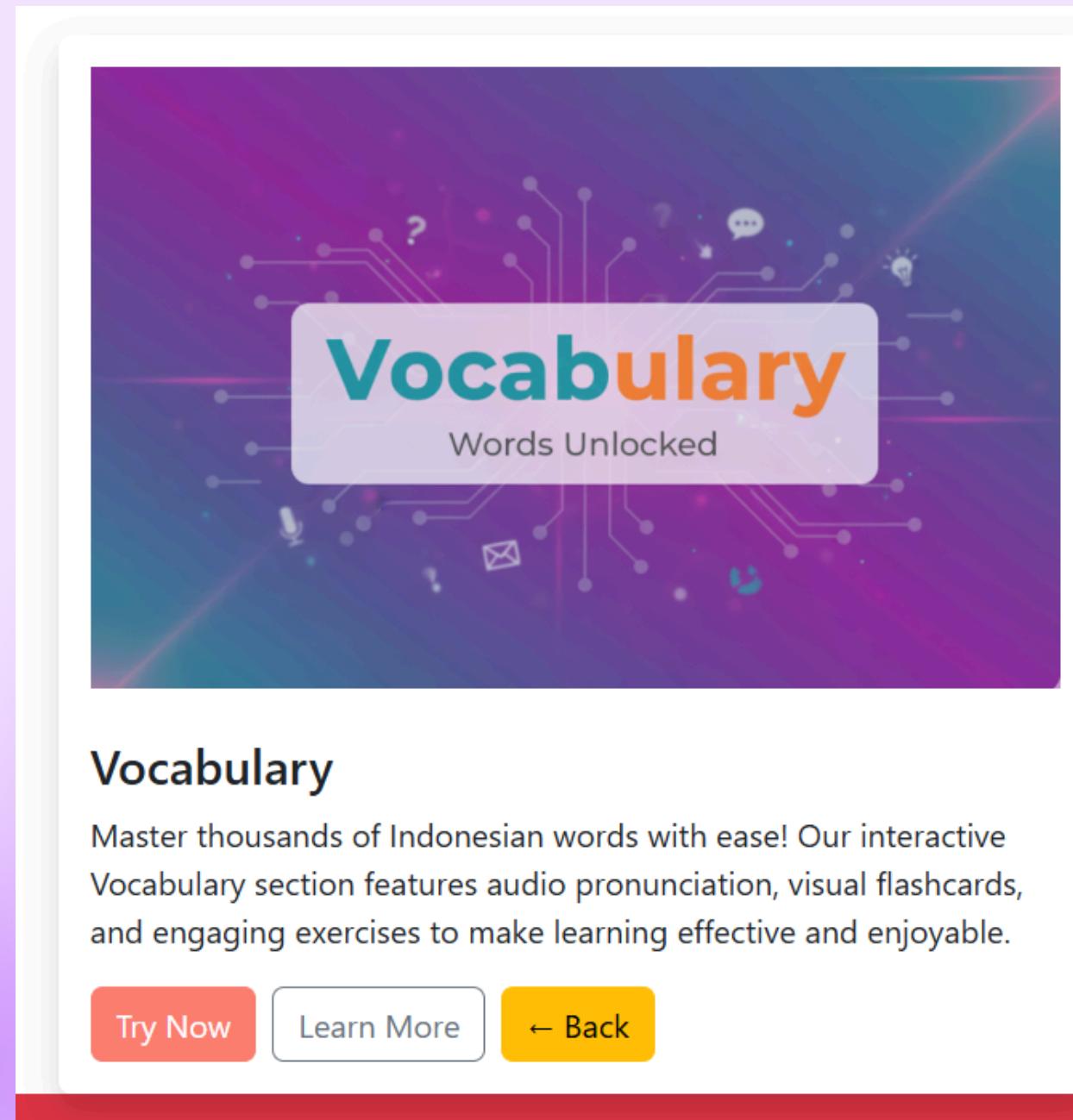
The screenshot shows a web-based application interface for a user named 'caca'. The top navigation bar includes links for 'PBD Tubes 1', 'Download your tran...', 'Join Us | GOERS', 'Panduan Pengguna...', 'Menangani error pa...', 'Praktikum-OOP/Pra...', 'Tugas Besar IMK T...', 'II3120 Lasti Kelomp...', 'Tutorial Prak 5 OOP...', and 'All Bookmarks'. The user profile section displays a circular profile picture of a person with glasses, the name 'caca', the email '78@gmail.com', and the User ID '1'. On the right, there are buttons for 'Refresh', 'Home', and 'Logout'. Below the profile, a summary statistics box shows 'Quizzes' (7), 'Average' (49.3%), 'Best' (80%), and 'Worst' (2%). A performance insights box indicates a 'Trend: improving', 'Recent Avg: 52%', and 'Best Category: vocab (49%)'. A call-to-action message says 'Keep practicing to improve!'. On the left, a 'All Quizzes' section lists a recent quiz named 'vocab' from 10/12/2025 at 11:54:40 AM, which was completed with a score of 80% (4 / 5). A 'Show Details' link is provided, followed by a JSON object representing the quiz data.

```
{
  "id": 7,
  "userId": 1,
  "quizCategory": "vocab",
  "score": 80,
  "totalQuestions": 5,
  "correctAnswers": 4,
  "timeSpent": 25,
  "completedAt": "2025-10-12T04:54:40.496Z"
}
```

Tampilan Show Details

VOCABULARY

FITUR VOCABULARY



Vocabulary
Words Unlocked

Master thousands of Indonesian words with ease! Our interactive Vocabulary section features audio pronunciation, visual flashcards, and engaging exercises to make learning effective and enjoyable.

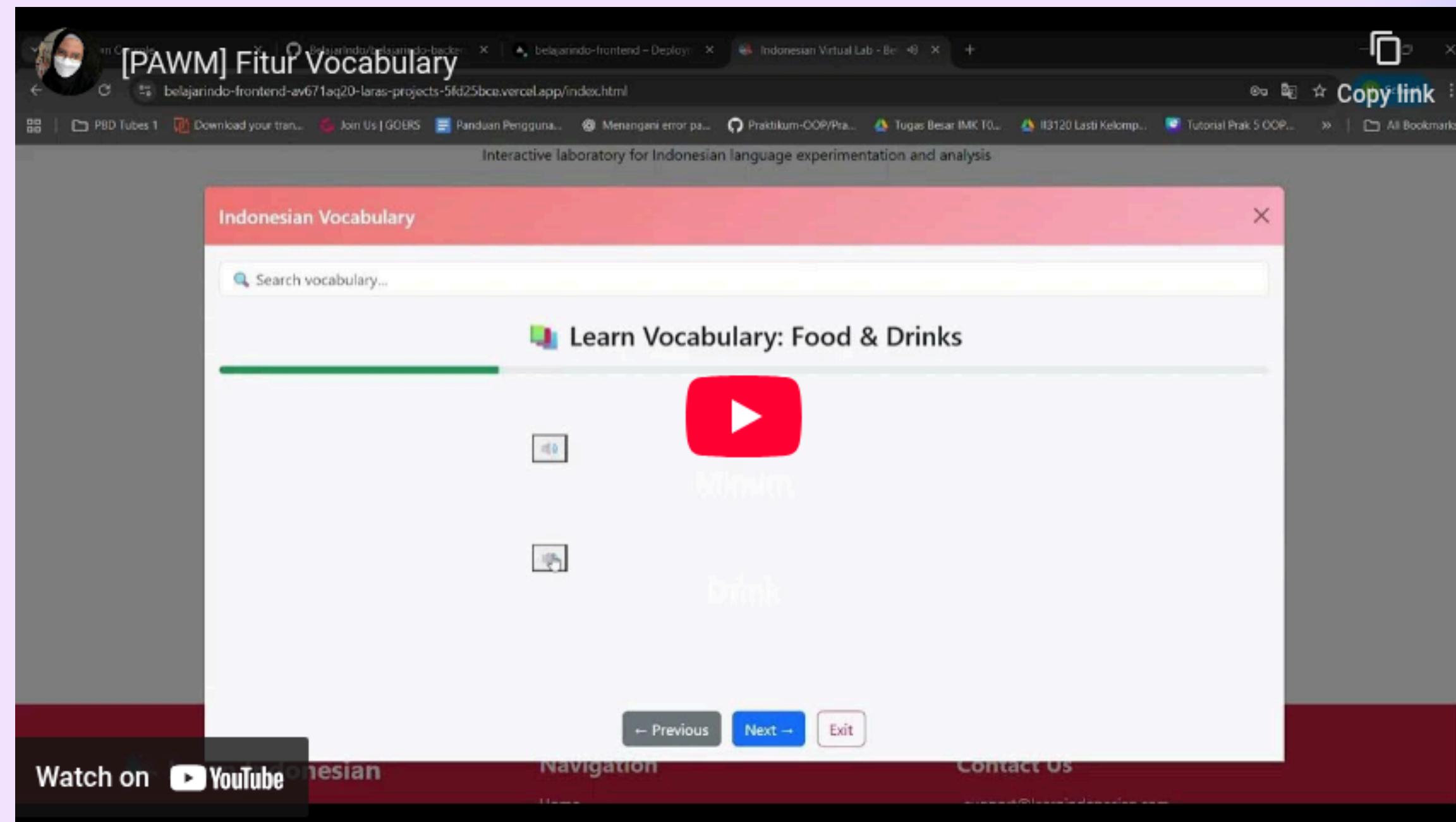
Try Now Learn More ← Back

Fitur Vocabulary berfungsi untuk membantu pengguna mempelajari dan menghafal kosakata Bahasa Indonesia secara interaktif melalui tampilan flashcard. Setiap kartu menampilkan kata dalam Bahasa Indonesia beserta terjemahan Bahasa Inggris dan contoh penggunaannya.

ALUR KERJA

- 1** Pengguna memilih menu "Vocabulary" di halaman utama aplikasi.
→ Sistem menampilkan kumpulan flashcard berdasarkan kategori
- 2** Setiap flashcard berisi:
 - Kata Bahasa Indonesia
 - Terjemahan Bahasa Inggris
 - Tombol Text-to-Speech (TTS) untuk mendengar pelafalan kata
 - Tombol navigasi "Next", "Previous", dan "Exit"
- 3** Pengguna dapat menelusuri kartu satu per satu untuk memperdalam pemahaman kosakata.
- 4** Jika memencet "Learn More" juga akan kebuka drive modul

FITUR VOCABULARY



MORE INFO

FRONT END:

[HTTPS://VERCEL.COM/LARAS-PROJECTS-5FD25BCE/BELAJARINDO-FRONTEND/8XTWSVA1RZJH3ZSGRHTME2UIHSAW](https://vercel.com/laras-projects-5fd25bce/belajarindo-frontend/8xtwsva1rzjh3zsgrhtme2uihsaw)

BACK END:

[HTTPS://BELAJAR-INDO.VERCEL.APP/](https://belajar-indo.vercel.app/)

GIT HUB:

[HTTPS://GITHUB.COM/LARASHTM/BELAJARINDO](https://github.com/larashtm/belajarindo)

**THANK
YOU**

Presented By : Laras Hati Mahendra