



**BelajarIndo**

Learn Indonesia language easily

# BACKEND \*



**Tugas Virtual Lab Lanjutan**

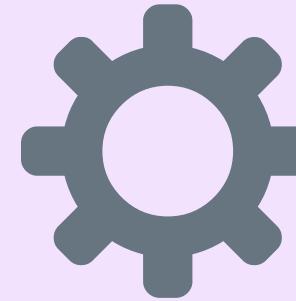
<https://larashtm.github.io/BelajarIndo/>

**laras Hati Mahendra - 18223118**

# TUJUAN

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

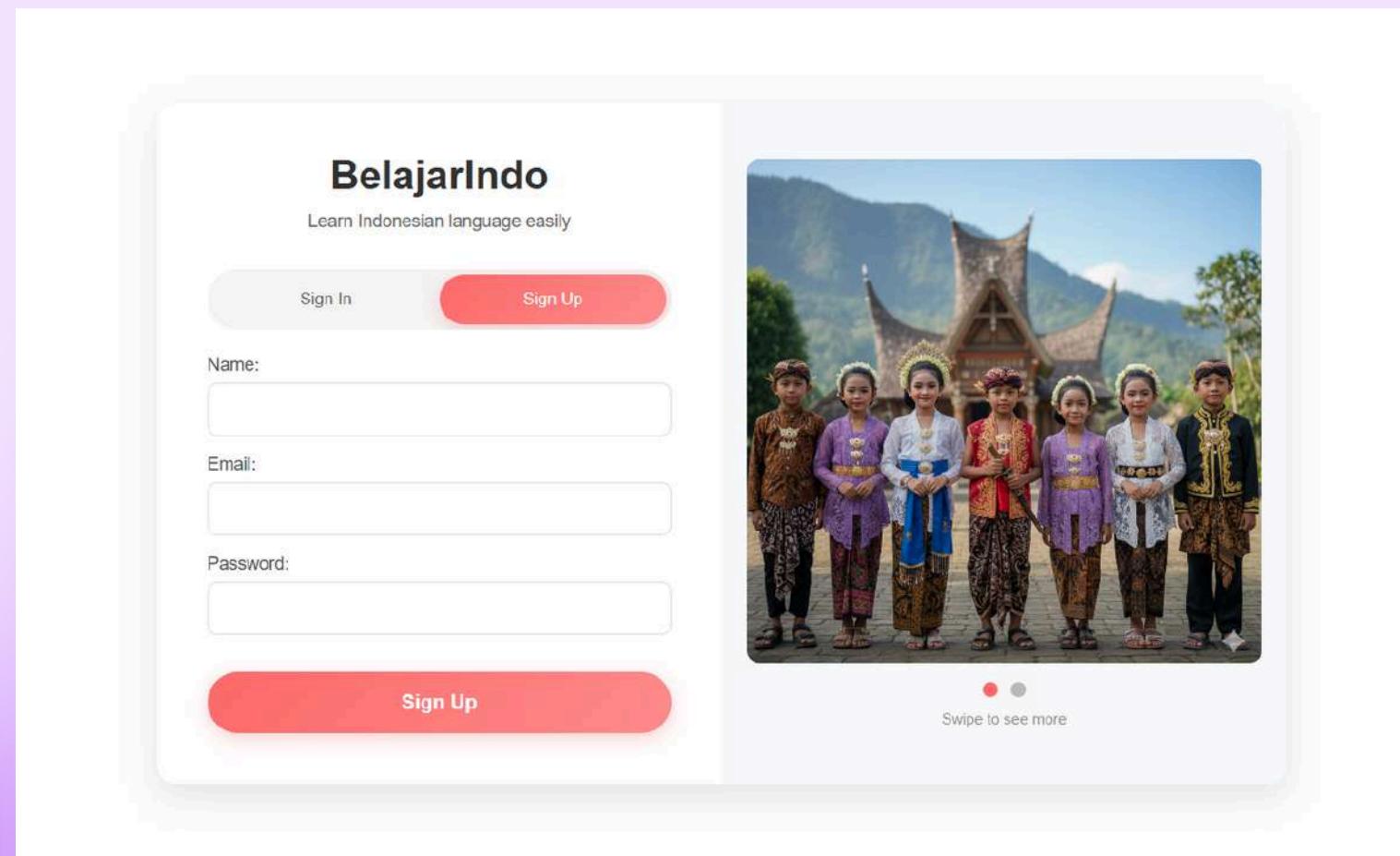
- 01** Autentikasi pengguna (login & register)
- 02** Penyimpanan state pengguna yang udah login
- 03** Menyimpan progress pengguna di virtual lab (hasil quiz) dan menyimpan hasil simulasi & nilai quiz
- 04** Menyediakan data penting terkait aktivitas user



# TECH STACK

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

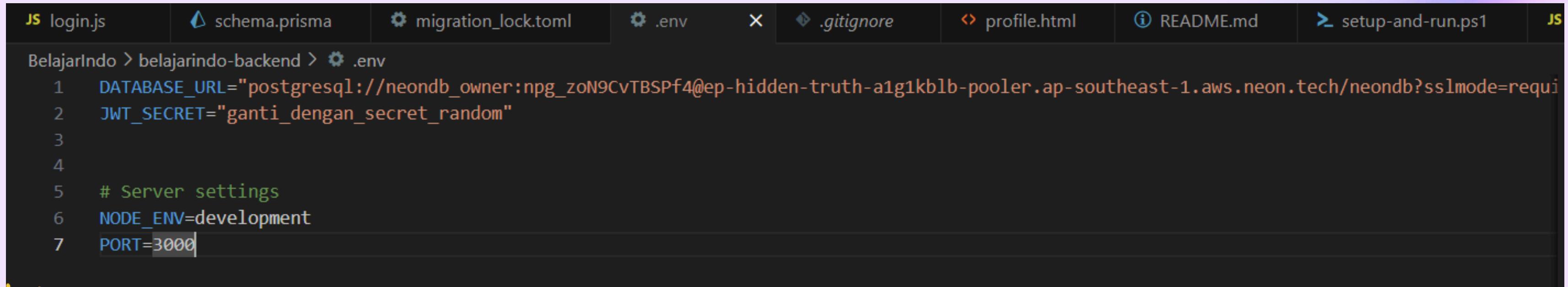
# PENDAHULUAN BELAJAR INDO



**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



```
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

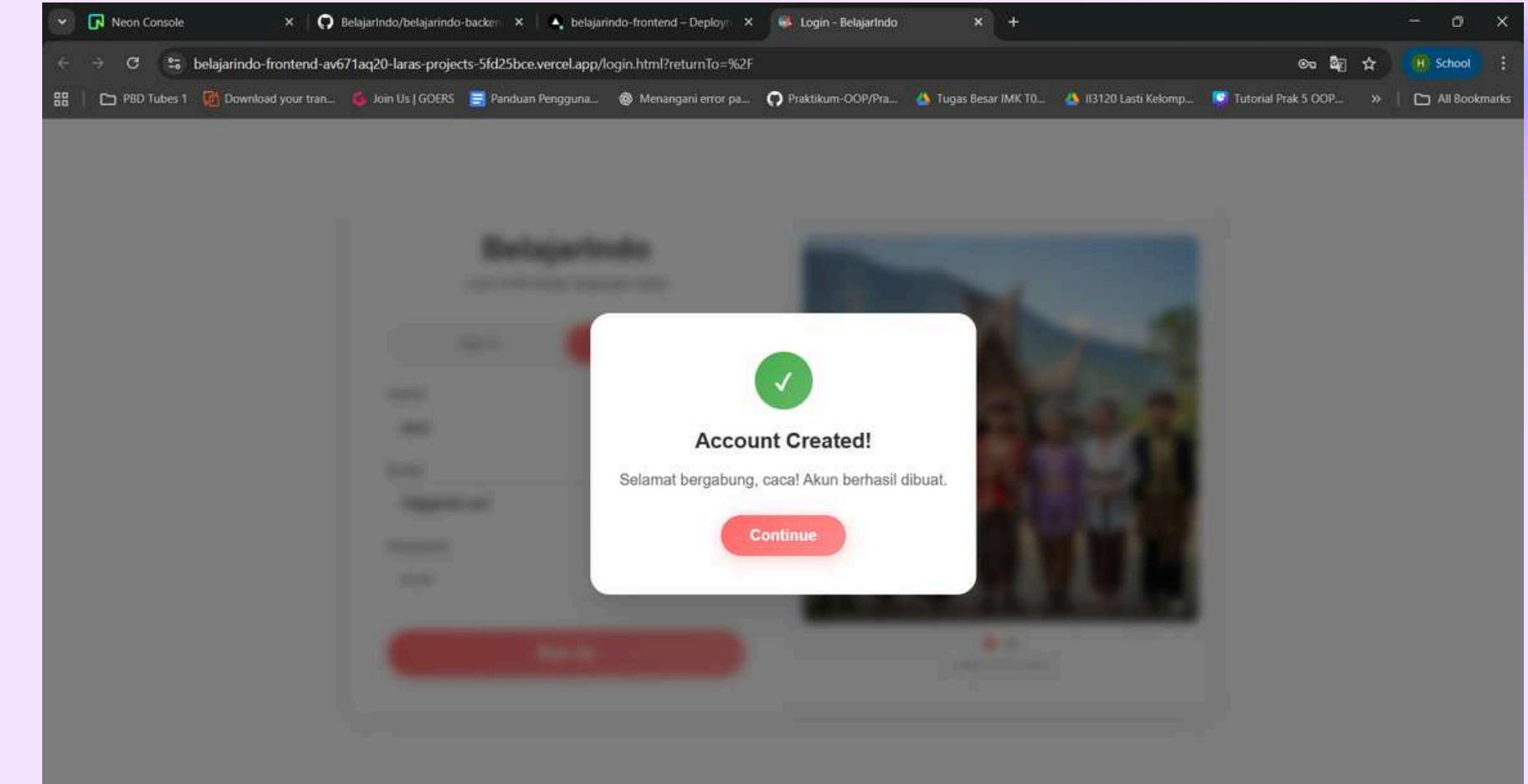
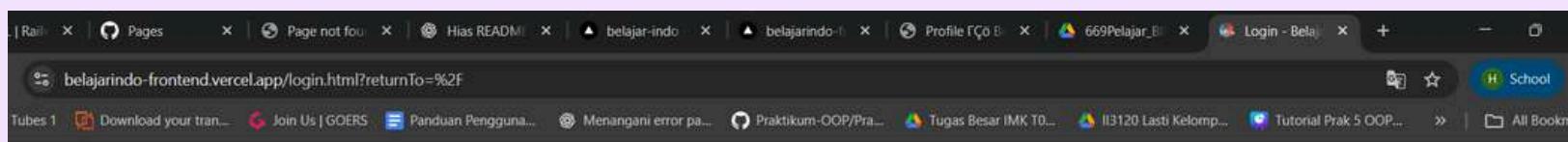
Backend bisa diakses dari mana saja tanpa menjalankan PostgreSQL lokal.

# **SIGN IN - SIGN UP**

## **AUTENTIKASI LOGIN/REGISTER**

**PENYIMPANAN STATE PENGGUNA YANG LOGIN**

# INTERASI DIGITAL

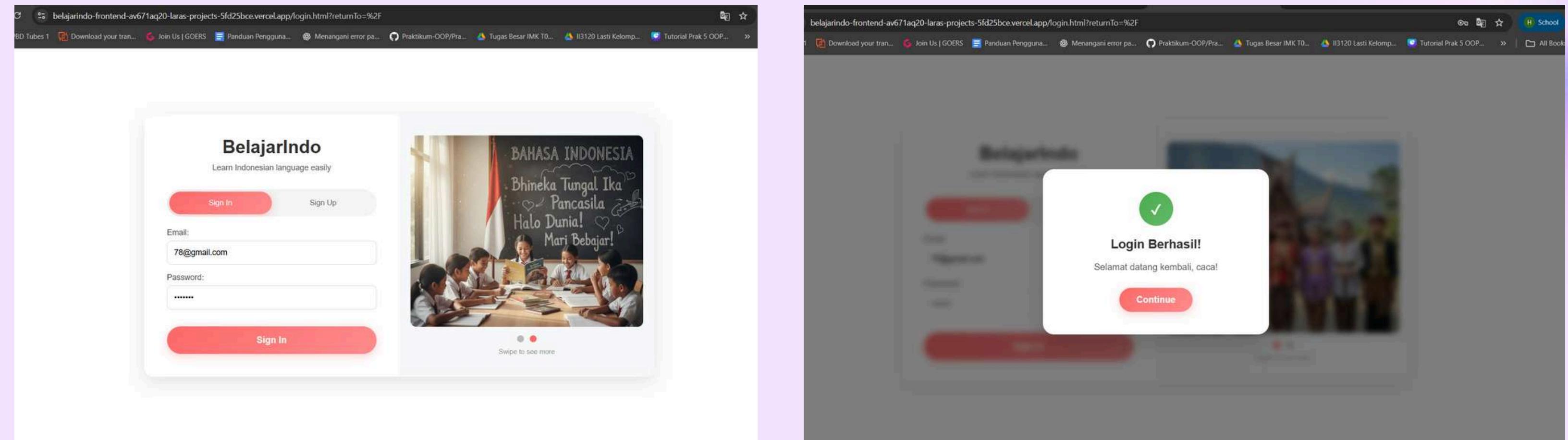


User pertama kali buka, ditampilkan dua tombol utama:

- 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

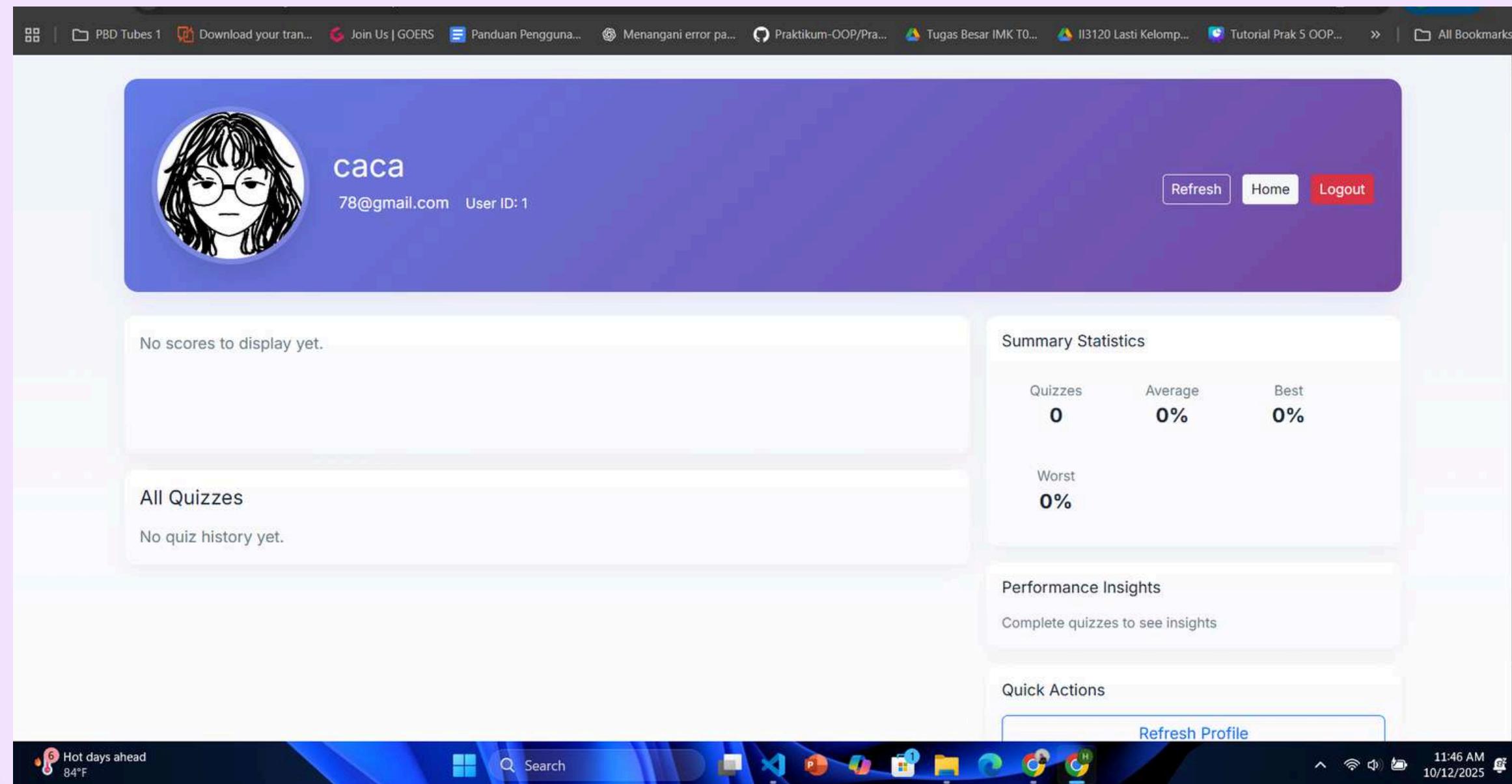
The screenshot shows the Neon web interface for managing a database project. The left sidebar displays the project structure under 'PROJECT' (Dashboard, Branches, Integrations, Auth, Settings) and 'BRANCH' (main). The 'Tables' section is selected in the sidebar. The main area shows the 'User' table in the 'neondb' database. The table has columns: name (text), email (text), password (text), salt (text), and createdAt (timestamp). There are 7 rows listed. The last row, 'caca', is highlighted with a blue border. The table includes standard CRUD buttons (Edit, Delete, Add record) and filtering options.

name	email	password	salt	createdAt
ka	8@gmail.com	\$2b\$10\$A941znG6j7z40AT...	\$2b\$10\$A941znG6j7z40AT...	2025-10-13 07:16:38.46
ka	89@gmail.com	\$2b\$10\$fJukzNBbIj/wQJh...	\$2b\$10\$fJukzNBbIj/wQJh...	2025-10-13 07:17:01.39
laras	4@gmail.com	\$2b\$10\$qnbAl3Bqoo90MxL...	\$2b\$10\$qnbAl3Bqoo90MxL...	2025-10-13 07:53:13.96
laras	cape@gmail.com	\$2b\$10\$DitDyhPP2wyuVYZ...	\$2b\$10\$DitDyhPP2wyuVYZ...	2025-10-13 10:10:23.84
laras	=@gmail.com	\$2b\$10\$owtJK3dtS8RsU8f...	\$2b\$10\$owtJK3dtS8RsU8f...	2025-10-13 10:15:06.24
aca	17@gmail.com	\$2b\$10\$/nw8.Mmsbb5.A1...	\$2b\$10\$/nw8.Mmsbb5.A1...	2025-10-15 01:16:29.73
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

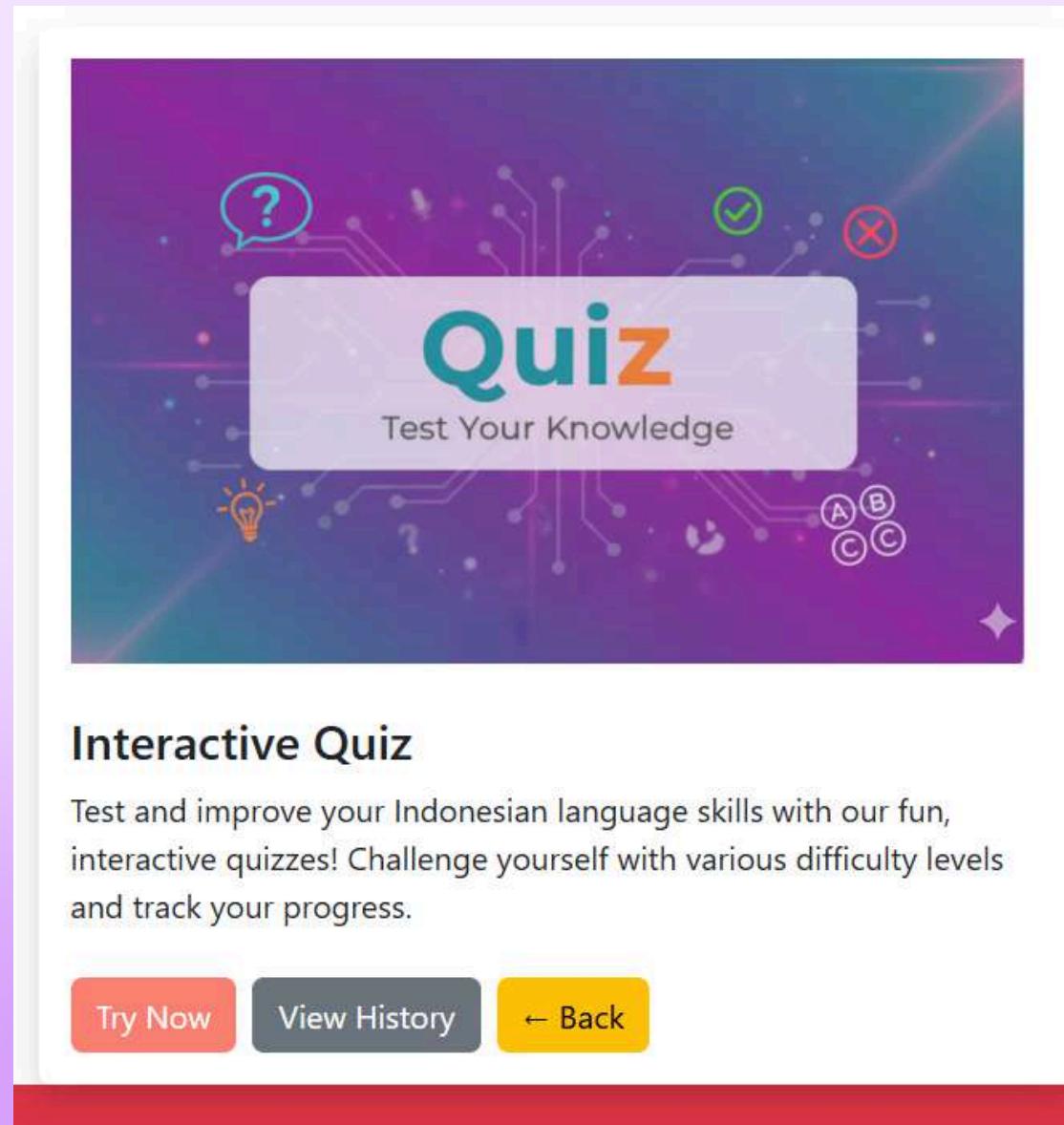


Begini profile.html dibuka, script-nya langsung manggil data user dari backend  
biar data paling baru yang ditampilkan.

# **QUIZ**

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

# FITUR QUIZ



## Interactive Quiz

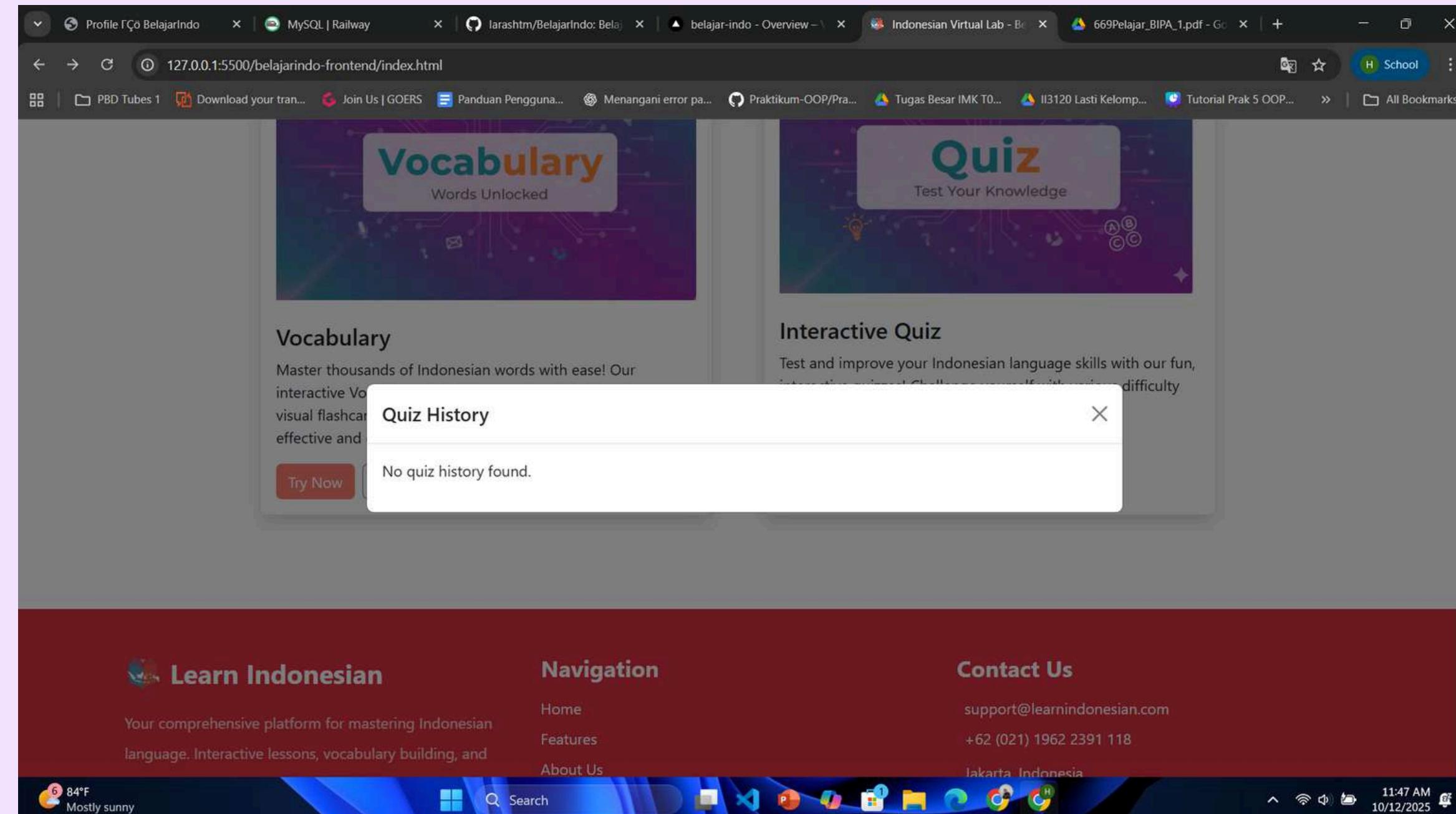
Test and improve your Indonesian language skills with our fun, interactive quizzes! Challenge yourself with various difficulty levels and track your progress.

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

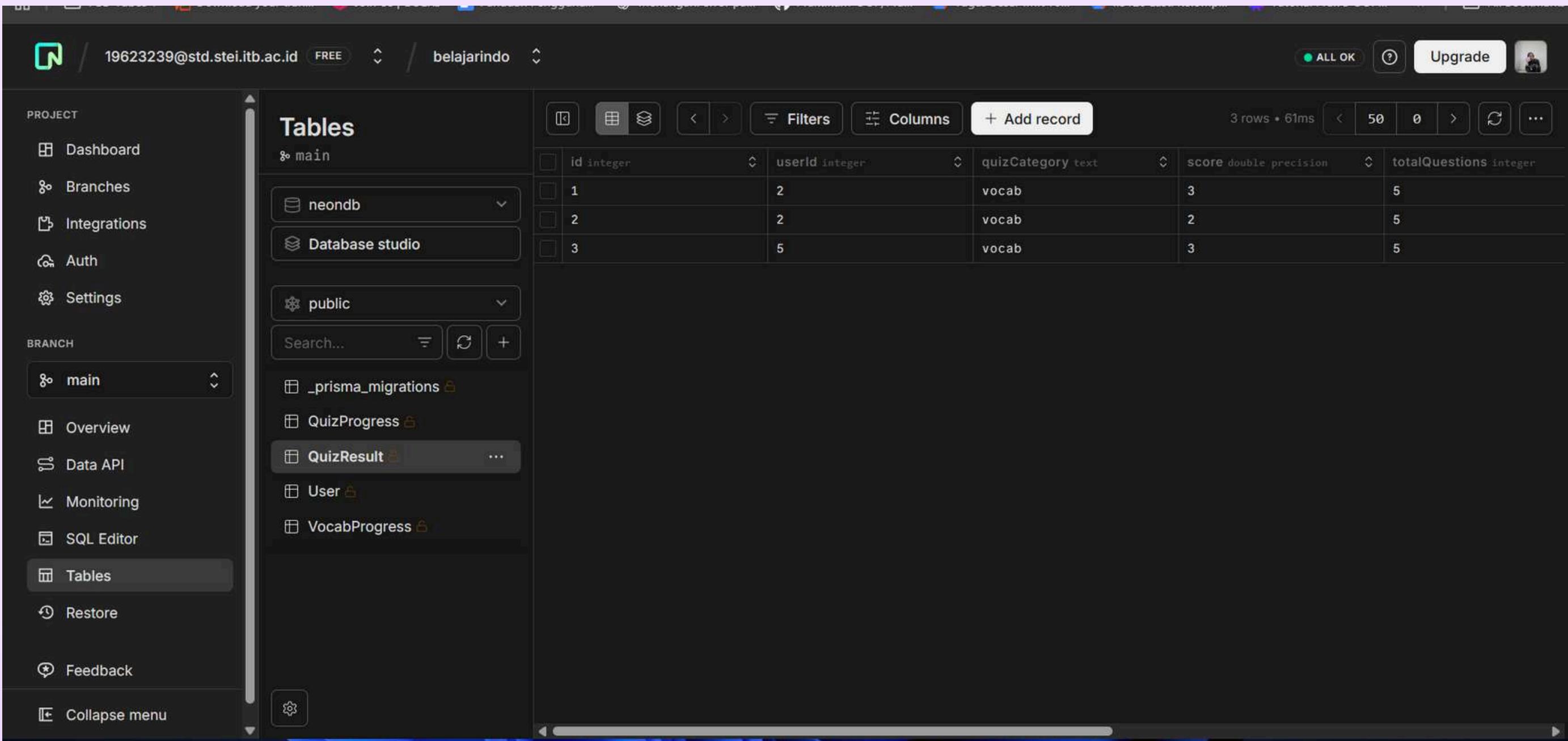
- Pengguna memilih menu "Quiz" di halaman utama.  
→ Sistem menampilkan soal-soal pilihan ganda (multiple choice) yang diambil dari database.
- Pengguna menjawab setiap pertanyaan, lalu mengirim hasilnya setelah selesai.  
→ Hasil skor dan detail jawaban dikirim ke backend melalui endpoint:  
`POST /api/quiz/submit`
- Backend menyimpan hasil ke database (Neon PostgreSQL) menggunakan Prisma ORM.  
→ Data disimpan dalam tabel hasil kuis yang terhubung ke ID pengguna.
- 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 'QuizResult'. The table has columns: id (integer), userId (integer), quizCategory (text), score (double precision), and totalQuestions (integer). The data shows three rows:

id	userId	quizCategory	score	totalQuestions
1	2	vocab	3	5
2	2	vocab	2	5
3	5	vocab	3	5

At the bottom of the interface, there is a dashed-line box containing the text 'Daftar database quiz result'.

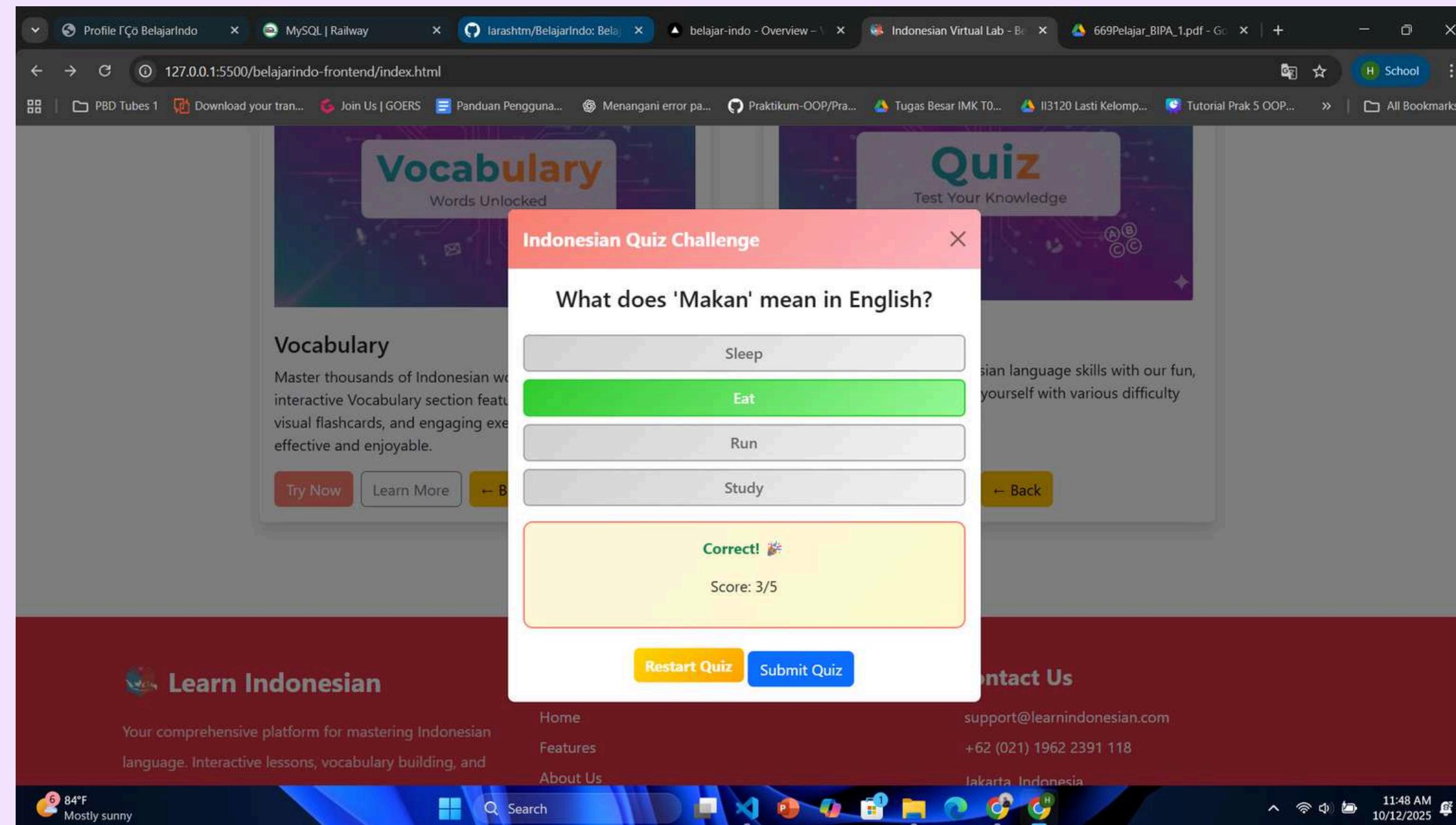
Daftar database quiz result

# INTERASI DIGITAL

The screenshot shows a dark-themed database management interface. On the left, a sidebar titled "Tables" lists several tables: neondb, Database studio, public, \_prisma\_migrations, QuizProgress, QuizResult, User, and VocabProgress. The "VocabProgress" table is currently selected, indicated by a dark gray background. The main panel displays the schema for the "main" table. At the top of this panel are buttons for "Tables" (grid icon), "List" (list icon), "Relationships" (relationship icon), "Back" (left arrow), "Forward" (right arrow), "Filters" (filter icon), "Columns" (columns icon), and "+ Add record". Below these are buttons for "0 rows • 44ms", "Back" (left arrow), "50" (highlighted in blue), "0" (highlighted in red), "Forward" (right arrow), a refresh icon, and three dots. The table schema itself consists of six columns: "id" (integer), "userId" (integer), "category" (text), "wordsLearned" (jsonb), and "lastAccessed" (timestamp). The "wordsLearned" column is currently highlighted with a blue border.

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. Below this, the 'All Quizzes' section lists three completed quizzes under the category 'vocab': one from 10/12/2025 at 11:48:24 AM with a score of 2% (2 / 5), another from the same date with a score of 60% (3 / 5), and a third from 10/12/2025 at 11:48:10 AM with a score of 60% (3 / 5). Each quiz entry has a 'Show Details' link. To the right, the 'Summary Statistics' section shows a total of 3 quizzes taken, an average score of 40.7%, and a best score of 60%. It also indicates the worst score as 2%. The 'Performance Insights' section notes a stable trend, a recent average of 41%, and identifies 'vocab' as the best category (41%). A message encourages continued practice. The bottom of the screen shows a Windows taskbar with weather (84°F, mostly sunny), search, and various application icons.

Summary Statistics		
Quizzes	Average	Best
3	40.7%	60%

Performance Insights		
Trend:	Penting & 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 T0...', '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 User ID: 1. On the right, there are buttons for 'Refresh', 'Home', and 'Logout'. Below the profile, a summary statistics box shows 7 quizzes taken, an average score of 49.3%, and a best score of 80%. It also indicates the worst score at 2%. To the left, a 'Summary Statistics' box provides a quick overview of the user's performance. A large callout box labeled 'Tampilan Show Details' highlights the 'Show Details' link next to a quiz entry for 'vocab' on 10/12/2025 at 11:54:40 AM, which shows a score of 80% (4 / 5) and a JSON data dump.

All Quizzes

vocab  
10/12/2025, 11:54:40 AM

Show Details

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

Summary Statistics

Quizzes	Average	Best
7	49.3%	80%
Worst		
2%		

Performance Insights

Trend:  $\approx$ fôê Improving

Recent Avg: 52%

Best Category: vocab (49%)

Keep practicing to improve!

Tampilan Show Details

# VOCABULARY

# FITUR VOCABULARY

**Vocabulary**

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



[Watch video on YouTube](#)

Error 153

Video player configuration error



# 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