Talk to your data

Dear HackYeah Participant!

Calling all data wizards, keyboard maestros, and creative engineers! Can you select a star? Just talk to your data!

This year's challenge is not for the faint-hearted - your mission, should you choose to accept it, is to make the database confess…in Polish. We believe that this Hackyeah night the data will speak and your solution will bring the democratization of data accessibility.

Unleash your technical prowess, your problem-solving genius, and your code-writing artistry on this unique challenge. Whether you're a seasoned SQL guru, a blossoming programmer, or a tireless tech enthusiast, we invite you to step up to this groundbreaking quest!

Prepare for intense coding, electrifying innovation, and a thrilling race against time!

About our task

Technology makes everyday life, including professional life, much easier. The pursuit of its universal availability has resulted in... technology helping people to use technology. In this edition, we expect you to design a solution that will enable querying the database using natural language. This task will test your practical programming skills, and the great freedom in its implementation will not curb your creativity.

We expect you to design a solution that uses technologies that do not generate additional costs and that every user will be able to put to use. The solution shall enable having a conversation with the database in a natural language (we definitely prefer Polish to English). The application must be able to connect to any relational database and ensure the continuity of conversation (creating subsequent queries). We do not require it to have memory, i.e. enable making direct references to previous queries or obtained results, but such functionality would be welcome.

The conditions that the solution you design must meet have been defined in accordance with two categories - mandatory and additional.

Our requirements

I Mandatory requirements:

a) the application must be based on solutions whose further use will not involve additional licensing costs. It is recommended to use open-source solutions,
b) the application must be adapted to various data structures, including the ability to define a data structure schema,
c) defining the data structure schema in the application is done using DDL statements (for any database: SQLite/Postgres, etc.) or by specifying the name of the schema and downloading the structures from the running database,
d) the application must allow querying the database using queries translated from natural language (English and/or Polish) to SQL,
e) the application processes the natural language query into SQL, which can be modified before its execution,
f) the application provides a response in the form of query results along with the SQL query,
g) the application ensures continuity of queries and/or allows referring to previous queries and their results,
h) the application must be able to run in on-premise environments (locally, without access to the network during processing),
i) the application has an interface in English and/or Polish,
j) the application must be accompanied by installation instructions enabling independent launch, along with information about the model used, dependencies and their sources.

II Additional requirements:

a) the application enables work for a Polish-speaking user, i.e. it has an interface in Polish and allows you to create queries in Polish.
b) the application interface is ergonomic and visually aesthetic
c) preparing a proposal to launch the application on a larger scale (for a larger number of users)
d) forwarding the application via a docker container solution (e.g. dockerfile, docker-compose).

The assessment of your projects

The assessment comprises two stages.

In the first stage, the results of processing queries based on data made available to Participants one hour before the end of the task duration are assessed. The participant documents the query results in the form of screenshots and attaches them to the submitted application on the platform. During this stage, the compliance with mandatory requirements is verified, while in the second stage the quality of the solution is examined.

Failure to meet at least one mandatory requirement results in a negative assessment of the submitted application.

The best teams are invited to the second stage, in which they present the created solution with its functionalities and perform selected queries to verify the application's proper functioning.

Assessment criteria

The maximum score a solution may obtain is 100 points, which are attributed based on:

a) the degree and the quality of implementation of the mandatory requirements (0-50),
b) the possibility of using the application by a Polish-speaking user (0-25),
c) the interface and its ergonomics (0-5),
d) the possibility and/or proposal of application scalability (0-5),
e) providing the solution via docker container solutions (0-5),
f) providing other functionalities not indicated in the requirements but increasing the usability of the application (0-10).