All 3 Really?

Instead of choosing just one hackathon challenge, we tackled all three. Why? Because they're fundamentally interconnected — built on the same data foundation, just viewed through different lenses for each persona.

The Real Challenge: Quantify!

To build meaningful analytics and reskilling tools, we needed accurate, dynamic skill data. But where should it come from?

Market Analysis

Generic industry trends that lack company-specific context and don't reflect Škoda's unique technology stack or team structure.

Operational Goals

Relies on subjective user input from managers and employees — prone to bias, inconsistency, and outdated perceptions.

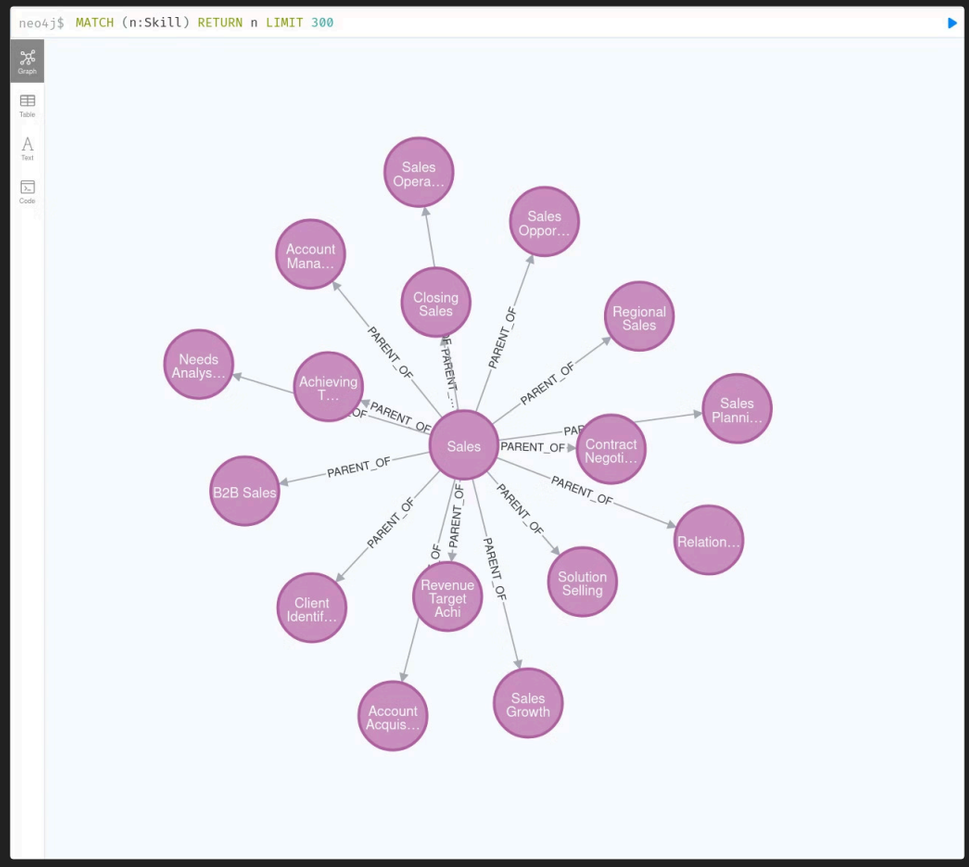
Jira Data ✓

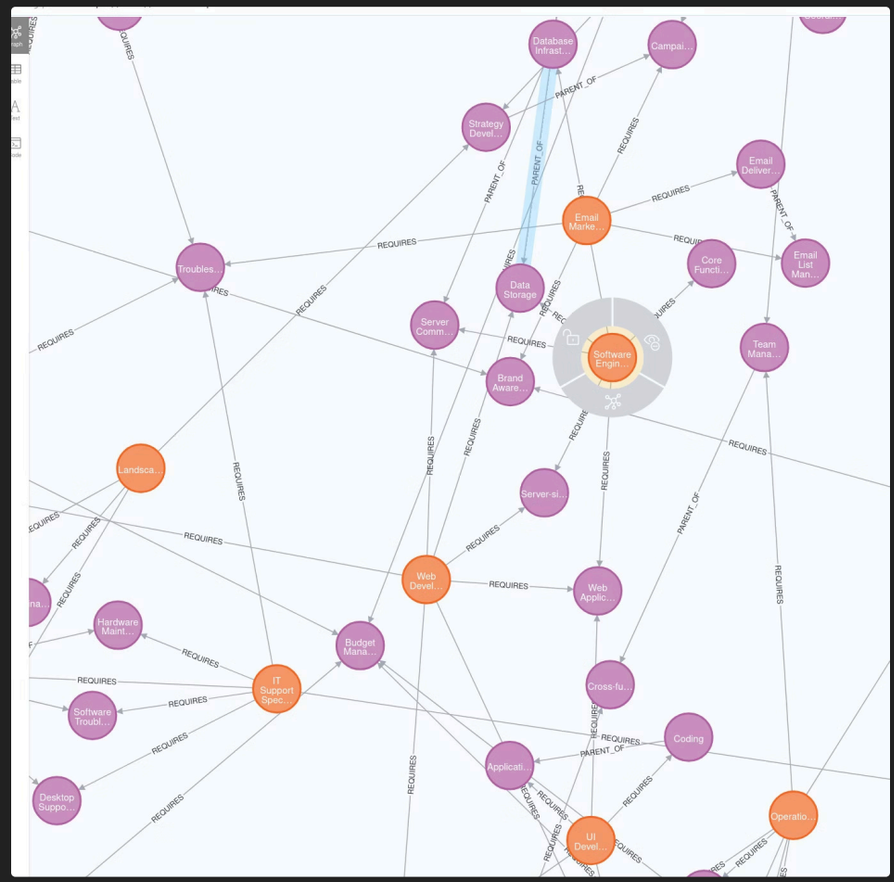
Extracts real, historical skill usage from actual work. Establishes trends over time and reflects true team capabilities.

We Chose Data That Speaks Truth

Skill hierarchy

A robust Neo4j graph database stores relationships between skills.



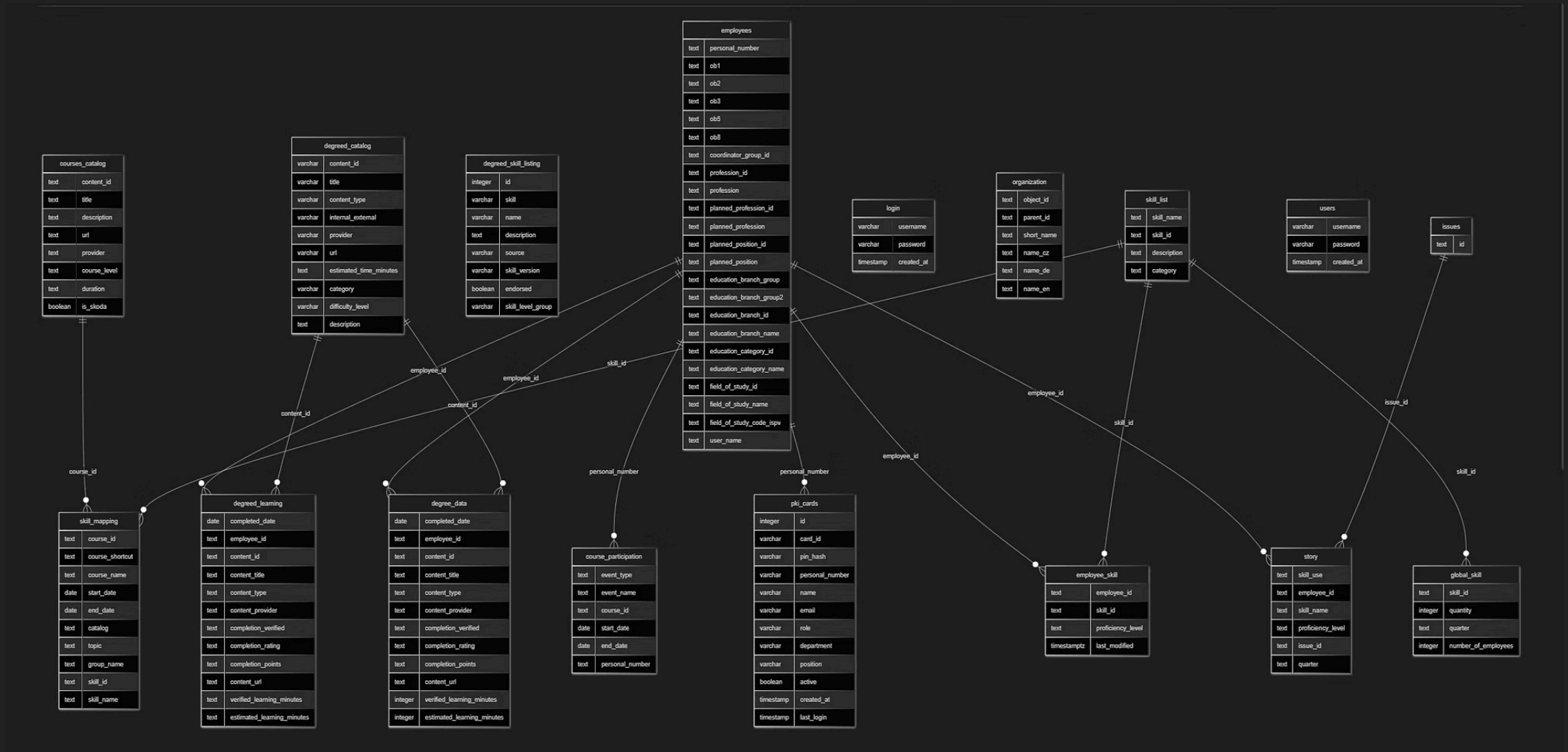


Profession → Skill Hierarchy

Structured taxonomy maps roles to required competencies with weighted importance.

This hierarchical skill structure enables intelligent matching, trend analysis, and personalized recommendations across the entire organization.

Who said DB?



How Do We Extract Skills?

AI Magic! ✨

LLM-Powered Extraction

GPT-4 intelligently parses Jira tickets and job descriptions to identify relevant skills in context.

Smart Normalization

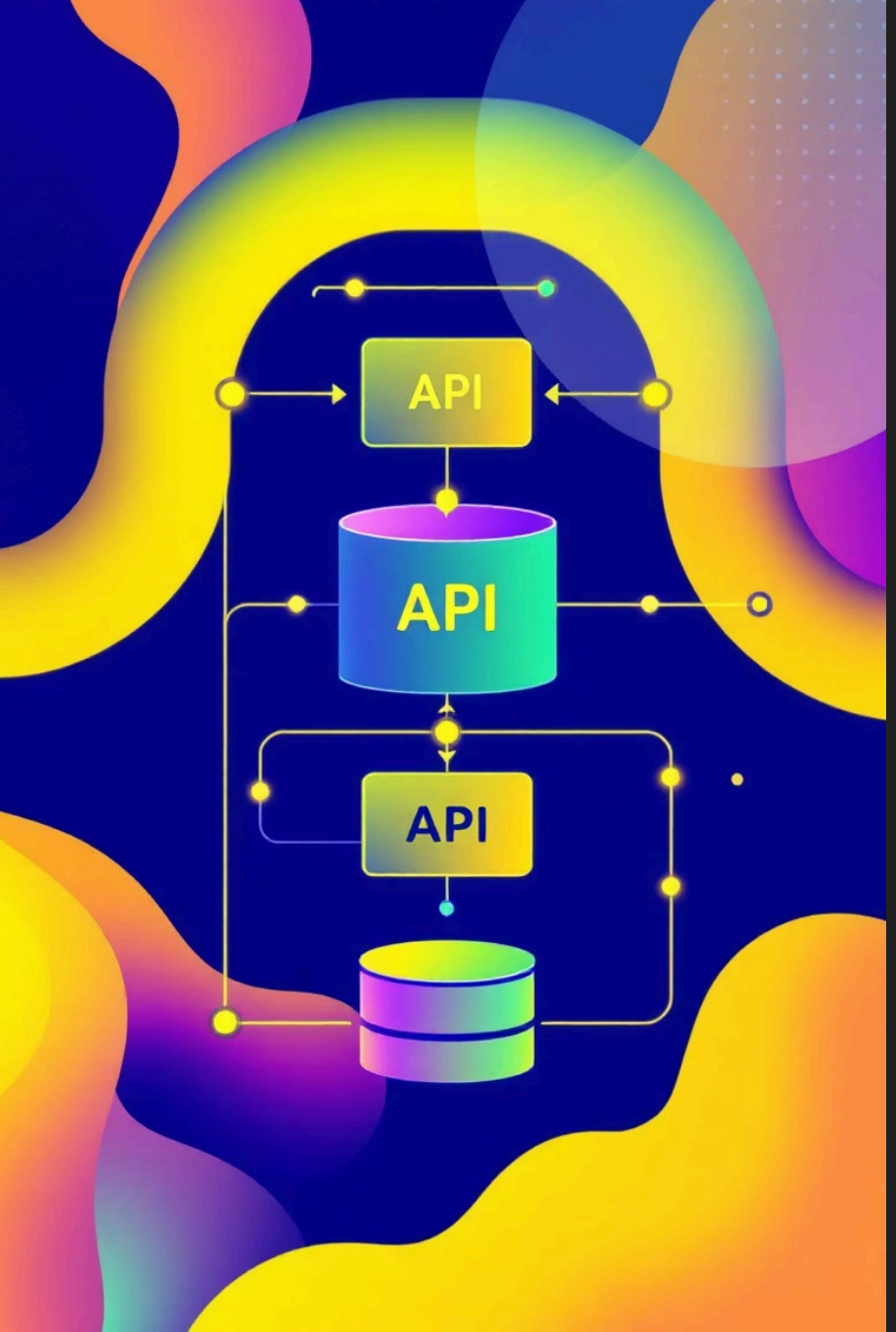
Sentence embeddings with DBSCAN clustering group similar skills (e.g., "JS" and "JavaScript").

Hierarchical Taxonomy

Automatically infers parent-child relationships — like "Python" leading to "Django" or "Flask".

Graph Database

Neo4j enables lightning-fast bidirectional queries with stunning visual representations.



Technical Architecture

REST API

FastAPI backend with automatic Swagger documentation for seamless integration across platforms.

Semantic Search

Vector-based similarity matching validates and suggests skills with contextual understanding.

Progress Tracking

Rich console output with checkpointing ensures resumability and transparent processing status.

Dockerized

The whole project build with docker compose which makes it fully portable.

See It In Action

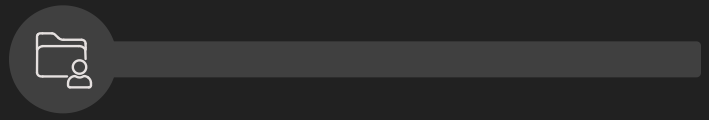
Google Docs

yee.ai.mov

Link

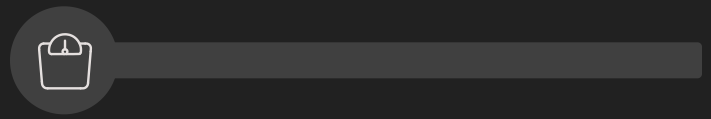
What's Next?

Expanding the Vision



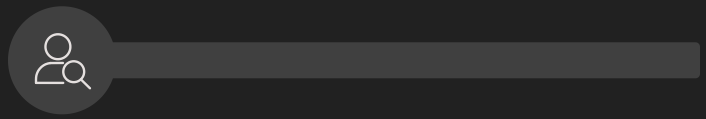
Real Data Integration

Connect live Jira feeds and incorporate diverse employee profiles from across Škoda's global teams.



Better Skill Weighting

Factor in training courses completed and tasks worked to create more accurate skill profiles.



Auto Internal Matching

Identify the best internal candidate for any position before looking externally — saving time and cost.

Impact Across Personas

For HR & Leadership

Data-driven insights on organizational skill gaps, hiring needs, and workforce planning with real-time dashboards.

For Managers

Visibility into team capabilities, reskilling opportunities, and talent allocation to optimize project assignments.

For Employees

An intelligent chatbot companion that suggests relevant courses, tracks progress, and guides career development.

One Platform, Three Solutions

By unifying HR analytics, manager tools, and employee development into a single intelligent system, we're not just filling skill gaps — we're building Škoda's future workforce.

> Built on real data. Powered by AI. Designed for growth.