

Ilyas Mansurov

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EDUCATION

Kazakhstan-British Technical University (Unfinished)

Bachelor in Computer Science, 3d year, GPA: 3.25

Almaty, KZ

Sep. 2022 –

PROJECTS

MSQL Data Analysis (February 2025 – March 2025) — Python, Pandas, MS SQL Server, SSMS, Obsidian

- Analyzed and reconstructed the structure of a database exported from MS SQL Server to CSV. Built a Python script (pandas, collections, itertools) to collect per-file stats, detect shared columns, and compute inter-table relationships via Jaccard similarity. Visualized schema as a graph in Obsidian, identified optimal access paths to component details. Decrypted AES-encrypted technical images of mechanical parts. Conducted metadata-driven analysis: identified image types, extracted structural patterns, mapped hotspots to part metadata (IDs, item numbers). Built hierarchical links between images and table entries for accurate visual-to-data mapping. GitHub Repository

Personalized Book Recommendation Service (February 2025 – March 2025) — Python, pandas, scikit-learn, FastAPI, Pydantic, Uvicorn

- Performed EDA on Amazon books dataset; engineered features via one-hot encoding and ZCA whitening. Designed a recommendation engine using Bayesian updates: merged global popularity priors with user history to build weighted user profiles. Computed cosine similarity between user profiles and all book vectors to generate recommendations. Deployed as a FastAPI microservice (/recommendations); REST client handles preference persistence. Pydantic used for validation, Uvicorn for ASGI hosting.

Resume Checker (November 2024) — Python, NLTK, scikit-learn, Flask, PyMongo

- RESTful Flask API for resume-vacancy matching. Text preprocessing: tokenization, stopword removal, lemmatization (NLTK). Embedding generation using SentenceTransformer (CUDA), cosine similarity via scikit-learn. Candidate data stored in MongoDB (PyMongo); detailed logging via `logging`. GitHub Repository

Linear Algebra Theory & MNIST Classification (October 2024) — Python, NumPy, pandas, scikit-learn, Matplotlib

- Theoretical: proved $\text{tr}(AB) = \text{tr}(BA)$ and $\det(A) = \det(P^{-1}AP)$ using matrix proper ties. Practical: implemented k -NN classifier for MNIST ($1 \leq k \leq 20$, $p = 1, 2, \infty$), visualized predictions, plotted accuracy vs. k , and identified optimal parameters. GitHub Repository

Insurance Calculator (January 2024) — Java, Apache XSSF

- Implemented Excel-based insurance calculator using Apache POI. Automated writing inputs and reading calculated outputs (premium and cost) from formula cells. Ensured dynamic recalculation, file persistence, and data extraction from a predefined Excel template. GitHub Repository

TECHNICAL SKILLS

Languages: Java, Python, SQL

Frameworks: Spring Boot, Flask, FastAPI, Android Framework

Libraries: Pandas, NumPy, Torch, Scikit-learn, Matplotlib, Seaborn

Tools and Platforms: GitHub, Apache Superset BI, Excel, Google Cloud, Firebase, VS Code, Eclipse, Obsidian

Databases: MongoDB, PostgreSQL, Microsoft SQL, Neo4j

General Knowledge: Mathematical Statistics, Machine Learning, Algorithms and Data Structures