

Akshat Maurya

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SUMMARY

CS undergraduate at JNU (May 2027) and two-time Google Summer of Code contributor (2025, 2026) to the R Project. Specializes in backend systems, cross-platform CLI tooling, and CRAN-published R packages.

EXPERIENCE

Google Summer of Code (R Project)

May 2026 – Aug 2026

- **awkreader (R Package):** Built R-to-AWK query translation engine with regex function detection, numeric type guards, and metadata handling for headerless data.
- Achieved **22.8×** speedup over `readr` and up to **5.7×** over `data.table` for multi-file filtered data ingestion and stream record counting.
- Engineered disk-level streaming aggregations (`aggregated.fread`) using P-Square algorithm for **O(1)-memory median estimation**.
- Architected ephemeral `.awk` script execution layer to eliminate shell-escaping vulnerabilities.
- Resolved Windows **8,191-character buffer limits** via dynamic sub-batch chunking; managed CRAN release.

Google Summer of Code (R Project)

May 2025 – Aug 2025

- **DBmaps (R Package):** Built open-source R framework resolving relational schema mismatches across disparate databases.
- Enforced localized pre-aggregations pre-merge to guarantee zero row inflation and eliminate Cartesian expansion.
- Built declarative metadata architecture with dual-discovery engine to infer hidden join paths.
- Validated on 200,000-row TPC-H star schema: **5.88×** **median speedup** over `dplyr` (669.8 ms vs 3,940.1 ms).

PROJECTS

Sentiment Analyzer

React, Node.js, Python

- Built a full-stack text analytics application featuring a React dashboard and Node.js REST API for real-time sentiment visualization and customer feedback evaluation.
- Developed a 3-class NLP pipeline with text cleaning, TF-IDF feature extraction, and a tuned RBF-kernel SVM (Scikit-learn), achieving **91% validation accuracy** across 5-fold cross-validation.

EnvGuard

Go, Cobra, Bubble Tea

- Built a Linux-based system validation tool that checks installation and configuration of essential developer tools (e.g., Git, Docker, Go) and provides automated installation support using package managers like `dnf`.
- Kept the project structure clean with clear separation of concerns between command orchestration and tool-check logic, enabling scalable extension of new system checks while preserving maintainability and readability.
- Integrated an interactive terminal UI using Bubble Tea to provide real-time status updates, structured error reporting, and guided remediation flows, improving usability over traditional command-line utilities.

rPandas

R, Python, reticulate

- Built an R-to-Python translation engine using non-standard evaluation, allowing users to write pandas commands (`rp_filter`, `rp_select`, `rp_mutate`) in native R syntax.
- Commands are translated to pandas and executed via `reticulate`; supports chaining, grouping, summarisation, and generates copy-pasteable Python code via the `table_name` parameter.

ACHIEVEMENTS

- **Google Summer of Code 2025, 2026** (R Project)
- **CRAN Packages:** [DBmaps](#) (5,000+ downloads), [grepreaper](#) (2,000+), [rPandas](#) (1,000+)

EDUCATION

B.Tech, Computer Science & Engineering

Jawaharlal Nehru University, New Delhi

Expected May 2027

CGPA: 7.0/10

Relevant Coursework: OOP, Operating Systems, DBMS, Design & Analysis of Algorithms

SKILLS

Languages: C/C++, Go, R, Python, JavaScript, Bash/POSIX Shell

Frameworks: Node.js, Express, React, FastAPI, Django, Scikit-learn, Bubble Tea

Database: MongoDB, MySQL, RESTful APIs

DevOps: Linux, Docker, Git, GitHub Actions, testthat, roxygen2