ISHJAAP SINGH

https://linkedin.com/in/ishjaap-singh — https://github.com/vennictus

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EDUCATION

Thapar Institute of Engineering and Technology, Patiala *Expected 2028*
B.E. Computer Engineering

Vishwa International Academy, Delhi *2024*
CBSE Senior Secondary Education (PCM)

Presidium School, Indirapuram *2022*
CBSE Secondary Education

TECHNICAL SKILLS

- **Languages:** C, C++, JavaScript, TypeScript
- **Backend:** Node.js, REST, WebSockets
- **Databases:** Redis, MongoDB, PostgreSQL
- **Frameworks:** React, Next.js
- **Developer Tools:** Git, Linux, Docker

EXPERIENCE

Microsoft Learn Student Chapter (MLSC), Thapar Institute Jul 2025 – Present
Technical Coordinator

· Built and maintained student-facing websites and internal tools; coordinated technical execution of events such as **ReVibe Code** and **Perfect CV**

PROJECTS

Orion — WebAssembly Compiler (Astra)
TypeScript, Compilers, WebAssembly

· Implemented a full compiler pipeline: lexer, recursive-descent parser, AST, and WASM emission
· Compiles a custom low-level language (Astra) directly to raw WebAssembly binary (no WAT / interpreter)
· Implemented structured control flow, lexical scoping, and deterministic stack semantics
· Validated correctness using a complete Mandelbrot renderer written in the source language
· GitHub: *https://github.com/vennictus/orion*

Benz — Graph Query Execution Engine
TypeScript, Graph Systems

· Built a lazy, interpreter-driven graph query engine inspired by database execution models
· Implemented pull-based (Volcano) execution with explicit program counters and resumable state
· Designed index-free adjacency with Gremlin-style traversal pipelines and query plan inspection
· GitHub: *https://github.com/vennictus/benz*

Kilo Text Editor
C, Systems Programming

· Built a terminal-based text editor in pure C using raw mode, ANSI escapes, and file I/O
· Implemented rendering, cursor movement, scrolling, search, and C/C++ syntax highlighting
· Managed manual memory allocation and crash-safe unsaved-state handling
· GitHub: *https://github.com/vennictus/kilo-txt-editor*

Tetris
React, Next.js, Tailwind CSS

· Built a deterministic real-time game loop with collision detection and rotation logic
· Designed responsive UI with clean state management for grid, pieces, and scoring
· Deployed live and used by **1000+ students** during college fairs and society events
· Live Demo: *https://tetris-nine-amber.vercel.app/*