

## EDUCATION

### Punjab Technical University (PTU)

- Bachelor of Technology in Computer Science
- Relevant Coursework: Algorithms, Data Structures, Computer Network, Database Management System, Machine Learning, Artificial Intelligence, System Design (Foundation)

**Kapurthala, Punjab**

May 2027

CGPA: 8.5/10.0

## SKILLS

**Programming Languages:** Java, JavaScript (ES6+), SQL, HTML/CSS

**Libraries & Frameworks:** React.js, Node.js, Express.js, Socket.io, WebRTC

**Databases & Tools:** MongoDB, MySQL, Redis, IndexedDB, Git, GitHub

## EXPERIENCE

### GirlScript Summer of Code

**New Delhi, India**

*Open Source Contributor*

June 2025 – November 2025

- Optimized UI performance of CodeClip (production-scale web app) by refactoring React.js components, leading to improved modularity and faster render cycles.
- Collaborated with a distributed team via GitHub, streamlining the development lifecycle through high-quality code reviews and technical documentation for 10+ contributors.

### Excellence Technology

**Chandigarh, Punjab**

*Full-Stack MERN Trainee*

June 2025 – August 2025

- Reduced API response times by 15% by optimizing backend logic and MongoDB query handling for high-concurrency environments.
- Architected a real-time chat application using Socket.io, enabling instant messaging and live presence tracking for multiple concurrent users.
- Developed a peer-to-peer video streaming platform using WebRTC, implementing optimized signaling to ensure connection stability in low-bandwidth scenarios.

## PROJECTS

### Column Store Database Engine

 [Demo](#)

*Vanilla JavaScript, IndexedDB, SQL Parser*

July 2025 – November 2025

- Engineered a high-performance columnar storage engine from scratch, achieving a 5–10× reduction in storage size by implementing dictionary and run-length encoding (RLE).
- Optimized analytical query execution to  $O(n)$  for filtered scans by implementing predicate pushdown and late materialization techniques.
- Developed a custom SQL parser supporting aggregations (GROUP BY, SUM) to handle complex datasets directly in the browser.

### RateLimiter Pro | Distributed Rate Limiting System

 [Demo](#)

*JavaScript, Data Structures & Algorithms, Redis Simulation, System Design*

January 2025 – March 2025

- Designed a production-grade rate limiting system implementing Token Bucket and Sliding Window algorithms to prevent API abuse and manage traffic bursts.
- Ensured atomic request counting across distributed servers by integrating Redis (INCR/EXPIRE), eliminating race conditions during high-traffic spikes.
- Built a traffic simulator to benchmark system performance, monitoring latency and success rates under simulated "spiky" workloads.

### LeetLogic | Interview Platform

 [Demo](#)

*React.js, REST APIs, CSS3*

November 2025 – Present

- Developed a centralized DSA practice platform serving 50+ company-specific interview questions, providing a free alternative to premium resources for students.
- Automated data retrieval from interview APIs to provide real-time updates on frequent coding patterns used by top-tier tech firms.

### WebCrawler | Browser-Based Tool

 [Demo](#)

*JavaScript, Web APIs, IndexedDB*

July 2025 – November 2025

- Created a multi-threaded web crawler that operates entirely without backend infrastructure, ensuring robots.txt compliance and URL filtering.
- Implemented persistent state management using IndexedDB, allowing users to resume interrupted crawls and export data in JSON/CSV formats.

For an exhaustive list of projects, please refer  [Project Portfolio](#)

## ACHIEVEMENTS

- Won the FC Sondhi Scholarship for outstanding academic performance and consistently ranking 1st in class.
- Solved 200+ Data Structures and Algorithms problems on LeetCode, strengthening problem-solving and coding skills.
- Ranked in the Top 10% of the class based on overall academic performance.