

TUSHAR SHARMA

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EDUCATION

Thapar Institute of Engineering & Technology | Patiala, Punjab
Bachelor of Engineering

Jul 2024
CGPA : 9.24

Saint Farid Public School | Mandi Gobindgarh, Punjab
XII (CBSE)

2024
Percentage : 89%

Saint Farid Public School | Mandi Gobindgarh, Punjab
X (CBSE)

2022
Percentage : 92.8%

PROJECTS

FocusRoom — Real-Time Social Collaborative Platform | 🐙 Github

Full-Stack Development

- Built a real-time collaborative focus session platform where users create timed rooms, share a **6-character join code**, and see live participant status powered by **Socket.io WebSockets**.
- Designed a live presence panel showing each participant's name, current task, and elapsed time; engineered **Node.js/Express** room management with rooms persisted in **MongoDB**, in-memory presence, and a server-synced timer for late joiners.
- Implemented a silent emoji reaction feature for motivational nudges without chat interruption, adding targeted nudges, rate limiting, and debounced task updates to cut redundant socket traffic.
- Secured REST APIs and **Socket.io** connections with **JWT-based authentication** and **bcrypt**, and hardened the socket server with input validation to prevent crashes from malformed client messages.

Technologies / Tools Used : Socket.io, Node.js, Express, MongoDB, JWT, React, Tailwind CSS

EquipQR — Smart Sports Equipment Management System | 🐙 Github

Full-Stack Development

- Built a **full-stack platform** simplifying how colleges manage sports equipment, enabling students to browse items by sport, book instantly, and track booking status (Pending, Approved, Returned), with **sign-up restricted to college email IDs**.
- Developed an admin panel to approve or reject booking requests and verify equipment issue/return by scanning QR codes with an in-browser camera scanner, generating a unique **QR code** for each booking using the **qrcode npm package**.
- Engineered smart booking rules (one active booking per user, one sport per booking, single unit per item) validated on the server, with atomic stock reservation that prevents overbooking even under simultaneous requests.
- Secured the platform with **JWT authentication** and role-based access control through admin-only APIs, plus a cron job that auto-expires unapproved requests after **2 minutes** and atomic status updates that block duplicate stock changes.

Technologies / Tools Used : Node.js, MongoDB, JWT, qrcode (npm), node-cron, React, Express, CSS3

SKILLS

Programming Languages : C++, C, JavaScript, SQL

Frameworks & Libraries : React, Node.js, Express, Tailwind CSS

Databases : MongoDB, Oracle SQL

Core Concepts : Data Structures & Algorithms, Object Oriented Programming, Operating Systems, Database Management Systems, Computer Networks

Tools & Platforms : Git, GitHub

Soft Skills : Communication, Problem Solving, Critical Thinking, Teamwork

AWARDS & ACHIEVEMENTS

- **Merit List 3 Scholarship Holder** 2025 Thapar Institute of Engineering & Technology - Awarded merit scholarship for being placed in **top 10%** of the first-year undergraduate batch based on CGPA .

POSITIONS OF RESPONSIBILITY

Member

2026 - Present

Association for Computing Machinery (ACM)

Thapar Institute of Engineering & Technology

- Actively participated in ACM-hosted competitive programming contests, technical seminars, and algorithm workshops, consistently ranking in the **top 20%** of chapter participants.
- Contributed to organising hackathons and coding challenges, coordinating logistics for **100+** participants and mentoring junior members on problem-solving strategies.