

# GAURAV SINGH

SOFTWARE DEVELOPER

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 [PortfolioWebsite](#)  
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## SUMMARY

Seeking to pursue a Master's in Computer Science to deepen my expertise in scalable systems architecture and algorithmic efficiency. My objective is to transition from applied development to researching and implementing optimal solutions in areas like AI/ML integration and high-performance computing, aiming to contribute to impactful open-source or academic projects.

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## EDUCATION

B.Sc B.Ed – Manav Rachna University (2022–2026)

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## CORE COMPUTER SCIENCE FOUNDATIONS

- **Data Structures:** Arrays, Linked Lists (Singly/Doubly), Stacks, Queues, HashMaps, Heaps (Min/Max), Trees (BST, AVL, Segment Tree), Tries, Disjoint Set Union (DSU)
  - **Algorithms:** Sorting (Merge, Quick, Heap), Searching (Binary, Linear), Dynamic Programming (Memoization, Tabulation), Greedy Techniques, Recursion, Divide & Conquer, Backtracking
  - **Graph Theory:** Traversal (BFS, DFS), Shortest Path (Dijkstra's Algorithm, Bellman-Ford), Minimum Spanning Trees (Kruskal's/Prim's)
  - **Fundamentals:** Time & Space Complexity Analysis ( $O(n)$  notation), Object-Oriented Programming (OOP), Pattern identification, LeetCode-style problem solving
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## TECHNICAL EXPERTISE

**Programming** Kotlin (Advanced) , Java , Python , GDScript

**Mobile Development** Android SDK , Jetpack Compose, Kotlin Multiplatform (KMP) , Android XML/Java Coroutines ,Android Architecture Components (AAC)

**Backend & APIs** Ktor, MongoDB, REST APIs, Supabase, Firebase

**Game Development** Unreal Engine (Blueprint) , Godot (GDScript ) , System Design

**Data & Storage** Room , DataStore, Paging 3, Caching Pipelines

**Design & Tools** Figma (UI,UX) , GitHub , Git

## PROJECTS

### **QuizTime - Full-Stack Assessment Platform (Ktor + Android)**

[View on GitHub](#)

A quiz and assessment platform enabling real-time scoring, offline access, and dynamic question delivery.

- Developed a complete backend system using Ktor and MongoDB deployed on Railway Cloud.
- Built an offline-capable Android client using Room + Flow for reactive data handling.
- Designed distributed data synchronization for stable performance under intermittent connectivity.
- Implemented modular API layers with custom HTTP clients for optimized networking.

### **NutriSport - Cross-Platform Fitness System (KMP + KMM)**

[View on GitHub](#)

A multiplatform architectural system examining unified business logic, modular shared code, and cross-device consistency

- Designed a modular multi-platform architecture using Kotlin Multiplatform to unify core logic across Android and iOS.
- Implemented secure authentication using Firebase Auth and integrated cloud storage via Supabase.
- Developed structured clean architecture modules with shared data/state management.
- Built reactive data flows ensuring consistent behavior across platforms.

### **IMAGE VISTA - High-Volume Image Retrieval & Caching System**

[View on GitHub](#)

An image streaming app that loads, caches, and displays large volumes of high-resolution images smoothly.

- Built an optimized image browsing platform using Paging 3 and Room database caching.
- Implemented memory-efficient bitmap processing for smooth performance on low-end devices.
- Utilized Dagger Hilt for dependency injection and scalable modular architecture.
- Designed efficient data pipelines supporting high-volume retrieval under real-time constraints.

## **Math Mingle- Cognitive Skill Development App (Play Store)**

[View on PlayStore](#)

A brain-training app offering logic puzzles, memory games, and mental speed challenges for cognitive improvement.

- Designed custom algorithms for puzzle generation and adaptive difficulty scaling.
  - Created the entire UI using Jetpack Compose for a reactive and interactive experience.
  - Applied algorithmic thinking for designing game logic and state transitions.
  - Demonstrated strong problem-solving and end-to-end app development skills.
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## **ACHIEVEMENTS & CERTIFICATIONS**

- **Hackathon Success:** Secured \*\*7th Rank\*\* (Top 15%) out of \*\*50 participating teams\*\* in the \*\*48-hour continuous\*\* HACKMOR Hackathon, demonstrating sustained technical execution and problem-solving under pressure.
- **Algorithmic Application:** Published 'Math Mingle' (a cognitive skill development game) on Google Play Store, making a complex algorithmic system publicly available.
- **Kotlin Multiplatform:** Multi-Modular App Architecture (Android &iOS) ([View Certificate](#))
- **Full-Stack System Design:** Ktor Backend Development with Reactive UI (Jetpack Compose) ([View Certificate](#))