Prakhar Gupta

Indian Institute of Technology, Goa

Fourth Year **Undergraduate**, **Computer Science and Engineering**
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Education

BTech, Computer Science and Engineering, Indian Institute of Technology Goa	CGPA : **7.53/10**	2021 – Present
Class 12, CBSE, St.Xavier's High School, Ailwal	Aggregate: **93.2** %	2019 – 2021
Class 10, ICSE, Jyoti Niketan School, Atlas Tank	Aggregate: **95.4** %	2017 – 2019

Experience

Technology Analyst, ProcDNA   (Jan 25 – Present)
- Hands-on experience with **Snowflake**, **Databricks**, Spark, and data warehousing, supporting both backend data exploration and data mart creation.
- Automated QC processes in **PostgreSQL** by aggregating data from source data lakes and target data marts, validating data integrity through covariance checks at regular interval using **triggers**.

Projects

Flappy Bird [Github]   (May 24 – Jun 24)
- Developed a 2D Flappy Bird clone in **Unity (C#)** with Rigidbody2D physics for gravity and collision handling.
- Implemented **object pooling** to optimize memory usage and reduce garbage collection overhead.
- Designed an event-driven architecture using Unity's Event System Delegates for game state management.

Simple Physics Engine [Github]   (Mar 24 – Apr 24)
- Designed Physics Engine for point objects, rigid bodies to simulate their interaction in different environments based on principles of classical mechanics managing over 1000+ point objects.
- Modelled on **C++ with SDL 2**(Simple DirectMedia Layer) library based on OpenGL provided efficient low-level way to handle graphics, audio, input and other multimedia functionalities.
- Created key component features like entity,motion dynamics, **collision detection and handling**, fixed and variable time stepping, FPS management from ground up.

Super Unity Mario[Github]   (May 24 – Jun 24)
- Recreated Super Unity Mario which is a classic platformer game developed in **Unity** inspired from the iconic 1985's Super Mario series, featuring original mechanics focusing initially on the 1st level.
- Introduced unique platforming mechanics, such as advanced player movement with acceleration and deceleration dynamics. Jump mechanics include variable jump heights based on input duration, enhancing player control.
- Implemented with a robust **game manager** system handling various aspects such as player health and lives management, scoring mechanisms of 100 points per coin collected, checkpoint systems at level start, spirite animations and 60 fps deployment.

Skills

Programming Skills:	C, C++, C#, Python, JavaScript, TypeScript, Bash, MIPS Assembly.
Software Skills:	Auto-CAD, Solid works, Unity, Git, GitHub, VS, VS Code.
Frameworks/Libraries and OS:	Ubuntu, Fedora, Windows, Node, Express, Spring Boot, Bootstrap, React, MongoDB, Mongoose, OpenCV, OpenGL, SDL, CUDA C, Posix.
Relevant Coursework	Data Structures and Algorithms, Algorithm Design, Computer Networks, Machine Learning, Artificial Intelligence, Computer Architecture, Compiler Design, Unix Tools, Computer Vision, Deep Learning.

Positions of Responsibility

Wing Representative	Hostel Wing Representative in Student Panchayat	(2022 – 2023)
Core-Member	Alpha - Finance Club of IIT Goa	(Mar 23)
Event Overseer	Cepheus KBC Event Overseer	(2023 – 2024)

Extracurriculars & Hobbies

- Committed to environmental stewardship, volunteering with Varaha, the Climate Change Society of IIT Goa, to clean various beaches.
- Gaming enthusiast, engaging in fps, strategic, indie and open-world gameplays.
- Competitive table tennis player, participating in tournaments and friendly matches in spare time.
- Dedicated bookworm with a love for literature, exploring diverse genres and authors.