

Piyush Raj

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Education

The National Institute Of Engineering
B.Tech in Information Science, GPA: 8.585/10
Mysore, Karnataka

August 2023 – July 2027

Khelgaon Public School
High School Certificate in Science with CS
Prayagraj, Uttar Pradesh

August 2020 – July 2022

Projects

- **Secure Image Steganography System** — *Python, Flask, Cryptography, NumPy, Pillow* — GitHub
 - Developed a secure image steganography web application to hide encrypted text and images inside digital images using the Least Significant Bit (LSB) technique.
 - Implemented password-based encryption using PBKDF2 key derivation and SHA-256 hashing with Fernet (AES-based) encryption to ensure secure message protection.
 - Designed randomized pixel embedding using password-derived seeds to improve resistance against steganalysis and unauthorized extraction.
 - Evaluated embedding performance using image quality metrics such as MSE, PSNR, payload capacity, and RGB histogram comparison.
 - Built an interactive Flask interface supporting secure embedding, extraction, and downloadable stego images.
- **Traffic Accident Data Analysis** — *Python, Pandas, Matplotlib, Seaborn* — GitHub
 - Developed a data analysis project to study district-wise road accident statistics from 2020–2023 using Python.
 - Processed and cleaned real-world accident datasets using Pandas and performed statistical analysis on crashes and fatalities.
 - Visualized yearly trends, district-wise comparisons, and crash-death correlations using Matplotlib and Seaborn.
 - Identified high-risk districts by computing total crashes and deaths and presenting insights through charts and plots.

Technical Skills

Programming Languages: Python

Web Technologies: HTML5, CSS3

Libraries & Frameworks: NumPy, Pillow, Cryptography, Matplotlib

Tools & Platforms: Git, GitHub, VS Code

Databases: MySQL

Core Subjects: Data Structures & Algorithms, OOPs, Database Management Systems, Operating Systems, Computer Networks, Cyber Security (Basics)

Certifications

- **Google Data Analytics Professional Certificate** — Coursera (Google) Feb 2026
Completed a comprehensive program covering data cleaning, analysis, visualization, and case studies using real-world datasets.
Certificate Link
- **Programming, Data Structures and Algorithms using Python** — NPTEL (IIT Madras) July - Sep 2024
Elite Certification with focus on Python programming, problem solving, and core data structures.
Certificate Link