

# Piyush Raj

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## Education

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### The National Institute Of Engineering

*B.E. in Computer Science Engineering, 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

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- **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

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**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

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- **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**