DNA Sequence Analyzer - Project README

Welcome to the DNA Sequence Analyzer - a beginner-friendly Python project for basic bioinformatics exploration.

This tool allows users to input DNA sequences and receive useful statistics such as nucleotide counts and visual representations.

Project Description:

This project was created as an introductory step into bioinformatics and coding using Python. It performs the following:

- Accepts a DNA sequence as input (FASTA format).

- Calculates nucleotide composition (A, T, C, G counts).

- Displays a bar chart of nucleotide distribution using Matplotlib.

Features:

- Clean, easy-to-understand Python code.

- Works with user-provided DNA sequences.

- Interactive visualization of nucleotide counts.

- Modular functions for reusability and learning.

Technologies Used:

- Python 3.x

- Matplotlib

- BioPython (optional for future improvements)

How to Run the Project:

1. Clone or download this repository to your local machine.

2. Open the Python file in any Python IDE or editor.

3. Modify the sequence input or add a FASTA file as needed.

4. Run the program to see nucleotide counts and a visualization.

Installation:

If using on your local machine, make sure Python and the required libraries are installed.

Command: pip install matplotlib

Future Plans:

- Integration with real-world datasets from NCBI.

- GC content calculator.

- Transcription to mRNA and amino acid prediction.

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This project is part of my journey into bioinformatics and programming. Connect with me on LinkedIn

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