DATA COMMUNICATION ASSIGNMENT (Implementation of Digital Line Encoding Techniques) REPORT

ASSIGNMENT GROUP INTRODUCTION: We are the group three students, 2 from section B and 1 section A.

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BRANCH: IT

BATCH: 2021 – 2025

ASSIGNMENT: Line Encoding techniques Implementation

SUBMITTED TO: DR. Iqra Altaf Gillani

LINE ENCODING TECHNIQUES IMPLMENTATION:

In this assignment we have implemented a line coding encoder, decoder and scrambler with a digital data generator that generates completely random data sequences and subsequences containing consecutive 4 or 8 zeros. The code is written in C++ and utilizes the OpenGL library for graphical output. The implementation has been done on CodeBlocks .

IMPLEMENTAION DETAILS:

- **Language Used:**

  C++ • **IDE Used:**

  CodeBlocks

- **Libraries Used:** ○

  iostream ○ vector ○

  random ○ conio.h ○

  bits/stdc++.h ○

  windows.h ○

  GL/glut.h

INSTRUCTION TO EXECUTE THE CODE:

1. After successful compilation of the code, the output screen will prompt the user to press the required choice for data generation scheme.
2. Enter the data generation choice, and the system will then ask for the input data bit length.
3. The generated bit stream and its length will be displayed, along with the longest palindromic subsequence in the input bit stream and its length.
4. Simultaneously, the user will be prompted to choose one of the five different encoding schemes or an option to exit.
5. After choosing the desired encoding scheme, the output graph will be displayed on another screen.
6. Once the graph is displayed, the previous output screen will show:
   - Bit data stream ○ Bit data stream length ○

     Generated longest palindromic subsequence and its length
   - Decoded data stream