Simplified Menu-Driven Cipher Program Algorithm

Program Setup and Main Loop

Step 1: Initialize program Initialize variables, display welcome message with program title and available ciphers.

Step 2: Display main menu and get choice Show menu (1. Playfair, 2. Rail Fence, 3. Exit), validate input, exit if choice is 3.

Playfair Cipher Processing

Step 3: Handle Playfair selection Display submenu (Encrypt/Decrypt/Back), get operation choice, return to main menu if back selected.

Step 4: Get Playfair inputs Prompt for keyword and text, validate keyword (letters only), store both inputs.

Step 5: Create key matrix and prepare text Generate 5×5 matrix from keyword + remaining alphabet (I/J combined), prepare text by removing spaces, adding 'X' between duplicates, making even length.

Step 6: Process Playfair transformation For each letter pair, find matrix positions and apply rules: same row (move right), same column (move down), rectangle (swap columns). Reverse for decryption.

Step 7: Display Playfair results Show original text, keyword, operation type, and final result.

Rail Fence Cipher Processing

Step 8: Handle Rail Fence selection Display submenu (Encrypt/Decrypt/Back), get operation choice, return to main menu if back selected.

Step 9: Get Rail Fence inputs Prompt for rail count (minimum 2) and text, validate inputs, remove spaces from text.

Step 10: Process Rail Fence encryption/decryption For encryption: create rail structure, fill in zigzag pattern, read row by row. For decryption: mark positions in zigzag pattern, fill with ciphertext, read in zigzag order.

Step 11: Display Rail Fence results Show original text, rail count, operation type, and final result.

Program Flow Control

Step 12: Handle results and continue Display results with proper formatting, wait for user acknowledgment, return to appropriate submenu or main menu, repeat until exit selected.