1. Let m and n be the dimensions of the image.
   Set block size `B = 4`.
2. **For** `i` from 0 to M step B:
   For `j` from 0 to N step B:
   block= image[i:i+B , j:j+B]
3. Avg = $\frac{\sum block[i][j]}{B \times B}$
   If `block[i][j] <= avg`,
   append `1` to `binaryArr`
   Else
   append `0` to `binaryArr`
   End For
4. **For** each pair of consecutive elements in `binaryArr`:
   Compute `xorArr[k] = binaryArr[i][j]` ⊕ `binaryArr[i][j+1]`
   End For
5. **For** each index `k` in `xorArr`:
   Compute `xorArr1[k] = xorArr[k]` ⊕ `secret_bit_stream[idx]`
   End For
6. M[k] = xorArr1[k]
   For each pair of consecutive elements in `xorArr1`:
   S[k]=M[k+1]
   S[k+1]= M[k]
   End For
7. **For** each pair of consecutive pixels in the block:
   d = |block[k]−block[k+1]|, v = block[k]+block[k+1] / 2
   d_dash = 2 ×d+suffledArr[idx]
   stego_block[k], stego_block[k+1] = v ± d_dash /2
   End For

8. **Create the stego image** with the modified 4x4 `stego_block`:
   image[i:i+B,j:j+B]=stego_block

1. **For** `i` from 0 to M step B:
   For `j` from 0 to N step B:
   Extract the 4x4 `stego_block`:
   stego_block = stego_image[i:i+B , j:j+B]
2. **For** each pair of consecutive pixels in the block
   d_dash = |block[k]−block[k+1]|
   d = d_dash/2
   v = stego_block[k]+stego_block[k+1] / 2
   extracted_bit=d_dash%2
   Append `extracted_bit` to the list `extracted_bits`
   End For
3. **Unshuffle Extracted Bits**:
   For each pair of consecutive elements in `extracted_bits`:
   suffledArr[k] , suffledArr[k+1] = suffledArr[k+1], suffledArr[k]suffledArr[k]
   End For

4. **Calculate Average for Original Block**:
   $$\text{Avg} = \frac{\sum block[i][j]}{B \times B}$$
5. **For** each pixel in the restored `org_block`:
   If `org_block[i][j] <= avg`
   append `1` to `binaryArr_new`
   Else
   append `0` to `binaryArr_new`
   End For
6. **For** each pair of consecutive elements in `binaryArr_new`:
   Calculate XOR and verify with `suffledArr_new`.
   End For
7. **Recreate the cover image** with the restored `org_block`:
   image[i:i+B,j:j+B]=org_block