Steganography Image Encoder

Cyber Security Internship

Coding Part

```
from PIL import Image

def encode_image(image_path, message, output_path):

    img = Image.open(image_path)
    img = img.convert('RGB')


    encoded = img.copy()


    data = img.getdata()


    message += '\0'
    binary_message = ''.join(format(ord(char), '08b') for char in message)


    data_list = list(data)
    binary_index = 0


    for i in range(len(data_list)):
        if binary_index < len(binary_message):
            pixel = list(data_list[i])

            pixel[0] = (pixel[0] & ~1) | int(binary_message[binary_index])
            data_list[i] = tuple(pixel)
            binary_index += 1
```

```
 encoded.putdata(data_list)
    encoded.save(output_path)

def decode_image(image_path):

    img = Image.open(image_path)
    data = img.getdata()


    binary_message = ''
    for pixel in data:
        binary_message += str(pixel[0] & 1)
        if binary_message[-8:] == '00000000':
            break


    message = ''.join(chr(int(binary_message[i:i + 8], 2)) for i in range(0,
len(binary_message) - 8, 8))
    return message


if __name__ == "__main__":

    encode_image('C:/steganography_project/input_image.png.png', 'Hello, World!',
'encoded_image.png')


    decoded_message = decode_image('encoded_image.png')
    print(f'Decoded message: {decoded_message}')
```

Output

```
Decoded message: Hello, World!
```

Thank You