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CE305
Hw2

```
    main()
```

```
Enter data to be transmitted: 1010
Enter the Generating polynomial: 100101

_____________________________________
Data padded with n-1 zeros: 101000000

_____________________________________
CRC or Check value is: 011100

_____________________________________
Final data to be sent: 1010011100

_____________________________________
Enter the received data: 1010011100
Data received: 1010011100

No error detected
```

```
[31] def HamEncoding(msg):
         # Calculate the number of parity bits required
         m = len(msg)
         parity_bits = 0
         while 2 ** parity_bits < m + parity_bits + 1:
             parity_bits += 1

         # Create a list to hold the codeword with placeholders for parity bits
```

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```
encoded_sig2 = HamEncoding(org_sig2)
print(encoded_sig2)

received_sig2 = '10110010011'
result2 = HamDecoding(received_sig2, k2)
print(result2)

received_sig3 = '10110010011'
k3 = 4
result3 = HamDecoding(received_sig3, k3)
print(result3)
# Output: 'No error'

received_sig4 = '10110000011'
k4 = 4
result4 = HamDecoding(received_sig4, k4)
print(result4)
```

```
1010101
Error at Position 1, and correct data: 0010101
10110010011
Error at Position 5, and correct data: 10111010011
Error at Position 5, and correct data: 10111010011
Error at Position 2, and correct data: 11110000011
```

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