```
#CRC code generation

def CRC(data, poly):


    data.extend([0] * (len(poly) - 1))
    for i in range(len(data) - len(poly) + 1):
        if data[i] == 1:
            for j in range(len(poly)):
                data[i + j] = data[i + j] ^ poly[j]

    crc = data[-len(poly) + 1:]

    return crc



data = list(map(int, input("Enter the data bits:\n")))
dup_data=data.copy()
poly = list(map(int, input("Enter the generator polynomial in binary
form:\n")))
crc_code = CRC(data,poly)
dup_data.extend(crc_code)
print("CRC code:{}".format(''.join(map(str, dup_data)) ))
# error checking
def check():
    data1 = list(map(int,input("Enter the data word received by you:
\n")))
    data1_dup=data1.copy()

    poly1 = list(map(int,input("Enter your generator polynomial in
binary form:\n")))

    for i in range(len(data1) - len(poly1) + 1):
        if data1[i] == 1:
            for j in range(len(poly1)):
                data1[i + j] = data1[i + j] ^ poly1[j]
    crc = data1[-len(poly) + 1:]

    count = 0
    for i in range(len(poly1)-1):
        if crc[i]!=0:
            count+=1
    if count==0:
        print("The codeword received has no error")
        print("The correct data bits are =",(data1_dup[0:-
len(poly1)+1]))
    else:
        print("The received code word is wrong\n")

check()
'''
python -u "C:/Users/Rishab/OneDrive/Desktop/CN Experiments/import
crc.py"
Enter the data bits:
110101
Enter the generator polynomial in binary form:
101
CRC code:11010111
```

```
Enter the data word received by you:
11010110
Enter your generator polynomial in binary form:
101
The received code word is wrong
python -u "C:/Users/Rishab/OneDrive/Desktop/CN Experiments/import
crc.py"
Enter the data bits:
1101011
Enter the generator polynomial in binary form:
101
CRC code:110101110
Enter the data word received by you:
110101110
Enter your generator polynomial in binary form:
101
The codeword received has no error
The correct data bits are = [1, 1, 0, 1, 0, 1, 1]
'''
```