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1BM18CS096

CRC generation and error detection

```
def xor (a, b):
    result = []

    for i in range (1, len(b)):
        if a[i] == b[i]:
            result.append('0')
        else
            result . append ('1')

    return ''.join(result)


def binaryDiv( genlen , msg , gen):
    pick = genlen
    tmp = msg [0 : pick]

    while pick < len(msg):
        if tmp [0] = "1" :
            tmp = xor (gen, tmp) + msg [pick]

        else:
            tmp = xor ('0' *pick, tmp) + msg [pick]

        pick += 1

    if tmp [0] == '1' :
        tmp = xor (gen, tmp)

    else:
        tmp = xor ('0' *pick, tmp)

    return tmp
```

```
message = input("Enter Message:")

crcGenerator = "10010011001"
print("CrcGenerator", crcGenerator)

crcGenLen = len(crcGenerator)

modMessage = str(int(message) * (10**(crcGenLen -1)))
print("ModMessage", modMessage)

rem = binaryDiv(crcGenLength, modMessage, crcGenerator)
print("Remainder : ", rem)

codeWord = str(int(modMessage) + int(rem))
print("Code Word : ", codeWord)

ch= int(input("Test error detection ? 0/1))
if ch == 1 :
        pos = int(input("Enter pos to insert error"))
        codeWord = list(codeWord)
        if codeWord[pos+1] == '1' :
                codeWord[pos+1] = '0'
        else :
                codeWord[pos+1] = '1'

        codeWord = ''.join(codeWord)

        test = binaryDiv(crcGenlength, codeWord, crcGenerator)
        print("CodeWord / CrcGen : ", test)

        if (int(test)) == 0 :
                print("No Error")
        else
                print("Error")
else :
        print("Skipping error detection")
```