***FRAMING***

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Server

import socket

s = socket.socket()

host = socket.gethostname()

port = 65456

s.bind((host,port))

s.listen(5)

c, addr = s.accept()

message = c.recv(1024).decode()

print(message)

FLAG = '01111110'

ESC = '10100011'

#Un-framing

if FLAG in message:

message = message.replace(FLAG, ' ')

print(message.split())

message = " ".join(message.split())

print("Unframed = ", message)

#Un-bitstuffing

if '0111110' in message:

message = message.replace('0111110','011111')

print("Unbitstuffed = ", message)

#ByteDecoding

print("MESSAGE SPLIT IN ByteDecoding = ", message.split())

messageList = []

for i in message.split():

if i == FLAG:

messageList.append('FLAG')

elif i == ESC:

messageList.append('ESC')

else:

messageList.append(chr(int(i, 2)))

message = " ".join(messageList)

print("ByteDecoded = ", message)

#ByteUnstuffing

if 'ESC ESC' in message:

message=message.replace("ESC ESC", "ESC")

if 'ESC FLAG' in message:

message=message.replace("ESC FLAG", "FLAG")

print(message)

s.close()

client

import socket

s = socket.socket()

host = socket.gethostname()

port = 65456

s.connect((host,port))

def bytestuff(l):

if 'ESC' in l:

l=l.replace("ESC", "ESC ESC")

if 'FLAG' in l:

l=l.replace("FLAG", "ESC FLAG")

return l

def byteEncode(l):

eightBitArr = []

for i in l.split():

if i == 'FLAG':

eightBitArr.append('01111110')

elif i == 'ESC':

eightBitArr.append('10100011')

else:

eightBitArr.append(format(ord(i), '08b'))

eightBitArr = " ".join(eightBitArr)

return eightBitArr

def bitStuff(l):

if '011111' in l:

l=l.replace('011111', '0111110')

return l

def framing(l):

frames = []

for i in l.split():

frames.append("01111110"+i+"01111110")

frames = ''.join(frames)

return frames

#Input the message

msg = input(">>> Enter the msg ")

print("Message = ", msg)

msg = bytestuff(msg)

print("ByteStuffedMsg = ", msg)

msg = byteEncode(msg)

print("ByteEncodedMsg = ", msg)

msg = bitStuff(msg)

print("BitStuffedMsg = ", msg)

msg = framing(msg)

print("FramedMsg = ", msg)

#Sending the message

print("Sending message...")

s.send(msg.encode())

s.close()