Answer

Hi

I have attached the screenshots of the problem. please go through them.

if you are having any doubts. please comment below.

Thank you.

1. For the internet checksum that we discussed in class (used in UDP and TCP), consider Two bytes 01011100 and 01100101

a.) Calculate the internet checksum of the two bytes

Sol:

```
  01011100
+ 01100101
  --------
  11111111
```

Sum 11000001

checksum = 00111110

b.) Show that the checksum captures all 1 bit errors (1 bit changed of the either two bytes) using an Example.

Sol: By changing one bit in either of Two bytes

first byte : 01011100

↓ changing to find error

Ex: 01011110

finding checksum

```
  01011100
  01100101
  --------
  11000001
```

Sum 11000001

checksum 00111110

for changed bytes

```
  01011110
  01100101
  --------
  11000011
```

Checksum 00111100

donot match so error detected

* Anytype of one bit error will be detected

c.) Show that the checksum might not capture all 2 bit errors (1 bit change in both Two bytes)

Sol: first byte: 01011100 Second: 01100101

changed byte: 01010100 changed: 01101101

Ex:

Original bytes	checksum	Changed bytes	checksum
01011100		01010100	
01100101		01101101	
Sum 11000001		Sum 11000001	
checksum: 00111110		checksum: 00111110	

Matched Error undetected

* Yes, In some cases two bit errors can be undetected.


Likes: 0
Dislikes: 0