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CHECKSUM

CÓDIGO

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REDES DE COMPUTADORAS

Código:

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
void checksum(unsigned char trama[], int size){
```

```
    int sum = 0;
```

```
    //Calculamos el checksum
```

```
    for (int i = 0; i < size; i = i + 2) {
```

```
        sum = sum + (trama[i]<<8 | trama[i+1]);
```

```
    }
```

```
    //¿Es correcto?
```

```
    //Hay que convertir los 2 bytes de 0's en 1's. Para eso usamos |
```

```
    //Así el complemento será de los 4 bytes es: 0 0 algo algo
```

```
    //Si esos algo son 0, el checksum es correcto
```

```
    if (!(sum + (sum>>16)) | 0xFFFF0000) {
```

```
        printf("El checksum %04x es correcto\n", trama[10]<<8 | trama[11]);
```

```
    } else {
```

```
        //Si no, nada más restamos la celda 10 y 11 de sum
```

```
        sum = sum - (trama[10]<<8 | trama[11]);
```

```
        sum = ~(sum + (sum>>16)) | 0xFFFF0000;
```

```
        printf("Es incorrecto, el checksum debe ser: %04x\n", sum);
```

```
    }
```

```
}
```

```
int main() {
```

```
    //Checksum en 00 00
```

```
    /*unsigned char trama[] = {0x45, 0x00, 0x01, 0xe2,
```

```
        0xd7, 0xdb, 0x40, 0x00, 0x80, 0x06, 0x00, 0x00,
```

```
        0xc0, 0xa8, 0x01, 0x43, 0x94, 0xcc, 0x3a, 0xdd};/*
```

```
    //Checksum correcto
```

```
    /*unsigned char trama[] = {0x45, 0x00, 0x01, 0xe2,
```

```
        0xd7, 0xdb, 0x40, 0x00, 0x80, 0x06, 0x8f, 0xa5,
```

```
0xc0, 0xa8, 0x01, 0x43, 0x94, 0xcc, 0x3a, 0xdd};*/
```

```
//Checksum incorrecto
```

```
unsigned char trama[] = {0x45, 0x00, 0x01, 0x9c,  
0xd7, 0xde, 0x40, 0x00, 0x80, 0x06, 0x88, 0x9d,  
0xc0, 0xa8, 0x01, 0x43, 0x94, 0xcc, 0x3a, 0xdd};
```

```
checksum(trama, sizeof(trama) / sizeof(trama[0]));
```

```
}
```

Salidas:

Checksum en 00 00

```
yosafat30@yosafat30-VirtualBox:~/Documentos/Redes/Checksum$ ./checksum  
Es incorrecto, el checksum debe ser: 8fa5
```

Checksum distinto de 00 00 (correcto)

```
yosafat30@yosafat30-VirtualBox:~/Documentos/Redes/Checksum$ ./checksum  
El checksum 8fa5 es correcto
```

Checksum distinto de 00 00 (incorrecto)

```
yosafat30@yosafat30-VirtualBox:~/Documentos/Redes/Checksum$ ./checksum  
Es incorrecto, el checksum debe ser: 8fe8
```