

Checksum Error Detection

Aim: To study and implement Checksum error detection method.

Theory:

Sender side algorithm:

1. Divide the data into k blocks each of m bits.
2. Add all the blocks using 1's complement arithmetic.
3. Complement the final sum to get Checksum.
4. Append the computed Checksum at the end of data to form a Codeword.
5. Send this codeword to receiver.

Receiver side algorithm.

1. Divide the received codeword into blocks of equal size.
2. Add all the blocks using 1's complement arithmetic.
3. Complement the final sum to get result.
4. If result==0,
 No error. Fetch the actual data by removing last block.
 Else
 Error detected. Discard the codeword.

Problem 1: If the data unit to be transmitted is 10101001001110011011001010101101, then construct the codeword using Checksum method.

Problem 2: Data received is 1100110010101010111100001100001111010011. Check if it contains an error or not.

Program:

Output:

Conclusion: Checksum error detection method was studied and implemented successfully.