**Implementation of checksum in c for error detection(one or more than one bit)**

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| #include<stdio.h>  #include<string.h>  #define N strlen(gen\_poly)  char data[28];  char check\_value[28];  char gen\_poly[10];  int data\_length,i,j;  void XOR(){  for(j = 1;j < N; j++)  check\_value[j] = (( check\_value[j] == gen\_poly[j])?'0':'1');  }  void receiver(){  printf("Enter the received data: ");  scanf("%s", data);  printf("\n-----------------------------\n");  printf("Data received: %s", data);  crc();  for(i=0;(i<N-1) && (check\_value[i]!='1');i++);  if(i<N-1)  printf("\nError detected\n\n");  else  printf("\nNo error detected\n\n");  }  void crc(){  for(i=0;i<N;i++)  check\_value[i]=data[i];  do{  if(check\_value[0]=='1')  XOR();  for(j=0;j<N-1;j++)  check\_value[j]=check\_value[j+1];  check\_value[j]=data[i++];  }while(i<=data\_length+N-1);  }  int main()  {  printf("\nEnter data to be transmitted: ");  scanf("%s",data);  printf("\n Enter the Generating polynomial: ");  scanf("%s",gen\_poly);  data\_length=strlen(data);  for(i=data\_length;i<data\_length+N-1;i++)  data[i]='0';  printf("\n----------------------------------------");  printf("\n Data padded with n-1 zeros : %s",data);  printf("\n----------------------------------------");  crc();  printf("\nCRC or Check value is : %s",check\_value);  for(i=data\_length;i<data\_length+N-1;i++)  data[i]=check\_value[i-data\_length];  printf("\n----------------------------------------");  printf("\n Final data to be sent : %s",data);  printf("\n----------------------------------------\n");  receiver();  return 0;  } |