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CLASS SY MCA

ROLL NO 54

Simulation of CRC

#include<iostream>

using namespace std;

void division(int temp[],int gen[],int n,int r)

{

for(int i=0;i<n;i++)

{

    if (gen[0]==temp[i])

    {

        for(int j=0,k=i;j<r+1;j++,k++)

            if(!(temp[k]^gen[j]))

                temp[k]=0;

            else

                temp[k]=1;

    } }}

int main()

{int n,r,message[50],gen[50],temp[50];

cout<<"At Sender's End "<<endl;

cout<<"Enter the number of message bits : ";

cin>>n;

cout<<"Enter the number of generator bits : ";

cin>>r;

cout<<"Enter the message : ";

for(int i=0;i<n;i++)

    cin>>message[i];

cout<<"Enter the generator : ";

for(int i=0;i<r;i++)

    cin>>gen[i];

r--;

for(int i=0;i<r;i++)

    message[n+i] = 0;

for(int i=0;i<n+r;i++)

    temp[i] = message[i];

division(temp,gen,n,r);  
 cout<<"CRC : ";

for(int i=0;i<r;i++)

{

    cout<<temp[n+i]<<" ";

    message[n+i] = temp[n+i];

}

cout<<endl<<"Transmitted Message : ";

for(int i=0;i<n+r;i++)

    cout<<message[i]<<" ";

cout<<endl<<endl<<"At Receiver's End "<<endl;

cout<<"Enter the received message : ";

for(int i=0;i<n+r;i++)

    cin>>message[i];

for(int i=0;i<n+r;i++)

    temp[i] = message[i];

division(temp,gen,n,r);  
 for(int i=0;i<r;i++)

{

    if(temp[n+i])

    {

        cout<<"Error detected in received message.";

        return 0;

    } }

cout<<"No error in received Message.\nReceived Message : ";

for(int i=0;i<n;i++)

    cout<<message[i]<<" ";

return 0;

}

**OUTPUT 1:**

**At Sender's End**  
**Enter the number of message bits : 10**  
**Enter the number of generator bits : 5**  
**Enter the message : 1 1 0 1 0 1 1 1 1 1**  
**Enter the generator : 1 0 0 1 1**  
**CRC : 0 0 1 0**  
**Transmitted Message : 1 1 0 1 0 1 1 1 1 1  0 0 1 0**  
 **At Receiver's End**  
**Enter the received message : 1 1 0 1 0 1 1 1 1 1 0 0 1 0**  
**No error in received Message.**  
**Received Message : 1 1 0 1 0 1 1 1 1 1**  
 **OUTPUT 2:**  
**At Sender's End**  
**Enter the number of message bits : 10**  
**Enter the number of generator bits : 5**  
**Enter the message : 1 1 0 1 0 1 1 1 1 1**  
**Enter the generator : 1 0 0 1 1**  
**CRC : 0 0 1 0**  
**Transmitted Message : 1 1 0 1 0 1 1 1 1 1  0 0 1 0**  
 **At Receiver's End**  
**Enter the received message : 1 1 0 1 0 1 1 1 1 0 0 0 1 0**  
**No error in received Message.**  
**Error detected in received message.**