**Data Communication & Computer Networks Lab**

**Experiment- 3**

**Write a program for 1-Bit error detection in c language.**

**Error Detection:**

At the point when a message is communicated, it might get mixed by noise or data and might get defiled. To stay away from this, we use error detection codes which are extra information added to a given computerized message to assist us with distinguishing in the event that any error has happened during transmission of the message.

Essential methodology utilized for error detection is the utilization of overt repetitiveness bits, where extra pieces are added to work with identification of errors.

**Code:**

#include <stdio.h>

#define MAX 1000

int main()

{

int data\_frame\_arr[MAX], size\_data\_frame, noise\_arr[MAX], resultant\_arr[MAX];

printf("Hello User! Please Enter the number of bits of your Data Frame:\t");

scanf("%d", &size\_data\_frame);

printf("Now Please Enter the Data Frame bits:\t");

for(int i = 0; i < size\_data\_frame; i++)

{

scanf("%d", &data\_frame\_arr[i]);

}

printf("Please Enter the Noise bits:\t");

for(int j = 0; j < size\_data\_frame; j++)

{

scanf("%d", &noise\_arr[j]);

}

// In the below block of code, I am displaying the user's entered values

printf("Below is your entered Data Frame:\t\n");

for(int i = 0; i < size\_data\_frame; i++) {

printf("%d ", data\_frame\_arr[i]);

}

printf("\n\nBelow is your entered noise:\t\n");

for(int j = 0; j < size\_data\_frame; j++) {

printf("%d ", noise\_arr[j]);

}

// Here I am performing the Binary Addition

int a, c = 0;

for(a = size\_data\_frame - 1 ; a >= 0 ; a--)

{

resultant\_arr[a] = ((data\_frame\_arr[a] ^ noise\_arr[a]) ^ c); // c is carry

c = ((data\_frame\_arr[a] & noise\_arr[a]) | (data\_frame\_arr[a] & c)) | (noise\_arr[a] & c);

}

resultant\_arr[a] = c;

int z = 0;

printf("\nThis is the resultant Data Frame: \t");

for(z = 0; z < size\_data\_frame; z++) {

printf("%d ",resultant\_arr[z]);

}

return 0;

}

**Output;**

