

CYCLE 2 PROGRAM 1

Write a program for error detecting code using CRC-CCITT (16-bits).

Code:

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

```
int arr[17];
```

```
void xor(int x[], int y[]) {  
    int k = 0;  
    for (int i = 1; i < 16; i++) {  
        if (x[i] == y[i])  
            arr[k++] = 0;  
        else  
            arr[i] = 1;  
    }  
}
```

```
int main() {  
    int dd[17], div[33], ze[17], i, k;  
    printf("Enter the dataword:\n");  
  
    for (i = 0; i < 17; i++)  
        scanf("%d", &div[i]);  
  
    for (i = i; i < 33; i++)  
        div[i] = 0;  
  
    for (i = 0; i < 17; i++)  
        ze[i] = 0;  
  
    printf("Enter dividend:\n");  
  
    for (i = 0; i < 17; i++)
```

```

scanf("%d", &dd[i]);

i = 0;
k = 0;

for (i = i; i < 17; i++)
    arr[k++] = div[i];

while (i < 33) {
    if (arr[0] == 0)
        xor(arr, ze);
    else
        xor(arr, dd);

    arr[16] = div[i++];
}

k = 0;

for (i = 17; i < 33; i++)
    div[i] = arr[k++];

printf("Codeword: ");

for (i = 0; i < 33; i++)
    printf("%d", div[i]);

for (i = 0; i < 17; i++)
    arr[i] = 0;

printf("\nAt receiver end:\n");

k = 0;

for (i = i; i < 17; i++)

```

```

    arr[k++] = div[i];

while (i < 33) {
    if (arr[0] == 0)
        xor(arr, ze);
    else
        xor(arr, dd);

    arr[16] = div[i++];
}

k = 0;

for (i = 17; i < 33; i++)
    div[i] = arr[k++];

printf("Codeword: ");

for (i = 0; i < 33; i++)
    printf("%d", div[i]);

return 0;
}

```

Output:

```

Enter the dataword
1 0 1 1 0 0 1 1 1 1 0 0 1 0 1 1 1
Enter dividend
1 0 0 0 1 0 0 0 0 0 0 1 0 0 0 1 1
Codeword: 1011001111001011100000000000011011
At receiver end
Codeword: 1011001111001011100000000000000000
Process returned 1 (0x1)   execution time : 49.507 s
Press any key to continue.

```

