

## Lab 14

Aim:- WAP for error detecting code using CRC

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

```
#include <string.h>
```

```
void binaryXOR(char*result, const char*a,
const char*b){
```

```
for(int i=0; i<16; i++){
```

```
result[i] = (a[i] == b[i]) ? '0' ;
```

```
'1';
```

```
}
```

```
result[16] = '\0';
```

```
}
```

```
void calculateCRC(const char*data, int
length, char*checksum)
```

```
{
```

```
char crc[17];
```

```
for(int i=0; i<16; i++){
```

```
  crc[i] = '0';
```

```
}
```

```
  crc[16] = '\0';
```

```
  for(int i=0; i<length; i++){
```

```
    for(int j=0; j<8; j++){
```

```
      char msb = crc[0];
```

```
      for(int k=0; k<16; k++){
```

```
        crc[k] = crc[k+1];
```

```
      }
```

```
      crc[15] = '0';
```



```

        if (msb == '1') {
            char temp[17];
            binaryXOR(temp, crc, "100010000001000100010001");
            strcpy(temp, crc);
        }
    }
    crc[15] = (data[i] == '1') ? '1' : '0';
    strcpy(checksum, crc);
}

int main() {
    char data[100];
    printf("Enter data in binary:");
    scanf("%s", data);
    int dataLength = strlen(data);
    char checksum[17];
    calculateCRC(data, dataLength, checksum);
    char receivedChecksum[17];
    printf("Enter received CRC:");
    scanf("%s", receivedChecksum);

    if (strcmp(receivedChecksum, checksum) == 0)
        printf("Data is error free\n");
    else {
        printf("Data contains errors\n");
    }

    return 0;
}

```

Output :-

Enter data word: 11001010111001001  
 Calculated CRC: 111010010111001



enter no of queries,buffer size,input and output packet size

4 10

6

1

packet is accepted

remaining space=4

Packet not accepted

remaining space=5

packet is accepted

remaining space=0

Packet not accepted

remaining space=1

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