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Experiment 7

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

```
#include <iostream>
#include <string.h>
int crc(char *ip, char *op, char *poly,
        int mode)
{
  strcpy(op, ip);
  if (mode) {
    for (int i=1; i<strlen(poly); i++)
      strcat(op, "0");
    }
  for (int i=0; i< strlen(ip); i++) {
    if (op[i] == '1') {
      for (int j=0; j< strlen(poly); j++){
        if (op[i+j] == poly[j])
          op[i+j] = '0';
        else
          op[i+j] = '1';
        }
      }
    }
  for (int i=0; i< strlen(op); i++)
    if (op[i] == '1')
      return 0;
  return 1;
}
```

```
int main()
{
  char ip[50], op[50], recv[50];
  char poly[] = "10001000000100001";
  cout << "Enter input in binary" << end
  cin >> ip;
  crc(ip, op, poly, 1);
  cout << "Transmitted message is" << ip
       << op + strlen(ip) << endl;
  cout << "Enter received message in binary
       << endl;
  cin >> recv;
  if (crc(recv, op, poly, 0))
    cout << "No error" << endl;
  else
    cout << "Error in data transmission"
         << endl;
  return 0;
}
```

Output:

(1) Enter input message in binary
10110101 01

Transmitted message: 10110101011111110-
-1101110 10

Enter received message
10110101011111110110111010

No error in data

(2) Enter input message in binary
10110101 01
Transmitted message -
10110101011111110 110111010
Enter received message
11111111 10000001 11111111
Error in data transmission has occured.

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