

```

public class crc {

    // Generator polynomial (CRC-4)
    private static final String GENERATOR_POLYNOMIAL = "1001"; // 4-bit CRC
    polynomial

    // Calculate CRC checksum
    private static String calculateCRC(String data, String generator) {
        StringBuilder message = new StringBuilder(data);

        int genLength = generator.length();
        // Append zeros to the data to match the generator polynomial length
        for (int i = 0; i < genLength - 1; i++) {
            message.append("0");
        }

        for (int i = 0; i < data.length(); i++) {
            if (message.charAt(i) == '1') {
                for (int j = 0; j < genLength; j++) {
                    message.setCharAt(i + j, xor(message.charAt(i + j),
generator.charAt(j)));
                }
            }
        }

        // Remove the extra appended zeros
        return data + message.substring(data.length());
    }

    // XOR operation for binary digits
    private static char xor(char a, char b) {
        return a == b ? '0' : '1';
    }

    public static void main(String[] args) {
        String inputData = "1010000"; // Input data to be transmitted
        String generator = "1001"; // Generator polynomial

        // Calculate CRC for transmitted data
        String transmittedData = calculateCRC(inputData, generator);

        System.out.println("Message to be transmitted is: " +
transmittedData);
    }
}

```