

Nama : Adelia Putri Widyasari
NIM : A11.2022.14426
Kelas : A11.43UG1

KUIS DATA ENCRYPTION STANDARD (DES)

Plaintext : FOTO SELFIE ANDA SAAT INI

Key : 02214426

Github : <https://github.com/adeliaputriw/Kriptografi-DES-43UG1-A11.2022.14426.git>

1. Bagaimana hasil binerisasi image selfie anda sebagai plaintext?

```
0000000000000000111111000000000000000000
00000000000000001110011110000000000000000
00000000000000001000001110000000000000000
00000000000000001000001110000000000000000
0000000000000000111100110000000000000000
0000000000000000111110011000000000000000
0000000000000000111100100000000000000000
0000000000000000111000100000000000000000
00000000000000001111111110000000000000000
00000000000000001111111110000000000000000
00000000000000001111111110000000000000000
00000000000000001111111110000000000000000
0000000000000000111110000000000000000000
00000000000000001001111110000000000000000
0000000000000000111011001110000000000000
0000000000111000001100111111100000000000
0000000000111100011011111111110000000000
0000000001111111110111111111111000000000
00000000011111111111111111111111110000000
0000000001111111111111111111111111110000
00000000011111111111111111111111111111000
0000000001111111111111111111111111111111
0000000001111111111111111111111111111111
0000000001111111111111111111111111111111
0000000001111111111111111111111111111111
0000000001111111111111111111111111111111
```

2. Bagaimana proses dan hasil enkripsi pada setiap fase?

Data Being Encrypted: 3030303030303030

After Initial Permutation: 00FF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111110000000000000000

00000000101100111110011110110001

010100000010110010101100010001000010001111000110

Round: 2 00000000101100111110011110110001

01100010011011100000100001001010

010100001010110010100100010101001010000101000001

Round: 3 01100010011011100000100001001010

00110010111000111100110100001111

110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313030
After Initial Permutation: 00FF003F00FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011110001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110001110
01101000111011101000111001001000
010100001010110010100100010101001010000101000001
Round: 3 01101000111011101000111001001000
10011010010011111011010010101110
110100001010110000100110011000101010010001001100
Round: 4 10011010010011111011010010101110
00010000010000001101011010010110
111000001010011000100110011010001011010110001010
Round: 5 00010000010000001101011010010110
11110100101010111110001010101111
111000001001011000100110001011000101010000101011
Round: 6 11110100101010111110001010101111
00100001010101101111001010110000
111000001001001001110010010011100101100001100010
Round: 7 00100001010101101111001010110000
00000110101100111100101101011001
101001001101001001110010100001001100100101111000
Round: 8 00000110101100111100101101011001
11001101110011000100100100111101
101001100101001101010010100000011001111001010000
Round: 9 11001101110011000100100100111101
11010110010011110011010100000110
001001100101001101010011110010010001001001011000
Round: 10 11010110010011110011010100000110
00001000001110110110101000100000
001011110101000101010001100100011101001000101100
Round: 11 00001000001110110110101000100000
10100110010011111101000001111010
000011110100000111011001000100000001111010100100
Round: 12 10100110010011111101000001111010
10010001010101111010010110001101
000111110100000110011001100110000010100010110101

Round: 13 10010001010101111010010110001101
 11111000010111001001111101001101
 000111110000100110001001001000110110101010010001
 Round: 14 11111000010111001001111101001101
 00010001101100001110001100100000
 000110110010100010001101001100110010000100010011
 Round: 15 00010001101100001110001100100000
 00101110111101000100111000101111
 000110010010110010001100101001110000000100000110
 Round: 16 00101110111101000100111000101111
 11101100101110000110001111011110
 010100010010110010001100000101110000001111000010
 Round: Swap 11101100101110000110001111011110
 00101110111101000100111000101111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000

Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 2030303030303030
 After Initial Permutation: 00FE000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100101110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100101110011110110001
 11000010011010100001100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 11000010011010100001100001001010
 10100011100000101100010110101101
 110100001010110000100110011000101010010001001100

Round: 4 10100011100000101100010110101101
01011001101001100000111100100001
111000001010011000100110011010001011010110001010
Round: 5 01011001101001100000111100100001
01110110111100100010001101001001
111000001001011000100110001011000101010000101011
Round: 6 01110110111100100010001101001001
1001101000010111111101010110100
111000001001001001110010010011100101100001100010
Round: 7 1001101000010111111101010110100
01011101000000110011000100100001
101001001101001001110010100001001100100101111000
Round: 8 01011101000000110011000100100001
10110010000101110011001111100101
101001100101001101010010100000011001111001010000
Round: 9 10110010000101110011001111100101
00101101111000111111100010000111
001001100101001101010011110010010001001001011000
Round: 10 00101101111000111111100010000111
00001101100001010110100011101011
001011110101000101010001100100011101001000101100
Round: 11 00001101100001010110100011101011
11001001101000011110100010100000
000011110100000111011001000100000001111010100100
Round: 12 11001001101000011110100010100000
00100000100001111001101010101000
000111110100000110011001100110000010100010110101
Round: 13 00100000100001111001101010101000
00011001010111000000001110101011
000111110000100110001001001000110110101010010001
Round: 14 00011001010111000000001110101011
11001111000011111110001000011101
000110110010100010001101001100110010000100010011
Round: 15 11001111000011111110001000011101
11111010100010101101011000000001
000110010010110010001100101001110000000100000110
Round: 16 11111010100010101101011000000001
01001111100010111000111110010010
010100010010110010001100000101110000001111000010
Round: Swap 01001111100010111000111110010010
11111010100010101101011000000001
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313030313131
 After Initial Permutation: 00FF00E700FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101010110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101010110
 01111010110011101000011001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000011001000000
 10101000111111001001101111011010
 110100001010110000100110011000101010010001001100
 Round: 4 10101000111111001001101111011010
 11100110111000001110101100000011
 111000001010011000100110011010001011010110001010
 Round: 5 11100110111000001110101100000011
 10000101001100100010111001111001
 111000001001011000100110001011000101010000101011
 Round: 6 10000101001100100010111001111001
 01001011110111011011110110111110
 111000001001001001110010010011100101100001100010
 Round: 7 01001011110111011011110110111110
 10101000010001101001111011110000
 101001001101001001110010100001001100100101111000
 Round: 8 10101000010001101001111011110000
 1011001011111011010101010101000101
 101001100101001101010010100000011001111001010000
 Round: 9 1011001011111011010101010101000101
 11001101110110110101001111000010
 001001100101001101010011110010010001001011000
 Round: 10 1100110111011011010101001111000010
 10100110001111100010001111101000
 001011110101000101010001100100011101001000101100
 Round: 11 10100110001111100010001111101000
 11010111011000110011110001001100
 000011110100000111011001000100000001111010100100
 Round: 12 11010111011000110011110001001100
 001110110010100100000000000000110
 000111110100000110011001100110000010100010110101

Round: 13 00111011001010010000000000000110
 10001000100010101011001010011000
 000111110000100110001001001000110110101010010001
 Round: 14 10001000100010101011001010011000
 10100111110100100000101101001001
 000110110010100010001101001100110010000100010011
 Round: 15 10100111110100100000101101001001
 11001001000000010100011001110101
 000110010010110010001100101001110000000100000110
 Round: 16 11001001000000010100011001110101
 11110001101010110110101010111010
 010100010010110010001100000101110000001111000010
 Round: Swap 11110001101010110110101010111010
 11001001000000010100011001110101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3130303030303030
 After Initial Permutation: 00FF000100FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110000
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110000
 01100010111011001000001001001000
 010100001010110010100100010101001010000101000001
 Round: 3 01100010111011001000001001001000
 01101010110011111101010001000010
 110100001010110000100110011000101010010001001100
 Round: 4 01101010110011111101010001000010
 01100100110010011111100100011010
 111000001010011000100110011010001011010110001010
 Round: 5 01100100110010011111100100011010
 10101101011100001010010101011000
 111000001001011000100110001011000101010000101011
 Round: 6 10101101011100001010010101011000
 11110101101011011110000100111000
 111000001001001001110010010011100101100001100010
 Round: 7 111101011010110111110000100111000
 11110110101110110110001000011101
 101001001101001001110010100001001100100101111000
 Round: 8 11110110101110110110001000011101
 00011110000111101100001111101010
 101001100101001101010010100000011001111001010000
 Round: 9 00011110000111101100001111101010
 00011011001011001111110001000111
 001001100101001101010011110010010001001001011000

Round: 10 00011011001011001111110001000111
 00010010101000010000101011111000
 001011110101000101010001100100011101001000101100
 Round: 11 00010010101000010000101011111000
 00011000010100101101010100010110
 000011110100000111011001000100000001111010100100
 Round: 12 0001100001010010110101010100010110
 00010110000110001000101110111110
 000111110100000110011001100110000010100010110101
 Round: 13 00010110000110001000101110111110
 10110100010100110000011010001101
 000111110000100110001001001000110110101010010001
 Round: 14 10110100010100110000011010001101
 10100100100011100010100000010100
 000110110010100010001101001100110010000100010011
 Round: 15 10100100100011100010100000010100
 00001100110011110110100100101000
 000110010010110010001100101001110000000100000110
 Round: 16 00001100110011110110100100101000
 11111011011011101010010110011100
 010100010010110010001100000101110000001111000010
 Round: Swap 11111011011011101010010110011100
 00001100110011110110100100101000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3020303030303030
 After Initial Permutation: 00FD000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100011110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100011110011110110001
 11100010011011100001100000001010
 010100001010110010100100010101001010000101000001
 Round: 3 11100010011011100001100000001010
 00100011010100010100001110101111
 110100001010110000100110011000101010010001001100

Round: 4 00100011010100010100001110101111
10000101000011000100010001000011
111000001010011000100110011010001011010110001010
Round: 5 10000101000011000100010001000011
00011100010010110011000000011011
111000001001011000100110001011000101010000101011
Round: 6 00011100010010110011000000011011
01000101000101101000110100001101
111000001001001001110010010011100101100001100010
Round: 7 01000101000101101000110100001101
11110001010011010111110111000011
101001001101001001110010100001001100100101111000
Round: 8 11110001010011010111110111000011
00111111101001011100011100010110
101001100101001101010010100000011001111001010000
Round: 9 00111111101001011100011100010110
01101100100111110111110000000111
001001100101001101010011110010010001001001011000
Round: 10 01101100100111110111110000000111
00010001000110101000101111000011
001011110101000101010001100100011101001000101100
Round: 11 00010001000110101000101111000011
11000111010100001010001010011100
000011110100000111011001000100000001111010100100
Round: 12 11000111010100001010001010011100
11111110101110001101001111000110
000111110100000110011001100110000010100010110101
Round: 13 11111110101110001101001111000110
01101111011011010011001010110111
000111110000100110001001001000110110101010010001
Round: 14 01101111011011010011001010110111
11001111000001101000001010111001
000110110010100010001101001100110010000100010011
Round: 15 11001111000001101000001010111001
10100000111011001100111101110101
000110010010110010001100101001110000000100000110
Round: 16 10100000111011001100111101110101
11001010011100110010011000011101
010100010010110010001100000101110000001111000010
Round: Swap 11001010011100110010011000011101
10100000111011001100111101110101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3031303030303031
After Initial Permutation: 00FF008200FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011100110011
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011100110011
01110010010111000000110001100011
010100001010110010100100010101001010000101000001
Round: 3 01110010010111000000110001100011
10101100011100001011111111010000
110100001010110000100110011000101010010001001100
Round: 4 10101100011100001011111111010000
10011101010010110101100001111101
111000001010011000100110011010001011010110001010
Round: 5 10011101010010110101100001111101
01100100001001111000100110000000
111000001001011000100110001011000101010000101011
Round: 6 01100100001001111000100110000000
11000101101110000001010011111010
111000001001001001110010010011100101100001100010
Round: 7 11000101101110000001010011111010
10100011000111000001000111110110
101001001101001001110010100001001100100101111000
Round: 8 10100011000111000001000111110110
01010111111000101011001000010010
101001100101001101010010100000011001111001010000
Round: 9 01010111111000101011001000010010
01000001100101011110101111010101
0010011001010011010100111100100100010010011000
Round: 10 01000001100101011110101111010101
00110001000100100011011010100111
001011110101000101010001100100011101001000101100
Round: 11 00110001000100100011011010100111
01011100010010001010111011101100
000011110100000111011001000100000001111010100100
Round: 12 01011100010010001010111011101100
01001000100001100111010100100000
000111110100000110011001100110000010100010110101

Round: 13 01001000100001100111010100100000
 11110110100100011100111110010101
 000111110000100110001001001000110110101010010001
 Round: 14 11110110100100011100111110010101
 11010100101001000000111001011111
 000110110010100010001101001100110010000100010011
 Round: 15 11010100101001000000111001011111
 11100011110100110001001001001110
 000110010010110010001100101001110000000100000110
 Round: 16 11100011110100110001001001001110
 01110100110100110110100010011010
 010100010010110010001100000101110000001111000010
 Round: Swap 01110100110100110110100010011010
 11100011110100110001001001001110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131303030303030
 After Initial Permutation: 00FF000300FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110010
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110010
 01101010111011001000001001101000
 010100001010110010100100010101001010000101000001
 Round: 3 01101010111011001000001001101000
 00101000010001111001000001000010
 110100001010110000100110011000101010010001001100
 Round: 4 00101000010001111001000001000010
 01101101101011000010100010100000
 111000001010011000100110011010001011010110001010
 Round: 5 01101101101011000010100010100000
 01100000011000011110011111010000
 111000001001011000100110001011000101010000101011
 Round: 6 01100000011000011110011111010000
 10011110001100100110110011110011
 111000001001001001110010010011100101100001100010
 Round: 7 10011110001100100110110011110011
 10010000111011111001001001011110
 101001001101001001110010100001001100100101111000
 Round: 8 10010000111011111001001001011110
 10100000001011100110100011110010
 101001100101001101010010100000011001111001010000
 Round: 9 10100000001011100110100011110010
 01100000101101001001000011110001
 001001100101001101010011110010010001001001011000

Round: 10 01100000101101001001000011110001
 0001001000010010010101111100010
 001011110101000101010001100100011101001000101100
 Round: 11 0001001000010010010101111100010
 01100000110010101111110001010000
 000011110100000111011001000100000001111010100100
 Round: 12 01100000110010101111110001010000
 11000111000000000011010100011011
 000111110100000110011001100110000010100010110101
 Round: 13 11000111000000000011010100011011
 00100000000101110000010111001110
 000111110000100110001001001000110110101010010001
 Round: 14 00100000000101110000010111001110
 01100001011011011010000011110011
 000110110010100010001101001100110010000100010011
 Round: 15 01100001011011011010000011110011
 0011010100111101111101110101111
 000110010010110010001100101001110000000100000110
 Round: 16 0011010100111101111101110101111
 11001111100101000110000000010011
 010100010010110010001100000101110000001111000010
 Round: Swap 11001111100101000110000000010011
 0011010100111101111101110101111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030203030303030
 After Initial Permutation: 00FB000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101101111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101101111110011110110001
 11100010001011100001100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 11100010001011100001100001001010
 00100011010001100100011010101111
 110100001010110000100110011000101010010001001100

Round: 4 00100011010001100100011010101111
00010110010010000111000100000110
111000001010011000100110011010001011010110001010
Round: 5 00010110010010000111000100000110
01110011100011000101100001000010
111000001001011000100110001011000101010000101011
Round: 6 01110011100011000101100001000010
10100001000011011001101101001100
111000001001001001110010010011100101100001100010
Round: 7 10100001000011011001101101001100
00000011110000101111101100011011
101001001101001001110010100001001100100101111000
Round: 8 00000011110000101111101100011011
11010001101001000000010010011001
101001100101001101010010100000011001111001010000
Round: 9 11010001101001000000010010011001
01111110001010001111110001000100
001001100101001101010011110010010001001001011000
Round: 10 01111110001010001111110001000100
00010001010110001101010110101111
001011110101000101010001100100011101001000101100
Round: 11 00010001010110001101010110101111
01001011101000100010001000010011
000011110100000111011001000100000001111010100100
Round: 12 01001011101000100010001000010011
00000111101100001110111101000101
000111110100000110011001100110000010100010110101
Round: 13 00000111101100001110111101000101
01100100100011000111010011110010
000111110000100110001001001000110110101010010001
Round: 14 01100100100011000111010011110010
00010010010101010000100001010010
000110110010100010001101001100110010000100010011
Round: 15 00010010010101010000100001010010
00011010000110111101110001100001
000110010010110010001100101001110000000100000110
Round: 16 00011010000110111101110001100001
11001011100110001111001011110010
010100010010110010001100000101110000001111000010
Round: Swap 11001011100110001111001011110010
00011010000110111101110001100001
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030313030303030
 After Initial Permutation: 00FF000400FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110101
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110101
 011010100110110000000000001001010
 010100001010110010100100010101001010000101000001
 Round: 3 011010100110110000000000001001010
 01110011001011111111110110010001
 110100001010110000100110011000101010010001001100
 Round: 4 01110011001011111111110110010001
 01100001110000001111110000010111
 111000001010011000100110011010001011010110001010
 Round: 5 01100001110000001111110000010111
 00001111011101100010011000110000
 111000001001011000100110001011000101010000101011
 Round: 6 00001111011101100010011000110000
 10110000000010101100111011010110
 111000001001001001110010010011100101100001100010
 Round: 7 10110000000010101100111011010110
 00001111100000011011011010001111
 101001001101001001110010100001001100100101111000
 Round: 8 00001111100000011011011010001111
 11010001000111101001010001011011
 101001100101001101010010100000011001111001010000
 Round: 9 11010001000111101001010001011011
 11000101001001011110100011110100
 001001100101001101010011110010010001001001011000
 Round: 10 11000101001001011110100011110100
 11111111001001100100101010110011
 001011110101000101010001100100011101001000101100
 Round: 11 11111111001001100100101010110011
 10101110010110110000010111010010
 000011110100000111011001000100000001111010100100
 Round: 12 10101110010110110000010111010010
 10010101100111010110100011111111
 000111110100000110011001100110000010100010110101

Round: 13 10010101100111010110100011111111
 10111011010101000101011111011000
 000111110000100110001001001000110110101010010001
 Round: 14 10111011010101000101011111011000
 10111101001001100100001011111010
 000110110010100010001101001100110010000100010011
 Round: 15 10111101001001100100001011111010
 01010100100011010110000101111101
 000110010010110010001100101001110000000100000110
 Round: 16 01010100100011010110000101111101
 00010111001001000001101111001110
 010100010010110010001100000101110000001111000010
 Round: Swap 00010111001001000001101111001110
 01010100100011010110000101111101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313130303030
 After Initial Permutation: 00FF000E00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110111111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110111111
 01101010011011000000110001001011
 010100001010110010100100010101001010000101000001
 Round: 3 01101010011011000000110001001011
 01100010001010111111011100111001
 110100001010110000100110011000101010010001001100
 Round: 4 01100010001010111111011100111001
 11000100010011111000011100111110
 111000001010011000100110011010001011010110001010
 Round: 5 11000100010011111000011100111110
 00111000001111010010001101010100
 111000001001011000100110001011000101010000101011
 Round: 6 00111000001111010010001101010100
 11101011111011000010111100011101
 111000001001001001110010010011100101100001100010
 Round: 7 11101011111011000010111100011101
 10000000011011111000110100111001
 101001001101001001110010100001001100100101111000
 Round: 8 10000000011011111000110100111001
 100110010100000000000011000010011
 101001100101001101010010100000011001111001010000
 Round: 9 100110010100000000000011000010011
 01101111100001001011011000111000
 001001100101001101010011110010010001001001011000

Round: 10 01101111100001001011011000111000
 00100000001000010010001101100100
 001011110101000101010001100100011101001000101100
 Round: 11 00100000001000010010001101100100
 0110000111110110011001001001100
 000011110100000111011001000100000001111010100100
 Round: 12 01100001111110110011001001001100
 00101100001110010000000010111000
 000111110100000110011001100110000010100010110101
 Round: 13 00101100001110010000000010111000
 10100110100100011000011011000100
 000111110000100110001001001000110110101010010001
 Round: 14 10100110100100011000011011000100
 10111000101000010111011111110100
 000110110010100010001101001100110010000100010011
 Round: 15 10111000101000010111011111110100
 10111001010011011000110110100100
 000110010010110010001100101001110000000100000110
 Round: 16 10111001010011011000110110100100
 10111101001001111100100010111010
 010100010010110010001100000101110000001111000010
 Round: Swap 10111101001001111100100010111010
 10111001010011011000110110100100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030302030303030
 After Initial Permutation: 00F7000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101110111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101110111110011110110001
 11100110001011100001100100001010
 010100001010110010100100010101001010000101000001
 Round: 3 11100110001011100001100100001010
 01110001010100100110001010101110
 110100001010110000100110011000101010010001001100

Round: 4 01110001010100100110001010101110
00011011001000001000101111101000
111000001010011000100110011010001011010110001010
Round: 5 00011011001000001000101111101000
01100001000110110001111110000011
111000001001011000100110001011000101010000101011
Round: 6 01100001000110110001111110000011
01111110010101010011110000000101
111000001001001001110010010011100101100001100010
Round: 7 01111110010101010011110000000101
1000011101000000010111111101100
101001001101001001110010100001001100100101111000
Round: 8 1000011101000000010111111101100
00110011100110100101101110011101
101001100101001101010010100000011001111001010000
Round: 9 00110011100110100101101110011101
10001000000100111010010101100010
001001100101001101010011110010010001001001011000
Round: 10 10001000000100111010010101100010
01100100011100100100111011110110
001011110101000101010001100100011101001000101100
Round: 11 01100100011100100100111011110110
11101111010101011000000101001101
000011110100000111011001000100000001111010100100
Round: 12 11101111010101011000000101001101
11010011111101000100110001101011
000111110100000110011001100110000010100010110101
Round: 13 11010011111101000100110001101011
00101010001110010010001011101000
000111110000100110001001001000110110101010010001
Round: 14 00101010001110010010001011101000
10011110000111111011001110000001
000110110010100010001101001100110010000100010011
Round: 15 10011110000111111011001110000001
00110010000011000111110001000010
000110010010110010001100101001110000000100000110
Round: 16 00110010000011000111110001000010
11001001100011101001010001110101
010100010010110010001100000101110000001111000010
Round: Swap 11001001100011101001010001110101
00110010000011000111110001000010
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030313131
 After Initial Permutation: 00FF00E000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101010001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101010001
 01110010010011100000110001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011100000110001000010
 00100100011100011010000011110101
 110100001010110000100110011000101010010001001100
 Round: 4 00100100011100011010000011110101
 11110101001111010100000000100111
 111000001010011000100110011010001011010110001010
 Round: 5 11110101001111010100000000100111
 00100111011110001011000111011110
 111000001001011000100110001011000101010000101011
 Round: 6 00100111011110001011000111011110
 10100001000111111010110111011100
 111000001001001001110010010011100101100001100010
 Round: 7 10100001000111111010110111011100
 01010001010100010011101001000010
 101001001101001001110010100001001100100101111000
 Round: 8 01010001010100010011101001000010
 01110010111110010101010110000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110010111110010101010110000101
 10101100000011000101010101011011
 001001100101001101010011110010010001001001011000
 Round: 10 10101100000011000101010101011011
 01111101100110110110000010111100
 001011110101000101010001100100011101001000101100
 Round: 11 01111101100110110110000010111100
 11110101100001000101001110100100
 000011110100000111011001000100000001111010100100
 Round: 12 11110101100001000101001110100100
 01011111001011100011110100001110
 000111110100000110011001100110000010100010110101

Round: 13 01011111001011100011110100001110
 11010011011001110101100110011011
 000111110000100110001001001000110110101010010001
 Round: 14 11010011011001110101100110011011
 00101001000110111011100111101101
 000110110010100010001101001100110010000100010011
 Round: 15 00101001000110111011100111101101
 00101010100111111010110110100110
 000110010010110010001100101001110000000100000110
 Round: 16 00101010100111111010110110100110
 01001100100111111100011101110101
 010100010010110010001100000101110000001111000010
 Round: Swap 01001100100111111100011101110101
 00101010100111111010110110100110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3130303131303030
 After Initial Permutation: 00FF001900FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110101000
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110101000
 01101000111111101000011001101001
 010100001010110010100100010101001010000101000001
 Round: 3 01101000111111101000011001101001
 00100100011011001000101101000110
 110100001010110000100110011000101010010001001100
 Round: 4 00100100011011001000101101000110
 01001100100110110111001010001011
 111000001010011000100110011010001011010110001010
 Round: 5 01001100100110110111001010001011
 10110111111100111110100101100111
 111000001001011000100110001011000101010000101011
 Round: 6 10110111111100111110100101100111
 00000011011100110001001010000111
 111000001001001001110010010011100101100001100010
 Round: 7 00000011011100110001001010000111
 11001110011100110100001110000111
 101001001101001001110010100001001100100101111000
 Round: 8 11001110011100110100001110000111
 10110111000001000011000000000001
 101001100101001101010010100000011001111001010000
 Round: 9 10110111000001000011000000000001
 10010111100001011110001011100101
 001001100101001101010011110010010001001001011000

Round: 10 10010111100001011110001011100101
 10000100101000110010101101101100
 001011110101000101010001100100011101001000101100
 Round: 11 10000100101000110010101101101100
 01100110101111110110000100011100
 000011110100000111011001000100000001111010100100
 Round: 12 01100110101111110110000100011100
 10010111111100010011000111000001
 000111110100000110011001100110000010100010110101
 Round: 13 10010111111100010011000111000001
 11111011101011110000101000000011
 000111110000100110001001001000110110101010010001
 Round: 14 11111011101011110000101000000011
 00010111001100100000111001011101
 000110110010100010001101001100110010000100010011
 Round: 15 00010111001100100000111001011101
 10101010001011101001010111101010
 000110010010110010001100101001110000000100000110
 Round: 16 10101010001011101001010111101010
 01001000000010000011001011001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01001000000010000011001011001000
 10101010001011101001010111101010
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303020303030
 After Initial Permutation: 00EF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101000111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101000111110011110110001
 11100110001011110001100101001010
 010100001010110010100100010101001010000101000001
 Round: 3 11100110001011110001100101001010
 11010000000011100111011010101111
 110100001010110000100110011000101010010001001100

Round: 4 11010000000011100111011010101111
11000110011011001011100011110010
111000001010011000100110011010001011010110001010
Round: 5 11000110011011001011100011110010
11010111010110111110111001110110
111000001001011000100110001011000101010000101011
Round: 6 11010111010110111110111001110110
01000101000111011111110010011100
111000001001001001110010010011100101100001100010
Round: 7 01000101000111011111110010011100
10111010100110100001010101000001
101001001101001001110010100001001100100101111000
Round: 8 10111010100110100001010101000001
01010101001001010011001100110111
101001100101001101010010100000011001111001010000
Round: 9 01010101001001010011001100110111
01010000001000111011100111111101
001001100101001101010011110010010001001001011000
Round: 10 01010000001000111011100111111101
11011011100101101100010000010100
001011110101000101010001100100011101001000101100
Round: 11 11011011100101101100010000010100
11010001010011000101000001000011
000011110100000111011001000100000001111010100100
Round: 12 11010001010011000101000001000011
01101101101110010001001011101000
000111110100000110011001100110000010100010110101
Round: 13 01101101101110010001001011101000
00110010100100001010111001010100
000111110000100110001001001000110110101010010001
Round: 14 00110010100100001010111001010100
10001011010000011010100101001101
000110110010100010001101001100110010000100010011
Round: 15 10001011010000011010100101001101
10101011011111010010000011011101
000110010010110010001100101001110000000100000110
Round: 16 10101011011111010010000011011101
10111100101010100001001010001010
010100010010110010001100000101110000001111000010
Round: Swap 10111100101010100001001010001010
10101011011111010010000011011101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030313131
 After Initial Permutation: 00FF00E000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101010001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101010001
 01110010010011100000110001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011100000110001000010
 00100100011100011010000011110101
 110100001010110000100110011000101010010001001100
 Round: 4 00100100011100011010000011110101
 11110101001111010100000000100111
 111000001010011000100110011010001011010110001010
 Round: 5 11110101001111010100000000100111
 00100111011110001011000111011110
 111000001001011000100110001011000101010000101011
 Round: 6 00100111011110001011000111011110
 10100001000111111010110111011100
 111000001001001001110010010011100101100001100010
 Round: 7 10100001000111111010110111011100
 01010001010100010011101001000010
 101001001101001001110010100001001100100101111000
 Round: 8 01010001010100010011101001000010
 01110010111110010101010110000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110010111110010101010110000101
 10101100000011000101010101011011
 001001100101001101010011110010010001001001011000
 Round: 10 10101100000011000101010101011011
 01111101100110110110000010111100
 001011110101000101010001100100011101001000101100
 Round: 11 01111101100110110110000010111100
 11110101100001000101001110100100
 000011110100000111011001000100000001111010100100
 Round: 12 11110101100001000101001110100100
 01011111001011100011110100001110
 000111110100000110011001100110000010100010110101

Round: 13 01011111001011100011110100001110
 11010011011001110101100110011011
 000111110000100110001001001000110110101010010001
 Round: 14 11010011011001110101100110011011
 00101001000110111011100111101101
 000110110010100010001101001100110010000100010011
 Round: 15 00101001000110111011100111101101
 00101010100111111010110110100110
 000110010010110010001100101001110000000100000110
 Round: 16 00101010100111111010110110100110
 01001100100111111100011101110101
 010100010010110010001100000101110000001111000010
 Round: Swap 01001100100111111100011101110101
 00101010100111111010110110100110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131303031313030
 After Initial Permutation: 00FF003300FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110000010
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110000010
 01101000111111101000101001101000
 010100001010110010100100010101001010000101000001
 Round: 3 01101000111111101000101001101000
 00001100010011101010000111101110
 110100001010110000100110011000101010010001001100
 Round: 4 00001100010011101010000111101110
 10110000001010001111100011011100
 111000001010011000100110011010001011010110001010
 Round: 5 10110000001010001111100011011100
 11100010100011111110101000100001
 111000001001011000100110001011000101010000101011
 Round: 6 11100010100011111110101000100001
 01100111100110100000100110011011
 111000001001001001110010010011100101100001100010
 Round: 7 01100111100110100000100110011011
 01110000110110110010010100100111
 101001001101001001110010100001001100100101111000
 Round: 8 01110000110110110010010100100111
 11100011100101011010000111111110
 101001100101001101010010100000011001111001010000
 Round: 9 11100011100101011010000111111110
 10001000010100001001010000011110
 001001100101001101010011110010010001001001011000

Round: 10 10001000010100001001010000011110
 00001001010110011001000010011001
 001011110101000101010001100100011101001000101100
 Round: 11 00001001010110011001000010011001
 01110110000111101111010001111000
 000011110100000111011001000100000001111010100100
 Round: 12 01110110000111101111010001111000
 10010001110101010001111001101000
 000111110100000110011001100110000010100010110101
 Round: 13 10010001110101010001111001101000
 1111111111110100110110010011101
 000111110000100110001001001000110110101010010001
 Round: 14 1111111111110100110110010011101
 10011100010010000010010110100101
 000110110010100010001101001100110010000100010011
 Round: 15 10011100010010000010010110100101
 11111011111110010111001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 11111011111110010111001000101110
 11011101011001110001011100100001
 010100010010110010001100000101110000001111000010
 Round: Swap 11011101011001110001011100100001
 11111011111110010111001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030203030
 After Initial Permutation: 00DF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000100100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000100100111110011110110001
 01100110011011100000100101001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100110011011100000100101001010
 01100000110110111100110100000111
 110100001010110000100110011000101010010001001100

Round: 4 01100000110110111100110100000111
00101011010011111001101101000111
111000001010011000100110011010001011010110001010
Round: 5 00101011010011111001101101000111
011110001111100100111111111101
111000001001011000100110001011000101010000101011
Round: 6 01111000111111001001111111111101
10101101101001101110000110101001
111000001001001001110010010011100101100001100010
Round: 7 10101101101001101110000110101001
01010010101100101110101110100001
101001001101001001110010100001001100100101111000
Round: 8 01010010101100101110101110100001
01010011011010100010101011111111
101001100101001101010010100000011001111001010000
Round: 9 01010011011010100010101011111111
11100101000010110011011010110001
001001100101001101010011110010010001001001011000
Round: 10 11100101000010110011011010110001
11010000110001111101100011010111
001011110101000101010001100100011101001000101100
Round: 11 11010000110001111101100011010111
01000011101010010100110000111001
000011110100000111011001000100000001111010100100
Round: 12 01000011101010010100110000111001
00111110101101100110101110001000
000111110100000110011001100110000010100010110101
Round: 13 00111110101101100110101110001000
01000101001100011100001110110100
000111110000100110001001001000110110101010010001
Round: 14 01000101001100011100001110110100
10111001001010100001011011101001
000110110010100010001101001100110010000100010011
Round: 15 10111001001010100001011011101001
11000100010101100110011001010010
000110010010110010001100101001110000000100000110
Round: 16 11000100010101100110011001010010
10101111110011010011100010001010
010100010010110010001100000101110000001111000010
Round: Swap 10101111110011010011100010001010
11000100010101100110011001010010
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313130303130
 After Initial Permutation: 00FF004F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011111111110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011111111110
 01100010111011001000001001101000
 010100001010110010100100010101001010000101000001
 Round: 3 01100010111011001000001001101000
 01101000110011111101000000001100
 110100001010110000100110011000101010010001001100
 Round: 4 01101000110011111101000000001100
 01101110111100011111100100100011
 111000001010011000100110011010001011010110001010
 Round: 5 01101110111100011111100100100011
 10100001001110100111010101000000
 111000001001011000100110001011000101010000101011
 Round: 6 10100001001110100111010101000000
 10101111101000011101001100101011
 111000001001001001110010010011100101100001100010
 Round: 7 10101111101000011101001100101011
 01011000001010100011110100110100
 101001001101001001110010100001001100100101111000
 Round: 8 01011000001010100011110100110100
 00000111110101101011111110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00000111110101101011111110001101
 01011101000011001000110100100000
 001001100101001101010011110010010001001001011000

Round: 10 01011101000011001000110100100000
 01001101011011010011100110111101
 001011110101000101010001100100011101001000101100
 Round: 11 01001101011011010011100110111101
 01011010000011110100011001000100
 000011110100000111011001000100000001111010100100
 Round: 12 01011010000011110100011001000100
 10011011111000110110111000001111
 000111110100000110011001100110000010100010110101
 Round: 13 10011011111000110110111000001111
 10001011110110100000111001010110
 000111110000100110001001001000110110101010010001
 Round: 14 10001011110110100000111001010110
 11110000010111100101110101001100
 000110110010100010001101001100110010000100010011
 Round: 15 11110000010111100101110101001100
 00001111101100001001101110010001
 000110010010110010001100101001110000000100000110
 Round: 16 00001111101100001001101110010001
 01010111011100000100001010101110
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111011100000100001010101110
 00001111101100001001101110010001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030302030
 After Initial Permutation: 00BF00000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000111100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000111100111110011110110001
 01100110011011110000100001001110
 010100001010110010100100010101001010000101000001
 Round: 3 01100110011011110000100001001110
 11011011111010011101010100101111
 110100001010110000100110011000101010010001001100

Round: 4 11011011111010011101010100101111
10100000111100001001101101110100
111000001010011000100110011010001011010110001010
Round: 5 10100000111100001001101101110100
00101010110011101100001000110011
111000001001011000100110001011000101010000101011
Round: 6 00101010110011101100001000110011
10001100111101001101100110101111
111000001001001001110010010011100101100001100010
Round: 7 10001100111101001101100110101111
01011000100011010110111111011101
101001001101001001110010100001001100100101111000
Round: 8 01011000100011010110111111011101
11110111110100000111110110000010
101001100101001101010010100000011001111001010000
Round: 9 11110111110100000111110110000010
00100100000100010011000111011010
001001100101001101010011110010010001001001011000
Round: 10 00100100000100010011000111011010
10110000111011000110010010111000
001011110101000101010001100100011101001000101100
Round: 11 10110000111011000110010010111000
10010100100101101100010100111011
000011110100000111011001000100000001111010100100
Round: 12 10010100100101101100010100111011
01100011101000110000001100111011
000111110100000110011001100110000010100010110101
Round: 13 01100011101000110000001100111011
00010011011111011110110010000001
000111110000100110001001001000110110101010010001
Round: 14 00010011011111011110110010000001
00101001011001101011000111010110
000110110010100010001101001100110010000100010011
Round: 15 00101001011001101011000111010110
11111011111101010001101101110011
000110010010110010001100101001110000000100000110
Round: 16 11111011111101010001101101110011
01010100110111011001010001111000
010100010010110010001100000101110000001111000010
Round: Swap 01010100110111011001010001111000
11111011111101010001101101110011
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313130303031
 After Initial Permutation: 00FF008E00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011100111111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011100111111
 01111000010011000000100001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01111000010011000000100001000010
 01110100101100011001001010010011
 110100001010110000100110011000101010010001001100
 Round: 4 01110100101100011001001010010011
 11110101101001111010110010100010
 111000001010011000100110011010001011010110001010
 Round: 5 11110101101001111010110010100010
 00110001011111111011011001001111
 111000001001011000100110001011000101010000101011
 Round: 6 00110001011111111011011001001111
 10110000100110110100011110011001
 111000001001001001110010010011100101100001100010
 Round: 7 10110000100110110100011110011001
 00100011100000001100101000010111
 101001001101001001110010100001001100100101111000
 Round: 8 00100011100000001100101000010111
 01101001010100111111001100001111
 101001100101001101010010100000011001111001010000
 Round: 9 01101001010100111111001100001111
 10000010011110000110100010101110
 001001100101001101010011110010010001001001011000

Round: 10 10000010011110000110100010101110
 10000101001110010011101100100000
 001011110101000101010001100100011101001000101100
 Round: 11 10000101001110010011101100100000
 01001101010100111000101110010110
 000011110100000111011001000100000001111010100100
 Round: 12 01001101010100111000101110010110
 10010010101110010100111110101100
 000111110100000110011001100110000010100010110101
 Round: 13 10010010101110010100111110101100
 1111110010000000011111100110110
 000111110000100110001001001000110110101010010001
 Round: 14 1111110010000000011111100110110
 1111111000010010100111100100110
 000110110010100010001101001100110010000100010011
 Round: 15 1111111000010010100111100100110
 01111110011010100000011011100100
 000110010010110010001100101001110000000100000110
 Round: 16 01111110011010100000011011100100
 01100101010010101000001011000100
 010100010010110010001100000101110000001111000010
 Round: Swap 01100101010010101000001011000100
 01111110011010100000011011100100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010

Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 30303030303020
 After Initial Permutation: 007F000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000001100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000001100111110011110110001
 01100010011001110100100001001110
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011001110100100001001110
 00011010001001001101010001101111
 110100001010110000100110011000101010010001001100

Round: 4 00011010001001001101010001101111
00100000010111011010010010011001
111000001010011000100110011010001011010110001010
Round: 5 00100000010111011010010010011001
01111010010011001000010110110111
111000001001011000100110001011000101010000101011
Round: 6 01111010010011001000010110110111
11001001111001111000111100001110
111000001001001001110010010011100101100001100010
Round: 7 11001001111001111000111100001110
00100011100001110010001010011001
101001001101001001110010100001001100100101111000
Round: 8 00100011100001110010001010011001
10000011011010010011001100010000
101001100101001101010010100000011001111001010000
Round: 9 10000011011010010011001100010000
10000111001111000001101101010011
001001100101001101010011110010010001001001011000
Round: 10 10000111001111000001101101010011
10100011001111100101101111001100
001011110101000101010001100100011101001000101100
Round: 11 10100011001111100101101111001100
10110011100101110001100001110001
000011110100000111011001000100000001111010100100
Round: 12 10110011100101110001100001110001
00101001011011001101111100101010
000111110100000110011001100110000010100010110101
Round: 13 00101001011011001101111100101010
01101011100111101011010001000000
000111110000100110001001001000110110101010010001
Round: 14 01101011100111101011010001000000
11101001000001001110010101000111
000110110010100010001101001100110010000100010011
Round: 15 11101001000001001110010101000111
10110101110001011101000100011000
000110010010110010001100101001110000000100000110
Round: 16 10110101110001011101000100011000
01010111000101000101000111101011
010100010010110010001100000101110000001111000010
Round: Swap 01010111000101000101000111101011
10110101110001011101000100011000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303031
After Initial Permutation: 00FF008000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011100110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011100110001
01110010010111100000110001000011
010100001010110010100100010101001010000101000001
Round: 3 01110010010111100000110001000011
00101100001100001011101111010011
110100001010110000100110011000101010010001001100
Round: 4 00101100001100001011101111010011
10001001011010000111101101110001
111000001010011000100110011010001011010110001010
Round: 5 10001001011010000111101101110001
00111100110111110110110010111111
111000001001011000100110001011000101010000101011
Round: 6 00111100110111110110110010111111
00010100110011010001101010000000
111000001001001001110010010011100101100001100010
Round: 7 00010100110011010001101010000000
01110001011110010011010011000101
101001001101001001110010100001001100100101111000
Round: 8 01110001011110010011010011000101
0111010010111100111111011011100
101001100101001101010010100000011001111001010000
Round: 9 0111010010111100111111011011100
10100001001010101111110000101100
001001100101001101010011110010010001001001011000
Round: 10 10100001001010101111110000101100
01111010010100011110011110001100
001011110101000101010001100100011101001000101100
Round: 11 01111010010100011110011110001100
11110011111001111011011010011011
000011110100000111011001000100000001111010100100
Round: 12 11110011111001111011011010011011
11101001111100111111010010001001
000111110100000110011001100110000010100010110101

Round: 13 11101001111100111111010010001001
 01000111011010011010000111011111
 000111110000100110001001001000110110101010010001
 Round: 14 01000111011010011010000111011111
 00110001000001111100011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00110001000001111100011101001110
 01100011110011000110011010000110
 000110010010110010001100101001110000000100000110
 Round: 16 01100011110011000110011010000110
 00100001000100100000101100001100
 010100010010110010001100000101110000001111000010
 Round: Swap 00100001000100100000101100001100
 01100011110011000110011010000110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010
 Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000

Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3130303030303030
 After Initial Permutation: 00FF000100FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110000
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110000
 01100010111011001000001001001000
 010100001010110010100100010101001010000101000001
 Round: 3 01100010111011001000001001001000
 01101010110011111101010001000010
 110100001010110000100110011000101010010001001100
 Round: 4 01101010110011111101010001000010
 01100100110010011111100100011010
 111000001010011000100110011010001011010110001010
 Round: 5 011001001100100111111100100011010
 10101101011100001010010101011000
 111000001001011000100110001011000101010000101011
 Round: 6 10101101011100001010010101011000
 11110101101011011110000100111000
 111000001001001001110010010011100101100001100010

Round: 7 11110101101011011110000100111000
 11110110101110110110001000011101
 101001001101001001110010100001001100100101111000
 Round: 8 11110110101110110110001000011101
 00011110000111101100001111101010
 101001100101001101010010100000011001111001010000
 Round: 9 00011110000111101100001111101010
 00011011001011001111110001000111
 001001100101001101010011110010010001001001011000
 Round: 10 00011011001011001111110001000111
 00010010101000010000101011111000
 001011110101000101010001100100011101001000101100
 Round: 11 00010010101000010000101011111000
 00011000010100101101010100010110
 000011110100000111011001000100000001111010100100
 Round: 12 00011000010100101101010100010110
 00010110000110001000101110111110
 000111110100000110011001100110000010100010110101
 Round: 13 00010110000110001000101110111110
 10110100010100110000011010001101
 000111110000100110001001001000110110101010010001
 Round: 14 10110100010100110000011010001101
 10100100100011100010100000010100
 000110110010100010001101001100110010000100010011
 Round: 15 10100100100011100010100000010100
 00001100110011110110100100101000
 000110010010110010001100101001110000000100000110
 Round: 16 00001100110011110110100100101000
 11111011011011101010010110011100
 010100010010110010001100000101110000001111000010
 Round: Swap 11111011011011101010010110011100
 00001100110011110110100100101000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 2030303030303030
After Initial Permutation: 00FE000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111110000000000000000
00000000101100101110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100101110011110110001
11000010011010100001100001001010
010100001010110010100100010101001010000101000001
Round: 3 11000010011010100001100001001010
10100011100000101100010110101101
110100001010110000100110011000101010010001001100
Round: 4 10100011100000101100010110101101
01011001101001100000111100100001
111000001010011000100110011010001011010110001010
Round: 5 01011001101001100000111100100001
01110110111100100010001101001001
111000001001011000100110001011000101010000101011
Round: 6 01110110111100100010001101001001
1001101000010111111101010110100
111000001001001001110010010011100101100001100010
Round: 7 1001101000010111111101010110100
01011101000000110011000100100001
101001001101001001110010100001001100100101111000
Round: 8 01011101000000110011000100100001
10110010000101110011001111100101
101001100101001101010010100000011001111001010000
Round: 9 10110010000101110011001111100101
00101101111000111111100010000111
001001100101001101010011110010010001001001011000
Round: 10 00101101111000111111100010000111
00001101100001010110100011101011
001011110101000101010001100100011101001000101100
Round: 11 00001101100001010110100011101011
11001001101000011110100010100000
000011110100000111011001000100000001111010100100
Round: 12 11001001101000011110100010100000
00100000100001111001101010101000
000111110100000110011001100110000010100010110101
Round: 13 00100000100001111001101010101000
00011001010111000000001110101011
000111110000100110001001001000110110101010010001
Round: 14 00011001010111000000001110101011
11001111000011111110001000011101
000110110010100010001101001100110010000100010011
Round: 15 11001111000011111110001000011101
11111010100010101101011000000001
000110010010110010001100101001110000000100000110

Round: 16 11111010100010101101011000000001
 01001111100010111000111110010010
 010100010010110010001100000101110000001111000010
 Round: Swap 01001111100010111000111110010010
 11111010100010101101011000000001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010
 Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000

Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131303030303030
 After Initial Permutation: 00FF000300FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110010
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110010
 01101010111011001000001001101000
 010100001010110010100100010101001010000101000001
 Round: 3 01101010111011001000001001101000
 00101000010001111001000001000010
 110100001010110000100110011000101010010001001100
 Round: 4 00101000010001111001000001000010
 01101101101011000010100010100000
 111000001010011000100110011010001011010110001010
 Round: 5 01101101101011000010100010100000
 01100000011000011110011111010000
 111000001001011000100110001011000101010000101011
 Round: 6 01100000011000011110011111010000
 10011110001100100110110011110011
 111000001001001001110010010011100101100001100010

Round: 7 10011110001100100110110011110011
 10010000111011111001001001011110
 101001001101001001110010100001001100100101111000
 Round: 8 10010000111011111001001001011110
 10100000001011100110100011110010
 101001100101001101010010100000011001111001010000
 Round: 9 10100000001011100110100011110010
 01100000101101001001000011110001
 001001100101001101010011110010010001001001011000
 Round: 10 01100000101101001001000011110001
 00010010000100100101011111100010
 001011110101000101010001100100011101001000101100
 Round: 11 00010010000100100101011111100010
 01100000110010101111110001010000
 000011110100000111011001000100000001111010100100
 Round: 12 01100000110010101111110001010000
 11000111000000000011010100011011
 000111110100000110011001100110000010100010110101
 Round: 13 11000111000000000011010100011011
 00100000000101110000010111001110
 000111110000100110001001001000110110101010010001
 Round: 14 00100000000101110000010111001110
 01100001011011011010000011110011
 000110110010100010001101001100110010000100010011
 Round: 15 01100001011011011010000011110011
 00110101001111011111101110101111
 000110010010110010001100101001110000000100000110
 Round: 16 00110101001111011111101110101111
 11001111100101000110000000010011
 010100010010110010001100000101110000001111000010
 Round: Swap 11001111100101000110000000010011
 00110101001111011111101110101111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3020303030303030
After Initial Permutation: 00FD000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100011110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100011110011110110001
11100010011011100001100000001010
010100001010110010100100010101001010000101000001
Round: 3 11100010011011100001100000001010
00100011010100010100001110101111
110100001010110000100110011000101010010001001100
Round: 4 00100011010100010100001110101111
10000101000011000100010001000011
111000001010011000100110011010001011010110001010
Round: 5 10000101000011000100010001000011
00011100010010110011000000011011
111000001001011000100110001011000101010000101011
Round: 6 00011100010010110011000000011011
01000101000101101000110100001101
111000001001001001110010010011100101100001100010
Round: 7 01000101000101101000110100001101
11110001010011010111110111000011
101001001101001001110010100001001100100101111000
Round: 8 11110001010011010111110111000011
00111111101001011100011100010110
101001100101001101010010100000011001111001010000
Round: 9 00111111101001011100011100010110
01101100100111110111110000000111
001001100101001101010011110010010001001001011000
Round: 10 01101100100111110111110000000111
00010001000110101000101111000011
001011110101000101010001100100011101001000101100
Round: 11 00010001000110101000101111000011
11000111010100001010001010011100
000011110100000111011001000100000001111010100100
Round: 12 11000111010100001010001010011100
11111110101110001101001111000110
000111110100000110011001100110000010100010110101
Round: 13 11111110101110001101001111000110
01101111011011010011001010110111
000111110000100110001001001000110110101010010001
Round: 14 01101111011011010011001010110111
11001111000001101000001010111001
000110110010100010001101001100110010000100010011
Round: 15 11001111000001101000001010111001
10100000111011001100111101110101
000110010010110010001100101001110000000100000110

Round: 16 10100000111011001100111101110101
 11001010011100110010011000011101
 010100010010110010001100000101110000001111000010
 Round: Swap 11001010011100110010011000011101
 10100000111011001100111101110101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 000000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 000000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030313131313131
 After Initial Permutation: 00FF00FC00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001101
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001101
 01111010010011000000010001100010
 010100001010110010100100010101001010000101000001
 Round: 3 01111010010011000000010001100010
 011110101100111011011011001110000
 110100001010110000100110011000101010010001001100
 Round: 4 011110101100111011011011001110000
 01000100000100001101011110011000
 111000001010011000100110011010001011010110001010
 Round: 5 01000100000100001101011110011000
 10001111000110100110000001010011
 111000001001011000100110001011000101010000101011
 Round: 6 10001111000110100110000001010011
 10001000111011010101110000111100
 111000001001001001110010010011100101100001100010
 Round: 7 10001000111011010101110000111100
 10001110000010110011101110001001
 101001001101001001110010100001001100100101111000
 Round: 8 10001110000010110011101110001001
 10000111100110101110000101011011
 101001100101001101010010100000011001111001010000
 Round: 9 10000111100110101110000101011011
 10000011100110100001000110111101
 001001100101001101010011110010010001001001011000

Round: 10 10000011100110100001000110111101
 10101110101000011110100011010010
 001011110101000101010001100100011101001000101100
 Round: 11 10101110101000011110100011010010
 11000000000110101100100001111101
 000011110100000111011001000100000001111010100100
 Round: 12 11000000000110101100100001111101
 00011110011010010101010001001001
 000111110100000110011001100110000010100010110101
 Round: 13 00011110011010010101010001001001
 10011110111110000010011110011100
 000111110000100110001001001000110110101010010001
 Round: 14 10011110111110000010011110011100
 01100100101101011101000011111100
 000110110010100010001101001100110010000100010011
 Round: 15 01100100101101011101000011111100
 10010100000000011111000110010111
 000110010010110010001100101001110000000100000110
 Round: 16 10010100000000011111000110010111
 10101010011100011011010011111100
 010100010010110010001100000101110000001111000010
 Round: Swap 10101010011100011011010011111100
 10010100000000011111000110010111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313030303030
 After Initial Permutation: 00FF000700FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110110
 01101010111011101000001001001000
 010100001010110010100100010101001010000101000001
 Round: 3 01101010111011101000001001001000
 10101010010001111001010000000110
 110100001010110000100110011000101010010001001100
 Round: 4 10101010010001111001010000000110
 00100101100101101010011010001010
 111000001010011000100110011010001011010110001010
 Round: 5 00100101100101101010011010001010
 00110100000100000110110111000001
 111000001001011000100110001011000101010000101011
 Round: 6 00110100000100000110110111000001
 00000100111111010110100010110000
 111000001001001001110010010011100101100001100010

Round: 7 00000100111111010110100010110000
 00010011001010011100010101100101
 101001001101001001110010100001001100100101111000
 Round: 8 00010011001010011100010101100101
 10100111111000010001101111100000
 101001100101001101010010100000011001111001010000
 Round: 9 10100111111000010001101111100000
 00110011001011001111011101111111
 001001100101001101010011110010010001001001011000
 Round: 10 00110011001011001111011101111111
 10011011110000000001001001101011
 001011110101000101010001100100011101001000101100
 Round: 11 10011011110000000001001001101011
 10011001100101010011000001001100
 000011110100000111011001000100000001111010100100
 Round: 12 10011001100101010011000001001100
 11000011111100101100000011010111
 000111110100000110011001100110000010100010110101
 Round: 13 11000011111100101100000011010111
 00010100011111011000010101010011
 000111110000100110001001001000110110101010010001
 Round: 14 00010100011111011000010101010011
 11001011001000100111111110010110
 000110110010100010001101001100110010000100010011
 Round: 15 11001011001000100111111110010110
 00111001111101101010010111011110
 000110010010110010001100101001110000000100000110
 Round: 16 00111001111101101010010111011110
 01100111011111111011100010000010
 010100010010110010001100000101110000001111000010
 Round: Swap 01100111011111111011100010000010
 00111001111101101010010111011110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030203030303030
After Initial Permutation: 00FB000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111110000000000000000
00000000101101111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101101111110011110110001
11100010001011100001100001001010
010100001010110010100100010101001010000101000001
Round: 3 11100010001011100001100001001010
00100011010001100100011010101111
110100001010110000100110011000101010010001001100
Round: 4 00100011010001100100011010101111
00010110010010000111000100000110
111000001010011000100110011010001011010110001010
Round: 5 00010110010010000111000100000110
01110011100011000101100001000010
111000001001011000100110001011000101010000101011
Round: 6 01110011100011000101100001000010
10100001000011011001101101001100
111000001001001001110010010011100101100001100010
Round: 7 10100001000011011001101101001100
00000011110000101111101100011011
101001001101001001110010100001001100100101111000
Round: 8 00000011110000101111101100011011
11010001101001000000010010011001
101001100101001101010010100000011001111001010000
Round: 9 11010001101001000000010010011001
01111110001010001111110001000100
001001100101001101010011110010010001001001011000
Round: 10 01111110001010001111110001000100
00010001010110001101010110101111
001011110101000101010001100100011101001000101100
Round: 11 00010001010110001101010110101111
01001011101000100010001000010011
000011110100000111011001000100000001111010100100
Round: 12 01001011101000100010001000010011
00000111101100001110111101000101
000111110100000110011001100110000010100010110101
Round: 13 00000111101100001110111101000101
01100100100011000111010011110010
000111110000100110001001001000110110101010010001
Round: 14 01100100100011000111010011110010
00010010010101010000100001010010
000110110010100010001101001100110010000100010011
Round: 15 00010010010101010000100001010010
00011010000110111101110001100001
000110010010110010001100101001110000000100000110

Round: 16 00011010000110111101110001100001
 11001011100110001111001011110010
 010100010010110010001100000101110000001111000010
 Round: Swap 11001011100110001111001011110010
 00011010000110111101110001100001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
1000010000010011110011101011111
000111110000100110001001001000110110101010010001
Round: 14 1000010000010011110011101011111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303031
After Initial Permutation: 00FF008000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011100110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011100110001
01110010010111100000110001000011
010100001010110010100100010101001010000101000001
Round: 3 01110010010111100000110001000011
00101100001100001011101111010011
110100001010110000100110011000101010010001001100
Round: 4 00101100001100001011101111010011
10001001011010000111101101110001
111000001010011000100110011010001011010110001010
Round: 5 10001001011010000111101101110001
00111100110111110110110010111111
111000001001011000100110001011000101010000101011
Round: 6 00111100110111110110110010111111
00010100110011010001101010000000
111000001001001001110010010011100101100001100010
Round: 7 00010100110011010001101010000000
01110001011110010011010011000101
101001001101001001110010100001001100100101111000
Round: 8 01110001011110010011010011000101
0111010010111100111111011011100
101001100101001101010010100000011001111001010000
Round: 9 0111010010111100111111011011100
10100001001010101111110000101100
001001100101001101010011110010010001001001011000

Round: 10 10100001001010101111110000101100
 01111010010100011110011110001100
 001011110101000101010001100100011101001000101100
 Round: 11 01111010010100011110011110001100
 1111001111001111011011010011011
 000011110100000111011001000100000001111010100100
 Round: 12 11110011111001111011011010011011
 11101001111100111111010010001001
 000111110100000110011001100110000010100010110101
 Round: 13 11101001111100111111010010001001
 01000111011010011010000111011111
 000111110000100110001001001000110110101010010001
 Round: 14 01000111011010011010000111011111
 00110001000001111100011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00110001000001111100011101001110
 01100011110011000110011010000110
 000110010010110010001100101001110000000100000110
 Round: 16 01100011110011000110011010000110
 00100001000100100000101100001100
 010100010010110010001100000101110000001111000010
 Round: Swap 00100001000100100000101100001100
 01100011110011000110011010000110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313130303030
 After Initial Permutation: 00FF000F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110111110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110111110
 01100010111011001000011001101001
 010100001010110010100100010101001010000101000001
 Round: 3 01100010111011001000011001101001
 01100000111011010101101001000100
 110100001010110000100110011000101010010001001100
 Round: 4 01100000111011010101101001000100
 00110000011010101010011010100011
 111000001010011000100110011010001011010110001010
 Round: 5 00110000011010101010011010100011
 00111100111010001010110011000110
 111000001001011000100110001011000101010000101011
 Round: 6 00111100111010001010110011000110
 10000000100110010101001111110000
 111000001001001001110010010011100101100001100010

Round: 7 10000000100110010101001111110000
 11011110001111011101101001001111
 101001001101001001110010100001001100100101111000
 Round: 8 11011110001111011101101001001111
 11110101011110010111010110001101
 101001100101001101010010100000011001111001010000
 Round: 9 11110101011110010111010110001101
 00000111111100100111000011110011
 001001100101001101010011110010010001001001011000
 Round: 10 00000111111100100111000011110011
 00001010110011100000100110101111
 001011110101000101010001100100011101001000101100
 Round: 11 00001010110011100000100110101111
 10010111101110000001110100101000
 000011110100000111011001000100000001111010100100
 Round: 12 10010111101110000001110100101000
 00001001000100111110110111001111
 000111110100000110011001100110000010100010110101
 Round: 13 000010010001001111110110111001111
 01000001000100000010100001010000
 000111110000100110001001001000110110101010010001
 Round: 14 01000001000100000010100001010000
 10010011101001111011110010110010
 000110110010100010001101001100110010000100010011
 Round: 15 10010011101001111011110010110010
 00100000001000011100001100001101
 000110010010110010001100101001110000000100000110
 Round: 16 00100000001000011100001100001101
 01100011010100100111001110000001
 010100010010110010001100000101110000001111000010
 Round: Swap 01100011010100100111001110000001
 00100000001000011100001100001101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030302030303030
After Initial Permutation: 00F7000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101110111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101110111110011110110001
11100110001011100001100100001010
010100001010110010100100010101001010000101000001
Round: 3 11100110001011100001100100001010
01110001010100100110001010101110
110100001010110000100110011000101010010001001100
Round: 4 01110001010100100110001010101110
00011011001000001000101111101000
111000001010011000100110011010001011010110001010
Round: 5 00011011001000001000101111101000
01100001000110110001111110000011
111000001001011000100110001011000101010000101011
Round: 6 01100001000110110001111110000011
01111110010101010011110000000101
111000001001001001110010010011100101100001100010
Round: 7 01111110010101010011110000000101
1000011101000000010111111101100
101001001101001001110010100001001100100101111000
Round: 8 1000011101000000010111111101100
00110011100110100101101110011101
101001100101001101010010100000011001111001010000
Round: 9 00110011100110100101101110011101
10001000000100111010010101100010
001001100101001101010011110010010001001001011000
Round: 10 10001000000100111010010101100010
01100100011100100100111011110110
001011110101000101010001100100011101001000101100
Round: 11 01100100011100100100111011110110
11101111010101011000000101001101
000011110100000111011001000100000001111010100100
Round: 12 11101111010101011000000101001101
11010011111101000100110001101011
000111110100000110011001100110000010100010110101
Round: 13 11010011111101000100110001101011
00101010001110010010001011101000
000111110000100110001001001000110110101010010001
Round: 14 00101010001110010010001011101000
10011110000111111011001110000001
000110110010100010001101001100110010000100010011
Round: 15 10011110000111111011001110000001
00110010000011000111110001000010
000110010010110010001100101001110000000100000110

Round: 16 00110010000011000111110001000010
11001001100011101001010001110101
010100010010110010001100000101110000001111000010
Round: Swap 11001001100011101001010001110101
00110010000011000111110001000010
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303031303031
 After Initial Permutation: 00FF009000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011100100001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011100100001
 01111000010011000000110001100010
 010100001010110010100100010101001010000101000001
 Round: 3 01111000010011000000110001100010
 01100100101100011011011010000100
 110100001010110000100110011000101010010001001100
 Round: 4 01100100101100011011011010000100
 11011100100100110110100010111001
 111000001010011000100110011010001011010110001010
 Round: 5 11011100100100110110100010111001
 11000011010000010100100000110010
 111000001001011000100110001011000101010000101011
 Round: 6 11000011010000010100100000110010
 00110000110110111101100001101000
 111000001001001001110010010011100101100001100010
 Round: 7 00110000110110111101100001101000
 01011111001110001010001101100001
 101001001101001001110010100001001100100101111000
 Round: 8 01011111001110001010001101100001
 101011111000011000000000100101100
 101001100101001101010010100000011001111001010000
 Round: 9 101011111000011000000000100101100
 10111100001010001100111100100101
 001001100101001101010011110010010001001001011000

Round: 10 10111100001010001100111100100101
 0001110111110001011110000000010
 001011110101000101010001100100011101001000101100
 Round: 11 0001110111110001011110000000010
 11111010100100110101010101011101
 000011110100000111011001000100000001111010100100
 Round: 12 11111010100100110101010101011101
 01111100100010011110011111000000
 000111110100000110011001100110000010100010110101
 Round: 13 01111100100010011110011111000000
 10110111101011110000011100100000
 000111110000100110001001001000110110101010010001
 Round: 14 10110111101011110000011100100000
 10000110111001001001110001000110
 000110110010100010001101001100110010000100010011
 Round: 15 10000110111001001001110001000110
 00000111011011011110111111110001
 000110010010110010001100101001110000000100000110
 Round: 16 00000111011011011110111111110001
 10010000010000101100010010110101
 010100010010110010001100000101110000001111000010
 Round: Swap 10010000010000101100010010110101
 00000111011011011110111111110001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131303030
 After Initial Permutation: 00FF001F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110101110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110101110
 01101000111111101000111001001001
 010100001010110010100100010101001010000101000001
 Round: 3 01101000111111101000111001001001
 00010110010011001010111111001000
 110100001010110000100110011000101010010001001100
 Round: 4 00010110010011001010111111001000
 00001010000001101111100000001101
 111000001010011000100110011010001011010110001010
 Round: 5 00001010000001101111100000001101
 11111010110101101100001001101111
 111000001001011000100110001011000101010000101011
 Round: 6 11111010110101101100001001101111
 11101000000100000111110111100101
 111000001001001001110010010011100101100001100010

Round: 7 11101000000100000111110111100101
 10110011101111110010010001000111
 101001001101001001110010100001001100100101111000
 Round: 8 10110011101111110010010001000111
 01101010111101100010110011101000
 101001100101001101010010100000011001111001010000
 Round: 9 01101010111101100010110011101000
 10000000011111011101010100110100
 001001100101001101010011110010010001001001011000
 Round: 10 10000000011111011101010100110100
 10000111100001101100000010010111
 001011110101000101010001100100011101001000101100
 Round: 11 10000111100001101100000010010111
 10010101111010111001111111101011
 000011110100000111011001000100000001111010100100
 Round: 12 10010101111010111001111111101011
 10111010110100011000111001000101
 000111110100000110011001100110000010100010110101
 Round: 13 10111010110100011000111001000101
 00000100001110100001110000111101
 000111110000100110001001001000110110101010010001
 Round: 14 00000100001110100001110000111101
 11011110011100001101111100100101
 000110110010100010001101001100110010000100010011
 Round: 15 11011110011100001101111100100101
 10110111001110011100011101011001
 000110010010110010001100101001110000000100000110
 Round: 16 10110111001110011100011101011001
 10110000000101111100001101001110
 010100010010110010001100000101110000001111000010
 Round: Swap 10110000000101111100001101001110
 10110111001110011100011101011001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100

Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110
Round: 16 00100100010111011110001000101110
01010111101001110001101001001000
010100010010110010001100000101110000001111000010
Round: Swap 01010111101001110001101001001000
00100100010111011110001000101110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303020303030
After Initial Permutation: 00EF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101000111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101000111110011110110001
11100110001011110001100101001010
010100001010110010100100010101001010000101000001
Round: 3 11100110001011110001100101001010
11010000000011100111011010101111
110100001010110000100110011000101010010001001100
Round: 4 11010000000011100111011010101111
11000110011011001011100011110010
111000001010011000100110011010001011010110001010
Round: 5 11000110011011001011100011110010
11010111010110111110111001110110
111000001001011000100110001011000101010000101011
Round: 6 11010111010110111110111001110110
01000101000111011111110010011100
111000001001001001110010010011100101100001100010
Round: 7 01000101000111011111110010011100
10111010100110100001010101000001
101001001101001001110010100001001100100101111000
Round: 8 10111010100110100001010101000001
01010101001001010011001100110111
101001100101001101010010100000011001111001010000
Round: 9 01010101001001010011001100110111
01010000001000111011100111111101
001001100101001101010011110010010001001001011000
Round: 10 01010000001000111011100111111101
11011011100101101100010000010100
001011110101000101010001100100011101001000101100
Round: 11 11011011100101101100010000010100
11010001010011000101000001000011
000011110100000111011001000100000001111010100100
Round: 12 11010001010011000101000001000011
01101101101110010001001011101000
000111110100000110011001100110000010100010110101
Round: 13 01101101101110010001001011101000
00110010100100001010111001010100
000111110000100110001001001000110110101010010001
Round: 14 00110010100100001010111001010100
10001011010000011010100101001101
000110110010100010001101001100110010000100010011
Round: 15 10001011010000011010100101001101
10101011011111010010000011011101
000110010010110010001100101001110000000100000110

Round: 16 10101011011111010010000011011101
10111100101010100001001010001010
010100010010110010001100000101110000001111000010
Round: Swap 10111100101010100001001010001010
10101011011111010010000011011101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000

Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101
 Round: 13 00001100100001101101011011000100
 10000100000100111100111010111111
 000111110000100110001001001000110110101010010001
 Round: 14 10000100000100111100111010111111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313031313030
 After Initial Permutation: 00FF003700FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110000110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110000110
 01100000111111001000101001101000
 010100001010110010100100010101001010000101000001
 Round: 3 01100000111111001000101001101000
 11001100100001101110000111101000
 110100001010110000100110011000101010010001001100
 Round: 4 11001100100001101110000111101000
 11011000011011110010100001001110
 111000001010011000100110011010001011010110001010
 Round: 5 11011000011011110010100001001110
 01010001000001110101110111000000
 111000001001011000100110001011000101010000101011
 Round: 6 01010001000001110101110111000000
 10000000110000001100010010011010
 111000001001001001110010010011100101100001100010

Round: 7 10000000110000001100010010011010
 00010000100001010000011101101101
 101001001101001001110010100001001100100101111000
 Round: 8 00010000100001010000011101101101
 00011110101010111100111101110111
 101001100101001101010010100000011001111001010000
 Round: 9 00011110101010111100111101110111
 00111100110010011011110010010000
 001001100101001101010011110010010001001001011000
 Round: 10 00111100110010011011110010010000
 11000110000010011011000100111000
 001011110101000101010001100100011101001000101100
 Round: 11 11000110000010011011000100111000
 00011101101000100100110110110111
 000011110100000111011001000100000001111010100100
 Round: 12 00011101101000100100110110110111
 10101001110001110010001101001001
 000111110100000110011001100110000010100010110101
 Round: 13 10101001110001110010001101001001
 10111101000011001111110000111111
 000111110000100110001001001000110110101010010001
 Round: 14 10111101000011001111110000111111
 11100101111001001010001100111111
 000110110010100010001101001100110010000100010011
 Round: 15 11100101111001001010001100111111
 01001011111010111111001001101110
 000110010010110010001100101001110000000100000110
 Round: 16 01001011111010111111001001101110
 11100111100000101000110001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 11100111100000101000110001001000
 01001011111010111111001001101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313030303030
 After Initial Permutation: 00FF000700FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110110
 01101010111011101000001001001000
 010100001010110010100100010101001010000101000001
 Round: 3 01101010111011101000001001001000
 10101010010001111001010000000110
 110100001010110000100110011000101010010001001100

Round: 4 10101010010001111001010000000110
00100101100101101010011010001010
111000001010011000100110011010001011010110001010
Round: 5 00100101100101101010011010001010
00110100000100000110110111000001
111000001001011000100110001011000101010000101011
Round: 6 00110100000100000110110111000001
00000100111111010110100010110000
111000001001001001110010010011100101100001100010
Round: 7 00000100111111010110100010110000
00010011001010011100010101100101
101001001101001001110010100001001100100101111000
Round: 8 00010011001010011100010101100101
10100111111000010001101111100000
101001100101001101010010100000011001111001010000
Round: 9 10100111111000010001101111100000
00110011001011001111011101111111
001001100101001101010011110010010001001001011000
Round: 10 00110011001011001111011101111111
10011011110000000001001001101011
001011110101000101010001100100011101001000101100
Round: 11 10011011110000000001001001101011
10011001100101010011000001001100
000011110100000111011001000100000001111010100100
Round: 12 10011001100101010011000001001100
11000011111100101100000011010111
000111110100000110011001100110000010100010110101
Round: 13 11000011111100101100000011010111
00010100011111011000010101010011
000111110000100110001001001000110110101010010001
Round: 14 00010100011111011000010101010011
11001011001000100111111110010110
000110110010100010001101001100110010000100010011
Round: 15 11001011001000100111111110010110
00111001111101101010010111011110
000110010010110010001100101001110000000100000110
Round: 16 00111001111101101010010111011110
01100111011111111011100010000010
010100010010110010001100000101110000001111000010
Round: Swap 01100111011111111011100010000010
00111001111101101010010111011110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030203030
After Initial Permutation: 00DF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000100100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000100100111110011110110001
01100110011011100000100101001010
010100001010110010100100010101001010000101000001
Round: 3 01100110011011100000100101001010
01100000110110111100110100000111
110100001010110000100110011000101010010001001100
Round: 4 01100000110110111100110100000111
00101011010011111001101101000111
111000001010011000100110011010001011010110001010
Round: 5 00101011010011111001101101000111
0111100011111100100111111111101
111000001001011000100110001011000101010000101011
Round: 6 0111100011111100100111111111101
10101101101001101110000110101001
111000001001001001110010010011100101100001100010
Round: 7 10101101101001101110000110101001
01010010101100101110101110100001
101001001101001001110010100001001100100101111000
Round: 8 01010010101100101110101110100001
01010011011010100010101011111111
101001100101001101010010100000011001111001010000
Round: 9 01010011011010100010101011111111
11100101000010110011011010110001
001001100101001101010011110010010001001001011000
Round: 10 11100101000010110011011010110001
11010000110001111101100011010111
001011110101000101010001100100011101001000101100
Round: 11 11010000110001111101100011010111
01000011101010010100110000111001
000011110100000111011001000100000001111010100100
Round: 12 01000011101010010100110000111001
00111110101101100110101110001000
000111110100000110011001100110000010100010110101
Round: 13 00111110101101100110101110001000
01000101001100011100001110110100
000111110000100110001001001000110110101010010001
Round: 14 01000101001100011100001110110100
10111001001010100001011011101001
000110110010100010001101001100110010000100010011
Round: 15 10111001001010100001011011101001
11000100010101100110011001010010
000110010010110010001100101001110000000100000110

Round: 16 11000100010101100110011001010010
 10101111110011010011100010001010
 010100010010110010001100000101110000001111000010
 Round: Swap 10101111110011010011100010001010
 11000100010101100110011001010010
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313130303030
 After Initial Permutation: 00FF000E00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110111111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110111111
 01101010011011000000110001001011
 010100001010110010100100010101001010000101000001
 Round: 3 01101010011011000000110001001011
 01100010001010111111011100111001
 110100001010110000100110011000101010010001001100
 Round: 4 01100010001010111111011100111001
 11000100010011111000011100111110
 111000001010011000100110011010001011010110001010
 Round: 5 11000100010011111000011100111110
 00111000001111010010001101010100
 111000001001011000100110001011000101010000101011
 Round: 6 00111000001111010010001101010100
 11101011111011000010111100011101
 111000001001001001110010010011100101100001100010
 Round: 7 11101011111011000010111100011101
 10000000011011111000110100111001
 101001001101001001110010100001001100100101111000
 Round: 8 10000000011011111000110100111001
 100110010100000000000011000010011
 101001100101001101010010100000011001111001010000
 Round: 9 100110010100000000000011000010011
 01101111100001001011011000111000
 001001100101001101010011110010010001001001011000

Round: 10 01101111100001001011011000111000
 00100000001000010010001101100100
 001011110101000101010001100100011101001000101100
 Round: 11 00100000001000010010001101100100
 0110000111110110011001001001100
 000011110100000111011001000100000001111010100100
 Round: 12 01100001111110110011001001001100
 00101100001110010000000010111000
 000111110100000110011001100110000010100010110101
 Round: 13 00101100001110010000000010111000
 10100110100100011000011011000100
 000111110000100110001001001000110110101010010001
 Round: 14 10100110100100011000011011000100
 10111000101000010111011111110100
 000110110010100010001101001100110010000100010011
 Round: 15 10111000101000010111011111110100
 10111001010011011000110110100100
 000110010010110010001100101001110000000100000110
 Round: 16 10111001010011011000110110100100
 10111101001001111100100010111010
 010100010010110010001100000101110000001111000010
 Round: Swap 10111101001001111100100010111010
 10111001010011011000110110100100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313030313131
 After Initial Permutation: 00FF00E600FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101010111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101010111
 01111010010011100000110001100010
 010100001010110010100100010101001010000101000001
 Round: 3 01111010010011100000110001100010
 01100100111110011010011011100010
 110100001010110000100110011000101010010001001100
 Round: 4 01100100111110011010011011100010
 01101111101001100110010101111000
 111000001010011000100110011010001011010110001010
 Round: 5 01101111101001100110010101111000
 11101001101001111100010010011101
 111000001001011000100110001011000101010000101011
 Round: 6 11101001101001111100010010011101
 01111100111100101110001111110111
 111000001001001001110010010011100101100001100010

Round: 7 01111100111100101110001111110111
 11010011101110001101000111100010
 101001001101001001110010100001001100100101111000
 Round: 8 11010011101110001101000111100010
 11001110001100001001010000011000
 101001100101001101010010100000011001111001010000
 Round: 9 11001110001100001001010000011000
 01010011100111011101001111001000
 001001100101001101010011110010010001001001011000
 Round: 10 01010011100111011101001111001000
 00111101011100011111110101100001
 001011110101000101010001100100011101001000101100
 Round: 11 00111101011100011111110101100001
 01010001010010000101110111011100
 000011110100000111011001000100000001111010100100
 Round: 12 01010001010010000101110111011100
 00111001100110100010000111011111
 000111110100000110011001100110000010100010110101
 Round: 13 00111001100110100010000111011111
 01111100000100011011000101101101
 000111110000100110001001001000110110101010010001
 Round: 14 01111100000100011011000101101101
 11010111100100011111000000011111
 000110110010100010001101001100110010000100010011
 Round: 15 11010111100100011111000000011111
 00111111000010110011110010111011
 000110010010110010001100101001110000000100000110
 Round: 16 00111111000010110011110010111011
 11011101001010111000001111000101
 010100010010110010001100000101110000001111000010
 Round: Swap 11011101001010111000001111000101
 00111111000010110011110010111011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313130303030
 After Initial Permutation: 00FF000F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110111110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110111110
 01100010111011001000011001101001
 010100001010110010100100010101001010000101000001
 Round: 3 01100010111011001000011001101001
 01100000111011010101101001000100
 110100001010110000100110011000101010010001001100

Round: 4 01100000111011010101101001000100
00110000011010101010011010100011
111000001010011000100110011010001011010110001010
Round: 5 00110000011010101010011010100011
00111100111010001010110011000110
111000001001011000100110001011000101010000101011
Round: 6 00111100111010001010110011000110
10000000100110010101001111110000
111000001001001001110010010011100101100001100010
Round: 7 10000000100110010101001111110000
11011110001111011101101001001111
101001001101001001110010100001001100100101111000
Round: 8 11011110001111011101101001001111
11110101011110010111010110001101
101001100101001101010010100000011001111001010000
Round: 9 11110101011110010111010110001101
00000111111100100111000011110011
001001100101001101010011110010010001001001011000
Round: 10 00000111111100100111000011110011
00001010110011100000100110101111
001011110101000101010001100100011101001000101100
Round: 11 00001010110011100000100110101111
10010111101110000001110100101000
000011110100000111011001000100000001111010100100
Round: 12 10010111101110000001110100101000
00001001000100111110110111001111
000111110100000110011001100110000010100010110101
Round: 13 00001001000100111110110111001111
01000001000100000010100001010000
000111110000100110001001001000110110101010010001
Round: 14 01000001000100000010100001010000
10010011101001111011110010110010
000110110010100010001101001100110010000100010011
Round: 15 10010011101001111011110010110010
00100000001000011100001100001101
000110010010110010001100101001110000000100000110
Round: 16 00100000001000011100001100001101
01100011010100100111001110000001
010100010010110010001100000101110000001111000010
Round: Swap 01100011010100100111001110000001
00100000001000011100001100001101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030302030
After Initial Permutation: 00BF000000FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111110000000000000000
00000000111100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000111100111110011110110001
01100110011011110000100001001110
010100001010110010100100010101001010000101000001
Round: 3 01100110011011110000100001001110
11011011111010011101010100101111
110100001010110000100110011000101010010001001100
Round: 4 11011011111010011101010100101111
10100000111100001001101101110100
111000001010011000100110011010001011010110001010
Round: 5 10100000111100001001101101110100
00101010110011101100001000110011
111000001001011000100110001011000101010000101011
Round: 6 00101010110011101100001000110011
10001100111101001101100110101111
111000001001001001110010010011100101100001100010
Round: 7 10001100111101001101100110101111
01011000100011010110111111011101
101001001101001001110010100001001100100101111000
Round: 8 01011000100011010110111111011101
11110111110100000111110110000010
101001100101001101010010100000011001111001010000
Round: 9 11110111110100000111110110000010
00100100000100010011000111011010
001001100101001101010011110010010001001001011000
Round: 10 00100100000100010011000111011010
10110000111011000110010010111000
001011110101000101010001100100011101001000101100
Round: 11 10110000111011000110010010111000
10010100100101101100010100111011
000011110100000111011001000100000001111010100100
Round: 12 10010100100101101100010100111011
01100011101000110000001100111011
000111110100000110011001100110000010100010110101
Round: 13 01100011101000110000001100111011
00010011011111011110110010000001
000111110000100110001001001000110110101010010001
Round: 14 00010011011111011110110010000001
00101001011001101011000111010110
000110110010100010001101001100110010000100010011
Round: 15 00101001011001101011000111010110
1111101111101010001101101110011
000110010010110010001100101001110000000100000110

Round: 16 111101111101010001101101110011
 01010100110111011001010001111000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010100110111011001010001111000
 111101111101010001101101110011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030313131313030
 After Initial Permutation: 00FF003C00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110001101
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110001101
 01101000011011000000010001101010
 010100001010110010100100010101001010000101000001
 Round: 3 01101000011011000000010001101010
 00110001000001111111100110100001
 110100001010110000100110011000101010010001001100
 Round: 4 00110001000001111111100110100001
 00101101001100111010011000001000
 111000001010011000100110011010001011010110001010
 Round: 5 00101101001100111010011000001000
 10010101001101100100011101001100
 111000001001011000100110001011000101010000101011
 Round: 6 10010101001101100100011101001100
 10001010011010100001100001100101
 111000001001001001110010010011100101100001100010
 Round: 7 10001010011010100001100001100101
 11001011000101101110011011111110
 101001001101001001110010100001001100100101111000
 Round: 8 11001011000101101110011011111110
 11000100100110111010101000110010
 101001100101001101010010100000011001111001010000
 Round: 9 11000100100110111010101000110010
 01001010100110001010000110000111
 001001100101001101010011110010010001001001011000

Round: 10 01001010100110001010000110000111
 11111001111111001000001011110100
 001011110101000101010001100100011101001000101100
 Round: 11 11111001111111001000001011110100
 00111100111110111110110101110110
 000011110100000111011001000100000001111010100100
 Round: 12 00111100111110111110110101110110
 01001000010101010001000110111101
 000111110100000110011001100110000010100010110101
 Round: 13 01001000010101010001000110111101
 10000001001111011101111100111001
 000111110000100110001001001000110110101010010001
 Round: 14 10000001001111011101111100111001
 01101011001101111100111111000110
 000110110010100010001101001100110010000100010011
 Round: 15 01101011001101111100111111000110
 00011010010101101100010001011000
 000110010010110010001100101001110000000100000110
 Round: 16 00011010010101101100010001011000
 10101110111111001010100111100100
 010100010010110010001100000101110000001111000010
 Round: Swap 10101110111111001010100111100100
 00011010010101101100010001011000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313031313131
 After Initial Permutation: 00FF00F600FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101000111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101000111
 01110000010111100000010001100011
 010100001010110010100100010101001010000101000001
 Round: 3 01110000010111100000010001100011
 00111101000101001111111100111100
 110100001010110000100110011000101010010001001100
 Round: 4 00111101000101001111111100111100
 11110010100111001110010111010100
 111000001010011000100110011010001011010110001010
 Round: 5 11110010100111001110010111010100
 10101110100111111011101111101100
 111000001001011000100110001011000101010000101011
 Round: 6 10101110100111111011101111101100
 10000010100011011100100111111110
 111000001001001001110010010011100101100001100010

Round: 7 10000010100011011100100111111110
 11010011010110111011010010011001
 101001001101001001110010100001001100100101111000
 Round: 8 11010011010110111011010010011001
 10100101101000010010011001100110
 101001100101001101010010100000011001111001010000
 Round: 9 10100101101000010010011001100110
 11110100011111011100001100111110
 001001100101001101010011110010010001001001011000
 Round: 10 11110100011111011100001100111110
 01111010010111011100001010000010
 001011110101000101010001100100011101001000101100
 Round: 11 01111010010111011100001010000010
 10100010100101101001110000001000
 000011110100000111011001000100000001111010100100
 Round: 12 10100010100101101001110000001000
 10101000000101000010010110101011
 000111110100000110011001100110000010100010110101
 Round: 13 10101000000101000010010110101011
 00010011010001110001100010101000
 000111110000100110001001001000110110101010010001
 Round: 14 00010011010001110001100010101000
 11010101101000101000100111000100
 000110110010100010001101001100110010000100010011
 Round: 15 11010101101000101000100111000100
 00010001001000100010100100001101
 000110010010110010001100101001110000000100000110
 Round: 16 00010001001000100010100100001101
 11000001100100110100011101111011
 010100010010110010001100000101110000001111000010
 Round: Swap 11000001100100110100011101111011
 00010001001000100010100100001101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313030
 After Initial Permutation: 00FF003F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110001110
 01101000111011101000111001001000
 010100001010110010100100010101001010000101000001
 Round: 3 01101000111011101000111001001000
 10011010010011111011010010101110
 110100001010110000100110011000101010010001001100

Round: 4 10011010010011111011010010101110
00010000010000001101011010010110
111000001010011000100110011010001011010110001010
Round: 5 00010000010000001101011010010110
11110100101010111110001010101111
111000001001011000100110001011000101010000101011
Round: 6 11110100101010111110001010101111
00100001010101101111001010110000
111000001001001001110010010011100101100001100010
Round: 7 00100001010101101111001010110000
00000110101100111100101101011001
101001001101001001110010100001001100100101111000
Round: 8 00000110101100111100101101011001
11001101110011000100100100111101
101001100101001101010010100000011001111001010000
Round: 9 11001101110011000100100100111101
11010110010011110011010100000110
001001100101001101010011110010010001001001011000
Round: 10 11010110010011110011010100000110
00001000001110110110101000100000
001011110101000101010001100100011101001000101100
Round: 11 00001000001110110110101000100000
10100110010011111101000001111010
000011110100000111011001000100000001111010100100
Round: 12 10100110010011111101000001111010
10010001010101111010010110001101
000111110100000110011001100110000010100010110101
Round: 13 10010001010101111010010110001101
11111000010111001001111101001101
000111110000100110001001001000110110101010010001
Round: 14 11111000010111001001111101001101
00010001101100001110001100100000
000110110010100010001101001100110010000100010011
Round: 15 00010001101100001110001100100000
00101110111101000100111000101111
000110010010110010001100101001110000000100000110
Round: 16 00101110111101000100111000101111
11101100101110000110001111011110
010100010010110010001100000101110000001111000010
Round: Swap 11101100101110000110001111011110
00101110111101000100111000101111
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303020
After Initial Permutation: 007F000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000001100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000001100111110011110110001
01100010011001110100100001001110
010100001010110010100100010101001010000101000001
Round: 3 01100010011001110100100001001110
00011010001001001101010001101111
110100001010110000100110011000101010010001001100
Round: 4 00011010001001001101010001101111
00100000010111011010010010011001
111000001010011000100110011010001011010110001010
Round: 5 00100000010111011010010010011001
01111010010011001000010110110111
111000001001011000100110001011000101010000101011
Round: 6 01111010010011001000010110110111
11001001111001111000111100001110
111000001001001001110010010011100101100001100010
Round: 7 11001001111001111000111100001110
00100011100001110010001010011001
101001001101001001110010100001001100100101111000
Round: 8 00100011100001110010001010011001
10000011011010010011001100010000
101001100101001101010010100000011001111001010000
Round: 9 10000011011010010011001100010000
10000111001111000001101101010011
001001100101001101010011110010010001001001011000
Round: 10 10000111001111000001101101010011
10100011001111100101101111001100
001011110101000101010001100100011101001000101100
Round: 11 10100011001111100101101111001100
10110011100101110001100001110001
000011110100000111011001000100000001111010100100
Round: 12 10110011100101110001100001110001
00101001011011001101111100101010
000111110100000110011001100110000010100010110101
Round: 13 00101001011011001101111100101010
01101011100111101011010001000000
000111110000100110001001001000110110101010010001
Round: 14 01101011100111101011010001000000
11101001000001001110010101000111
000110110010100010001101001100110010000100010011
Round: 15 11101001000001001110010101000111
10110101110001011101000100011000
000110010010110010001100101001110000000100000110

Round: 16 10110101110001011101000100011000
 01010111000101000101000111101011
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111000101000101000111101011
 10110101110001011101000100011000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303030
 After Initial Permutation: 00FF000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011110110001
 01100010011011100000100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 01100010011011100000100001001010
 00110010111000111100110100001111
 110100001010110000100110011000101010010001001100
 Round: 4 00110010111000111100110100001111
 10100101000111001000011101000001
 111000001010011000100110011010001011010110001010
 Round: 5 10100101000111001000011101000001
 10001111011010101000011101010101
 111000001001011000100110001011000101010000101011
 Round: 6 10001111011010101000011101010101
 11001110110101110011010111001000
 111000001001001001110010010011100101100001100010
 Round: 7 11001110110101110011010111001000
 10011110111101100101000001111111
 101001001101001001110010100001001100100101111000
 Round: 8 10011110111101100101000001111111
 11100111011110110010110011110011
 101001100101001101010010100000011001111001010000
 Round: 9 11100111011110110010110011110011
 11000111111011010011101011101000
 001001100101001101010011110010010001001001011000
 Round: 10 11000111111011010011101011101000
 00000000000010001111111000010011
 001011110101000101010001100100011101001000101100
 Round: 11 00000000000010001111111000010011
 11110110011001101011101111111100
 000011110100000111011001000100000001111010100100
 Round: 12 11110110011001101011101111111100
 00001100100001101101011011000100
 000111110100000110011001100110000010100010110101

Round: 13 00001100100001101101011011000100
 1000010000010011110011101011111
 000111110000100110001001001000110110101010010001
 Round: 14 1000010000010011110011101011111
 11010010111001010001000110100110
 000110110010100010001101001100110010000100010011
 Round: 15 11010010111001010001000110100110
 00100100010111011110001000101110
 000110010010110010001100101001110000000100000110
 Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313131313131
 After Initial Permutation: 00FF00FE00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001111
 01110010010011000000010001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011000000010001000010
 00110101000101011011000001100011
 110100001010110000100110011000101010010001001100
 Round: 4 00110101000101011011000001100011
 01011010010010101010101111001101
 111000001010011000100110011010001011010110001010
 Round: 5 01011010010010101010101111001101
 01001110000111110000101001011111
 111000001001011000100110001011000101010000101011
 Round: 6 01001110000111110000101001011111
 11100101111010101100110110101001
 111000001001001001110010010011100101100001100010
 Round: 7 11100101111010101100110110101001
 00010100111100011001111011000011
 101001001101001001110010100001001100100101111000
 Round: 8 00010100111100011001111011000011
 00111101110110001010101011000001
 101001100101001101010010100000011001111001010000
 Round: 9 00111101110110001010101011000001
 01100100000011001000100101000000
 001001100101001101010011110010010001001001011000

Round: 10 01100100000011001000100101000000
 0111001111010010000010111111001
 001011110101000101010001100100011101001000101100
 Round: 11 0111001111010010000010111111001
 0110111001001110100011011110111
 000011110100000111011001000100000001111010100100
 Round: 12 0110111001001110100011011110111
 00011010100010001001110010111101
 000111110100000110011001100110000010100010110101
 Round: 13 00011010100010001001110010111101
 11000001100011000010101110110011
 000111110000100110001001001000110110101010010001
 Round: 14 11000001100011000010101110110011
 01010000111101101101100110111100
 000110110010100010001101001100110010000100010011
 Round: 15 01010000111101101101100110111100
 00111110011111000000100110101101
 000110010010110010001100101001110000000100000110
 Round: 16 00111110011111000000100110101101
 11010010000000101011001110011010
 010100010010110010001100000101110000001111000010
 Round: Swap 11010010000000101011001110011010
 00111110011111000000100110101101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131303131313131
 After Initial Permutation: 00FF00FB00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001010
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001010
 01110010110011001000011001100000
 010100001010110010100100010101001010000101000001
 Round: 3 01110010110011001000011001100000
 01101000011101001101110110000111
 110100001010110000100110011000101010010001001100
 Round: 4 01101000011101001101110110000111
 11111101001110010010011011101101
 111000001010011000100110011010001011010110001010
 Round: 5 11111101001110010010011011101101
 00011011011100010111110011010111
 111000001001011000100110001011000101010000101011
 Round: 6 00011011011100010111110011010111
 01110101001100111100101011100111
 111000001001001001110010011100101100001100010

Round: 7 01110101001100111100101011100111
 00110110001001001011000011110010
 101001001101001001110010100001001100100101111000
 Round: 8 00110110001001001011000011110010
 00011001011111010010100010110000
 101001100101001101010010100000011001111001010000
 Round: 9 00011001011111010010100010110000
 01101111111111110011111000011100
 001001100101001101010011110010010001001001011000
 Round: 10 01101111111111110011111000011100
 00111010011111110010000101101111
 001011110101000101010001100100011101001000101100
 Round: 11 00111010011111110010000101101111
 00111111000000001100010000000001
 000011110100000111011001000100000001111010100100
 Round: 12 00111111000000001100010000000001
 11111111000000111110000010101111
 000111110100000110011001100110000010100010110101
 Round: 13 11111111000000111110000010101111
 00111110011101011110111101011110
 000111110000100110001001001000110110101010010001
 Round: 14 00111110011101011110111101011110
 11100001000101111110110000010011
 000110110010100010001101001100110010000100010011
 Round: 15 11100001000101111110110000010011
 10011010100011111011100110011111
 000110010010110010001100101001110000000100000110
 Round: 16 10011010100011111011100110011111
 01010010011101011001111100111110
 010100010010110010001100000101110000001111000010
 Round: Swap 01010010011101011001111100111110
 10011010100011111011100110011111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100

Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110
Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303030
After Initial Permutation: 00FF000000FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110110001
01100010011011100000100001001010
010100001010110010100100010101001010000101000001
Round: 3 01100010011011100000100001001010
00110010111000111100110100001111
110100001010110000100110011000101010010001001100
Round: 4 00110010111000111100110100001111
10100101000111001000011101000001
111000001010011000100110011010001011010110001010
Round: 5 10100101000111001000011101000001
10001111011010101000011101010101
111000001001011000100110001011000101010000101011
Round: 6 10001111011010101000011101010101
11001110110101110011010111001000
111000001001001001110010010011100101100001100010
Round: 7 11001110110101110011010111001000
10011110111101100101000001111111
101001001101001001110010100001001100100101111000
Round: 8 10011110111101100101000001111111
11100111011110110010110011110011
101001100101001101010010100000011001111001010000
Round: 9 11100111011110110010110011110011
11000111111011010011101011101000
001001100101001101010011110010010001001001011000
Round: 10 11000111111011010011101011101000
00000000000010001111111000010011
001011110101000101010001100100011101001000101100
Round: 11 00000000000010001111111000010011
11110110011001101011101111111100
000011110100000111011001000100000001111010100100
Round: 12 11110110011001101011101111111100
00001100100001101101011011000100
000111110100000110011001100110000010100010110101
Round: 13 00001100100001101101011011000100
10000100000100111100111010111111
000111110000100110001001001000110110101010010001
Round: 14 10000100000100111100111010111111
11010010111001010001000110100110
000110110010100010001101001100110010000100010011
Round: 15 11010010111001010001000110100110
00100100010111011110001000101110
000110010010110010001100101001110000000100000110

Round: 16 00100100010111011110001000101110
 01010111101001110001101001001000
 010100010010110010001100000101110000001111000010
 Round: Swap 01010111101001110001101001001000
 00100100010111011110001000101110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 2030303030303030
 After Initial Permutation: 00FE000000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100101110011110110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100101110011110110001
 11000010011010100001100001001010
 010100001010110010100100010101001010000101000001
 Round: 3 11000010011010100001100001001010
 10100011100000101100010110101101
 110100001010110000100110011000101010010001001100
 Round: 4 10100011100000101100010110101101
 01011001101001100000111100100001
 111000001010011000100110011010001011010110001010
 Round: 5 01011001101001100000111100100001
 01110110111100100010001101001001
 111000001001011000100110001011000101010000101011
 Round: 6 01110110111100100010001101001001
 10011010000101111111101010110100
 111000001001001001110010010011100101100001100010
 Round: 7 10011010000101111111101010110100
 01011101000000110011000100100001
 101001001101001001110010100001001100100101111000
 Round: 8 01011101000000110011000100100001
 10110010000101110011001111100101
 101001100101001101010010100000011001111001010000
 Round: 9 10110010000101110011001111100101
 00101101111000111111100010000111
 001001100101001101010011110010010001001001011000
 Round: 10 00101101111000111111100010000111
 00001101100001010110100011101011
 001011110101000101010001100100011101001000101100
 Round: 11 00001101100001010110100011101011
 11001001101000011110100010100000
 000011110100000111011001000100000001111010100100
 Round: 12 11001001101000011110100010100000
 00100000100001111001101010101000
 000111110100000110011001100110000010100010110101

Round: 13 00100000100001111001101010101000
 00011001010111000000001110101011
 000111110000100110001001001000110110101010010001
 Round: 14 00011001010111000000001110101011
 1100111100001111110001000011101
 000110110010100010001101001100110010000100010011
 Round: 15 1100111100001111110001000011101
 11111010100010101101011000000001
 000110010010110010001100101001110000000100000110
 Round: 16 11111010100010101101011000000001
 01001111100010111000111110010010
 010100010010110010001100000101110000001111000010
 Round: Swap 01001111100010111000111110010010
 11111010100010101101011000000001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030313131313131
 After Initial Permutation: 00FF00FC00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001101
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001101
 01111010010011000000010001100010
 010100001010110010100100010101001010000101000001
 Round: 3 01111010010011000000010001100010
 011110101100111011011011001110000
 110100001010110000100110011000101010010001001100
 Round: 4 011110101100111011011011001110000
 01000100000100001101011110011000
 111000001010011000100110011010001011010110001010
 Round: 5 01000100000100001101011110011000
 10001111000110100110000001010011
 111000001001011000100110001011000101010000101011
 Round: 6 10001111000110100110000001010011
 10001000111011010101110000111100
 111000001001001001110010010011100101100001100010
 Round: 7 10001000111011010101110000111100
 10001110000010110011101110001001
 101001001101001001110010100001001100100101111000
 Round: 8 10001110000010110011101110001001
 10000111100110101110000101011011
 101001100101001101010010100000011001111001010000
 Round: 9 10000111100110101110000101011011
 10000011100110100001000110111101
 001001100101001101010011110010010001001001011000

Round: 10 10000011100110100001000110111101
 10101110101000011110100011010010
 001011110101000101010001100100011101001000101100
 Round: 11 10101110101000011110100011010010
 11000000000110101100100001111101
 000011110100000111011001000100000001111010100100
 Round: 12 11000000000110101100100001111101
 00011110011010010101010001001001
 000111110100000110011001100110000010100010110101
 Round: 13 00011110011010010101010001001001
 10011110111110000010011110011100
 000111110000100110001001001000110110101010010001
 Round: 14 10011110111110000010011110011100
 01100100101101011101000011111100
 000110110010100010001101001100110010000100010011
 Round: 15 01100100101101011101000011111100
 10010100000000011111000110010111
 000110010010110010001100101001110000000100000110
 Round: 16 10010100000000011111000110010111
 10101010011100011011010011111100
 010100010010110010001100000101110000001111000010
 Round: Swap 10101010011100011011010011111100
 10010100000000011111000110010111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100

Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110
Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313030
After Initial Permutation: 00FF003F00FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011110001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011110001110
01101000111011101000111001001000
010100001010110010100100010101001010000101000001
Round: 3 01101000111011101000111001001000
10011010010011111011010010101110
110100001010110000100110011000101010010001001100
Round: 4 10011010010011111011010010101110
00010000010000001101011010010110
111000001010011000100110011010001011010110001010
Round: 5 00010000010000001101011010010110
11110100101010111110001010101111
111000001001011000100110001011000101010000101011
Round: 6 11110100101010111110001010101111
00100001010101101111001010110000
111000001001001001110010010011100101100001100010
Round: 7 00100001010101101111001010110000
00000110101100111100101101011001
101001001101001001110010100001001100100101111000
Round: 8 00000110101100111100101101011001
11001101110011000100100100111101
101001100101001101010010100000011001111001010000
Round: 9 11001101110011000100100100111101
11010110010011110011010100000110
001001100101001101010011110010010001001001011000
Round: 10 11010110010011110011010100000110
00001000001110110110101000100000
001011110101000101010001100100011101001000101100
Round: 11 00001000001110110110101000100000
10100110010011111101000001111010
000011110100000111011001000100000001111010100100
Round: 12 10100110010011111101000001111010
10010001010101111010010110001101
000111110100000110011001100110000010100010110101
Round: 13 10010001010101111010010110001101
11111000010111001001111101001101
000111110000100110001001001000110110101010010001
Round: 14 11111000010111001001111101001101
00010001101100001110001100100000
000110110010100010001101001100110010000100010011
Round: 15 00010001101100001110001100100000
00101110111101000100111000101111
000110010010110010001100101001110000000100000110

Round: 16 00101110111101000100111000101111
11101100101110000110001111011110
010100010010110010001100000101110000001111000010
Round: Swap 11101100101110000110001111011110
00101110111101000100111000101111
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3020303030303030
After Initial Permutation: 00FD000000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100011110011110110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100011110011110110001
11100010011011100001100000001010
010100001010110010100100010101001010000101000001
Round: 3 11100010011011100001100000001010
00100011010100010100001110101111
110100001010110000100110011000101010010001001100
Round: 4 00100011010100010100001110101111
10000101000011000100010001000011
111000001010011000100110011010001011010110001010
Round: 5 10000101000011000100010001000011
00011100010010110011000000011011
111000001001011000100110001011000101010000101011
Round: 6 00011100010010110011000000011011
01000101000101101000110100001101
111000001001001001110010010011100101100001100010
Round: 7 01000101000101101000110100001101
11110001010011010111110111000011
101001001101001001110010100001001100100101111000
Round: 8 11110001010011010111110111000011
00111111101001011100011100010110
101001100101001101010010100000011001111001010000
Round: 9 00111111101001011100011100010110
01101100100111110111110000000111
001001100101001101010011110010010001001001011000
Round: 10 01101100100111110111110000000111
00010001000110101000101111000011
001011110101000101010001100100011101001000101100
Round: 11 00010001000110101000101111000011
11000111010100001010001010011100
000011110100000111011001000100000001111010100100
Round: 12 11000111010100001010001010011100
11111110101110001101001111000110
000111110100000110011001100110000010100010110101

Round: 13 1111110101110001101001111000110
 01101111011011010011001010110111
 000111110000100110001001001000110110101010010001
 Round: 14 01101111011011010011001010110111
 11001111000001101000001010111001
 000110110010100010001101001100110010000100010011
 Round: 15 11001111000001101000001010111001
 10100000111011001100111101110101
 000110010010110010001100101001110000000100000110
 Round: 16 10100000111011001100111101110101
 11001010011100110010011000011101
 010100010010110010001100000101110000001111000010
 Round: Swap 11001010011100110010011000011101
 10100000111011001100111101110101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303131313131
 After Initial Permutation: 00FF00F800FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001001
 01110010010011100000110001100010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011100000110001100010
 00100100011100011010010011101100
 110100001010110000100110011000101010010001001100
 Round: 4 00100100011100011010010011101100
 11111101000011111110010000100101
 111000001010011000100110011010001011010110001010
 Round: 5 11111101000011111110010000100101
 01010011011100110001110110011001
 111000001001011000100110001011000101010000101011
 Round: 6 01010011011100110001110110011001
 10000100101110011100011011100100
 111000001001001001110010010011100101100001100010
 Round: 7 10000100101110011100011011100100
 11101011110010010000001001111000
 101001001101001001110010100001001100100101111000
 Round: 8 11101011110010010000001001111000
 00000100010100111111011001100011
 101001100101001101010010100000011001111001010000
 Round: 9 00000100010100111111011001100011
 01011100100010111000111111001001
 001001100101001101010011110010010001001001011000

Round: 10 01011100100010111000111111001001
 11101111000101100001011111100010
 001011110101000101010001100100011101001000101100
 Round: 11 11101111000101100001011111100010
 11111000101110000011100011011010
 000011110100000111011001000100000001111010100100
 Round: 12 11111000101110000011100011011010
 11010110011001101001101100011101
 000111110100000110011001100110000010100010110101
 Round: 13 11010110011001101001101100011101
 11000101111010011110101110100110
 000111110000100110001001001000110110101010010001
 Round: 14 11000101111010011110101110100110
 01010010000000000000010111111110
 000110110010100010001101001100110010000100010011
 Round: 15 01010010000000000000010111111110
 00100001011010111110010111110100
 000110010010110010001100101001110000000100000110
 Round: 16 00100001011010111110010111110100
 01011101010010000100011100011101
 010100010010110010001100000101110000001111000010
 Round: Swap 01011101010010000100011100011101
 00100001011010111110010111110100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3031313131313131
 After Initial Permutation: 00FF00FE00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001111
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001111
 01110010010011000000010001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011000000010001000010
 00110101000101011011000001100011
 110100001010110000100110011000101010010001001100

Round: 4 00110101000101011011000001100011
010110100100101010101111001101
111000001010011000100110011010001011010110001010
Round: 5 010110100100101010101111001101
01001110000111110000101001011111
111000001001011000100110001011000101010000101011
Round: 6 01001110000111110000101001011111
11100101111010101100110110101001
111000001001001001110010010011100101100001100010
Round: 7 11100101111010101100110110101001
00010100111100011001111011000011
101001001101001001110010100001001100100101111000
Round: 8 00010100111100011001111011000011
00111101110110001010101011000001
101001100101001101010010100000011001111001010000
Round: 9 00111101110110001010101011000001
01100100000011001000100101000000
001001100101001101010011110010010001001001011000
Round: 10 01100100000011001000100101000000
01110011110100100000101111111001
001011110101000101010001100100011101001000101100
Round: 11 01110011110100100000101111111001
01101110010011101000110111101111
000011110100000111011001000100000001111010100100
Round: 12 01101110010011101000110111101111
00011010100010001001110010111101
000111110100000110011001100110000010100010110101
Round: 13 00011010100010001001110010111101
11000001100011000010101110110011
000111110000100110001001001000110110101010010001
Round: 14 11000001100011000010101110110011
01010000111101101101100110111100
000110110010100010001101001100110010000100010011
Round: 15 01010000111101101101100110111100
00111110011111000000100110101101
000110010010110010001100101001110000000100000110
Round: 16 00111110011111000000100110101101
11010010000000101011001110011010
010100010010110010001100000101110000001111000010
Round: Swap 11010010000000101011001110011010
00111110011111000000100110101101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313131
After Initial Permutation: 00FF00FF00FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011101001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011101001110
01111010110011101000111001000000
010100001010110010100100010101001010000101000001
Round: 3 01111010110011101000111001000000
10011000110111001011101101001010
110100001010110000100110011000101010010001001100
Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110

Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131203030303030
After Initial Permutation: 00FB000300FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101101111110011110110010
010100000010110010101100010001000010001111000110
Round: 2 00000000101101111110011110110010
11101010101011001001001001101000
010100001010110010100100010101001010000101000001
Round: 3 11101010101011001001001001101000
00011101111001100011101001100010
110100001010110000100110011000101010010001001100
Round: 4 00011101111001100011101001100010
0011101111100101111111000100001
111000001010011000100110011010001011010110001010
Round: 5 00111011111001011111111000100001
11011110010010110110101000011011
111000001001011000100110001011000101010000101011
Round: 6 11011110010010110110101000011011
11101010010100110001110111010111
111000001001001001110010010011100101100001100010
Round: 7 11101010010100110001110111010111
10010011011111001100010001000111
101001001101001001110010100001001100100101111000
Round: 8 10010011011111001100010001000111
01101000011111001101110101001000
101001100101001101010010100000011001111001010000
Round: 9 01101000011111001101110101001000
01110001101111100010010000111101
001001100101001101010011110010010001001001011000
Round: 10 01110001101111100010010000111101
11110100111100101010100100110001
001011110101000101010001100100011101001000101100
Round: 11 11110100111100101010100100110001
00011001101000111100001101111101
000011110100000111011001000100000001111010100100
Round: 12 00011001101000111100001101111101
00000011000100100111101101000001
000111110100000110011001100110000010100010110101

Round: 13 00000011000100100111101101000001
 11001110101001111101110000000100
 000111110000100110001001001000110110101010010001
 Round: 14 11001110101001111101110000000100
 11100010101100110110111000000001
 000110110010100010001101001100110010000100010011
 Round: 15 11100010101100110110111000000001
 00010110011010101101001001101100
 000110010010110010001100101001110000000100000110
 Round: 16 00010110011010101101001001101100
 00100000000111101000101110010000
 010100010010110010001100000101110000001111000010
 Round: Swap 00100000000111101000101110010000
 00010110011010101101001001101100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303031313131
 After Initial Permutation: 00FF00F000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101000001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101000001
 01111000010111000000110001100011
 010100001010110010100100010101001010000101000001
 Round: 3 01111000010111000000110001100011
 1110110011110000001111110100010
 110100001010110000100110011000101010010001001100
 Round: 4 1110110011110000001111110100010
 11111001100011010000110101001111
 111000001010011000100110011010001011010110001010
 Round: 5 11111001100011010000110101001111
 1001010111100111111101111100111
 111000001001011000100110001011000101010000101011
 Round: 6 1001010111100111111101111100111
 10000001010000001010111011010000
 111000001001001001110010010011100101100001100010
 Round: 7 10000001010000001010111011010000
 11010000010110111110100111111110
 101001001101001001110010100001001100100101111000
 Round: 8 11010000010110111110100111111110
 10001000111100011010100111000111
 101001100101001101010010100000011001111001010000
 Round: 9 10001000111100011010100111000111
 01011011000101011101001010101101
 001001100101001101010011110010010001001001011000

Round: 10 01011011000101011101001010101101
 10100001101110010100000111110110
 001011110101000101010001100100011101001000101100
 Round: 11 10100001101110010100000111110110
 11110111100110111111010100111011
 000011110100000111011001000100000001111010100100
 Round: 12 11110111100110111111010100111011
 00000010000101100001011010110011
 000111110100000110011001100110000010100010110101
 Round: 13 00000010000101100001011010110011
 11100100101100101101011110101010
 000111110000100110001001001000110110101010010001
 Round: 14 11100100101100101101011110101010
 00100001101100100110011001000100
 000110110010100010001101001100110010000100010011
 Round: 15 00100001101100100110011001000100
 1111000110011110011011101111011
 000110010010110010001100101001110000000100000110
 Round: 16 11110001100111100110111011111011
 11011111110111111001100110001100
 010100010010110010001100000101110000001111000010
 Round: Swap 11011111110111111001100110001100
 11110001100111100110111011111011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313130313131
 After Initial Permutation: 00FF00EF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101011110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101011110
 01110000110011001000011001100001
 010100001010110010100100010101001010000101000001
 Round: 3 01110000110011001000011001100001
 011000000111111101001111110000001
 110100001010110000100110011000101010010001001100

Round: 4 011000000111110100111110000001
00110010100100110100010100001100
111000001010011000100110011010001011010110001010
Round: 5 00110010100100110100010100001100
111011110011011011101111011100
111000001001011000100110001011000101010000101011
Round: 6 111011110011011011101111011100
11101100000011000110000111100000
111000001001001001110010010011100101100001100010
Round: 7 11101100000011000110000111100000
0110111111101011000001101110010
101001001101001001110010100001001100100101111000
Round: 8 0110111111101011000001101110010
10110001100111111011001010100101
101001100101001101010010100000011001111001010000
Round: 9 10110001100111111011001010100101
10101011001110000001101101001101
001001100101001101010011110010010001001001011000
Round: 10 10101011001110000001101101001101
00010001110000101001011000101001
001011110101000101010001100100011101001000101100
Round: 11 00010001110000101001011000101001
11010010100001011010000011100110
000011110100000111011001000100000001111010100100
Round: 12 11010010100001011010000011100110
00101101101011011011100000010111
000111110100000110011001100110000010100010110101
Round: 13 00101101101011011011100000010111
10101010111111111100100101111101
000111110000100110001001001000110110101010010001
Round: 14 101010101111111111100100101111101
10110101001111011101001000010001
000110110010100010001101001100110010000100010011
Round: 15 10110101001111011101001000010001
00100110000001000010111100011110
000110010010110010001100101001110000000100000110
Round: 16 00100110000001000010111100011110
11111011010001011110010011010011
010100010010110010001100000101110000001111000010
Round: Swap 11111011010001011110010011010011
00100110000001000010111100011110
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313131
After Initial Permutation: 00FF00FF00FF0000

Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011101001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011101001110
01111010110011101000111001000000
010100001010110010100100010101001010000101000001
Round: 3 01111010110011101000111001000000
10011000110111001011101101001010
110100001010110000100110011000101010010001001100
Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110

Round: 16 1111100100011111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 1111100100011111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131312030303030
 After Initial Permutation: 00F7000700FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101110111110011110110110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101110111110011110110110
 11101110101011101001001100001000
 010100001010110010100100010101001010000101000001
 Round: 3 11101110101011101001001100001000
 11001101110100100111101000111111
 110100001010110000100110011000101010010001001100
 Round: 4 11001101110100100111101000111111
 01010111101100111010111111010101
 111000001010011000100110011010001011010110001010
 Round: 5 01010111101100111010111111010101
 00001110011111100000010011110111
 111000001001011000100110001011000101010000101011
 Round: 6 00001110011111100000010011110111
 01001111011000001110011010011010
 111000001001001001110010010011100101100001100010
 Round: 7 01001111011000001110011010011010
 00110010010110011001110111110110
 101001001101001001110010100001001100100101111000
 Round: 8 00110010010110011001110111110110
 10011101000100010010100110110100
 101001100101001101010010100000011001111001010000
 Round: 9 10011101000100010010100110110100
 10111111110010101111010100000001
 001001100101001101010011110010010001001001011000
 Round: 10 10111111110010101111010100000001
 11110101011010001101000001011011
 001011110101000101010001100100011101001000101100
 Round: 11 11110101011010001101000001011011
 11011000110000110111111000101100
 000011110100000111011001000100000001111010100100
 Round: 12 11011000110000110111111000101100
 01111101010011101101000100100010
 000111110100000110011001100110000010100010110101

Round: 13 01111101010011101101000100100010
 10111010111111010001110101001001
 000111110000100110001001001000110110101010010001
 Round: 14 10111010111111010001110101001001
 10000100000010100011110101010101
 000110110010100010001101001100110010000100010011
 Round: 15 10000100000010100011110101010101
 00110111100011001001101000001110
 000110010010110010001100101001110000000100000110
 Round: 16 00110111100011001001101000001110
 11110011111101010011011111100000
 010100010010110010001100000101110000001111000010
 Round: Swap 11110011111101010011011111100000
 00110111100011001001101000001110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030313131
 After Initial Permutation: 00FF00E000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101010001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101010001
 01110010010011100000110001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110010010011100000110001000010
 00100100011100011010000011110101
 110100001010110000100110011000101010010001001100
 Round: 4 00100100011100011010000011110101
 11110101001111010100000000100111
 111000001010011000100110011010001011010110001010
 Round: 5 11110101001111010100000000100111
 00100111011110001011000111011110
 111000001001011000100110001011000101010000101011
 Round: 6 00100111011110001011000111011110
 10100001000111111010110111011100
 111000001001001001110010010011100101100001100010
 Round: 7 10100001000111111010110111011100
 01010001010100010011101001000010
 101001001101001001110010100001001100100101111000
 Round: 8 01010001010100010011101001000010
 01110010111110010101010110000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110010111110010101010110000101
 10101100000011000101010101011011
 001001100101001101010011110010010001001001011000

Round: 10 10101100000011000101010101011011
 01111101100110110110000010111100
 001011110101000101010001100100011101001000101100
 Round: 11 01111101100110110110000010111100
 11110101100001000101001110100100
 000011110100000111011001000100000001111010100100
 Round: 12 11110101100001000101001110100100
 01011111001011100011110100001110
 000111110100000110011001100110000010100010110101
 Round: 13 01011111001011100011110100001110
 11010011011001110101100110011011
 000111110000100110001001001000110110101010010001
 Round: 14 11010011011001110101100110011011
 00101001000110111011100111101101
 000110110010100010001101001100110010000100010011
 Round: 15 00101001000110111011100111101101
 00101010100111111010110110100110
 000110010010110010001100101001110000000100000110
 Round: 16 00101010100111111010110110100110
 01001100100111111100011101110101
 010100010010110010001100000101110000001111000010
 Round: Swap 01001100100111111100011101110101
 00101010100111111010110110100110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100

Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110
Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313131
After Initial Permutation: 00FF00FF00FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011101001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011101001110
01111010110011101000111001000000
010100001010110010100100010101001010000101000001
Round: 3 01111010110011101000111001000000
10011000110111001011101101001010
110100001010110000100110011000101010010001001100
Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110

Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313120303030
 After Initial Permutation: 00EF000F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101000111110011110111110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101000111110011110111110
 11100110101011011001011101101001
 010100001010110010100100010101001010000101000001
 Round: 3 11100110101011011001011101101001
 01110111110001001010010010101111
 110100001010110000100110011000101010010001001100
 Round: 4 0111011111000100101001001001010111
 10100010001000100011111010101001
 111000001010011000100110011010001011010110001010
 Round: 5 10100010001000100011111010101001
 01011100000011101001101000001000
 111000001001011000100110001011000101010000101011
 Round: 6 01011100000011101001101000001000
 11100000100010010111110001000111
 111000001001001001110010010011100101100001100010
 Round: 7 11100000100010010111110001000111
 00011000110010100101111111000101
 101001001101001001110010100001001100100101111000
 Round: 8 00011000110010100101111111000101
 00100011010111001101111111001100
 101001100101001101010010100000011001111001010000
 Round: 9 00100011010111001101111111001100
 10110100001000101111001010100110
 001001100101001101010011110010010001001001011000
 Round: 10 10110100001000101111001010100110
 01000111010001111011100000001110
 001011110101000101010001100100011101001000101100
 Round: 11 010001110100011110111100000001110
 01001001000001011000110000000010
 000011110100000111011001000100000001111010100100
 Round: 12 01001001000001011000110000000010
 00001010101111011101000110100110
 000111110100000110011001100110000010100010110101

Round: 13 00001010101111011101000110100110
 10110010000011001010010000001000
 000111110000100110001001001000110110101010010001
 Round: 14 10110010000011001010010000001000
 00111001101100111011011011111001
 000110110010100010001101001100110010000100010011
 Round: 15 00111001101100111011011011111001
 00111100101100100100001110011011
 000110010010110010001100101001110000000100000110
 Round: 16 00111100101100100100001110011011
 01010010000111001100010010100010
 010100010010110010001100000101110000001111000010
 Round: Swap 01010010000111001100010010100010
 00111100101100100100001110011011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3030303030303131
 After Initial Permutation: 00FF00C000FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101110001
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101110001
 01110000010011100000100001000010
 010100001010110010100100010101001010000101000001
 Round: 3 01110000010011100000100001000010
 00110100011100011100000011001101
 110100001010110000100110011000101010010001001100
 Round: 4 00110100011100011100000011001101
 10111100001001011000111010010101
 111000001010011000100110011010001011010110001010
 Round: 5 10111100001001011000111010010101
 11001110010110011001110000100010
 111000001001011000100110001011000101010000101011
 Round: 6 11001110010110011001110000100010
 00111110100100110111010011110110
 111000001001001001110010010011100101100001100010
 Round: 7 00111110100100110111010011110110
 1110101011110111101001101110100
 101001001101001001110010100001001100100101111000
 Round: 8 1110101011110111101001101110100
 001010100000000000001110111101101
 101001100101001101010010100000011001111001010000
 Round: 9 001010100000000000001110111101101
 00111010101001001000010111110000
 001001100101001101010011110010010001001001011000

Round: 10 00111010101001001000010111110000
 11100011110011100101011110110010
 001011110101000101010001100100011101001000101100
 Round: 11 11100011110011100101011110110010
 1111110010000011010110100100101
 000011110100000111011001000100000001111010100100
 Round: 12 1111110010000011010110100100101
 101111111111110100000111101001
 000111110100000110011001100110000010100010110101
 Round: 13 101111111111110100000111101001
 0011110100111100000111001110110
 000111110000100110001001001000110110101010010001
 Round: 14 00111110100111100000111001110110
 01010110110100000110100110111001
 000110110010100010001101001100110010000100010011
 Round: 15 01010110110100000110100110111001
 10010100111001000111110101110110
 000110010010110010001100101001110000000100000110
 Round: 16 10010100111001000111110101110110
 0101111101000000011010101001011
 010100010010110010001100000101110000001111000010
 Round: Swap 0101111101000000011010101001011
 10010100111001000111110101110110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100

Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110
Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313131
After Initial Permutation: 00FF00FF00FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011101001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011101001110
01111010110011101000111001000000
010100001010110010100100010101001010000101000001
Round: 3 01111010110011101000111001000000
10011000110111001011101101001010
110100001010110000100110011000101010010001001100
Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110

Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131203030
 After Initial Permutation: 00DF001F00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000100100111110011110101110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000100100111110011110101110
 01101100111111101000111101001001
 010100001010110010100100010101001010000101000001
 Round: 3 01101100111111101000111101001001
 0000010001010100111011111000000
 110100001010110000100110011000101010010001001100
 Round: 4 00000100010101001110111111000000
 11100001100010011110000001101010
 111000001010011000100110011010001011010110001010
 Round: 5 11100001100010011110000001101010
 11101101110111010011110111001101
 111000001001011000100110001011000101010000101011
 Round: 6 11101101110111010011110111001101
 10110110101111110000101001111000
 111000001001001001110010010011100101100001100010
 Round: 7 10110110101111110000101001111000
 01110111011111111011100000000111
 101001001101001001110010100001001100100101111000
 Round: 8 01110111011111111011100000000111
 01100111101011001011011010011101
 101001100101001101010010100000011001111001010000
 Round: 9 01100111101011001011011010011101
 01001011100111001000010000010110
 001001100101001101010011110010010001001001011000
 Round: 10 01001011100111001000010000010110
 00111110101000010000111111100101
 001011110101000101010001100100011101001000101100
 Round: 11 00111110101000010000111111100101
 00011010011000100110001101000111
 000011110100000111011001000100000001111010100100
 Round: 12 00011010011000100110001101000111
 01001011010011011101010110010001
 000111110100000110011001100110000010100010110101

Round: 13 01001011010011011101010110010001
01110001100110100000000001100001
000111110000100110001001001000110110101010010001
Round: 14 01110001100110100000000001100001
01100000110101010100000101100110
000110110010100010001101001100110010000100010011
Round: 15 01100000110101010100000101100110
01111000000011001000101111000010
000110010010110010001100101001110000000100000110
Round: 16 01111000000011001000101111000010
00010110100011001100010011011001
010100010010110010001100000101110000001111000010
Round: Swap 00010110100011001100010011011001
01111000000011001000101111000010
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3030303030303031
After Initial Permutation: 00FF008000FF0000
Left Half Right Half Sub Key
Round: 1 00000000111111110000000000000000
00000000101100111110011100110001
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011100110001
01110010010111100000110001000011
010100001010110010100100010101001010000101000001
Round: 3 01110010010111100000110001000011
00101100001100001011101111010011
110100001010110000100110011000101010010001001100
Round: 4 00101100001100001011101111010011
10001001011010000111101101110001
111000001010011000100110011010001011010110001010
Round: 5 10001001011010000111101101110001
00111100110111110110110010111111
111000001001011000100110001011000101010000101011
Round: 6 00111100110111110110110010111111
00010100110011010001101010000000
11100000100100100111001001001100101100001100010
Round: 7 00010100110011010001101010000000
01110001011110010011010011000101
101001001101001001110010100001001100100101111000
Round: 8 01110001011110010011010011000101
0111010010111100111111011011100
101001100101001101010010100000011001111001010000
Round: 9 0111010010111100111111011011100
10100001001010101111110000101100
001001100101001101010011110010010001001001011000

Round: 10 10100001001010101111110000101100
 01111010010100011110011110001100
 001011110101000101010001100100011101001000101100
 Round: 11 01111010010100011110011110001100
 1111001111001111011011010011011
 000011110100000111011001000100000001111010100100
 Round: 12 11110011111001111011011010011011
 11101001111100111111010010001001
 000111110100000110011001100110000010100010110101
 Round: 13 11101001111100111111010010001001
 01000111011010011010000111011111
 000111110000100110001001001000110110101010010001
 Round: 14 01000111011010011010000111011111
 00110001000001111100011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00110001000001111100011101001110
 01100011110011000110011010000110
 000110010010110010001100101001110000000100000110
 Round: 16 01100011110011000110011010000110
 00100001000100100000101100001100
 010100010010110010001100000101110000001111000010
 Round: Swap 00100001000100100000101100001100
 01100011110011000110011010000110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100
 Round: 4 10011000110111001011101101001010
 11001111010110011100111000010111
 111000001010011000100110011010001011010110001010
 Round: 5 11001111010110011100111000010111
 11110101100001011011101001001111
 111000001001011000100110001011000101010000101011
 Round: 6 11110101100001011011101001001111
 10101011011000111101111101101000
 111000001001001001110010010011100101100001100010

Round: 7 10101011011000111101111101101000
 01110011100111000110111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 01110011100111000110111101101100
 00101101000000001001110110001101
 101001100101001101010010100000011001111001010000
 Round: 9 00101101000000001001110110001101
 01000010110101100010110011101100
 001001100101001101010011110010010001001001011000
 Round: 10 01000010110101100010110011101100
 00010010111100100101111100011111
 001011110101000101010001100100011101001000101100
 Round: 11 00010010111100100101111100011111
 01110010000111111000101111110110
 000011110100000111011001000100000001111010100100
 Round: 12 01110010000111111000101111110110
 00000011011010101011100110010111
 000111110100000110011001100110000010100010110101
 Round: 13 00000011011010101011100110010111
 00111000000010001001000101101110
 000111110000100110001001001000110110101010010001
 Round: 14 00111000000010001001000101101110
 00100000011010101110100010110011
 000110110010100010001101001100110010000100010011
 Round: 15 00100000011010101110100010110011
 11111001000111111101100001010101
 000110010010110010001100101001110000000100000110
 Round: 16 11111001000111111101100001010101
 00110011111011101111110000011100
 010100010010110010001100000101110000001111000010
 Round: Swap 00110011111011101111110000011100
 11111001000111111101100001010101
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3131313131313131
 After Initial Permutation: 00FF00FF00FF0000
 Left Half Right Half Sub Key
 Round: 1 00000000111111110000000000000000
 00000000101100111110011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00000000101100111110011101001110
 01111010110011101000111001000000
 010100001010110010100100010101001010000101000001
 Round: 3 01111010110011101000111001000000
 10011000110111001011101101001010
 110100001010110000100110011000101010010001001100

Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110
Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131313131
After Initial Permutation: 00FF00FF00FF0000
Left Half Right Half Sub Key

Round: 1 00000000111111100000000000000000
00000000101100111110011101001110
010100000010110010101100010001000010001111000110
Round: 2 00000000101100111110011101001110
01111010110011101000111001000000
010100001010110010100100010101001010000101000001
Round: 3 01111010110011101000111001000000
10011000110111001011101101001010
110100001010110000100110011000101010010001001100
Round: 4 10011000110111001011101101001010
11001111010110011100111000010111
111000001010011000100110011010001011010110001010
Round: 5 11001111010110011100111000010111
11110101100001011011101001001111
111000001001011000100110001011000101010000101011
Round: 6 11110101100001011011101001001111
10101011011000111101111101101000
111000001001001001110010010011100101100001100010
Round: 7 10101011011000111101111101101000
01110011100111000110111101101100
101001001101001001110010100001001100100101111000
Round: 8 01110011100111000110111101101100
00101101000000001001110110001101
101001100101001101010010100000011001111001010000
Round: 9 00101101000000001001110110001101
01000010110101100010110011101100
001001100101001101010011110010010001001001011000
Round: 10 01000010110101100010110011101100
00010010111100100101111100011111
001011110101000101010001100100011101001000101100
Round: 11 00010010111100100101111100011111
01110010000111111000101111110110
000011110100000111011001000100000001111010100100
Round: 12 01110010000111111000101111110110
00000011011010101011100110010111
000111110100000110011001100110000010100010110101
Round: 13 00000011011010101011100110010111
00111000000010001001000101101110
000111110000100110001001001000110110101010010001
Round: 14 00111000000010001001000101101110
00100000011010101110100010110011
000110110010100010001101001100110010000100010011
Round: 15 00100000011010101110100010110011
11111001000111111101100001010101
000110010010110010001100101001110000000100000110

Round: 16 11111001000111111101100001010101
00110011111011101111110000011100
010100010010110010001100000101110000001111000010
Round: Swap 00110011111011101111110000011100
11111001000111111101100001010101
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3131313131312D2D
After Initial Permutation: 003FC0FF00FFC000
Left Half Right Half Sub Key
Round: 1 00000000111111111100000000000000
10100000011101110011011111001110
010100000010110010101100010001000010001111000110
Round: 2 10100000011101110011011111001110
01101011000100100001001110100101
010100001010110010100100010101001010000101000001
Round: 3 01101011000100100001001110100101
00110110111001100100011010111101
110100001010110000100110011000101010010001001100
Round: 4 00110110111001100100011010111101
11011101011001101111000011101110
111000001010011000100110011010001011010110001010
Round: 5 11011101011001101111000011101110
11001101010000101110111000000001
111000001001011000100110001011000101010000101011
Round: 6 11001101010000101110111000000001
01011001000100001111010000100110
111000001001001001110010010011100101100001100010
Round: 7 01011001000100001111010000100110
01110001001110001001101110001011
101001001101001001110010100001001100100101111000
Round: 8 01110001001110001001101110001011
10111110011001010000000111010011
101001100101001101010010100000011001111001010000
Round: 9 10111110011001010000000111010011
10001111001011111011001010010011
001001100101001101010011110010010001001001011000
Round: 10 10001111001011111011001010010011
11011010101010100110111010000010
001011110101000101010001100100011101001000101100
Round: 11 11011010101010100110111010000010
11001001001010000101011110011001
000011110100000111011001000100000001111010100100
Round: 12 11001001001010000101011110011001
10101010110101100001101100101111
000111110100000110011001100110000010100010110101

Round: 13 10101010110101100001101100101111
10111001101001011101101000010100
000111110000100110001001001000110110101010010001

Round: 14 10111001101001011101101000010100
01011111001001010111010100100010
000110110010100010001101001100110010000100010011

Round: 15 01011111001001010111010100100010
001111110010010100011101000001010
000110010010110010001100101001110000000100000110

Round: 16 001111110010010100011101000001010
11000000010100101011011101000011
010100010010110010001100000101110000001111000010

Round: Swap 11000000010100101011011101000011
001111110010010100011101000001010
010100010010110010001100000101110000001111000010

Hasil enkrip dalam bentuk biner =

0111000001011110111100100010011101100100100110100110100100011000011100
0001011110111100100010011101100100100110100110100100011000000001101000
11111110101111011011001100011111011001101101011100010111000001011110111
1001000100111011001001001101001101001000110000111000001011110111100100
010011101100100100110100110100100011000010101101111101010011001111010
0100010011000000011001000101111010111000001011110111100100010011101100
100100110100110100100011000111100100001110100001010100101010100001101
010111110011101101000101101100011100001011010111110110100000101011110
0111100001100101011100000101111011110010001001110110010010011010011010
0100011000000110110101110000101111011010010001001110110110011110101110
1000011100000101111011110010001001110110010010011010011010010001100010
1100001011101101000010000001110111100111000100111101101011000111101011
0100101111110010011010101011100110101110010011000101101001110000010111
1011110010001001110110010010011010011010010001100001100010111001010000
1000111110001011110100000111010011110101110101110000010111101111001000
1001110110010010011010011010010001100001101110010001011111001100100111
1100011000011010100010110010000111111000000100010111101011101101110000
0111010011001001001100111101110000010111101111001000100111011001001001
1010011010010001100001000001100100100011110101111000100011011000100101
0010110101010001110000010111101111001000100111011001001001101001101001
00011000001111011011011001111111111110000011000110001011010001010011111
0000010001010011000101000111100110000110010100110010000111000101101110
0000101111011110010001001110110010010011010011010010001100010100010100
1010101100010111100110110011011111000001000101101001101110000010111101
1110010001001110110010010011010011010010001100000111101101101100111111
1111110000011000110001011010001010011111011110101100111100101011011100
0101110110010111011111110001110000001110000010111101111001000100111011
00100100110100110100100011000010100000110101111111000010101010010011100
1001100101110101101000101110000010111101111001000100111011001001001101
0011010010001100001110000010111101111001000100111011001001001101001101
0010001100011001010110011011100000110001001011110100011000101010100001

0101101110000010111101111001000100111011001001001101001101001000110001
01110101000101001110100100110011111111010001111110011101101000111000
0010111101111001000100111011001001001101001101001000110000111000001011
1101111001000100111011001001001101001101001000110000100000010111100110
0101110110000100000001110001011110011000001110111000001011110111100100
0100111011001001001101001101001000110001110110101000001111100000000001
1110111101000000101101101101010010111000001011110111100100010011101100
100100110100110100100011000110001001001111000101011001001010001000011
001000101010000010001011100010011100000011011110111101111101111010100
100111101001110001101100011100001011010111110110100000101011110011110
0001100101011100000101111011110010001001110110010010011010011010010001
1000010101101111110101001100111101001000100110000000110010001011110101
1100000101111011110010001001110110010010011010011010010001100011100010
01110000001101111011110111110111110101001001111010011100111010110100101
1111100100110101010111001101011100100110001011010011100000101111011110
0100010011101100100100110100110100100011000000110110101110000101111011
0100100010011101101100111101011101000011100000101111011110010001001110
1100100100110100110100100011000001110100100001010000111010000011001111
10101110100011001110011111101100001110011011110101001011010110111111
0001110010001011110111000001011110111100100010011101100100100110100110
1001000110000110001011100101000010001111100010111101000001110100111101
0111010111000001011110111100100010011101100100100110100110100100011000
110001001001111000101011001001010001000011001000101010000010001001101
111010111000000001000000010000101001110010001011100000010010111000001
0111101111001000100111011001001001101001101001000110000100000110010010
0011110101111000100011011000100101001011010101000111000001011110111100
100010011101100100100110100110100100011000101010111001100010101101001
0100001000011001010110011111001001111101111101001110110011001001000111
1110010111000000000111111001100011100000101111011110010001001110110010
0100110100110100100011000101000101001010101100010111100110110011011111
0000010001011010011011100000101111011110010001001110110010010011010011
0100100011000011100000101111011110010001001110110010010011010011010010
0011000111000001111101001000110101001110000100001101010111010110111110
0110110000111001101111010100101101011011111100011100100010111101010
0000110101111111000010101010010011001001100101110101101000101110000010
1111011110010001001110110010010011010011010010001100011111000000100010
11110101110110111000001110100110010010011001111111011110111011011001001
1111101011001010100110100100000101000111011011110101110000000010000000
1000010100111001000101110000001001101110101000101001110100100110011111
1111101000111111001110110100011100000101111011110010001001110110010010
0110100110100100011000000001001110000001111001110101101011001001010101
0011101101011101110111110011010100000110000010111001000100101001010001
0101010000000001101000111111101011110110110011000111110110011011010111
0001111011010100000111110000000000111101111010000001011011011010100101
1100000101111011110010001001110110010010011010011010010001100000001110
1101010110100010101010111110010110100110011000000100011100111110111001
1100110111101011111101111100011001010100001010111011100010011100000011

Hasil enkrip dalam bentuk hexa =

705EF227649A6918705EF227649A6918068FEBDB31F66D71705EF227649A6918
705EF227649A691856FD4CF48980C8BD705EF227649A6918F21D0A954357CED
16C70B5FB415E7865705EF227649A69181B5C2F6913B67AE8705EF227649A691
8B0BB420779C4F6B1EB4BF26AB9AE4C5A705EF227649A691862E508F8BD074
F5D705EF227649A69186E45F327C61A8B21F8117AEDC1D324CF705EF227649A
691841923D788D894B54705EF227649A69183DB67FF8318B453E08A628F30CA6
438B705EF227649A6918A29562F366F822D3705EF227649A69183DB67FF8318B
453EF59E56E2ECBBF8E0705EF227649A6918506BF855264CBAD1705EF227649
A6918705EF227649A6918CACDC1897A31542B705EF227649A6918BA8A7499FF
A3F3B4705EF227649A6918705EF227649A691840BCCBB080E2F307705EF22764
9A6918ED41F003DE816DA9705EF227649A6918C49E2B2510C8A822E27037BD
EFD49E9C6C70B5FB415E7865705EF227649A691856FD4CF48980C8BD705EF22
7649A6918E27037BDEFD49E9CEB4BF26AB9AE4C5A705EF227649A69181B5C
2F6913B67AE8705EF227649A69183A4287419F5D19CFD8737A96B6FC722F705
EF227649A691862E508F8BD074F5D705EF227649A6918C49E2B2510C8A8226F5
C020214E45C09705EF227649A691841923D788D894B54705EF227649A6918AB9

8AD28432B3E4FBE9D9923F2E00FCC705EF227649A6918A29562F366F822D370
 5EF227649A6918705EF227649A6918E0FA46A7086AEB7CD8737A96B6FC722F5
 06BF855264CBAD1705EF227649A6918F8117AEDC1D324CFF7B6C9FACA9A41
 476F5C020214E45C09BA8A7499FFA3F3B4705EF227649A691804E079D6B2553
 B5DDF35060B91294550068FEBDB31F66D71ED41F003DE816DA9705EF227649
 A69180ED5A2ABE5A660473EE737AFDF1950AEE27037BDEFD49E9C705EF227
 649A691856FD4CF48980C8BD3A4287419F5D19CFE27037BDEFD49E9CE27037
 BDEFD49E9C068FEBDB31F66D711B5C2F6913B67AE8ED244F7143AA7E0AE2
 7037BDEFD49E9C0ED5A2ABE5A66047E27037BDEFD49E9C04BC923699622A0
 DD67A797FF68ADAF7E27037BDEFD49E9C59CBBE4A43CC5545E27037BDEF
 D49E9CD4CEB62ADCD551793DB67FF8318B453EE27037BDEFD49E9CE27037
 BDEFD49E9CE27037BDEFD49E9C0A6B9492F2A14C274D43EE49CE3E6BB0E2
 7037BDEFD49E9CE27037BDEFD49E9CE27037BDEFD49E9C094A74B9C180871
 FC49E2B2510C8A822E27037BDEFD49E9CE27037BDEFD49E9CE27037BDEFD
 49E9C05BF84AA9C8C7144

3. Bagaimana proses dan hasil dekripsi pada setiap fase?

Data Being Encrypted: 705EF227649A6918

After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		

Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		

Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 068FEBDB31F66D71
 After Initial Permutation: ECB863DE2EF44E2F

Left Half

Right Half

Sub Key

Round: 1 00101110111101000100111000101111
 00010001101100001110001100100000
 010100000010110010101100010001000010001111000110
 Round: 2 00010001101100001110001100100000
 11111000010111001001111101001101
 010100001010110010100100010101001010000101000001
 Round: 3 11111000010111001001111101001101
 10010001010101111010010110001101
 110100001010110000100110011000101010010001001100
 Round: 4 10010001010101111010010110001101
 10100110010011111101000001111010
 111000001010011000100110011010001011010110001010
 Round: 5 10100110010011111101000001111010
 00001000001110110110101000100000
 111000001001011000100110001011000101010000101011

Round: 6 00001000001110110110101000100000
 11010110010011110011010100000110
 111000001001001001110010010011100101100001100010
 Round: 7 11010110010011110011010100000110
 11001101110011000100100100111101
 101001001101001001110010100001001100100101111000
 Round: 8 11001101110011000100100100111101
 00000110101100111100101101011001
 101001100101001101010010100000011001111001010000
 Round: 9 00000110101100111100101101011001
 00100001010101101111001010110000
 001001100101001101010011110010010001001001011000
 Round: 10 00100001010101101111001010110000
 11110100101010111110001010101111
 001011110101000101010001100100011101001000101100
 Round: 11 11110100101010111110001010101111
 00010000010000001101011010010110
 000011110100000111011001000100000001111010100100
 Round: 12 00010000010000001101011010010110
 10011010010011111011010010101110
 000111110100000110011001100110000010100010110101
 Round: 13 10011010010011111011010010101110
 01101000111011101000111001001000
 000111110000100110001001001000110110101010010001
 Round: 14 01101000111011101000111001001000
 00000000101100111110011110001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		

Round: 4 00001100100001101101011011000100
 11110110011001101011101111111100
 111000001010011000100110011010001011010110001010
 Round: 5 11110110011001101011101111111100
 00000000000010001111111000010011
 111000001001011000100110001011000101010000101011
 Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		

Round: 2 11010010111001010001000110100110
1000010000010011110011101011111
010100001010110010100100010101001010000101000001
Round: 3 1000010000010011110011101011111
00001100100001101101011011000100
110100001010110000100110011000101010010001001100
Round: 4 00001100100001101101011011000100
1111011001100110101110111111100
111000001010011000100110011010001011010110001010
Round: 5 1111011001100110101110111111100
00000000000010001111111000010011
111000001001011000100110001011000101010000101011
Round: 6 00000000000010001111111000010011
11000111111011010011101011101000
111000001001001001110010010011100101100001100010
Round: 7 11000111111011010011101011101000
11100111011110110010110011110011
101001001101001001110010100001001100100101111000
Round: 8 11100111011110110010110011110011
10011110111101100101000001111111
101001100101001101010010100000011001111001010000
Round: 9 10011110111101100101000001111111
11001110110101110011010111001000
001001100101001101010011110010010001001001011000
Round: 10 11001110110101110011010111001000
1000111101101010101000011101010101
001011110101000101010001100100011101001000101100
Round: 11 1000111101101010101000011101010101
10100101000111001000011101000001
000011110100000111011001000100000001111010100100
Round: 12 10100101000111001000011101000001
00110010111000111100110100001111
000111110100000110011001100110000010100010110101
Round: 13 00110010111000111100110100001111
01100010011011100000100001001010
000111110000100110001001001000110110101010010001
Round: 14 01100010011011100000100001001010
00000000101100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 56FD4CF48980C8BD
After Initial Permutation: 4F8B8F92FA8AD601

	Left Half	Right Half	Sub Key
Round: 1	11111010100010101101011000000001	1100111100001111110001000011101	
	010100000010110010101100010001000010001111000110		
Round: 2	1100111100001111110001000011101	00011001010111000000001110101011	
	010100001010110010100100010101001010000101000001		
Round: 3	00011001010111000000001110101011	00100000100001111001101010101000	
	110100001010110000100110011000101010010001001100		
Round: 4	00100000100001111001101010101000	11001001101000011110100010100000	
	111000001010011000100110011010001011010110001010		
Round: 5	11001001101000011110100010100000	00001101100001010110100011101011	
	111000001001011000100110001011000101010000101011		
Round: 6	00001101100001010110100011101011	0010110111100011111100010000111	
	111000001001001001110010010011100101100001100010		
Round: 7	00101101111000111111100010000111	10110010000101110011001111100101	
	101001001101001001110010100001001100100101111000		
Round: 8	10110010000101110011001111100101	01011101000000110011000100100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01011101000000110011000100100001	1001101000010111111101010110100	
	001001100101001101010011110010010001001001011000		
Round: 10	10011010000101111111101010110100	01110110111100100010001101001001	
	001011110101000101010001100100011101001000101100		
Round: 11	01110110111100100010001101001001	01011001101001100000111100100001	
	000011110100000111011001000100000001111010100100		
Round: 12	01011001101001100000111100100001	10100011100000101100010110101101	
	000111110100000110011001100110000010100010110101		
Round: 13	10100011100000101100010110101101	11000010011010100001100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	11000010011010100001100001001010	00000000101100101110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100101110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111100000000000000000
00000000111111000000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	1111011001100110101110111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	1000111101101010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		

Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: F21D0A954357CED1
 After Initial Permutation: F1AB6ABAC9014675

	Left Half	Right Half	Sub Key
Round: 1	11001001000000010100011001110101	10100111110100100000101101001001	
	010100000010110010101100010001000010001111000110		
Round: 2	10100111110100100000101101001001	10001000100010101011001010011000	
	010100001010110010100100010101001010000101000001		
Round: 3	10001000100010101011001010011000	001110110010100100000000000000110	
	110100001010110000100110011000101010010001001100		
Round: 4	001110110010100100000000000000110	11010111011000110011110001001100	
	111000001010011000100110011010001011010110001010		
Round: 5	11010111011000110011110001001100	10100110001111100010001111101000	
	111000001001011000100110001011000101010000101011		
Round: 6	10100110001111100010001111101000	11001101110110110101001111000010	
	111000001001001001110010010011100101100001100010		
Round: 7	1100110111011011010101001111000010	10110010111110110101010101000101	
	101001001101001001110010100001001100100101111000		
Round: 8	10110010111110110101010101000101	10101000010001101001111011110000	
	101001100101001101010010100000011001111001010000		
Round: 9	10101000010001101001111011110000	01001011110111011011110110111110	
	001001100101001101010011110010010001001001011000		
Round: 10	01001011110111011011110110111110	10000101001100100010111001111001	
	001011110101000101010001100100011101001000101100		
Round: 11	10000101001100100010111001111001	11100110111000001110101100000011	
	000011110100000111011001000100000001111010100100		

Round: 12 11100110111000001110101100000011
 10101000111111001001101111011010
 000111110100000110011001100110000010100010110101
 Round: 13 10101000111111001001101111011010
 01111010110011101000011001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000011001000000
 00000000101100111110011101010110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101010110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011100111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 6C70B5FB415E7865
 After Initial Permutation: FB6EA59C0CCF6928

Left Half	Right Half	Sub Key
Round: 1 00001100110011110110100100101000		
10100100100011100010100000010100		
010100000010110010101100010001000010001111000110		
Round: 2 10100100100011100010100000010100		
10110100010100110000011010001101		
010100001010110010100100010101001010000101000001		
Round: 3 10110100010100110000011010001101		
00010110000110001000101110111110		
110100001010110000100110011000101010010001001100		
Round: 4 00010110000110001000101110111110		
00011000010100101101010100010110		
111000001010011000100110011010001011010110001010		
Round: 5 00011000010100101101010100010110		
00010010101000010000101011111000		
111000001001011000100110001011000101010000101011		
Round: 6 00010010101000010000101011111000		
00011011001011001111110001000111		
111000001001001001110010010011100101100001100010		
Round: 7 00011011001011001111110001000111		
00011110000111101100001111101010		
101001001101001001110010100001001100100101111000		
Round: 8 00011110000111101100001111101010		
11110110101110110110001000011101		
101001100101001101010010100000011001111001010000		
Round: 9 11110110101110110110001000011101		
11110101101011011110000100111000		
001001100101001101010011110010010001001001011000		

Round: 10 11110101101011011110000100111000
 10101101011100001010010101011000
 001011110101000101010001100100011101001000101100
 Round: 11 10101101011100001010010101011000
 01100100110010011111100100011010
 000011110100000111011001000100000001111010100100
 Round: 12 01100100110010011111100100011010
 01101010110011111101010001000010
 000111110100000110011001100110000010100010110101
 Round: 13 01101010110011111101010001000010
 01100010111011001000001001001000
 000111110000100110001001001000110110101010010001
 Round: 14 01100010111011001000001001001000
 00000000101100111110011110110000
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110000
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000000001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		

Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 1B5C2F6913B67AE8
 After Initial Permutation: CA73261DA0ECCF75

Left Half

Right Half

Sub Key

Round: 1 10100000111011001100111101110101
 11001111000001101000001010111001
 010100000010110010101100010001000010001111000110
 Round: 2 11001111000001101000001010111001
 01101111011011010011001010110111
 010100001010110010100100010101001010000101000001
 Round: 3 01101111011011010011001010110111
 11111110101110001101001111000110
 110100001010110000100110011000101010010001001100
 Round: 4 11111110101110001101001111000110
 11000111010100001010001010011100
 111000001010011000100110011010001011010110001010
 Round: 5 11000111010100001010001010011100
 00010001000110101000101111000011
 111000001001011000100110001011000101010000101011

Round: 6 00010001000110101000101111000011
 01101100100111110111110000000111
 111000001001001001110010010011100101100001100010
 Round: 7 01101100100111110111110000000111
 00111111101001011100011100010110
 101001001101001001110010100001001100100101111000
 Round: 8 00111111101001011100011100010110
 11110001010011010111110111000011
 101001100101001101010010100000011001111001010000
 Round: 9 11110001010011010111110111000011
 01000101000101101000110100001101
 001001100101001101010011110010010001001001011000
 Round: 10 01000101000101101000110100001101
 00011100010010110011000000011011
 001011110101000101010001100100011101001000101100
 Round: 11 00011100010010110011000000011011
 10000101000011000100010001000011
 000011110100000111011001000100000001111010100100
 Round: 12 10000101000011000100010001000011
 00100011010100010100001110101111
 000111110100000110011001100110000010100010110101
 Round: 13 00100011010100010100001110101111
 11100010011011100001100000001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100010011011100001100000001010
 00000000101100011110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100011110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111010000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		

Round: 4 00001100100001101101011011000100
 11110110011001101011101111111100
 111000001010011000100110011010001011010110001010
 Round: 5 11110110011001101011101111111100
 00000000000010001111111000010011
 111000001001011000100110001011000101010000101011
 Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: B0BB420779C4F6B1
 After Initial Permutation: 74D3689AE3D3124E

Left Half	Right Half	Sub Key
Round: 1 11100011110100110001001001001110		
11010100101001000000111001011111		
010100000010110010101100010001000010001111000110		

Round: 2 11010100101001000000111001011111
11110110100100011100111110010101
010100001010110010100100010101001010000101000001
Round: 3 11110110100100011100111110010101
01001000100001100111010100100000
110100001010110000100110011000101010010001001100
Round: 4 01001000100001100111010100100000
01011100010010001010111011101100
111000001010011000100110011010001011010110001010
Round: 5 01011100010010001010111011101100
00110001000100100011011010100111
111000001001011000100110001011000101010000101011
Round: 6 00110001000100100011011010100111
01000001100101011110101111010101
111000001001001001110010010011100101100001100010
Round: 7 01000001100101011110101111010101
01010111111000101011001000010010
101001001101001001110010100001001100100101111000
Round: 8 01010111111000101011001000010010
10100011000111000001000111110110
101001100101001101010010100000011001111001010000
Round: 9 10100011000111000001000111110110
11000101101110000001010011111010
001001100101001101010011110010010001001001011000
Round: 10 11000101101110000001010011111010
01100100001001111000100110000000
001011110101000101010001100100011101001000101100
Round: 11 01100100001001111000100110000000
10011101010010110101100001111101
000011110100000111011001000100000001111010100100
Round: 12 10011101010010110101100001111101
10101100011100001011111111010000
000111110100000110011001100110000010100010110101
Round: 13 10101100011100001011111111010000
01110010010111000000110001100011
000111110000100110001001001000110110101010010001
Round: 14 01110010010111000000110001100011
00000000101100111110011100110011
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011100110011
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000010000010
010100010010110010001100000101110000001111000010
Data Being Encrypted: EB4BF26AB9AE4C5A
After Initial Permutation: CF946013353DFBAF

	Left Half	Right Half	Sub Key
Round: 1	0011010100111101111101110101111	01100001011011011010000011110011	
	010100000010110010101100010001000010001111000110		
Round: 2	01100001011011011010000011110011	00100000000101110000010111001110	
	010100001010110010100100010101001010000101000001		
Round: 3	00100000000101110000010111001110	11000111000000000011010100011011	
	110100001010110000100110011000101010010001001100		
Round: 4	11000111000000000011010100011011	01100000110010101111110001010000	
	111000001010011000100110011010001011010110001010		
Round: 5	01100000110010101111110001010000	0001001000010010010101111100010	
	111000001001011000100110001011000101010000101011		
Round: 6	0001001000010010010101111100010	01100000101101001001000011110001	
	11100000100100100111001001001100101100001100010		
Round: 7	01100000101101001001000011110001	10100000001011100110100011110010	
	101001001101001001110010100001001100100101111000		
Round: 8	10100000001011100110100011110010	1001000011101111001001001011110	
	101001100101001101010010100000011001111001010000		
Round: 9	10010000111011111001001001011110	10011110001100100110110011110011	
	001001100101001101010011110010010001001001011000		
Round: 10	10011110001100100110110011110011	01100000011000011110011111010000	
	001011110101000101010001100100011101001000101100		
Round: 11	01100000011000011110011111010000	01101101101011000010100010100000	
	000011110100000111011001000100000001111010100100		
Round: 12	01101101101011000010100010100000	00101000010001111001000001000010	
	000111110100000110011001100110000010100010110101		
Round: 13	00101000010001111001000001000010	01101010111011001000001001101000	
	000111110000100110001001001000110110101010010001		
Round: 14	01101010111011001000001001101000	00000000101100111110011110110010	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110010	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
000000001111111100000000000000011
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	1111011001100110101110111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	1000111101101010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		

Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 62E508F8BD074F5D
 After Initial Permutation: CB98F2F21A1BDC61

	Left Half	Right Half	Sub Key
Round: 1	00011010000110111101110001100001		
	00010010010101010000100001010010		
	010100000010110010101100010001000010001111000110		
Round: 2	00010010010101010000100001010010		
	01100100100011000111010011110010		
	010100001010110010100100010101001010000101000001		
Round: 3	01100100100011000111010011110010		
	00000111101100001110111101000101		
	110100001010110000100110011000101010010001001100		
Round: 4	00000111101100001110111101000101		
	01001011101000100010001000010011		
	111000001010011000100110011010001011010110001010		
Round: 5	01001011101000100010001000010011		
	00010001010110001101010110101111		
	111000001001011000100110001011000101010000101011		
Round: 6	00010001010110001101010110101111		
	01111110001010001111110001000100		
	111000001001001001110010010011100101100001100010		
Round: 7	01111110001010001111110001000100		
	110100011010010000000010010011001		
	101001001101001001110010100001001100100101111000		
Round: 8	110100011010010000000010010011001		
	00000011110000101111101100011011		
	101001100101001101010010100000011001111001010000		
Round: 9	00000011110000101111101100011011		
	10100001000011011001101101001100		
	001001100101001101010011110010010001001001011000		
Round: 10	10100001000011011001101101001100		
	01110011100011000101100001000010		
	001011110101000101010001100100011101001000101100		
Round: 11	01110011100011000101100001000010		
	00010110010010000111000100000110		
	000011110100000111011001000100000001111010100100		

Round: 12 00010110010010000111000100000110
 00100011010001100100011010101111
 000111110100000110011001100110000010100010110101
 Round: 13 00100011010001100100011010101111
 11100010001011100001100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100010001011100001100001001010
 00000000101101111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101101111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111110110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		
Round: 4 00001100100001101101011011000100		
11110110011001101011101111111100		
111000001010011000100110011010001011010110001010		
Round: 5 11110110011001101011101111111100		
00000000000010001111111000010011		
111000001001011000100110001011000101010000101011		
Round: 6 00000000000010001111111000010011		
11000111111011010011101011101000		
111000001001001001110010010011100101100001100010		
Round: 7 11000111111011010011101011101000		
11100111011110110010110011110011		
101001001101001001110010100001001100100101111000		
Round: 8 11100111011110110010110011110011		
10011110111101100101000001111111		
101001100101001101010010100000011001111001010000		
Round: 9 10011110111101100101000001111111		
11001110110101110011010111001000		
001001100101001101010011110010010001001001011000		

Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 6E45F327C61A8B21
 After Initial Permutation: 17241BCE548D617D

	Left Half	Right Half	Sub Key
Round: 1	01010100100011010110000101111101	10111101001001100100001011111010	
	010100000010110010101100010001000010001111000110		
Round: 2	10111101001001100100001011111010	10111011010101000101011111011000	
	010100001010110010100100010101001010000101000001		
Round: 3	10111011010101000101011111011000	10010101100111010110100011111111	
	110100001010110000100110011000101010010001001100		
Round: 4	10010101100111010110100011111111	10101110010110110000010111010010	
	111000001010011000100110011010001011010110001010		
Round: 5	10101110010110110000010111010010	11111111001001100100101010110011	
	111000001001011000100110001011000101010000101011		
Round: 6	11111111001001100100101010110011	11000101001001011110100011110100	
	111000001001001001110010010011100101100001100010		
Round: 7	11000101001001011110100011110100	11010001000111101001010001011011	
	101001001101001001110010100001001100100101111000		

Round: 8 11010001000111101001010001011011
 00001111100000011011011010001111
 101001100101001101010010100000011001111001010000
 Round: 9 00001111100000011011011010001111
 10110000000010101100111011010110
 001001100101001101010011110010010001001001011000
 Round: 10 10110000000010101100111011010110
 00001111011101100010011000110000
 001011110101000101010001100100011101001000101100
 Round: 11 00001111011101100010011000110000
 01100001110000001111110000010111
 000011110100000111011001000100000001111010100100
 Round: 12 01100001110000001111110000010111
 01110011001011111111110110010001
 000111110100000110011001100110000010100010110101
 Round: 13 01110011001011111111110110010001
 01101010011011000000000001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01101010011011000000000001001010
 00000000101100111110011110110101
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110101
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: F8117AEDC1D324CF
 After Initial Permutation: BD27C8BAB94D8DA4

	Left Half	Right Half	Sub Key
Round: 1	10111001010011011000110110100100	1011100010100001011101111110100	
	010100000010110010101100010001000010001111000110		
Round: 2	1011100010100001011101111110100	10100110100100011000011011000100	
	010100001010110010100100010101001010000101000001		
Round: 3	10100110100100011000011011000100	00101100001110010000000010111000	
	110100001010110000100110011000101010010001001100		
Round: 4	00101100001110010000000010111000	0110000111110110011001001001100	
	111000001010011000100110011010001011010110001010		
Round: 5	0110000111110110011001001001100	00100000001000010010001101100100	
	111000001001011000100110001011000101010000101011		

Round: 6 00100000001000010010001101100100
 01101111100001001011011000111000
 111000001001001001110010010011100101100001100010
 Round: 7 01101111100001001011011000111000
 10011001010000000000011000010011
 101001001101001001110010100001001100100101111000
 Round: 8 10011001010000000000011000010011
 10000000011011111000110100111001
 101001100101001101010010100000011001111001010000
 Round: 9 10000000011011111000110100111001
 11101011111011000010111100011101
 001001100101001101010011110010010001001001011000
 Round: 10 11101011111011000010111100011101
 00111000001111010010001101010100
 001011110101000101010001100100011101001000101100
 Round: 11 00111000001111010010001101010100
 11000100010011111000011100111110
 000011110100000111011001000100000001111010100100
 Round: 12 11000100010011111000011100111110
 01100010001010111111011100111001
 000111110100000110011001100110000010100010110101
 Round: 13 01100010001010111111011100111001
 01101010011011000000110001001011
 000111110000100110001001001000110110101010010001
 Round: 14 01101010011011000000110001001011
 00000000101100111110011110111111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110111111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000001110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		

Round: 4 00001100100001101101011011000100
 11110110011001101011101111111100
 111000001010011000100110011010001011010110001010
 Round: 5 11110110011001101011101111111100
 00000000000010001111111000010011
 111000001001011000100110001011000101010000101011
 Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 41923D788D894B54
 After Initial Permutation: C98E9475320C7C42

Left Half	Right Half	Sub Key
Round: 1 00110010000011000111110001000010		
10011110000111111011001110000001		
010100000010110010101100010001000010001111000110		

Round: 2 10011110000111111011001110000001
00101010001110010010001011101000
010100001010110010100100010101001010000101000001
Round: 3 00101010001110010010001011101000
1101001111101000100110001101011
110100001010110000100110011000101010010001001100
Round: 4 1101001111101000100110001101011
11101111010101011000000101001101
111000001010011000100110011010001011010110001010
Round: 5 11101111010101011000000101001101
01100100011100100100111011110110
111000001001011000100110001011000101010000101011
Round: 6 01100100011100100100111011110110
10001000000100111010010101100010
111000001001001001110010010011100101100001100010
Round: 7 10001000000100111010010101100010
00110011100110100101101110011101
101001001101001001110010100001001100100101111000
Round: 8 00110011100110100101101110011101
1000011101000000010111111101100
101001100101001101010010100000011001111001010000
Round: 9 1000011101000000010111111101100
01111110010101010011110000000101
001001100101001101010011110010010001001001011000
Round: 10 01111110010101010011110000000101
01100001000110110001111110000011
001011110101000101010001100100011101001000101100
Round: 11 01100001000110110001111110000011
00011011001000001000101111101000
000011110100000111011001000100000001111010100100
Round: 12 00011011001000001000101111101000
01110001010100100110001010101110
000111110100000110011001100110000010100010110101
Round: 13 01110001010100100110001010101110
11100110001011100001100100001010
000111110000100110001001001000110110101010010001
Round: 14 11100110001011100001100100001010
00000000101110111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101110111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111101110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	0000000000001000111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	01100010011011100000100001001010	00000000101100111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3DB67FF8318B453E
After Initial Permutation: 4C9FC7752A9FADA6

	Left Half	Right Half	Sub Key
Round: 1	00101010100111111010110110100110		
	00101001000110111011100111101101		
	010100000010110010101100010001000010001111000110		
Round: 2	00101001000110111011100111101101		
	11010011011001110101100110011011		
	010100001010110010100100010101001010000101000001		
Round: 3	11010011011001110101100110011011		
	01011111001011100011110100001110		
	110100001010110000100110011000101010010001001100		
Round: 4	01011111001011100011110100001110		
	11110101100001000101001110100100		
	111000001010011000100110011010001011010110001010		
Round: 5	11110101100001000101001110100100		
	01111101100110110110000010111100		
	111000001001011000100110001011000101010000101011		
Round: 6	01111101100110110110000010111100		
	10101100000011000101010101011011		
	111000001001001001110010010011100101100001100010		
Round: 7	10101100000011000101010101011011		
	01110010111110010101010110000101		
	101001001101001001110010100001001100100101111000		
Round: 8	01110010111110010101010110000101		
	01010001010100010011101001000010		
	101001100101001101010010100000011001111001010000		
Round: 9	01010001010100010011101001000010		
	10100001000111111010110111011100		
	001001100101001101010011110010010001001001011000		
Round: 10	10100001000111111010110111011100		
	00100111011110001011000111011110		
	001011110101000101010001100100011101001000101100		
Round: 11	00100111011110001011000111011110		
	11110101001111010100000000100111		
	00001111010000011101100100010000001111010100100		
Round: 12	11110101001111010100000000100111		
	00100100011100011010000011110101		
	000111110100000110011001100110000010100010110101		
Round: 13	00100100011100011010000011110101		
	01110010010011100000110001000010		
	000111110000100110001001001000110110101010010001		

Round: 14 01110010010011100000110001000010
 00000000101100111110011101010001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101010001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011100000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 08A628F30CA6438B
 After Initial Permutation: 480832C8AA2E95EA

	Left Half	Right Half	Sub Key
Round: 1	10101010001011101001010111101010		
	00010111001100100000111001011101		
	010100000010110010101100010001000010001111000110		
Round: 2	00010111001100100000111001011101		
	11111011101011110000101000000011		
	010100001010110010100100010101001010000101000001		
Round: 3	11111011101011110000101000000011		
	1001011111100010011000111000001		
	110100001010110000100110011000101010010001001100		
Round: 4	1001011111100010011000111000001		
	0110011010111110110000100011100		
	111000001010011000100110011010001011010110001010		
Round: 5	0110011010111110110000100011100		
	10000100101000110010101101101100		
	111000001001011000100110001011000101010000101011		
Round: 6	10000100101000110010101101101100		
	10010111100001011110001011100101		
	111000001001001001110010010011100101100001100010		
Round: 7	10010111100001011110001011100101		
	10110111000001000011000000000001		
	101001001101001001110010100001001100100101111000		
Round: 8	10110111000001000011000000000001		
	11001110011100110100001110000111		
	101001100101001101010010100000011001111001010000		
Round: 9	11001110011100110100001110000111		
	00000011011100110001001010000111		
	001001100101001101010011110010010001001001011000		
Round: 10	00000011011100110001001010000111		
	1011011111100111110100101100111		
	001011110101000101010001100100011101001000101100		
Round: 11	1011011111100111110100101100111		
	01001100100110110111001010001011		
	00001111010000011101100100010000001111010100100		

Round: 12 01001100100110110111001010001011
 00100100011011001000101101000110
 000111110100000110011001100110000010100010110101
 Round: 13 00100100011011001000101101000110
 0110100011111101000011001101001
 000111110000100110001001001000110110101010010001
 Round: 14 0110100011111101000011001101001
 00000000101100111110011110101000
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110101000
 00000000111111100000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111100000000000000000
 00000000111111100000000000011001
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		
Round: 4 00001100100001101101011011000100		
11110110011001101011101111111100		
111000001010011000100110011010001011010110001010		
Round: 5 11110110011001101011101111111100		
00000000000010001111111000010011		
111000001001011000100110001011000101010000101011		
Round: 6 00000000000010001111111000010011		
11000111111011010011101011101000		
111000001001001001110010010011100101100001100010		
Round: 7 11000111111011010011101011101000		
11100111011110110010110011110011		
101001001101001001110010100001001100100101111000		
Round: 8 11100111011110110010110011110011		
10011110111101100101000001111111		
101001100101001101010010100000011001111001010000		
Round: 9 10011110111101100101000001111111		
11001110110101110011010111001000		
001001100101001101010011110010010001001001011000		

Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: A29562F366F822D3
 After Initial Permutation: BCAA128AAB7D20DD

	Left Half	Right Half	Sub Key
Round: 1	10101011011111010010000011011101	10001011010000011010100101001101	
	010100000010110010101100010001000010001111000110		
Round: 2	10001011010000011010100101001101	00110010100100001010111001010100	
	010100001010110010100100010101001010000101000001		
Round: 3	00110010100100001010111001010100	01101101101110010001001011101000	
	110100001010110000100110011000101010010001001100		
Round: 4	01101101101110010001001011101000	11010001010011000101000001000011	
	111000001010011000100110011010001011010110001010		
Round: 5	11010001010011000101000001000011	11011011100101101100010000010100	
	111000001001011000100110001011000101010000101011		
Round: 6	11011011100101101100010000010100	01010000001000111011100111111101	
	111000001001001001110010010011100101100001100010		
Round: 7	01010000001000111011100111111101	01010101001001010011001100110111	
	101001001101001001110010100001001100100101111000		

Round: 8 01010101001001010011001100110111
 10111010100110100001010101000001
 101001100101001101010010100000011001111001010000
 Round: 9 10111010100110100001010101000001
 0100010100011101111110010011100
 001001100101001101010011110010010001001001011000
 Round: 10 01000101000111011111110010011100
 11010111010110111110111001110110
 001011110101000101010001100100011101001000101100
 Round: 11 11010111010110111110111001110110
 11000110011011001011100011110010
 000011110100000111011001000100000001111010100100
 Round: 12 11000110011011001011100011110010
 11010000000011100111011010101111
 000111110100000110011001100110000010100010110101
 Round: 13 11010000000011100111011010101111
 11100110001011110001100101001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100110001011110001100101001010
 00000000101000111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101000111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111011110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110 11010010111001010001000110100110 010100000010110010101100010001000010001111000110	
Round: 2	11010010111001010001000110100110 10000100000100111100111010111111 010100001010110010100100010101001010000101000001	
Round: 3	10000100000100111100111010111111 00001100100001101101011011000100 110100001010110000100110011000101010010001001100	
Round: 4	00001100100001101101011011000100 11110110011001101011101111111100 111000001010011000100110011010001011010110001010	
Round: 5	11110110011001101011101111111100 0000000000001000111111000010011 111000001001011000100110001011000101010000101011	

Round: 6 0000000000001000111111000010011
 1100011111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 1100011111011010011101011101000
 1110011101110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3DB67FF8318B453E
 After Initial Permutation: 4C9FC7752A9FADA6

Left Half	Right Half	Sub Key
Round: 1	00101010100111111010110110100110	
	00101001000110111011100111101101	
	010100000010110010101100010001000010001111000110	
Round: 2	00101001000110111011100111101101	
	11010011011001110101100110011011	
	010100001010110010100100010101001010000101000001	
Round: 3	11010011011001110101100110011011	
	01011111001011100011110100001110	
	110100001010110000100110011000101010010001001100	

Round: 4 01011111001011100011110100001110
 11110101100001000101001110100100
 111000001010011000100110011010001011010110001010
 Round: 5 11110101100001000101001110100100
 01111101100110110110000010111100
 111000001001011000100110001011000101010000101011
 Round: 6 01111101100110110110000010111100
 10101100000011000101010101011011
 111000001001001001110010010011100101100001100010
 Round: 7 10101100000011000101010101011011
 01110010111110010101010110000101
 101001001101001001110010100001001100100101111000
 Round: 8 01110010111110010101010110000101
 01010001010100010011101001000010
 101001100101001101010010100000011001111001010000
 Round: 9 01010001010100010011101001000010
 10100001000111111010110111011100
 001001100101001101010011110010010001001001011000
 Round: 10 10100001000111111010110111011100
 00100111011110001011000111011110
 001011110101000101010001100100011101001000101100
 Round: 11 00100111011110001011000111011110
 11110101001111010100000000100111
 000011110100000111011001000100000001111010100100
 Round: 12 11110101001111010100000000100111
 00100100011100011010000011110101
 000111110100000110011001100110000010100010110101
 Round: 13 00100100011100011010000011110101
 01110010010011100000110001000010
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010011100000110001000010
 00000000101100111110011101010001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101010001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011100000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: F59E56E2ECBBF8E0
 After Initial Permutation: DD671721FBF9722E

	Left Half	Right Half	Sub Key
Round: 1	11111011111110010111001000101110	10011100010010000010010110100101	
	010100000010110010101100010001000010001111000110		

Round: 2 10011100010010000010010110100101
111111111110100110110010011101
010100001010110010100100010101001010000101000001
Round: 3 111111111110100110110010011101
10010001110101010001111001101000
110100001010110000100110011000101010010001001100
Round: 4 10010001110101010001111001101000
01110110000111101111010001111000
111000001010011000100110011010001011010110001010
Round: 5 01110110000111101111010001111000
00001001010110011001000010011001
111000001001011000100110001011000101010000101011
Round: 6 00001001010110011001000010011001
10001000010100001001010000011110
111000001001001001110010010011100101100001100010
Round: 7 10001000010100001001010000011110
11100011100101011010000111111110
101001001101001001110010100001001100100101111000
Round: 8 11100011100101011010000111111110
01110000110110110010010100100111
101001100101001101010010100000011001111001010000
Round: 9 01110000110110110010010100100111
01100111100110100000100110011011
001001100101001101010011110010010001001001011000
Round: 10 01100111100110100000100110011011
11100010100011111110101000100001
001011110101000101010001100100011101001000101100
Round: 11 11100010100011111110101000100001
10110000001010001111100011011100
000011110100000111011001000100000001111010100100
Round: 12 10110000001010001111100011011100
00001100010011101010000111101110
000111110100000110011001100110000010100010110101
Round: 13 00001100010011101010000111101110
01101000111111101000101001101000
000111110000100110001001001000110110101010010001
Round: 14 01101000111111101000101001101000
00000000101100111110011110000010
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110000010
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
0000000011111111000000000110011
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	0000000000001000111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	01100010011011100000100001001010	00000000101100111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 506BF855264CBAD1
After Initial Permutation: AFCD388AC4566652

	Left Half	Right Half	Sub Key
Round: 1	11000100010101100110011001010010	10111001001010100001011011101001	
	010100000010110010101100010001000010001111000110		
Round: 2	10111001001010100001011011101001	01000101001100011100001110110100	
	010100001010110010100100010101001010000101000001		
Round: 3	01000101001100011100001110110100	00111110101101100110101110001000	
	110100001010110000100110011000101010010001001100		
Round: 4	00111110101101100110101110001000	01000011101010010100110000111001	
	111000001010011000100110011010001011010110001010		
Round: 5	01000011101010010100110000111001	11010000110001111101100011010111	
	111000001001011000100110001011000101010000101011		
Round: 6	11010000110001111101100011010111	11100101000010110011011010110001	
	111000001001001001110010010011100101100001100010		
Round: 7	11100101000010110011011010110001	01010011011010100010101011111111	
	101001001101001001110010100001001100100101111000		
Round: 8	01010011011010100010101011111111	01010010101100101110101110100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01010010101100101110101110100001	10101101101001101110000110101001	
	001001100101001101010011110010010001001001011000		
Round: 10	10101101101001101110000110101001	01111000111111001001111111111101	
	001011110101000101010001100100011101001000101100		
Round: 11	01111000111111001001111111111101	00101011010011111001101101000111	
	000011110100000111011001000100000001111010100100		
Round: 12	001010110100111111001101101000111	01100000110110111100110100000111	
	000111110100000110011001100110000010100010110101		
Round: 13	01100000110110111100110100000111	01100110011011100000100101001010	
	000111110000100110001001001000110110101010010001		

Round: 14 01100110011011100000100101001010
 00000000100100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000100100111110011110110001
 00000000111111100000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111100000000000000000
 00000000110111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		

Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010

Data Being Encrypted: 705EF227649A6918

After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		

Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: CACDC1897A31542B
 After Initial Permutation: 577042AE0FB09B91

	Left Half	Right Half	Sub Key
Round: 1	00001111101100001001101110010001	11110000010111100101110101001100	
	010100000010110010101100010001000010001111000110		
Round: 2	11110000010111100101110101001100	10001011110110100000111001010110	
	010100001010110010100100010101001010000101000001		
Round: 3	10001011110110100000111001010110	10011011111000110110111000001111	
	110100001010110000100110011000101010010001001100		
Round: 4	10011011111000110110111000001111	01011010000011110100011001000100	
	111000001010011000100110011010001011010110001010		
Round: 5	01011010000011110100011001000100	01001101011011010011100110111101	
	111000001001011000100110001011000101010000101011		
Round: 6	01001101011011010011100110111101	01011101000011001000110100100000	
	111000001001001001110010010011100101100001100010		
Round: 7	01011101000011001000110100100000	00000111110101101011111110001101	
	101001001101001001110010100001001100100101111000		

Round: 8 0000011111010110101111110001101
 01011000001010100011110100110100
 101001100101001101010010100000011001111001010000
 Round: 9 01011000001010100011110100110100
 1010111101000011101001100101011
 001001100101001101010011110010010001001001011000
 Round: 10 1010111101000011101001100101011
 10100001001110100111010101000000
 001011110101000101010001100100011101001000101100
 Round: 11 10100001001110100111010101000000
 01101110111100011111100100100011
 000011110100000111011001000100000001111010100100
 Round: 12 01101110111100011111100100100011
 01101000110011111101000000001100
 000111110100000110011001100110000010100010110101
 Round: 13 0110100011001111110100000001100
 01100010111011001000001001101000
 000111110000100110001001001000110110101010010001
 Round: 14 01100010111011001000001001101000
 00000000101100111110011111111110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011111111110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000001001111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		
Round: 4 00001100100001101101011011000100		
11110110011001101011101111111100		
111000001010011000100110011010001011010110001010		
Round: 5 11110110011001101011101111111100		
00000000000010001111111000010011		
111000001001011000100110001011000101010000101011		

Round: 6 0000000000001000111111000010011
 1100011111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 1100011111011010011101011101000
 1110011101110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 1110011101110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 1001111011101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: BA8A7499FFA3F3B4
 After Initial Permutation: 54DD9478FBF51B73

Left Half	Right Half	Sub Key
Round: 1 11111011111101010001101101110011		
00101001011001101011000111010110		
010100000010110010101100010001000010001111000110		
Round: 2 00101001011001101011000111010110		
00010011011111011110110010000001		
010100001010110010100100010101001010000101000001		
Round: 3 00010011011111011110110010000001		
01100011101000110000001100111011		
110100001010110000100110011000101010010001001100		

Round: 4 01100011101000110000001100111011
 10010100100101101100010100111011
 111000001010011000100110011010001011010110001010
 Round: 5 10010100100101101100010100111011
 10110000111011000110010010111000
 111000001001011000100110001011000101010000101011
 Round: 6 10110000111011000110010010111000
 00100100000100010011000111011010
 111000001001001001110010010011100101100001100010
 Round: 7 00100100000100010011000111011010
 11110111110100000111110110000010
 101001001101001001110010100001001100100101111000
 Round: 8 11110111110100000111110110000010
 01011000100011010110111111011101
 101001100101001101010010100000011001111001010000
 Round: 9 01011000100011010110111111011101
 10001100111101001101100110101111
 001001100101001101010011110010010001001001011000
 Round: 10 10001100111101001101100110101111
 00101010110011101100001000110011
 001011110101000101010001100100011101001000101100
 Round: 11 00101010110011101100001000110011
 10100000111100001001101101110100
 000011110100000111011001000100000001111010100100
 Round: 12 10100000111100001001101101110100
 11011011111010011101010100101111
 000111110100000110011001100110000010100010110101
 Round: 13 11011011111010011101010100101111
 01100110011011110000100001001110
 000111110000100110001001001000110110101010010001
 Round: 14 01100110011011110000100001001110
 00000000111100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000111100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000101111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		

Round: 2 11010010111001010001000110100110
1000010000010011110011101011111
010100001010110010100100010101001010000101000001
Round: 3 1000010000010011110011101011111
00001100100001101101011011000100
110100001010110000100110011000101010010001001100
Round: 4 00001100100001101101011011000100
1111011001100110101110111111100
111000001010011000100110011010001011010110001010
Round: 5 1111011001100110101110111111100
00000000000010001111111000010011
111000001001011000100110001011000101010000101011
Round: 6 00000000000010001111111000010011
11000111111011010011101011101000
111000001001001001110010010011100101100001100010
Round: 7 11000111111011010011101011101000
11100111011110110010110011110011
101001001101001001110010100001001100100101111000
Round: 8 11100111011110110010110011110011
10011110111101100101000001111111
101001100101001101010010100000011001111001010000
Round: 9 10011110111101100101000001111111
11001110110101110011010111001000
001001100101001101010011110010010001001001011000
Round: 10 11001110110101110011010111001000
1000111101101010101000011101010101
001011110101000101010001100100011101001000101100
Round: 11 1000111101101010101000011101010101
10100101000111001000011101000001
000011110100000111011001000100000001111010100100
Round: 12 10100101000111001000011101000001
00110010111000111100110100001111
000111110100000110011001100110000010100010110101
Round: 13 00110010111000111100110100001111
01100010011011100000100001001010
000111110000100110001001001000110110101010010001
Round: 14 01100010011011100000100001001010
00000000101100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	01100010011011100000100001001010	00000000101100111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 40BCCBB080E2F307
After Initial Permutation: 654A82C47E6A06E4

	Left Half	Right Half	Sub Key
Round: 1	01111110011010100000011011100100 1111111000010010100111100100110 010100000010110010101100010001000010001111000110		
Round: 2	1111111000010010100111100100110 111110010000000011111100110110 010100001010110010100100010101001010000101000001		
Round: 3	111110010000000011111100110110 10010010101110010100111110101100 110100001010110000100110011000101010010001001100		
Round: 4	10010010101110010100111110101100 01001101010100111000101110010110 111000001010011000100110011010001011010110001010		
Round: 5	01001101010100111000101110010110 10000101001110010011101100100000 111000001001011000100110001011000101010000101011		
Round: 6	10000101001110010011101100100000 10000010011110000110100010101110 111000001001001001110010010011100101100001100010		
Round: 7	10000010011110000110100010101110 01101001010100111111001100001111 101001001101001001110010100001001100100101111000		
Round: 8	01101001010100111111001100001111 00100011100000001100101000010111 101001100101001101010010100000011001111001010000		
Round: 9	00100011100000001100101000010111 10110000100110110100011110011001 001001100101001101010011110010010001001001011000		
Round: 10	10110000100110110100011110011001 00110001011111111011011001001111 001011110101000101010001100100011101001000101100		
Round: 11	00110001011111111011011001001111 11110101101001111010110010100010 000011110100000111011001000100000001111010100100		
Round: 12	11110101101001111010110010100010 01110100101100011001001010010011 000111110100000110011001100110000010100010110101		
Round: 13	01110100101100011001001010010011 01111000010011000000100001000010 000111110000100110001001001000110110101010010001		

Round: 14 01111000010011000000100001000010
 00000000101100111110011100111111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011100111111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000010001110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		

Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: ED41F003DE816DA9
 After Initial Permutation: 571451EBB5C5D118

	Left Half	Right Half	Sub Key
Round: 1	10110101110001011101000100011000		
	11101001000001001110010101000111		
	010100000010110010101100010001000010001111000110		
Round: 2	11101001000001001110010101000111		
	01101011100111101011010001000000		
	010100001010110010100100010101001010000101000001		
Round: 3	01101011100111101011010001000000		
	00101001011011001101111100101010		
	110100001010110000100110011000101010010001001100		
Round: 4	00101001011011001101111100101010		
	10110011100101110001100001110001		
	111000001010011000100110011010001011010110001010		
Round: 5	10110011100101110001100001110001		
	10100011001111100101101111001100		
	111000001001011000100110001011000101010000101011		
Round: 6	10100011001111100101101111001100		
	10000111001111000001101101010011		
	111000001001001001110010010011100101100001100010		
Round: 7	10000111001111000001101101010011		
	10000011011010010011001100010000		
	101001001101001001110010100001001100100101111000		
Round: 8	10000011011010010011001100010000		
	00100011100001110010001010011001		
	101001100101001101010010100000011001111001010000		
Round: 9	00100011100001110010001010011001		
	11001001111001111000111100001110		
	001001100101001101010011110010010001001001011000		

Round: 10 11001001111001111000111100001110
 01111010010011001000010110110111
 001011110101000101010001100100011101001000101100
 Round: 11 01111010010011001000010110110111
 00100000010111011010010010011001
 000011110100000111011001000100000001111010100100
 Round: 12 00100000010111011010010010011001
 00011010001001001101010001101111
 000111110100000110011001100110000010100010110101
 Round: 13 00011010001001001101010001101111
 01100010011001110100100001001110
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011001110100100001001110
 00000000001100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000001100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000011111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		

Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: C49E2B2510C8A822
 After Initial Permutation: 21120B0C63CC6686

Left Half

Right Half

Sub Key

Round: 1 01100011110011000110011010000110
 00110001000001111100011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00110001000001111100011101001110
 01000111011010011010000111011111
 010100001010110010100100010101001010000101000001
 Round: 3 01000111011010011010000111011111
 11101001111100111111010010001001
 110100001010110000100110011000101010010001001100
 Round: 4 11101001111100111111010010001001
 11110011111001111011011010011011
 111000001010011000100110011010001011010110001010
 Round: 5 11110011111001111011011010011011
 01111010010100011110011110001100
 111000001001011000100110001011000101010000101011

Round: 6 01111010010100011110011110001100
 10100001001010101111110000101100
 111000001001001001110010010011100101100001100010
 Round: 7 10100001001010101111110000101100
 0111010010111100111111011011100
 101001001101001001110010100001001100100101111000
 Round: 8 0111010010111100111111011011100
 01110001011110010011010011000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110001011110010011010011000101
 00010100110011010001101010000000
 001001100101001101010011110010010001001001011000
 Round: 10 00010100110011010001101010000000
 00111100110111110110110010111111
 001011110101000101010001100100011101001000101100
 Round: 11 00111100110111110110110010111111
 10001001011010000111101101110001
 000011110100000111011001000100000001111010100100
 Round: 12 10001001011010000111101101110001
 00101100001100001011101111010011
 000111110100000110011001100110000010100010110101
 Round: 13 00101100001100001011101111010011
 01110010010111100000110001000011
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010111100000110001000011
 00000000101100111110011100110001
 000110110010100010001101001100110010000100010011
 Round: 15 000000001011001111100111001100110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000010000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		

Round: 4 00000011011010101011100110010111
 01110010000111111000101111110110
 111000001010011000100110011010001011010110001010
 Round: 5 01110010000111111000101111110110
 00010010111100100101111100011111
 111000001001011000100110001011000101010000101011
 Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010

Data Being Encrypted: 6C70B5FB415E7865

After Initial Permutation: FB6EA59C0CCF6928

	Left Half	Right Half	Sub Key
Round: 1	00001100110011110110100100101000	10100100100011100010100000010100	
	010100000010110010101100010001000010001111000110		

Round: 2 10100100100011100010100000010100
10110100010100110000011010001101
010100001010110010100100010101001010000101000001
Round: 3 10110100010100110000011010001101
00010110000110001000101110111110
110100001010110000100110011000101010010001001100
Round: 4 00010110000110001000101110111110
00011000010100101101010100010110
111000001010011000100110011010001011010110001010
Round: 5 00011000010100101101010100010110
00010010101000010000101011111000
111000001001011000100110001011000101010000101011
Round: 6 00010010101000010000101011111000
00011011001011001111110001000111
111000001001001001110010010011100101100001100010
Round: 7 00011011001011001111110001000111
00011110000111101100001111101010
101001001101001001110010100001001100100101111000
Round: 8 00011110000111101100001111101010
11110110101110110110001000011101
101001100101001101010010100000011001111001010000
Round: 9 11110110101110110110001000011101
11110101101011011110000100111000
001001100101001101010011110010010001001001011000
Round: 10 11110101101011011110000100111000
10101101011100001010010101011000
001011110101000101010001100100011101001000101100
Round: 11 10101101011100001010010101011000
01100100110010011111100100011010
000011110100000111011001000100000001111010100100
Round: 12 01100100110010011111100100011010
01101010110011111101010001000010
000111110100000110011001100110000010100010110101
Round: 13 01101010110011111101010001000010
01100010111011001000001001001000
000111110000100110001001001000110110101010010001
Round: 14 01100010111011001000001001001000
00000000101100111110011110110000
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110000
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000001
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	0000000000001000111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	01100010011011100000100001001010	00000000101100111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 56FD4CF48980C8BD
After Initial Permutation: 4F8B8F92FA8AD601

	Left Half	Right Half	Sub Key
Round: 1	11111010100010101101011000000001	1100111100001111110001000011101	
	010100000010110010101100010001000010001111000110		
Round: 2	1100111100001111110001000011101	00011001010111000000001110101011	
	010100001010110010100100010101001010000101000001		
Round: 3	00011001010111000000001110101011	00100000100001111001101010101000	
	110100001010110000100110011000101010010001001100		
Round: 4	00100000100001111001101010101000	11001001101000011110100010100000	
	111000001010011000100110011010001011010110001010		
Round: 5	11001001101000011110100010100000	00001101100001010110100011101011	
	111000001001011000100110001011000101010000101011		
Round: 6	00001101100001010110100011101011	0010110111100011111100010000111	
	111000001001001001110010010011100101100001100010		
Round: 7	00101101111000111111100010000111	10110010000101110011001111100101	
	101001001101001001110010100001001100100101111000		
Round: 8	10110010000101110011001111100101	01011101000000110011000100100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01011101000000110011000100100001	1001101000010111111101010110100	
	001001100101001101010011110010010001001001011000		
Round: 10	10011010000101111111101010110100	01110110111100100010001101001001	
	001011110101000101010001100100011101001000101100		
Round: 11	01110110111100100010001101001001	01011001101001100000111100100001	
	000011110100000111011001000100000001111010100100		
Round: 12	01011001101001100000111100100001	10100011100000101100010110101101	
	000111110100000110011001100110000010100010110101		
Round: 13	10100011100000101100010110101101	11000010011010100001100001001010	
	000111110000100110001001001000110110101010010001		

Round: 14 11000010011010100001100001001010
 00000000101100101110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100101110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111100000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		

Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		

Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: EB4BF26AB9AE4C5A
 After Initial Permutation: CF946013353DFBAF

	Left Half	Right Half	Sub Key
Round: 1	00110101001111011111101110101111	01100001011011011010000011110011	
	010100000010110010101100010001000010001111000110		
Round: 2	01100001011011011010000011110011	00100000000101110000010111001110	
	010100001010110010100100010101001010000101000001		
Round: 3	00100000000101110000010111001110	11000111000000000011010100011011	
	110100001010110000100110011000101010010001001100		
Round: 4	11000111000000000011010100011011	0110000011001010111110001010000	
	111000001010011000100110011010001011010110001010		
Round: 5	0110000011001010111110001010000	0001001000010010010101111100010	
	111000001001011000100110001011000101010000101011		
Round: 6	0001001000010010010101111100010	01100000101101001001000011110001	
	111000001001001001110010010011100101100001100010		
Round: 7	01100000101101001001000011110001	10100000001011100110100011110010	
	101001001101001001110010100001001100100101111000		

Round: 8 10100000001011100110100011110010
 10010000111011111001001001011110
 101001100101001101010010100000011001111001010000
 Round: 9 10010000111011111001001001011110
 10011110001100100110110011110011
 001001100101001101010011110010010001001001011000
 Round: 10 10011110001100100110110011110011
 01100000011000011110011111010000
 001011110101000101010001100100011101001000101100
 Round: 11 01100000011000011110011111010000
 01101101101011000010100010100000
 000011110100000111011001000100000001111010100100
 Round: 12 01101101101011000010100010100000
 00101000010001111001000001000010
 000111110100000110011001100110000010100010110101
 Round: 13 00101000010001111001000001000010
 01101010111011001000001001101000
 000111110000100110001001001000110110101010010001
 Round: 14 01101010111011001000001001101000
 00000000101100111110011110110010
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110010
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000000011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110 11010010111001010001000110100110 010100000010110010101100010001000010001111000110	
Round: 2	11010010111001010001000110100110 10000100000100111100111010111111 010100001010110010100100010101001010000101000001	
Round: 3	10000100000100111100111010111111 00001100100001101101011011000100 110100001010110000100110011000101010010001001100	
Round: 4	00001100100001101101011011000100 11110110011001101011101111111100 111000001010011000100110011010001011010110001010	
Round: 5	11110110011001101011101111111100 0000000000001000111111000010011 111000001001011000100110001011000101010000101011	

Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 1B5C2F6913B67AE8
 After Initial Permutation: CA73261DA0ECCF75

Left Half	Right Half	Sub Key
Round: 1 10100000111011001100111101110101		
11001111000001101000001010111001		
010100000010110010101100010001000010001111000110		
Round: 2 11001111000001101000001010111001		
01101111011011010011001010110111		
010100001010110010100100010101001010000101000001		
Round: 3 01101111011011010011001010110111		
11111110101110001101001111000110		
110100001010110000100110011000101010010001001100		

Round: 4 1111110101110001101001111000110
 11000111010100001010001010011100
 111000001010011000100110011010001011010110001010
 Round: 5 11000111010100001010001010011100
 00010001000110101000101111000011
 111000001001011000100110001011000101010000101011
 Round: 6 00010001000110101000101111000011
 01101100100111110111110000000111
 111000001001001001110010010011100101100001100010
 Round: 7 01101100100111110111110000000111
 0011111101001011100011100010110
 101001001101001001110010100001001100100101111000
 Round: 8 0011111101001011100011100010110
 11110001010011010111110111000011
 101001100101001101010010100000011001111001010000
 Round: 9 11110001010011010111110111000011
 01000101000101101000110100001101
 001001100101001101010011110010010001001001011000
 Round: 10 01000101000101101000110100001101
 00011100010010110011000000011011
 001011110101000101010001100100011101001000101100
 Round: 11 00011100010010110011000000011011
 10000101000011000100010001000011
 000011110100000111011001000100000001111010100100
 Round: 12 10000101000011000100010001000011
 00100011010100010100001110101111
 000111110100000110011001100110000010100010110101
 Round: 13 00100011010100010100001110101111
 11100010011011100001100000001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100010011011100001100000001010
 00000000101100011110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100011110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111010000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		

Round: 2 11010010111001010001000110100110
1000010000010011110011101011111
010100001010110010100100010101001010000101000001
Round: 3 1000010000010011110011101011111
00001100100001101101011011000100
110100001010110000100110011000101010010001001100
Round: 4 00001100100001101101011011000100
1111011001100110101110111111100
111000001010011000100110011010001011010110001010
Round: 5 1111011001100110101110111111100
00000000000010001111111000010011
111000001001011000100110001011000101010000101011
Round: 6 00000000000010001111111000010011
11000111111011010011101011101000
111000001001001001110010010011100101100001100010
Round: 7 11000111111011010011101011101000
11100111011110110010110011110011
101001001101001001110010100001001100100101111000
Round: 8 11100111011110110010110011110011
10011110111101100101000001111111
101001100101001101010010100000011001111001010000
Round: 9 10011110111101100101000001111111
11001110110101110011010111001000
001001100101001101010011110010010001001001011000
Round: 10 11001110110101110011010111001000
1000111101101010101000011101010101
001011110101000101010001100100011101001000101100
Round: 11 1000111101101010101000011101010101
10100101000111001000011101000001
000011110100000111011001000100000001111010100100
Round: 12 10100101000111001000011101000001
00110010111000111100110100001111
000111110100000110011001100110000010100010110101
Round: 13 00110010111000111100110100001111
01100010011011100000100001001010
000111110000100110001001001000110110101010010001
Round: 14 01100010011011100000100001001010
00000000101100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 3A4287419F5D19CF
After Initial Permutation: AA71B4FC9401F197

	Left Half	Right Half	Sub Key
Round: 1	10010100000000011111000110010111	01100100101101011101000011111100	
	010100000010110010101100010001000010001111000110		
Round: 2	01100100101101011101000011111100	1001111011110000010011110011100	
	010100001010110010100100010101001010000101000001		
Round: 3	1001111011110000010011110011100	00011110011010010101010001001001	
	110100001010110000100110011000101010010001001100		
Round: 4	00011110011010010101010001001001	11000000000110101100100001111101	
	111000001010011000100110011010001011010110001010		
Round: 5	11000000000110101100100001111101	10101110101000011110100011010010	
	111000001001011000100110001011000101010000101011		
Round: 6	10101110101000011110100011010010	10000011100110100001000110111101	
	111000001001001001110010010011100101100001100010		
Round: 7	10000011100110100001000110111101	10000111100110101110000101011011	
	101001001101001001110010100001001100100101111000		
Round: 8	10000111100110101110000101011011	10001110000010110011101110001001	
	101001100101001101010010100000011001111001010000		
Round: 9	10001110000010110011101110001001	10001000111011010101110000111100	
	001001100101001101010011110010010001001001011000		
Round: 10	10001000111011010101110000111100	10001111000110100110000001010011	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111000110100110000001010011	01000100000100001101011110011000	
	000011110100000111011001000100000001111010100100		
Round: 12	01000100000100001101011110011000	01110101100111011011011001110000	
	000111110100000110011001100110000010100010110101		
Round: 13	01110101100111011011011001110000	01111010010011000000010001100010	
	000111110000100110001001001000110110101010010001		
Round: 14	01111010010011000000010001100010	00000000101100111110011101001101	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011101001101	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000011111100
010100010010110010001100000101110000001111000010
Data Being Encrypted: D8737A96B6FC722F
After Initial Permutation: 677FB88239F6A5DE

	Left Half	Right Half	Sub Key
Round: 1	00111001111101101010010111011110 1100101100100010011111110010110 010100000010110010101100010001000010001111000110		
Round: 2	1100101100100010011111110010110 00010100011111011000010101010011 010100001010110010100100010101001010000101000001		
Round: 3	00010100011111011000010101010011 11000011111100101100000011010111 110100001010110000100110011000101010010001001100		
Round: 4	11000011111100101100000011010111 10011001100101010011000001001100 111000001010011000100110011010001011010110001010		
Round: 5	10011001100101010011000001001100 10011011110000000001001001101011 111000001001011000100110001011000101010000101011		
Round: 6	10011011110000000001001001101011 00110011001011001111011101111111 111000001001001001110010010011100101100001100010		
Round: 7	00110011001011001111011101111111 10100111111000010001101111100000 101001001101001001110010100001001100100101111000		
Round: 8	10100111111000010001101111100000 00010011001010011100010101100101 101001100101001101010010100000011001111001010000		
Round: 9	00010011001010011100010101100101 00000100111111010110100010110000 001001100101001101010011110010010001001001011000		
Round: 10	00000100111111010110100010110000 00110100000100000110110111000001 001011110101000101010001100100011101001000101100		
Round: 11	00110100000100000110110111000001 00100101100101101010011010001010 000011110100000111011001000100000001111010100100		
Round: 12	00100101100101101010011010001010 10101010010001111001010000000110 000111110100000110011001100110000010100010110101		
Round: 13	10101010010001111001010000000110 01101010111011101000001001001000 000111110000100110001001001000110110101010010001		

Round: 14 01101010111011101000001001001000
 00000000101100111110011110110110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000000111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		

Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 62E508F8BD074F5D
 After Initial Permutation: CB98F2F21A1BDC61

	Left Half	Right Half	Sub Key
Round: 1	00011010000110111101110001100001		
	00010010010101010000100001010010		
	010100000010110010101100010001000010001111000110		
Round: 2	00010010010101010000100001010010		
	01100100100011000111010011110010		
	010100001010110010100100010101001010000101000001		
Round: 3	01100100100011000111010011110010		
	00000111101100001110111101000101		
	110100001010110000100110011000101010010001001100		
Round: 4	00000111101100001110111101000101		
	01001011101000100010001000010011		
	111000001010011000100110011010001011010110001010		
Round: 5	01001011101000100010001000010011		
	00010001010110001101010110101111		
	111000001001011000100110001011000101010000101011		
Round: 6	00010001010110001101010110101111		
	01111110001010001111110001000100		
	111000001001001001110010010011100101100001100010		
Round: 7	01111110001010001111110001000100		
	110100011010010000000010010011001		
	101001001101001001110010100001001100100101111000		
Round: 8	110100011010010000000010010011001		
	00000011110000101111101100011011		
	101001100101001101010010100000011001111001010000		
Round: 9	00000011110000101111101100011011		
	10100001000011011001101101001100		
	001001100101001101010011110010010001001001011000		

Round: 10 10100001000011011001101101001100
 01110011100011000101100001000010
 001011110101000101010001100100011101001000101100
 Round: 11 01110011100011000101100001000010
 00010110010010000111000100000110
 000011110100000111011001000100000001111010100100
 Round: 12 00010110010010000111000100000110
 00100011010001100100011010101111
 000111110100000110011001100110000010100010110101
 Round: 13 00100011010001100100011010101111
 11100010001011100001100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100010001011100001100001001010
 00000000101101111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101101111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111110110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		

Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: C49E2B2510C8A822
 After Initial Permutation: 21120B0C63CC6686

Left Half

Right Half

Sub Key

Round: 1 01100011110011000110011010000110
 00110001000001111100011101001110
 010100000010110010101100010001000010001111000110
 Round: 2 00110001000001111100011101001110
 01000111011010011010000111011111
 010100001010110010100100010101001010000101000001
 Round: 3 01000111011010011010000111011111
 11101001111100111111010010001001
 110100001010110000100110011000101010010001001100
 Round: 4 11101001111100111111010010001001
 11110011111001111011011010011011
 111000001010011000100110011010001011010110001010
 Round: 5 11110011111001111011011010011011
 01111010010100011110011110001100
 111000001001011000100110001011000101010000101011

Round: 6 01111010010100011110011110001100
 10100001001010101111110000101100
 111000001001001001110010010011100101100001100010
 Round: 7 10100001001010101111110000101100
 011101001011110011111101101100
 101001001101001001110010100001001100100101111000
 Round: 8 011101001011110011111101101100
 01110001011110010011010011000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110001011110010011010011000101
 00010100110011010001101010000000
 001001100101001101010011110010010001001001011000
 Round: 10 00010100110011010001101010000000
 00111100110111110110110010111111
 001011110101000101010001100100011101001000101100
 Round: 11 00111100110111110110110010111111
 10001001011010000111101101110001
 000011110100000111011001000100000001111010100100
 Round: 12 10001001011010000111101101110001
 00101100001100001011101111010011
 000111110100000110011001100110000010100010110101
 Round: 13 00101100001100001011101111010011
 01110010010111100000110001000011
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010111100000110001000011
 00000000101100111110011100110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011100110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000010000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 6F5C020214E45C09
 After Initial Permutation: 635273812021C30D

	Left Half	Right Half	Sub Key
Round: 1	00100000001000011100001100001101	10010011101001111011110010110010	
	010100000010110010101100010001000010001111000110		
Round: 2	10010011101001111011110010110010	01000001000100000010100001010000	
	010100001010110010100100010101001010000101000001		
Round: 3	01000001000100000010100001010000	00001001000100111110110111001111	
	110100001010110000100110011000101010010001001100		

Round: 4 00001001000100111110110111001111
 10010111101110000001110100101000
 111000001010011000100110011010001011010110001010
 Round: 5 10010111101110000001110100101000
 00001010110011100000100110101111
 111000001001011000100110001011000101010000101011
 Round: 6 00001010110011100000100110101111
 0000011111100100111000011110011
 111000001001001001110010010011100101100001100010
 Round: 7 0000011111100100111000011110011
 11110101011110010111010110001101
 101001001101001001110010100001001100100101111000
 Round: 8 11110101011110010111010110001101
 11011110001111011101101001001111
 101001100101001101010010100000011001111001010000
 Round: 9 11011110001111011101101001001111
 10000000100110010101001111110000
 001001100101001101010011110010010001001001011000
 Round: 10 10000000100110010101001111110000
 00111100111010001010110011000110
 001011110101000101010001100100011101001000101100
 Round: 11 00111100111010001010110011000110
 00110000011010101010011010100011
 000011110100000111011001000100000001111010100100
 Round: 12 00110000011010101010011010100011
 01100000111011010101101001000100
 000111110100000110011001100110000010100010110101
 Round: 13 01100000111011010101101001000100
 01100010111011001000011001101001
 000111110000100110001001001000110110101010010001
 Round: 14 01100010111011001000011001101001
 00000000101100111110011110111110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110111110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000001111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		

Round: 2 11010010111001010001000110100110
1000010000010011110011101011111
010100001010110010100100010101001010000101000001
Round: 3 1000010000010011110011101011111
00001100100001101101011011000100
110100001010110000100110011000101010010001001100
Round: 4 00001100100001101101011011000100
1111011001100110101110111111100
111000001010011000100110011010001011010110001010
Round: 5 1111011001100110101110111111100
00000000000010001111111000010011
111000001001011000100110001011000101010000101011
Round: 6 00000000000010001111111000010011
11000111111011010011101011101000
111000001001001001110010010011100101100001100010
Round: 7 11000111111011010011101011101000
11100111011110110010110011110011
101001001101001001110010100001001100100101111000
Round: 8 11100111011110110010110011110011
10011110111101100101000001111111
101001100101001101010010100000011001111001010000
Round: 9 10011110111101100101000001111111
11001110110101110011010111001000
001001100101001101010011110010010001001001011000
Round: 10 11001110110101110011010111001000
1000111101101010101000011101010101
001011110101000101010001100100011101001000101100
Round: 11 1000111101101010101000011101010101
10100101000111001000011101000001
000011110100000111011001000100000001111010100100
Round: 12 10100101000111001000011101000001
00110010111000111100110100001111
000111110100000110011001100110000010100010110101
Round: 13 00110010111000111100110100001111
01100010011011100000100001001010
000111110000100110001001001000110110101010010001
Round: 14 01100010011011100000100001001010
00000000101100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 41923D788D894B54
After Initial Permutation: C98E9475320C7C42

	Left Half	Right Half	Sub Key
Round: 1	00110010000011000111110001000010	10011110000111111011001110000001	
	010100000010110010101100010001000010001111000110		
Round: 2	10011110000111111011001110000001	00101010001110010010001011101000	
	010100001010110010100100010101001010000101000001		
Round: 3	00101010001110010010001011101000	11010011111101000100110001101011	
	110100001010110000100110011000101010010001001100		
Round: 4	11010011111101000100110001101011	11101111010101011000000101001101	
	111000001010011000100110011010001011010110001010		
Round: 5	1110111101010101011000000101001101	01100100011100100100111011110110	
	111000001001011000100110001011000101010000101011		
Round: 6	01100100011100100100111011110110	10001000000100111010010101100010	
	111000001001001001110010010011100101100001100010		
Round: 7	10001000000100111010010101100010	00110011100110100101101110011101	
	101001001101001001110010100001001100100101111000		
Round: 8	00110011100110100101101110011101	1000011101000000010111111101100	
	101001100101001101010010100000011001111001010000		
Round: 9	1000011101000000010111111101100	01111110010101010011110000000101	
	001001100101001101010011110010010001001001011000		
Round: 10	01111110010101010011110000000101	01100001000110110001111110000011	
	001011110101000101010001100100011101001000101100		
Round: 11	01100001000110110001111110000011	00011011001000001000101111101000	
	000011110100000111011001000100000001111010100100		
Round: 12	00011011001000001000101111101000	0111000101010010011000101010110	
	000111110100000110011001100110000010100010110101		
Round: 13	01110001010100100110001010101110	11100110001011100001100100001010	
	000111110000100110001001001000110110101010010001		
Round: 14	11100110001011100001100100001010	00000000101110111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101110111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111101110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	1111011001100110101110111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	1000111101101010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		

Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: AB98AD28432B3E4F
 After Initial Permutation: 9042C4B5076DEFF1

	Left Half	Right Half	Sub Key
Round: 1	00000111011011011110111111110001	10000110111001001001110001000110	
	010100000010110010101100010001000010001111000110		
Round: 2	10000110111001001001110001000110	10110111101011110000011100100000	
	010100001010110010100100010101001010000101000001		
Round: 3	10110111101011110000011100100000	01111100100010011110011111000000	
	110100001010110000100110011000101010010001001100		
Round: 4	01111100100010011110011111000000	11111010100100110101010101011101	
	111000001010011000100110011010001011010110001010		
Round: 5	11111010100100110101010101011101	0001110111110001011110000000010	
	111000001001011000100110001011000101010000101011		
Round: 6	0001110111110001011110000000010	10111100001010001100111100100101	
	111000001001001001110010010011100101100001100010		
Round: 7	10111100001010001100111100100101	10101111100001100000000100101100	
	101001001101001001110010100001001100100101111000		
Round: 8	10101111100001100000000100101100	01011111001110001010001101100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01011111001110001010001101100001	00110000110110111101100001101000	
	001001100101001101010011110010010001001001011000		
Round: 10	00110000110110111101100001101000	11000011010000010100100000110010	
	001011110101000101010001100100011101001000101100		
Round: 11	11000011010000010100100000110010	11011100100100110110100010111001	
	000011110100000111011001000100000001111010100100		

Round: 12 11011100100100110110100010111001
 01100100101100011011011010000100
 000111110100000110011001100110000010100010110101
 Round: 13 01100100101100011011011010000100
 01111000010011000000110001100010
 000111110000100110001001001000110110101010010001
 Round: 14 01111000010011000000110001100010
 00000000101100111110011100100001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011100100001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000010010000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: BE9D9923F2E00FCC
 After Initial Permutation: B017C34EB739C759

	Left Half	Right Half	Sub Key
Round: 1	10110111001110011100011101011001		
	11011110011100001101111100100101		
	010100000010110010101100010001000010001111000110		
Round: 2	11011110011100001101111100100101		
	00000100001110100001110000111101		
	010100001010110010100100010101001010000101000001		
Round: 3	00000100001110100001110000111101		
	10111010110100011000111001000101		
	110100001010110000100110011000101010010001001100		
Round: 4	10111010110100011000111001000101		
	10010101111010111001111111101011		
	111000001010011000100110011010001011010110001010		
Round: 5	10010101111010111001111111101011		
	10000111100001101100000010010111		
	111000001001011000100110001011000101010000101011		
Round: 6	10000111100001101100000010010111		
	10000000011111011101010100110100		
	111000001001001001110010010011100101100001100010		
Round: 7	10000000011111011101010100110100		
	01101010111101100010110011101000		
	101001001101001001110010100001001100100101111000		
Round: 8	01101010111101100010110011101000		
	10110011101111110010010001000111		
	101001100101001101010010100000011001111001010000		
Round: 9	10110011101111110010010001000111		
	11101000000100000111110111100101		
	001001100101001101010011110010010001001001011000		

Round: 10 11101000000100000111110111100101
 11111010110101101100001001101111
 001011110101000101010001100100011101001000101100
 Round: 11 11111010110101101100001001101111
 00001010000001101111100000001101
 000011110100000111011001000100000001111010100100
 Round: 12 00001010000001101111100000001101
 00010110010011001010111111001000
 000111110100000110011001100110000010100010110101
 Round: 13 00010110010011001010111111001000
 01101000111111101000111001001001
 000111110000100110001001001000110110101010010001
 Round: 14 01101000111111101000111001001001
 00000000101100111110011110101110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110101110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000011111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		

Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: A29562F366F822D3
 After Initial Permutation: BCAA128AAB7D20DD

	Left Half	Right Half	Sub Key
Round: 1	10101011011111010010000011011101	10001011010000011010100101001101	
	010100000010110010101100010001000010001111000110		
Round: 2	10001011010000011010100101001101	00110010100100001010111001010100	
	010100001010110010100100010101001010000101000001		
Round: 3	00110010100100001010111001010100	01101101101110010001001011101000	
	110100001010110000100110011000101010010001001100		
Round: 4	01101101101110010001001011101000	11010001010011000101000001000011	
	111000001010011000100110011010001011010110001010		
Round: 5	11010001010011000101000001000011	11011011100101101100010000010100	
	111000001001011000100110001011000101010000101011		

Round: 6 11011011100101101100010000010100
 01010000001000111011100111111101
 111000001001001001110010010011100101100001100010
 Round: 7 01010000001000111011100111111101
 01010101001001010011001100110111
 101001001101001001110010100001001100100101111000
 Round: 8 01010101001001010011001100110111
 10111010100110100001010101000001
 101001100101001101010010100000011001111001010000
 Round: 9 10111010100110100001010101000001
 01000101000111011111110010011100
 001001100101001101010011110010010001001001011000
 Round: 10 01000101000111011111110010011100
 11010111010110111110111001110110
 001011110101000101010001100100011101001000101100
 Round: 11 11010111010110111110111001110110
 11000110011011001011100011110010
 000011110100000111011001000100000001111010100100
 Round: 12 11000110011011001011100011110010
 11010000000011100111011010101111
 000111110100000110011001100110000010100010110101
 Round: 13 11010000000011100111011010101111
 11100110001011110001100101001010
 000111110000100110001001001000110110101010010001
 Round: 14 11100110001011110001100101001010
 00000000101000111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101000111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111011110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		

Round: 4 00001100100001101101011011000100
 11110110011001101011101111111100
 111000001010011000100110011010001011010110001010
 Round: 5 11110110011001101011101111111100
 00000000000010001111111000010011
 111000001001011000100110001011000101010000101011
 Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		

Round: 2 11010010111001010001000110100110
1000010000010011110011101011111
010100001010110010100100010101001010000101000001
Round: 3 1000010000010011110011101011111
00001100100001101101011011000100
110100001010110000100110011000101010010001001100
Round: 4 00001100100001101101011011000100
1111011001100110101110111111100
111000001010011000100110011010001011010110001010
Round: 5 1111011001100110101110111111100
00000000000010001111111000010011
111000001001011000100110001011000101010000101011
Round: 6 00000000000010001111111000010011
11000111111011010011101011101000
111000001001001001110010010011100101100001100010
Round: 7 11000111111011010011101011101000
11100111011110110010110011110011
101001001101001001110010100001001100100101111000
Round: 8 11100111011110110010110011110011
10011110111101100101000001111111
101001100101001101010010100000011001111001010000
Round: 9 10011110111101100101000001111111
11001110110101110011010111001000
001001100101001101010011110010010001001001011000
Round: 10 11001110110101110011010111001000
1000111101101010101000011101010101
001011110101000101010001100100011101001000101100
Round: 11 1000111101101010101000011101010101
10100101000111001000011101000001
000011110100000111011001000100000001111010100100
Round: 12 10100101000111001000011101000001
00110010111000111100110100001111
000111110100000110011001100110000010100010110101
Round: 13 00110010111000111100110100001111
01100010011011100000100001001010
000111110000100110001001001000110110101010010001
Round: 14 01100010011011100000100001001010
00000000101100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: E0FA46A7086AEB7C
After Initial Permutation: E7828C484BEBF26E

	Left Half	Right Half	Sub Key
Round: 1	0100101111101011111001001101110	11100101111001001010001100111111	
	010100000010110010101100010001000010001111000110		
Round: 2	11100101111001001010001100111111	10111101000011001111110000111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10111101000011001111110000111111	10101001110001110010001101001001	
	110100001010110000100110011000101010010001001100		
Round: 4	10101001110001110010001101001001	00011101101000100100110110110111	
	111000001010011000100110011010001011010110001010		
Round: 5	00011101101000100100110110110111	11000110000010011011000100111000	
	111000001001011000100110001011000101010000101011		
Round: 6	11000110000010011011000100111000	00111100110010011011110010010000	
	111000001001001001110010010011100101100001100010		
Round: 7	00111100110010011011110010010000	00011110101010111100111101110111	
	101001001101001001110010100001001100100101111000		
Round: 8	00011110101010111100111101110111	00010000100001010000011101101101	
	101001100101001101010010100000011001111001010000		
Round: 9	00010000100001010000011101101101	10000000110000001100010010011010	
	001001100101001101010011110010010001001001011000		
Round: 10	10000000110000001100010010011010	01010001000001110101110111000000	
	001011110101000101010001100100011101001000101100		
Round: 11	01010001000001110101110111000000	11011000011011110010100001001110	
	000011110100000111011001000100000001111010100100		
Round: 12	11011000011011110010100001001110	11001100100001101110000111101000	
	000111110100000110011001100110000010100010110101		
Round: 13	11001100100001101110000111101000	01100000111111001000101001101000	
	000111110000100110001001001000110110101010010001		
Round: 14	01100000111111001000101001101000	00000000101100111110011110000110	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110000110	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000110111
010100010010110010001100000101110000001111000010
Data Being Encrypted: D8737A96B6FC722F
After Initial Permutation: 677FB88239F6A5DE

	Left Half	Right Half	Sub Key
Round: 1	00111001111101101010010111011110 1100101100100010011111110010110 010100000010110010101100010001000010001111000110		
Round: 2	1100101100100010011111110010110 00010100011111011000010101010011 010100001010110010100100010101001010000101000001		
Round: 3	00010100011111011000010101010011 11000011111100101100000011010111 110100001010110000100110011000101010010001001100		
Round: 4	11000011111100101100000011010111 10011001100101010011000001001100 111000001010011000100110011010001011010110001010		
Round: 5	10011001100101010011000001001100 100110111100000000001001001101011 111000001001011000100110001011000101010000101011		
Round: 6	100110111100000000001001001101011 00110011001011001111011101111111 111000001001001001110010010011100101100001100010		
Round: 7	00110011001011001111011101111111 10100111111000010001101111100000 101001001101001001110010100001001100100101111000		
Round: 8	10100111111000010001101111100000 00010011001010011100010101100101 101001100101001101010010100000011001111001010000		
Round: 9	00010011001010011100010101100101 00000100111111010110100010110000 001001100101001101010011110010010001001001011000		
Round: 10	00000100111111010110100010110000 00110100000100000110110111000001 001011110101000101010001100100011101001000101100		
Round: 11	00110100000100000110110111000001 00100101100101101010011010001010 000011110100000111011001000100000001111010100100		
Round: 12	00100101100101101010011010001010 10101010010001111001010000000110 000111110100000110011001100110000010100010110101		
Round: 13	10101010010001111001010000000110 01101010111011101000001001001000 000111110000100110001001001000110110101010010001		

Round: 14 01101010111011101000001001001000
 00000000101100111110011110110110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000000111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 506BF855264CBAD1
 After Initial Permutation: AFCD388AC4566652

	Left Half	Right Half	Sub Key
Round: 1	11000100010101100110011001010010	10111001001010100001011011101001	
	010100000010110010101100010001000010001111000110		
Round: 2	10111001001010100001011011101001	01000101001100011100001110110100	
	010100001010110010100100010101001010000101000001		
Round: 3	01000101001100011100001110110100	0011111010110110011010110001000	
	110100001010110000100110011000101010010001001100		
Round: 4	00111110101101100110101110001000	01000011101010010100110000111001	
	111000001010011000100110011010001011010110001010		
Round: 5	01000011101010010100110000111001	11010000110001111101100011010111	
	111000001001011000100110001011000101010000101011		
Round: 6	11010000110001111101100011010111	11100101000010110011011010110001	
	111000001001001001110010010011100101100001100010		
Round: 7	11100101000010110011011010110001	01010011011010100010101011111111	
	101001001101001001110010100001001100100101111000		
Round: 8	01010011011010100010101011111111	01010010101100101110101110100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01010010101100101110101110100001	10101101101001101110000110101001	
	001001100101001101010011110010010001001001011000		
Round: 10	10101101101001101110000110101001	01111000111111001001111111111101	
	001011110101000101010001100100011101001000101100		
Round: 11	01111000111111001001111111111101	00101011010011111001101101000111	
	000011110100000111011001000100000001111010100100		

Round: 12 00101011010011111001101101000111
 01100000110110111100110100000111
 000111110100000110011001100110000010100010110101
 Round: 13 01100000110110111100110100000111
 01100110011011100000100101001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100110011011100000100101001010
 00000000100100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000100100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000110111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1 00100100010111011110001000101110		
11010010111001010001000110100110		
010100000010110010101100010001000010001111000110		
Round: 2 11010010111001010001000110100110		
10000100000100111100111010111111		
010100001010110010100100010101001010000101000001		
Round: 3 10000100000100111100111010111111		
00001100100001101101011011000100		
110100001010110000100110011000101010010001001100		
Round: 4 00001100100001101101011011000100		
11110110011001101011101111111100		
111000001010011000100110011010001011010110001010		
Round: 5 11110110011001101011101111111100		
00000000000010001111111000010011		
111000001001011000100110001011000101010000101011		
Round: 6 00000000000010001111111000010011		
11000111111011010011101011101000		
111000001001001001110010010011100101100001100010		
Round: 7 11000111111011010011101011101000		
11100111011110110010110011110011		
101001001101001001110010100001001100100101111000		
Round: 8 11100111011110110010110011110011		
10011110111101100101000001111111		
101001100101001101010010100000011001111001010000		
Round: 9 10011110111101100101000001111111		
11001110110101110011010111001000		
001001100101001101010011110010010001001001011000		

Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: F8117AEDC1D324CF
 After Initial Permutation: BD27C8BAB94D8DA4

	Left Half	Right Half	Sub Key
Round: 1	10111001010011011000110110100100	1011100100100	
	10111000101000010111011111110100		
	010100000010110010101100010001000010001111000110		
Round: 2	10111000101000010111011111110100		
	10100110100100011000011011000100		
	010100001010110010100100010101001010000101000001		
Round: 3	10100110100100011000011011000100		
	00101100001110010000000010111000		
	110100001010110000100110011000101010010001001100		
Round: 4	00101100001110010000000010111000		
	01100001111110110011001001001100		
	111000001010011000100110011010001011010110001010		
Round: 5	01100001111110110011001001001100		
	00100000001000010010001101100100		
	111000001001011000100110001011000101010000101011		
Round: 6	00100000001000010010001101100100		
	01101111100001001011011000111000		
	111000001001001001110010010011100101100001100010		
Round: 7	01101111100001001011011000111000		
	100110010100000000000011000010011		
	101001001101001001110010100001001100100101111000		

Round: 8 10011001010000000000011000010011
 10000000011011111000110100111001
 101001100101001101010010100000011001111001010000
 Round: 9 10000000011011111000110100111001
 11101011111011000010111100011101
 001001100101001101010011110010010001001001011000
 Round: 10 11101011111011000010111100011101
 00111000001111010010001101010100
 001011110101000101010001100100011101001000101100
 Round: 11 00111000001111010010001101010100
 11000100010011111000011100111110
 000011110100000111011001000100000001111010100100
 Round: 12 11000100010011111000011100111110
 01100010001010111111011100111001
 000111110100000110011001100110000010100010110101
 Round: 13 01100010001010111111011100111001
 01101010011011000000110001001011
 000111110000100110001001001000110110101010010001
 Round: 14 01101010011011000000110001001011
 00000000101100111110011110111111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110111111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111111100000000000001110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: F7B6C9FACA9A4147
 After Initial Permutation: DD2B83C53F0B3CBB

	Left Half	Right Half	Sub Key
Round: 1	00111111000010110011110010111011	11010111100100011111000000011111	
	010100000010110010101100010001000010001111000110		
Round: 2	11010111100100011111000000011111	01111100000100011011000101101101	
	010100001010110010100100010101001010000101000001		
Round: 3	01111100000100011011000101101101	00111001100110100010000111011111	
	110100001010110000100110011000101010010001001100		
Round: 4	00111001100110100010000111011111	01010001010010000101110111011100	
	111000001010011000100110011010001011010110001010		
Round: 5	01010001010010000101110111011100	00111101011100011111110101100001	
	111000001001011000100110001011000101010000101011		

Round: 6 0011110101110001111110101100001
 01010011100111011101001111001000
 111000001001001001110010010011100101100001100010
 Round: 7 01010011100111011101001111001000
 11001110001100001001010000011000
 101001001101001001110010100001001100100101111000
 Round: 8 11001110001100001001010000011000
 11010011101110001101000111100010
 101001100101001101010010100000011001111001010000
 Round: 9 11010011101110001101000111100010
 01111100111100101110001111110111
 001001100101001101010011110010010001001001011000
 Round: 10 01111100111100101110001111110111
 11101001101001111100010010011101
 001011110101000101010001100100011101001000101100
 Round: 11 11101001101001111100010010011101
 01101111101001100110010101111000
 000011110100000111011001000100000001111010100100
 Round: 12 01101111101001100110010101111000
 01100100111110011010011011100010
 000111110100000110011001100110000010100010110101
 Round: 13 01100100111110011010011011100010
 01111010010011100000110001100010
 000111110000100110001001001000110110101010010001
 Round: 14 01111010010011100000110001100010
 00000000101100111110011101010111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101010111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011100110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 6F5C020214E45C09
 After Initial Permutation: 635273812021C30D

	Left Half	Right Half	Sub Key
Round: 1	00100000001000011100001100001101	10010011101001111011110010110010	
	010100000010110010101100010001000010001111000110		
Round: 2	10010011101001111011110010110010	01000001000100000010100001010000	
	010100001010110010100100010101001010000101000001		
Round: 3	01000001000100000010100001010000	00001001000100111110110111001111	
	110100001010110000100110011000101010010001001100		

Round: 4 00001001000100111110110111001111
 10010111101110000001110100101000
 111000001010011000100110011010001011010110001010
 Round: 5 10010111101110000001110100101000
 00001010110011100000100110101111
 111000001001011000100110001011000101010000101011
 Round: 6 00001010110011100000100110101111
 0000011111100100111000011110011
 111000001001001001110010010011100101100001100010
 Round: 7 0000011111100100111000011110011
 11110101011110010111010110001101
 101001001101001001110010100001001100100101111000
 Round: 8 11110101011110010111010110001101
 11011110001111011101101001001111
 101001100101001101010010100000011001111001010000
 Round: 9 11011110001111011101101001001111
 10000000100110010101001111110000
 001001100101001101010011110010010001001001011000
 Round: 10 10000000100110010101001111110000
 00111100111010001010110011000110
 001011110101000101010001100100011101001000101100
 Round: 11 00111100111010001010110011000110
 00110000011010101010011010100011
 000011110100000111011001000100000001111010100100
 Round: 12 00110000011010101010011010100011
 01100000111011010101101001000100
 000111110100000110011001100110000010100010110101
 Round: 13 01100000111011010101101001000100
 01100010111011001000011001101001
 000111110000100110001001001000110110101010010001
 Round: 14 01100010111011001000011001101001
 00000000101100111110011110111110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110111110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000001111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: BA8A7499FFA3F3B4
 After Initial Permutation: 54DD9478FBF51B73

Left Half	Right Half	Sub Key
Round: 1 11111011111101010001101101110011		
001010010110011010110001111010110		
010100000010110010101100010001000010001111000110		

Round: 2 00101001011001101011000111010110
00010011011111011110110010000001
010100001010110010100100010101001010000101000001
Round: 3 00010011011111011110110010000001
01100011101000110000001100111011
110100001010110000100110011000101010010001001100
Round: 4 01100011101000110000001100111011
10010100100101101100010100111011
111000001010011000100110011010001011010110001010
Round: 5 10010100100101101100010100111011
10110000111011000110010010111000
111000001001011000100110001011000101010000101011
Round: 6 10110000111011000110010010111000
00100100000100010011000111011010
111000001001001001110010010011100101100001100010
Round: 7 00100100000100010011000111011010
11110111110100000111110110000010
101001001101001001110010100001001100100101111000
Round: 8 11110111110100000111110110000010
01011000100011010110111111011101
101001100101001101010010100000011001111001010000
Round: 9 01011000100011010110111111011101
10001100111101001101100110101111
001001100101001101010011110010010001001001011000
Round: 10 10001100111101001101100110101111
00101010110011101100001000110011
001011110101000101010001100100011101001000101100
Round: 11 00101010110011101100001000110011
10100000111100001001101101110100
000011110100000111011001000100000001111010100100
Round: 12 10100000111100001001101101110100
11011011111010011101010100101111
000111110100000110011001100110000010100010110101
Round: 13 11011011111010011101010100101111
01100110011011110000100001001110
000111110000100110001001001000110110101010010001
Round: 14 01100110011011110000100001001110
00000000111100111110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000111100111110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000101111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	11110110011001101011101111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	11110110011001101011101111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	10001111011010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		
Round: 14	01100010011011100000100001001010	00000000101100111110011110110001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011110110001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: 04E079D6B2553B5D
After Initial Permutation: AEFCA9E41A56C458

	Left Half	Right Half	Sub Key
Round: 1	00011010010101101100010001011000	01101011001101111100111111000110	
	010100000010110010101100010001000010001111000110		
Round: 2	01101011001101111100111111000110	10000001001111011101111100111001	
	010100001010110010100100010101001010000101000001		
Round: 3	10000001001111011101111100111001	01001000010101010001000110111101	
	110100001010110000100110011000101010010001001100		
Round: 4	01001000010101010001000110111101	00111100111110111110110101110110	
	111000001010011000100110011010001011010110001010		
Round: 5	00111100111110111110110101110110	11111001111111001000001011110100	
	111000001001011000100110001011000101010000101011		
Round: 6	11111001111111001000001011110100	01001010100110001010000110000111	
	111000001001001001110010010011100101100001100010		
Round: 7	01001010100110001010000110000111	11000100100110111010101000110010	
	101001001101001001110010100001001100100101111000		
Round: 8	11000100100110111010101000110010	11001011000101101110011011111110	
	101001100101001101010010100000011001111001010000		
Round: 9	11001011000101101110011011111110	10001010011010100001100001100101	
	001001100101001101010011110010010001001001011000		
Round: 10	10001010011010100001100001100101	10010101001101100100011101001100	
	001011110101000101010001100100011101001000101100		
Round: 11	10010101001101100100011101001100	00101101001100111010011000001000	
	000011110100000111011001000100000001111010100100		
Round: 12	00101101001100111010011000001000	00110001000001111111100110100001	
	000111110100000110011001100110000010100010110101		
Round: 13	001100010000011111111100110100001	01101000011011000000010001101010	
	000111110000100110001001001000110110101010010001		

Round: 14 01101000011011000000010001101010
 00000000101100111110011110001101
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110001101
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000111100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: DF35060B91294550
 After Initial Permutation: C193477B1122290D

	Left Half	Right Half	Sub Key
Round: 1	00010001001000100010100100001101	11010101101000101000100111000100	
	010100000010110010101100010001000010001111000110		
Round: 2	11010101101000101000100111000100	00010011010001110001100010101000	
	010100001010110010100100010101001010000101000001		
Round: 3	00010011010001110001100010101000	10101000000101000010010110101011	
	110100001010110000100110011000101010010001001100		
Round: 4	10101000000101000010010110101011	10100010100101101001110000001000	
	111000001010011000100110011010001011010110001010		
Round: 5	10100010100101101001110000001000	01111010010111011100001010000010	
	111000001001011000100110001011000101010000101011		
Round: 6	01111010010111011100001010000010	11110100011111011100001100111110	
	111000001001001001110010010011100101100001100010		
Round: 7	11110100011111011100001100111110	10100101101000010010011001100110	
	101001001101001001110010100001001100100101111000		
Round: 8	10100101101000010010011001100110	1101001101011011011010010011001	
	101001100101001101010010100000011001111001010000		
Round: 9	11010011010110110111011010010011001	10000010100011011100100111111110	
	001001100101001101010011110010010001001001011000		
Round: 10	10000010100011011100100111111110	1010111010011111101110111101100	
	0010111101010001010100011001000111010010001011100		
Round: 11	10101110100111111011101111101100	11110010100111001110010111010100	
	000011110100000111011001000100000001111010100100		

Round: 12 11110010100111001110010111010100
 0011110100010100111111100111100
 000111110100000110011001100110000010100010110101
 Round: 13 0011110100010100111111100111100
 01110000010111100000010001100011
 000111110000100110001001001000110110101010010001
 Round: 14 01110000010111100000010001100011
 00000000101100111110011101000111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101000111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011110110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 068FEBDB31F66D71
 After Initial Permutation: ECB863DE2EF44E2F

Left Half	Right Half	Sub Key
Round: 1 00101110111101000100111000101111		
00010001101100001110001100100000		
010100000010110010101100010001000010001111000110		
Round: 2 00010001101100001110001100100000		
11111000010111001001111101001101		
010100001010110010100100010101001010000101000001		
Round: 3 11111000010111001001111101001101		
10010001010101111010010110001101		
110100001010110000100110011000101010010001001100		
Round: 4 10010001010101111010010110001101		
10100110010011111101000001111010		
111000001010011000100110011010001011010110001010		
Round: 5 10100110010011111101000001111010		
00001000001110110110101000100000		
111000001001011000100110001011000101010000101011		
Round: 6 00001000001110110110101000100000		
11010110010011110011010100000110		
111000001001001001110010010011100101100001100010		
Round: 7 11010110010011110011010100000110		
11001101110011000100100100111101		
101001001101001001110010100001001100100101111000		
Round: 8 11001101110011000100100100111101		
00000110101100111100101101011001		
101001100101001101010010100000011001111001010000		
Round: 9 00000110101100111100101101011001		
00100001010101101111001010110000		
001001100101001101010011110010010001001001011000		

Round: 10 00100001010101101111001010110000
 11110100101010111110001010101111
 001011110101000101010001100100011101001000101100
 Round: 11 11110100101010111110001010101111
 00010000010000001101011010010110
 000011110100000111011001000100000001111010100100
 Round: 12 00010000010000001101011010010110
 10011010010011111011010010101110
 000111110100000110011001100110000010100010110101
 Round: 13 10011010010011111011010010101110
 01101000111011101000111001001000
 000111110000100110001001001000110110101010010001
 Round: 14 01101000111011101000111001001000
 00000000101100111110011110001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: ED41F003DE816DA9
 After Initial Permutation: 571451EBB5C5D118

	Left Half	Right Half	Sub Key
Round: 1	10110101110001011101000100011000		
	11101001000001001110010101000111		
	010100000010110010101100010001000010001111000110		
Round: 2	11101001000001001110010101000111		
	01101011100111101011010001000000		
	010100001010110010100100010101001010000101000001		
Round: 3	01101011100111101011010001000000		
	00101001011011001101111100101010		
	110100001010110000100110011000101010010001001100		
Round: 4	00101001011011001101111100101010		
	10110011100101110001100001110001		
	111000001010011000100110011010001011010110001010		
Round: 5	10110011100101110001100001110001		
	10100011001111100101101111001100		
	111000001001011000100110001011000101010000101011		
Round: 6	10100011001111100101101111001100		
	10000111001111000001101101010011		
	111000001001001001110010010011100101100001100010		
Round: 7	10000111001111000001101101010011		
	10000011011010010011001100010000		
	101001001101001001110010100001001100100101111000		

Round: 8 10000011011010010011001100010000
 00100011100001110010001010011001
 101001100101001101010010100000011001111001010000
 Round: 9 00100011100001110010001010011001
 11001001111001111000111100001110
 001001100101001101010011110010010001001001011000
 Round: 10 11001001111001111000111100001110
 01111010010011001000010110110111
 001011110101000101010001100100011101001000101100
 Round: 11 01111010010011001000010110110111
 00100000010111011010010010011001
 000011110100000111011001000100000001111010100100
 Round: 12 00100000010111011010010010011001
 00011010001001001101010001101111
 000111110100000110011001100110000010100010110101
 Round: 13 00011010001001001101010001101111
 01100010011001110100100001001110
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011001110100100001001110
 00000000001100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000001100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000011111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 705EF227649A6918
 After Initial Permutation: 57A71A48245DE22E

Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110 11010010111001010001000110100110 010100000010110010101100010001000010001111000110	
Round: 2	11010010111001010001000110100110 10000100000100111100111010111111 010100001010110010100100010101001010000101000001	
Round: 3	10000100000100111100111010111111 00001100100001101101011011000100 110100001010110000100110011000101010010001001100	
Round: 4	00001100100001101101011011000100 11110110011001101011101111111100 111000001010011000100110011010001011010110001010	
Round: 5	11110110011001101011101111111100 0000000000001000111111000010011 111000001001011000100110001011000101010000101011	

Round: 6 00000000000010001111111000010011
 11000111111011010011101011101000
 111000001001001001110010010011100101100001100010
 Round: 7 11000111111011010011101011101000
 11100111011110110010110011110011
 101001001101001001110010100001001100100101111000
 Round: 8 11100111011110110010110011110011
 10011110111101100101000001111111
 101001100101001101010010100000011001111001010000
 Round: 9 10011110111101100101000001111111
 11001110110101110011010111001000
 001001100101001101010011110010010001001001011000
 Round: 10 11001110110101110011010111001000
 10001111011010101000011101010101
 001011110101000101010001100100011101001000101100
 Round: 11 10001111011010101000011101010101
 10100101000111001000011101000001
 000011110100000111011001000100000001111010100100
 Round: 12 10100101000111001000011101000001
 00110010111000111100110100001111
 000111110100000110011001100110000010100010110101
 Round: 13 00110010111000111100110100001111
 01100010011011100000100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 0ED5A2ABE5A66047
 After Initial Permutation: D202B39A3E7C09AD

Left Half	Right Half	Sub Key
Round: 1 00111110011111000000100110101101	01010000111101101101100110111100	
010100000010110010101100010001000010001111000110		
Round: 2 01010000111101101101100110111100	11000001100011000010101110110011	
010100001010110010100100010101001010000101000001		
Round: 3 11000001100011000010101110110011	00011010100010001001110010111101	
110100001010110000100110011000101010010001001100		

Round: 4 00011010100010001001110010111101
 01101110010011101000110111101111
 111000001010011000100110011010001011010110001010
 Round: 5 01101110010011101000110111101111
 01110011110100100000101111111001
 111000001001011000100110001011000101010000101011
 Round: 6 01110011110100100000101111111001
 01100100000011001000100101000000
 111000001001001001110010010011100101100001100010
 Round: 7 01100100000011001000100101000000
 00111101110110001010101011000001
 101001001101001001110010100001001100100101111000
 Round: 8 00111101110110001010101011000001
 00010100111100011001111011000011
 101001100101001101010010100000011001111001010000
 Round: 9 00010100111100011001111011000011
 11100101111010101100110110101001
 001001100101001101010011110010010001001001011000
 Round: 10 11100101111010101100110110101001
 01001110000111110000101001011111
 001011110101000101010001100100011101001000101100
 Round: 11 01001110000111110000101001011111
 01011010010010101010101111001101
 000011110100000111011001000100000001111010100100
 Round: 12 01011010010010101010101111001101
 00110101000101011011000001100011
 000111110100000110011001100110000010100010110101
 Round: 13 00110101000101011011000001100011
 01110010010011000000010001000010
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010011000000010001000010
 00000000101100111110011101001111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3EE737AFDF1950AE
 After Initial Permutation: 52759F3E9A8FB99F

Left Half	Right Half	Sub Key
Round: 1 10011010100011111011100110011111		
11100001000101111110110000010011		
010100000010110010101100010001000010001111000110		

Round: 2 1110000100010111110110000010011
00111110011101011110111101011110
010100001010110010100100010101001010000101000001
Round: 3 00111110011101011110111101011110
11111111000000111110000010101111
110100001010110000100110011000101010010001001100
Round: 4 11111111000000111110000010101111
00111111000000001100010000000001
111000001010011000100110011010001011010110001010
Round: 5 00111111000000001100010000000001
00111010011111110010000101101111
111000001001011000100110001011000101010000101011
Round: 6 00111010011111110010000101101111
01101111111111110011111000011100
111000001001001001110010010011100101100001100010
Round: 7 01101111111111110011111000011100
00011001011111010010100010110000
101001001101001001110010100001001100100101111000
Round: 8 00011001011111010010100010110000
00110110001001001011000011110010
101001100101001101010010100000011001111001010000
Round: 9 00110110001001001011000011110010
01110101001100111100101011100111
001001100101001101010011110010010001001001011000
Round: 10 01110101001100111100101011100111
00011011011100010111110011010111
001011110101000101010001100100011101001000101100
Round: 11 00011011011100010111110011010111
11111101001110010010011011101101
000011110100000111011001000100000001111010100100
Round: 12 11111101001110010010011011101101
01101000011101001101110110000111
000111110100000110011001100110000010100010110101
Round: 13 01101000011101001101110110000111
01110010110011001000011001100000
000111110000100110001001001000110110101010010001
Round: 14 01110010110011001000011001100000
00000000101100111110011101001010
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011101001010
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000011111011
010100010010110010001100000101110000001111000010
Data Being Encrypted: E27037BDEFD49E9C
After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	010100000010110010101100010001000010001111000110
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	010100001010110010100100010101001010000101000001
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	110100001010110000100110011000101010010001001100
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	111000001010011000100110011010001011010110001010
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	111000001001011000100110001011000101010000101011
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	111000001001001001110010010011100101100001100010
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	101001001101001001110010100001001100100101111000
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	101001100101001101010010100000011001111001010000
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	001001100101001101010011110010010001001001011000
Round: 10	10101011011000111101111101101000	11110101100001011011101001001111	001011110101000101010001100100011101001000101100
Round: 11	11110101100001011011101001001111	11001111010110011100111000010111	000011110100000111011001000100000001111010100100
Round: 12	11001111010110011100111000010111	10011000110111001011101101001010	000111110100000110011001100110000010100010110101
Round: 13	10011000110111001011101101001010	01111010110011101000111001000000	000111110000100110001001001000110110101010010001
Round: 14	01111010110011101000111001000000	00000000101100111110011101001110	000110110010100010001101001100110010000100010011
Round: 15	00000000101100111110011101001110	00000000111111100000000000000000	000110010010110010001100101001110000000100000110

Round: 16 00000000111111110000000000000000
00000000111111110000000011111111
010100010010110010001100000101110000001111000010
Data Being Encrypted: 705EF227649A6918
After Initial Permutation: 57A71A48245DE22E

	Left Half	Right Half	Sub Key
Round: 1	00100100010111011110001000101110	11010010111001010001000110100110	
	010100000010110010101100010001000010001111000110		
Round: 2	11010010111001010001000110100110	10000100000100111100111010111111	
	010100001010110010100100010101001010000101000001		
Round: 3	10000100000100111100111010111111	00001100100001101101011011000100	
	110100001010110000100110011000101010010001001100		
Round: 4	00001100100001101101011011000100	1111011001100110101110111111100	
	111000001010011000100110011010001011010110001010		
Round: 5	1111011001100110101110111111100	00000000000010001111111000010011	
	111000001001011000100110001011000101010000101011		
Round: 6	00000000000010001111111000010011	11000111111011010011101011101000	
	111000001001001001110010010011100101100001100010		
Round: 7	11000111111011010011101011101000	11100111011110110010110011110011	
	101001001101001001110010100001001100100101111000		
Round: 8	11100111011110110010110011110011	10011110111101100101000001111111	
	101001100101001101010010100000011001111001010000		
Round: 9	10011110111101100101000001111111	11001110110101110011010111001000	
	001001100101001101010011110010010001001001011000		
Round: 10	11001110110101110011010111001000	10001111011010101000011101010101	
	001011110101000101010001100100011101001000101100		
Round: 11	1000111101101010101000011101010101	10100101000111001000011101000001	
	000011110100000111011001000100000001111010100100		
Round: 12	10100101000111001000011101000001	00110010111000111100110100001111	
	000111110100000110011001100110000010100010110101		
Round: 13	00110010111000111100110100001111	01100010011011100000100001001010	
	000111110000100110001001001000110110101010010001		

Round: 14 01100010011011100000100001001010
 00000000101100111110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 56FD4CF48980C8BD
 After Initial Permutation: 4F8B8F92FA8AD601

	Left Half	Right Half	Sub Key
Round: 1	11111010100010101101011000000001	1100111100001111110001000011101	
	010100000010110010101100010001000010001111000110		
Round: 2	1100111100001111110001000011101	00011001010111000000001110101011	
	010100001010110010100100010101001010000101000001		
Round: 3	00011001010111000000001110101011	00100000100001111001101010101000	
	110100001010110000100110011000101010010001001100		
Round: 4	00100000100001111001101010101000	11001001101000011110100010100000	
	111000001010011000100110011010001011010110001010		
Round: 5	11001001101000011110100010100000	00001101100001010110100011101011	
	111000001001011000100110001011000101010000101011		
Round: 6	00001101100001010110100011101011	0010110111100011111100010000111	
	111000001001001001110010010011100101100001100010		
Round: 7	00101101111000111111100010000111	10110010000101110011001111100101	
	101001001101001001110010100001001100100101111000		
Round: 8	10110010000101110011001111100101	01011101000000110011000100100001	
	101001100101001101010010100000011001111001010000		
Round: 9	01011101000000110011000100100001	1001101000010111111101010110100	
	001001100101001101010011110010010001001001011000		
Round: 10	10011010000101111111101010110100	01110110111100100010001101001001	
	001011110101000101010001100100011101001000101100		
Round: 11	01110110111100100010001101001001	01011001101001100000111100100001	
	000011110100000111011001000100000001111010100100		

Round: 12 01011001101001100000111100100001
 10100011100000101100010110101101
 000111110100000110011001100110000010100010110101
 Round: 13 10100011100000101100010110101101
 11000010011010100001100001001010
 000111110000100110001001001000110110101010010001
 Round: 14 11000010011010100001100001001010
 00000000101100101110011110110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100101110011110110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111100000000000000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3A4287419F5D19CF
 After Initial Permutation: AA71B4FC9401F197

	Left Half	Right Half	Sub Key
Round: 1	100101000000000011111000110010111	01100100101101011101000011111100	
	010100000010110010101100010001000010001111000110		
Round: 2	01100100101101011101000011111100	1001111011110000010011110011100	
	010100001010110010100100010101001010000101000001		
Round: 3	10011110111110000010011110011100	00011110011010010101010001001001	
	110100001010110000100110011000101010010001001100		
Round: 4	00011110011010010101010001001001	110000000000110101100100001111101	
	111000001010011000100110011010001011010110001010		
Round: 5	110000000000110101100100001111101	10101110101000011110100011010010	
	111000001001011000100110001011000101010000101011		
Round: 6	10101110101000011110100011010010	10000011100110100001000110111101	
	111000001001001001110010010011100101100001100010		
Round: 7	10000011100110100001000110111101	10000111100110101110000101011011	
	101001001101001001110010100001001100100101111000		
Round: 8	10000111100110101110000101011011	10001110000010110011101110001001	
	101001100101001101010010100000011001111001010000		
Round: 9	10001110000010110011101110001001	10001000111011010101110000111100	
	001001100101001101010011110010010001001001011000		

Round: 10 10001000111011010101110000111100
 10001111000110100110000001010011
 001011110101000101010001100100011101001000101100
 Round: 11 10001111000110100110000001010011
 01000100000100001101011110011000
 000011110100000111011001000100000001111010100100
 Round: 12 01000100000100001101011110011000
 01110101100111011011011001110000
 000111110100000110011001100110000010100010110101
 Round: 13 01110101100111011011011001110000
 01111010010011000000010001100010
 000111110000100110001001001000110110101010010001
 Round: 14 01111010010011000000010001100010
 00000000101100111110011101001101
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001101
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111100
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101		
	00100000011010101110100010110011		
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011		
	00111000000010001001000101101110		
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110		
	00000011011010101011100110010111		
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111		
	01110010000111111000101111110110		
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110		
	00010010111100100101111100011111		
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111		
	01000010110101100010110011101100		
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100		
	00101101000000001001110110001101		
	101001001101001001110010100001001100100101111000		

Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101		
	00100000011010101110100010110011		
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011		
	00111000000010001001000101101110		
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110		
	00000011011010101011100110010111		
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111		
	01110010000111111000101111110110		
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110		
	00010010111100100101111100011111		
	111000001001011000100110001011000101010000101011		

Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 068FEBDB31F66D71
 After Initial Permutation: ECB863DE2EF44E2F

	Left Half	Right Half	Sub Key
Round: 1	00101110111101000100111000101111	00010001101100001110001100100000	
	010100000010110010101100010001000010001111000110		
Round: 2	00010001101100001110001100100000	11111000010111001001111101001101	
	010100001010110010100100010101001010000101000001		
Round: 3	11111000010111001001111101001101	10010001010101111010010110001101	
	110100001010110000100110011000101010010001001100		

Round: 4 10010001010101111010010110001101
 10100110010011111101000001111010
 111000001010011000100110011010001011010110001010
 Round: 5 10100110010011111101000001111010
 00001000001110110110101000100000
 111000001001011000100110001011000101010000101011
 Round: 6 00001000001110110110101000100000
 11010110010011110011010100000110
 111000001001001001110010010011100101100001100010
 Round: 7 11010110010011110011010100000110
 11001101110011000100100100111101
 101001001101001001110010100001001100100101111000
 Round: 8 11001101110011000100100100111101
 00000110101100111100101101011001
 101001100101001101010010100000011001111001010000
 Round: 9 00000110101100111100101101011001
 00100001010101101111001010110000
 001001100101001101010011110010010001001001011000
 Round: 10 00100001010101101111001010110000
 11110100101010111110001010101111
 001011110101000101010001100100011101001000101100
 Round: 11 11110100101010111110001010101111
 00010000010000001101011010010110
 000011110100000111011001000100000001111010100100
 Round: 12 00010000010000001101011010010110
 10011010010011111011010010101110
 000111110100000110011001100110000010100010110101
 Round: 13 10011010010011111011010010101110
 01101000111011101000111001001000
 000111110000100110001001001000110110101010010001
 Round: 14 01101000111011101000111001001000
 00000000101100111110011110001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011110001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000000111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 1B5C2F6913B67AE8
 After Initial Permutation: CA73261DA0ECCF75

Left Half	Right Half	Sub Key
Round: 1 10100000111011001100111101110101		
11001111000001101000001010111001		
010100000010110010101100010001000010001111000110		

Round: 2 11001111000001101000001010111001
01101111011011010011001010110111
010100001010110010100100010101001010000101000001
Round: 3 01101111011011010011001010110111
1111110101110001101001111000110
110100001010110000100110011000101010010001001100
Round: 4 1111110101110001101001111000110
11000111010100001010001010011100
111000001010011000100110011010001011010110001010
Round: 5 11000111010100001010001010011100
00010001000110101000101111000011
111000001001011000100110001011000101010000101011
Round: 6 00010001000110101000101111000011
01101100100111110111110000000111
111000001001001001110010010011100101100001100010
Round: 7 01101100100111110111110000000111
0011111101001011100011100010110
101001001101001001110010100001001100100101111000
Round: 8 0011111101001011100011100010110
11110001010011010111110111000011
101001100101001101010010100000011001111001010000
Round: 9 11110001010011010111110111000011
01000101000101101000110100001101
001001100101001101010011110010010001001001011000
Round: 10 01000101000101101000110100001101
00011100010010110011000000011011
001011110101000101010001100100011101001000101100
Round: 11 00011100010010110011000000011011
10000101000011000100010001000011
000011110100000111011001000100000001111010100100
Round: 12 10000101000011000100010001000011
00100011010100010100001110101111
000111110100000110011001100110000010100010110101
Round: 13 00100011010100010100001110101111
11100010011011100001100000001010
000111110000100110001001001000110110101010010001
Round: 14 11100010011011100001100000001010
00000000101100011110011110110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100011110011110110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111010000000000000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: ED244F7143AA7E0A
After Initial Permutation: 5D48471D216BE5F4

	Left Half	Right Half	Sub Key
Round: 1	0010000101101011111001011110100	0101001000000000000001011111110	
	0101000001011001010110001000100010001111000110		
Round: 2	0101001000000000000001011111110	11000101111010011110101110100110	
	010100001010110010100100010101001010000101000001		
Round: 3	11000101111010011110101110100110	11010110011001101001101100011101	
	110100001010110000100110011000101010010001001100		
Round: 4	11010110011001101001101100011101	11111000101110000011100011011010	
	111000001010011000100110011010001011010110001010		
Round: 5	11111000101110000011100011011010	11101111000101100001011111100010	
	111000001001011000100110001011000101010000101011		
Round: 6	11101111000101100001011111100010	01011100100010111000111111001001	
	111000001001001001110010010011100101100001100010		
Round: 7	01011100100010111000111111001001	00000100010100111111011001100011	
	101001001101001001110010100001001100100101111000		
Round: 8	00000100010100111111011001100011	11101011110010010000001001111000	
	101001100101001101010010100000011001111001010000		
Round: 9	11101011110010010000001001111000	10000100101110011100011011100100	
	001001100101001101010011110010010001001001011000		
Round: 10	10000100101110011100011011100100	01010011011100110001110110011001	
	001011110101000101010001100100011101001000101100		
Round: 11	01010011011100110001110110011001	11111101000011111110010000100101	
	000011110100000111011001000100000001111010100100		
Round: 12	11111101000011111110010000100101	00100100011100011010010011101100	
	000111110100000110011001100110000010100010110101		
Round: 13	00100100011100011010010011101100	01110010010011100000110001100010	
	000111110000100110001001001000110110101010010001		
Round: 14	01110010010011100000110001100010	00000000101100111110011101001001	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011101001001	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000011111000
010100010010110010001100000101110000001111000010
Data Being Encrypted: E27037BDEFD49E9C
After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101 00100000011010101110100010110011 010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011 00111000000010001001000101101110 010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110 00000011011010101011100110010111 110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111 01110010000111111000101111110110 111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110 00010010111100100101111100011111 111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111 01000010110101100010110011101100 111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100 00101101000000001001110110001101 101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101 01110011100111000110111101101100 101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100 10101011011000111101111101101000 001001100101001101010011110010010001001001011000		
Round: 10	10101011011000111101111101101000 11110101100001011011101001001111 001011110101000101010001100100011101001000101100		
Round: 11	11110101100001011011101001001111 11001111010110011100111000010111 000011110100000111011001000100000001111010100100		
Round: 12	11001111010110011100111000010111 10011000110111001011101101001010 000111110100000110011001100110000010100010110101		
Round: 13	10011000110111001011101101001010 01111010110011101000111001000000 000111110000100110001001001000110110101010010001		

Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 0ED5A2ABE5A66047
 After Initial Permutation: D202B39A3E7C09AD

	Left Half	Right Half	Sub Key
Round: 1	00111110011111000000100110101101	01010000111101101101100110111100	
	010100000010110010101100010001000010001111000110		
Round: 2	01010000111101101101100110111100	11000001100011000010101110110011	
	010100001010110010100100010101001010000101000001		
Round: 3	11000001100011000010101110110011	00011010100010001001110010111101	
	110100001010110000100110011000101010010001001100		
Round: 4	00011010100010001001110010111101	01101110010011101000110111101111	
	111000001010011000100110011010001011010110001010		
Round: 5	01101110010011101000110111101111	01110011110100100000101111111001	
	111000001001011000100110001011000101010000101011		
Round: 6	01110011110100100000101111111001	01100100000011001000100101000000	
	111000001001001001110010010011100101100001100010		
Round: 7	01100100000011001000100101000000	00111101110110001010101011000001	
	101001001101001001110010100001001100100101111000		
Round: 8	00111101110110001010101011000001	00010100111100011001111011000011	
	101001100101001101010010100000011001111001010000		
Round: 9	00010100111100011001111011000011	11100101111010101100110110101001	
	001001100101001101010011110010010001001001011000		
Round: 10	11100101111010101100110110101001	01001110000111110000101001011111	
	001011110101000101010001100100011101001000101100		
Round: 11	01001110000111110000101001011111	01011010010010101010101111001101	
	000011110100000111011001000100000001111010100100		

Round: 12 01011010010010101010101111001101
 00110101000101011011000001100011
 000111110100000110011001100110000010100010110101
 Round: 13 00110101000101011011000001100011
 01110010010011000000010001000010
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010011000000010001000010
 00000000101100111110011101001111
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001111
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111110
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		

Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 04BC923699622A0D
 After Initial Permutation: 201E8B90166AD26C

	Left Half	Right Half	Sub Key
Round: 1	00010110011010101101001001101100		
	11100010101100110110111000000001		
	010100000010110010101100010001000010001111000110		
Round: 2	11100010101100110110111000000001		
	11001110101001111101110000000100		
	010100001010110010100100010101001010000101000001		
Round: 3	11001110101001111101110000000100		
	00000011000100100111101101000001		
	110100001010110000100110011000101010010001001100		
Round: 4	00000011000100100111101101000001		
	00011001101000111100001101111101		
	111000001010011000100110011010001011010110001010		
Round: 5	00011001101000111100001101111101		
	11110100111100101010100100110001		
	111000001001011000100110001011000101010000101011		
Round: 6	11110100111100101010100100110001		
	01110001101111100010010000111101		
	111000001001001001110010010011100101100001100010		
Round: 7	01110001101111100010010000111101		
	01101000011111001101110101001000		
	101001001101001001110010100001001100100101111000		

Round: 8 01101000011111001101110101001000
 10010011011111001100010001000111
 101001100101001101010010100000011001111001010000
 Round: 9 10010011011111001100010001000111
 11101010010100110001110111010111
 001001100101001101010011110010010001001001011000
 Round: 10 11101010010100110001110111010111
 11011110010010110110101000011011
 001011110101000101010001100100011101001000101100
 Round: 11 11011110010010110110101000011011
 00111011111001011111111000100001
 000011110100000111011001000100000001111010100100
 Round: 12 00111011111001011111111000100001
 00011101111001100011101001100010
 000111110100000110011001100110000010100010110101
 Round: 13 00011101111001100011101001100010
 11101010101011001001001001101000
 000111110000100110001001001000110110101010010001
 Round: 14 11101010101011001001001001101000
 00000000101101111110011110110010
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101101111110011110110010
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111110110000000000000011
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: D67A797FF68ADAF7
 After Initial Permutation: DFDF998CF19E6EFB

	Left Half	Right Half	Sub Key
Round: 1	11110001100111100110111011111011		
	00100001101100100110011001000100		
	010100000010110010101100010001000010001111000110		
Round: 2	00100001101100100110011001000100		
	11100100101100101101011110101010		
	010100001010110010100100010101001010000101000001		
Round: 3	11100100101100101101011110101010		
	00000010000101100001011010110011		
	110100001010110000100110011000101010010001001100		
Round: 4	00000010000101100001011010110011		
	11110111100110111111010100111011		
	111000001010011000100110011010001011010110001010		
Round: 5	11110111100110111111010100111011		
	10100001101110010100000111110110		
	111000001001011000100110001011000101010000101011		

Round: 6 10100001101110010100000111110110
 01011011000101011101001010101101
 111000001001001001110010010011100101100001100010
 Round: 7 01011011000101011101001010101101
 10001000111100011010100111000111
 101001001101001001110010100001001100100101111000
 Round: 8 10001000111100011010100111000111
 11010000010110111110100111111110
 101001100101001101010010100000011001111001010000
 Round: 9 11010000010110111110100111111110
 10000001010000001010111011010000
 001001100101001101010011110010010001001001011000
 Round: 10 10000001010000001010111011010000
 10010101111001111111101111100111
 001011110101000101010001100100011101001000101100
 Round: 11 10010101111001111111101111100111
 11111001100011010000110101001111
 000011110100000111011001000100000001111010100100
 Round: 12 11111001100011010000110101001111
 11101100111100000011111110100010
 000111110100000110011001100110000010100010110101
 Round: 13 11101100111100000011111110100010
 01111000010111000000110001100011
 000111110000100110001001001000110110101010010001
 Round: 14 01111000010111000000110001100011
 00000000101100111110011101000001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101000001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011110000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		

Round: 4 00000011011010101011100110010111
 01110010000111111000101111110110
 111000001010011000100110011010001011010110001010
 Round: 5 01110010000111111000101111110110
 00010010111100100101111100011111
 111000001001011000100110001011000101010000101011
 Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 59CBBE4A43CC5545
 After Initial Permutation: FB45E4D326042F1E

Left Half	Right Half	Sub Key
Round: 1 00100110000001000010111100011110		
10110101001111011101001000010001		
01010000001011001010110001000100010001111000110		

Round: 2 10110101001111011101001000010001
10101010111111111100100101111101
010100001010110010100100010101001010000101000001
Round: 3 10101010111111111100100101111101
00101101101011011011100000010111
110100001010110000100110011000101010010001001100
Round: 4 00101101101011011011100000010111
11010010100001011010000011100110
111000001010011000100110011010001011010110001010
Round: 5 11010010100001011010000011100110
00010001110000101001011000101001
111000001001011000100110001011000101010000101011
Round: 6 00010001110000101001011000101001
10101011001110000001101101001101
111000001001001001110010010011100101100001100010
Round: 7 10101011001110000001101101001101
10110001100111111011001010100101
101001001101001001110010100001001100100101111000
Round: 8 10110001100111111011001010100101
01101111111101011000001101110010
101001100101001101010010100000011001111001010000
Round: 9 01101111111101011000001101110010
11101100000011000110000111100000
001001100101001101010011110010010001001001011000
Round: 10 11101100000011000110000111100000
11101111001101101110111110111100
001011110101000101010001100100011101001000101100
Round: 11 11101111001101101110111110111100
00110010100100110100010100001100
000011110100000111011001000100000001111010100100
Round: 12 00110010100100110100010100001100
01100000011111101001111110000001
000111110100000110011001100110000010100010110101
Round: 13 01100000011111101001111110000001
01110000110011001000011001100001
000111110000100110001001001000110110101010010001
Round: 14 01110000110011001000011001100001
00000000101100111110011101011110
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011101011110
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000011101111
010100010010110010001100000101110000001111000010
Data Being Encrypted: E27037BDEFD49E9C
After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		
Round: 10	10101011011000111101111101101000	11110101100001011011101001001111	
	001011110101000101010001100100011101001000101100		
Round: 11	11110101100001011011101001001111	11001111010110011100111000010111	
	000011110100000111011001000100000001111010100100		
Round: 12	11001111010110011100111000010111	10011000110111001011101101001010	
	000111110100000110011001100110000010100010110101		
Round: 13	10011000110111001011101101001010	01111010110011101000111001000000	
	000111110000100110001001001000110110101010010001		
Round: 14	01111010110011101000111001000000	00000000101100111110011101001110	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011101001110	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000011111111
010100010010110010001100000101110000001111000010
Data Being Encrypted: D4CEB62ADCD55179
After Initial Permutation: F3F537E0378C9A0E

	Left Half	Right Half	Sub Key
Round: 1	00110111100011001001101000001110	10000100000010100011110101010101	
	010100000010110010101100010001000010001111000110		
Round: 2	10000100000010100011110101010101	1011101011111010001110101001001	
	010100001010110010100100010101001010000101000001		
Round: 3	1011101011111010001110101001001	01111101010011101101000100100010	
	110100001010110000100110011000101010010001001100		
Round: 4	01111101010011101101000100100010	1101100011000011011111000101100	
	111000001010011000100110011010001011010110001010		
Round: 5	11011000110000110111111000101100	11110101011010001101000001011011	
	111000001001011000100110001011000101010000101011		
Round: 6	11110101011010001101000001011011	10111111110010101111010100000001	
	111000001001001001110010010011100101100001100010		
Round: 7	10111111110010101111010100000001	10011101000100010010100110110100	
	101001001101001001110010100001001100100101111000		
Round: 8	10011101000100010010100110110100	00110010010110011001110111110110	
	101001100101001101010010100000011001111001010000		
Round: 9	00110010010110011001110111110110	01001111011000001110011010011010	
	001001100101001101010011110010010001001001011000		
Round: 10	01001111011000001110011010011010	00001110011111100000010011110111	
	001011110101000101010001100100011101001000101100		
Round: 11	000011100111111100000010011110111	01010111101100111010111111010101	
	000011110100000111011001000100000001111010100100		
Round: 12	01010111101100111010111111010101	11001101110100100111101000111111	
	000111110100000110011001100110000010100010110101		
Round: 13	11001101110100100111101000111111	11101110101011101001001100001000	
	000111110000100110001001001000110110101010010001		

Round: 14 11101110101011101001001100001000
 00000000101110111110011110110110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101110111110011110110110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001111011100000000000000111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 3DB67FF8318B453E
 After Initial Permutation: 4C9FC7752A9FADA6

	Left Half	Right Half	Sub Key
Round: 1	00101010100111111010110110100110		
	00101001000110111011100111101101		
	010100000010110010101100010001000010001111000110		
Round: 2	00101001000110111011100111101101		
	11010011011001110101100110011011		
	010100001010110010100100010101001010000101000001		
Round: 3	11010011011001110101100110011011		
	01011111001011100011110100001110		
	110100001010110000100110011000101010010001001100		
Round: 4	01011111001011100011110100001110		
	11110101100001000101001110100100		
	111000001010011000100110011010001011010110001010		
Round: 5	11110101100001000101001110100100		
	01111101100110110110000010111100		
	111000001001011000100110001011000101010000101011		
Round: 6	01111101100110110110000010111100		
	10101100000011000101010101011011		
	111000001001001001110010010011100101100001100010		
Round: 7	10101100000011000101010101011011		
	0111001011110010101010110000101		
	101001001101001001110010100001001100100101111000		
Round: 8	0111001011110010101010110000101		
	01010001010100010011101001000010		
	101001100101001101010010100000011001111001010000		
Round: 9	01010001010100010011101001000010		
	10100001000111111010110111011100		
	001001100101001101010011110010010001001001011000		
Round: 10	10100001000111111010110111011100		
	00100111011110001011000111011110		
	001011110101000101010001100100011101001000101100		
Round: 11	00100111011110001011000111011110		
	11110101001111010100000000100111		
	000011110100000111011001000100000001111010100100		

Round: 12 11110101001111010100000000100111
 00100100011100011010000011110101
 000111110100000110011001100110000010100010110101
 Round: 13 00100100011100011010000011110101
 01110010010011100000110001000010
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010011100000110001000010
 00000000101100111110011101010001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101010001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011100000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		

Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		

Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101		
	00100000011010101110100010110011		
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011		
	00111000000010001001000101101110		
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110		
	00000011011010101011100110010111		
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111		
	01110010000111111000101111110110		
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110		
	00010010111100100101111100011111		
	111000001001011000100110001011000101010000101011		

Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 0A6B9492F2A14C27
 After Initial Permutation: 521CC4A23CB2439B

	Left Half	Right Half	Sub Key
Round: 1	00111100101100100100001110011011	00111001101100111011011011111001	
	010100000010110010101100010001000010001111000110		
Round: 2	00111001101100111011011011111001	10110010000011001010010000001000	
	010100001010110010100100010101001010000101000001		
Round: 3	10110010000011001010010000001000	00001010101111011101000110100110	
	110100001010110000100110011000101010010001001100		

Round: 4 00001010101111011101000110100110
 01001001000001011000110000000010
 111000001010011000100110011010001011010110001010
 Round: 5 01001001000001011000110000000010
 01000111010001111011100000001110
 111000001001011000100110001011000101010000101011
 Round: 6 01000111010001111011100000001110
 10110100001000101111001010100110
 111000001001001001110010010011100101100001100010
 Round: 7 10110100001000101111001010100110
 00100011010111001101111111001100
 101001001101001001110010100001001100100101111000
 Round: 8 00100011010111001101111111001100
 00011000110010100101111111000101
 101001100101001101010010100000011001111001010000
 Round: 9 00011000110010100101111111000101
 11100000100010010111110001000111
 001001100101001101010011110010010001001001011000
 Round: 10 11100000100010010111110001000111
 01011100000011101001101000001000
 001011110101000101010001100100011101001000101100
 Round: 11 01011100000011101001101000001000
 10100010001000100011111010101001
 000011110100000111011001000100000001111010100100
 Round: 12 10100010001000100011111010101001
 01110111110001001010010010101111
 000111110100000110011001100110000010100010110101
 Round: 13 01110111110001001010010010101111
 11100110101011011001011101101001
 000111110000100110001001001000110110101010010001
 Round: 14 11100110101011011001011101101001
 00000000101000111110011110111110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101000111110011110111110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111011110000000000000111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 4D43EE49CE3E6BB0
 After Initial Permutation: 5FA0354B94E47D76

Left Half	Right Half	Sub Key
Round: 1 10010100111001000111110101110110		
01010110110100000110100110111001		
01010000001011001010110001000100011111000110		

Round: 2 01010110110100000110100110111001
00111110100111100000111001110110
010100001010110010100100010101001010000101000001
Round: 3 00111110100111100000111001110110
1011111111111110100000111101001
110100001010110000100110011000101010010001001100
Round: 4 1011111111111110100000111101001
11111110010000011010110100100101
111000001010011000100110011010001011010110001010
Round: 5 11111110010000011010110100100101
11100011110011100101011110110010
111000001001011000100110001011000101010000101011
Round: 6 11100011110011100101011110110010
00111010101001001000010111110000
111000001001001001110010010011100101100001100010
Round: 7 00111010101001001000010111110000
00101010000000000001110111101101
101001001101001001110010100001001100100101111000
Round: 8 00101010000000000001110111101101
11101010111110111101001101110100
101001100101001101010010100000011001111001010000
Round: 9 11101010111110111101001101110100
00111110100100110111010011110110
001001100101001101010011110010010001001001011000
Round: 10 00111110100100110111010011110110
11001110010110011001110000100010
001011110101000101010001100100011101001000101100
Round: 11 11001110010110011001110000100010
10111100001001011000111010010101
000011110100000111011001000100000001111010100100
Round: 12 10111100001001011000111010010101
00110100011100011100000011001101
000111110100000110011001100110000010100010110101
Round: 13 00110100011100011100000011001101
01110000010011100000100001000010
000111110000100110001001001000110110101010010001
Round: 14 01110000010011100000100001000010
00000000101100111110011101110001
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011101110001
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000011000000
010100010010110010001100000101110000001111000010
Data Being Encrypted: E27037BDEFD49E9C
After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		
Round: 10	10101011011000111101111101101000	11110101100001011011101001001111	
	001011110101000101010001100100011101001000101100		
Round: 11	11110101100001011011101001001111	11001111010110011100111000010111	
	000011110100000111011001000100000001111010100100		
Round: 12	11001111010110011100111000010111	10011000110111001011101101001010	
	000111110100000110011001100110000010100010110101		
Round: 13	10011000110111001011101101001010	01111010110011101000111001000000	
	000111110000100110001001001000110110101010010001		
Round: 14	01111010110011101000111001000000	00000000101100111110011101001110	
	000110110010100010001101001100110010000100010011		
Round: 15	00000000101100111110011101001110	00000000111111100000000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 00000000111111110000000000000000
00000000111111110000000011111111
010100010010110010001100000101110000001111000010
Data Being Encrypted: E27037BDEFD49E9C
After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101 00100000011010101110100010110011 010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011 00111000000010001001000101101110 010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110 00000011011010101011100110010111 110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111 01110010000111111000101111110110 111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110 00010010111100100101111100011111 111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111 01000010110101100010110011101100 111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100 00101101000000001001110110001101 101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101 01110011100111000110111101101100 101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100 10101011011000111101111101101000 001001100101001101010011110010010001001001011000		
Round: 10	10101011011000111101111101101000 11110101100001011011101001001111 001011110101000101010001100100011101001000101100		
Round: 11	11110101100001011011101001001111 11001111010110011100111000010111 000011110100000111011001000100000001111010100100		
Round: 12	11001111010110011100111000010111 10011000110111001011101101001010 000111110100000110011001100110000010100010110101		
Round: 13	10011000110111001011101101001010 01111010110011101000111001000000 000111110000100110001001001000110110101010010001		

Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		
Round: 4	00000011011010101011100110010111	01110010000111111000101111110110	
	111000001010011000100110011010001011010110001010		
Round: 5	01110010000111111000101111110110	00010010111100100101111100011111	
	111000001001011000100110001011000101010000101011		
Round: 6	00010010111100100101111100011111	01000010110101100010110011101100	
	111000001001001001110010010011100101100001100010		
Round: 7	01000010110101100010110011101100	00101101000000001001110110001101	
	101001001101001001110010100001001100100101111000		
Round: 8	00101101000000001001110110001101	01110011100111000110111101101100	
	101001100101001101010010100000011001111001010000		
Round: 9	01110011100111000110111101101100	10101011011000111101111101101000	
	001001100101001101010011110010010001001001011000		
Round: 10	10101011011000111101111101101000	11110101100001011011101001001111	
	001011110101000101010001100100011101001000101100		
Round: 11	11110101100001011011101001001111	11001111010110011100010111	
	000011110100000111011001000100000001111010100100		

Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: 094A74B9C180871F
 After Initial Permutation: 168CC4D9780C8BC2

	Left Half	Right Half	Sub Key
Round: 1	01111000000011001000101111000010	01100000110101010100000101100110	
	0101000000101100101011000100010001111000110		
Round: 2	01100000110101010100000101100110	01110001100110100000000001100001	
	010100001010110010100100010101001010000101000001		
Round: 3	01110001100110100000000001100001	01001011010011011101010110010001	
	110100001010110000100110011000101010010001001100		
Round: 4	01001011010011011101010110010001	00011010011000100110001101000111	
	111000001010011000100110011010001011010110001010		
Round: 5	00011010011000100110001101000111	00111110101000010000111111100101	
	111000001001011000100110001011000101010000101011		
Round: 6	00111110101000010000111111100101	01001011100111001000010000010110	
	111000001001001001110010010011100101100001100010		
Round: 7	01001011100111001000010000010110	01100111101011001011011010011101	
	101001001101001001110010100001001100100101111000		
Round: 8	01100111101011001011011010011101	01110111011111111011100000000111	
	101001100101001101010010100000011001111001010000		
Round: 9	01110111011111111011100000000111	10110110101111110000101001111000	
	001001100101001101010011110010010001001001011000		

Round: 10 10110110101111110000101001111000
 11101101110111010011110111001101
 001011110101000101010001100100011101001000101100
 Round: 11 11101101110111010011110111001101
 11100001100010011110000001101010
 000011110100000111011001000100000001111010100100
 Round: 12 11100001100010011110000001101010
 00000100010101001110111111000000
 000111110100000110011001100110000010100010110101
 Round: 13 00000100010101001110111111000000
 01101100111111101000111101001001
 000111110000100110001001001000110110101010010001
 Round: 14 01101100111111101000111101001001
 00000000100100111110011110101110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000100100111110011110101110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 000000001101111100000000000011111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: C49E2B2510C8A822
 After Initial Permutation: 21120B0C63CC6686

	Left Half	Right Half	Sub Key
Round: 1	01100011110011000110011010000110		
	00110001000001111100011101001110		
	010100000010110010101100010001000010001111000110		
Round: 2	00110001000001111100011101001110		
	01000111011010011010000111011111		
	010100001010110010100100010101001010000101000001		
Round: 3	01000111011010011010000111011111		
	11101001111100111111010010001001		
	110100001010110000100110011000101010010001001100		
Round: 4	11101001111100111111010010001001		
	11110011111001111011011010011011		
	111000001010011000100110011010001011010110001010		
Round: 5	11110011111001111011011010011011		
	01111010010100011110011110001100		
	111000001001011000100110001011000101010000101011		
Round: 6	01111010010100011110011110001100		
	10100001001010101111110000101100		
	111000001001001001110010010011100101100001100010		
Round: 7	10100001001010101111110000101100		
	0111010010111100111111011011100		
	101001001101001001110010100001001100100101111000		

Round: 8 0111010010111100111111011011100
 01110001011110010011010011000101
 101001100101001101010010100000011001111001010000
 Round: 9 01110001011110010011010011000101
 00010100110011010001101010000000
 001001100101001101010011110010010001001001011000
 Round: 10 00010100110011010001101010000000
 00111100110111110110110010111111
 001011110101000101010001100100011101001000101100
 Round: 11 00111100110111110110110010111111
 10001001011010000111101101110001
 000011110100000111011001000100000001111010100100
 Round: 12 10001001011010000111101101110001
 00101100001100001011101111010011
 000111110100000110011001100110000010100010110101
 Round: 13 00101100001100001011101111010011
 01110010010111100000110001000011
 000111110000100110001001001000110110101010010001
 Round: 14 01110010010111100000110001000011
 00000000101100111110011100110001
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011100110001
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000010000000
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

Left Half	Right Half	Sub Key
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Round: 1 11111001000111111101100001010101
 00100000011010101110100010110011
 010100000010110010101100010001000010001111000110
 Round: 2 00100000011010101110100010110011
 00111000000010001001000101101110
 010100001010110010100100010101001010000101000001
 Round: 3 00111000000010001001000101101110
 00000011011010101011100110010111
 110100001010110000100110011000101010010001001100
 Round: 4 00000011011010101011100110010111
 01110010000111111000101111110110
 111000001010011000100110011010001011010110001010
 Round: 5 01110010000111111000101111110110
 00010010111100100101111100011111
 111000001001011000100110001011000101010000101011

Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

	Left Half	Right Half	Sub Key
Round: 1	11111001000111111101100001010101	00100000011010101110100010110011	
	010100000010110010101100010001000010001111000110		
Round: 2	00100000011010101110100010110011	00111000000010001001000101101110	
	010100001010110010100100010101001010000101000001		
Round: 3	00111000000010001001000101101110	00000011011010101011100110010111	
	110100001010110000100110011000101010010001001100		

Round: 4 00000011011010101011100110010111
 01110010000111111000101111110110
 111000001010011000100110011010001011010110001010
 Round: 5 01110010000111111000101111110110
 00010010111100100101111100011111
 111000001001011000100110001011000101010000101011
 Round: 6 00010010111100100101111100011111
 01000010110101100010110011101100
 111000001001001001110010010011100101100001100010
 Round: 7 01000010110101100010110011101100
 00101101000000001001110110001101
 101001001101001001110010100001001100100101111000
 Round: 8 00101101000000001001110110001101
 01110011100111000110111101101100
 101001100101001101010010100000011001111001010000
 Round: 9 01110011100111000110111101101100
 10101011011000111101111101101000
 001001100101001101010011110010010001001001011000
 Round: 10 10101011011000111101111101101000
 11110101100001011011101001001111
 001011110101000101010001100100011101001000101100
 Round: 11 11110101100001011011101001001111
 11001111010110011100111000010111
 000011110100000111011001000100000001111010100100
 Round: 12 11001111010110011100111000010111
 10011000110111001011101101001010
 000111110100000110011001100110000010100010110101
 Round: 13 10011000110111001011101101001010
 01111010110011101000111001000000
 000111110000100110001001001000110110101010010001
 Round: 14 01111010110011101000111001000000
 00000000101100111110011101001110
 000110110010100010001101001100110010000100010011
 Round: 15 00000000101100111110011101001110
 00000000111111110000000000000000
 000110010010110010001100101001110000000100000110
 Round: 16 00000000111111110000000000000000
 00000000111111110000000011111111
 010100010010110010001100000101110000001111000010
 Data Being Encrypted: E27037BDEFD49E9C
 After Initial Permutation: 33EEFC1CF91FD855

Left Half	Right Half	Sub Key
Round: 1 11111001000111111101100001010101		
00100000011010101110100010110011		
01010000001011001010110001000100010001111000110		

Round: 2 00100000011010101110100010110011
00111000000010001001000101101110
010100001010110010100100010101001010000101000001
Round: 3 00111000000010001001000101101110
00000011011010101011100110010111
110100001010110000100110011000101010010001001100
Round: 4 00000011011010101011100110010111
01110010000111111000101111110110
111000001010011000100110011010001011010110001010
Round: 5 01110010000111111000101111110110
00010010111100100101111100011111
111000001001011000100110001011000101010000101011
Round: 6 00010010111100100101111100011111
01000010110101100010110011101100
111000001001001001110010010011100101100001100010
Round: 7 01000010110101100010110011101100
00101101000000001001110110001101
101001001101001001110010100001001100100101111000
Round: 8 00101101000000001001110110001101
01110011100111000110111101101100
101001100101001101010010100000011001111001010000
Round: 9 01110011100111000110111101101100
10101011011000111101111101101000
001001100101001101010011110010010001001001011000
Round: 10 10101011011000111101111101101000
11110101100001011011101001001111
001011110101000101010001100100011101001000101100
Round: 11 11110101100001011011101001001111
11001111010110011100111000010111
000011110100000111011001000100000001111010100100
Round: 12 11001111010110011100111000010111
10011000110111001011101101001010
000111110100000110011001100110000010100010110101
Round: 13 10011000110111001011101101001010
01111010110011101000111001000000
000111110000100110001001001000110110101010010001
Round: 14 01111010110011101000111001000000
00000000101100111110011101001110
000110110010100010001101001100110010000100010011
Round: 15 00000000101100111110011101001110
00000000111111110000000000000000
000110010010110010001100101001110000000100000110
Round: 16 00000000111111110000000000000000
00000000111111110000000011111111
010100010010110010001100000101110000001111000010
Data Being Encrypted: 05BF84AA9C8C7144
After Initial Permutation: C052B7433E4A3A0A

	Left Half	Right Half	Sub Key
Round: 1	00111110010010100011101000001010	01011111001001010111010100100010	
	010100000010110010101100010001000010001111000110		
Round: 2	01011111001001010111010100100010	10111001101001011101101000010100	
	010100001010110010100100010101001010000101000001		
Round: 3	10111001101001011101101000010100	10101010110101100001101100101111	
	110100001010110000100110011000101010010001001100		
Round: 4	10101010110101100001101100101111	11001001001010000101011110011001	
	111000001010011000100110011010001011010110001010		
Round: 5	11001001001010000101011110011001	11011010101010100110111010000010	
	111000001001011000100110001011000101010000101011		
Round: 6	11011010101010100110111010000010	10001111001011111011001010010011	
	111000001001001001110010010011100101100001100010		
Round: 7	10001111001011111011001010010011	10111110011001010000000111010011	
	101001001101001001110010100001001100100101111000		
Round: 8	10111110011001010000000111010011	01110001001110001001101110001011	
	101001100101001101010010100000011001111001010000		
Round: 9	01110001001110001001101110001011	01011001000100001111010000100110	
	001001100101001101010011110010010001001001011000		
Round: 10	01011001000100001111010000100110	11001101010000101110111000000001	
	001011110101000101010001100100011101001000101100		
Round: 11	11001101010000101110111000000001	11011101011001101111000011101110	
	000011110100000111011001000100000001111010100100		
Round: 12	11011101011001101111000011101110	00110110111001100100011010111101	
	000111110100000110011001100110000010100010110101		
Round: 13	00110110111001100100011010111101	01101011000100100001001110100101	
	000111110000100110001001001000110110101010010001		
Round: 14	01101011000100100001001110100101	10100000011101110011011111001110	
	000110110010100010001101001100110010000100010011		
Round: 15	10100000011101110011011111001110	00000000111111111100000000000000	
	000110010010110010001100101001110000000100000110		

Round: 16 000000001111111110000000000000
 0000000001111111100000011111111
 010100010010110010001100000101110000001111000010
 Plain Text = 00000000000000001111110000000000000000
 0000000000000001110011110000000000000000
 0000000000000001000001110000000000000000
 0000000000000001000000111000000000000000
 0000000000000000111100110000000000000000
 0000000000000000111110011000000000000000
 0000000000000000111110011000000000000000
 0000000000000000111100100000000000000000
 0000000000000000111000100000000000000000
 0000000000000001111111110000000000000000
 0000000000000001111111110000000000000000
 0000000000000001111111110000000000000000
 000000000000000111110000000000000000000
 0000000000000001001111110000000000000000
 000000000000000011101100111000000000000
 0000000000011100000110011111110000000000
 000000000001111000110111111111000000000
 00000000011111111101111111111100000000
 000000000111111111110111111111111111
 0000000001111111111111011111111111111
 0000000001111111111111111111111111111
 0000000001111111111111111111111111111
 0000000001111111111111111111111111111

4. Bagaimana hasil image, setelah ciphertext dikembalikan menjadi plaintext?

