ASSIGNMENT-13

1. Write a C Program to calculate odd and even parity for a character

```c
#include <stdio.h>

int calculateOddParity (unsigned char data){
    int parity = 0;
    for (int i = 0; i < 8; i++)
        parity ^= (data & (1<<i)) >> i;

    return parity;
}

int calculateEvenParity (unsigned char data){
    int parity = 1;
    for (int i=0; i < 8; i++){
        parity ^= (data & (1 <<i)) >> i;
    return parity;
}

int main (){
    unsigned char inputData;
    printf ("Enter a character: ");
    scanf ("%c", &inputData);
    printf ("Binary representation: ");
    for (int i = 7; i >= 0; i--)
        printf ("%d", (inputData >>i)&1);
    int oddParity = calculateOddParity (inputData);
    printf ("\n Odd Parity Bit: %d \n", oddParity);
    int evenParity = calculateEvenParity (inputData);
    printf (" Even Parity Bit: %d \n", evenParity);
    return 0;
```

Output:

Enter a character : A
Binary representation : 01000001
Odd Parity Bit : 0
Even Parity Bit : 1