Lab 2:

HDLC

San Francisco State University

ENGR 476-01 Computer Communication Networks
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About the Lab:

The HDLC is a lab where we were tasked to print out the content that was inputted between two flags of '01111110'. To do this, I started by registering single inputs made by the user and making a loop to check if what was inputted match the flag of '01111110'. Once that was working, I then went and made the program printout "The flag has been detected:" to tell the user that the flag was found twice. After the flag was detected twice it continue save the last found flag as one and the next flag will be equal to 2. The next part I worked on was to print out the content that was typed in between the flag.

Code:

```c
#include <stdio.h>
#include <stdlib.h>
#include <conio.h>
#include <string.h>

int main()
{
    char input[1024];         // the length of input that can be entered is 1024
    char saved_input[1024]; // new array to save input between flags
    int flag = 0;
    int count = 0; // to keep track of the the number of character entered
    int i = 0;
    int j = 0;

    printf("Please type characters or type E to exit the program: ");

    // The program loops to find the sequence '01111110' and if the sequence is
    // entered twice then it prints out the flag is dectected and anything
    // between the two sequence. The loop does not stop until user types E to
exit the program
    while (1)
    {
        input[i] = getch();
        printf("%c", input[i]);

        if (input[i] == '0')
        {
            input[i] = getch();

            if (input[i] == '1')
            {
                printf("%c", input[i]);
```

```c
                input[i] = getch();

                if (input[i] == '1')
                {
                    printf("%c", input[i]);
                    input[i] = getch();

                    if (input[i] == '1')
                    {
                        printf("%c", input[i]);
                        input[i] = getch();

                        if (input[i] == '1')
                        {
                            printf("%c", input[i]);
                            input[i] = getch();

                            if (input[i] == '1')
                            {
                                printf("%c", input[i]);
                                input[i] = getch();

                                if (input[i] == '1')
                                {
                                    printf("%c", input[i]);
                                    input[i] = getch();

                                    if (input[i] == '0')
                                    {
                                        printf("%c", input[i]);
                                        flag++; // increase everytime '01111110'
is entered twice

                                        if (flag == 2) //
                                        {
                                            saved_input[j] = '\0';
                                            printf("\nThe end flag has been
detected: ");

                                            printf("%s\n", saved_input + 1);
                                            printf("Continue typing or Press E to
exit\n");

                                            // reset everything so new inputs can
be saved

                                            flag = 1;
```

```c
                                                count = 0;
                                                j = 0;
                                                i = 0;

                                            }
                                            count = 0; // resets to zero when the
flag is detected
                                        }
                                    }
                                }
                            }
                        }
                    }
                }
            }

        if (input[i] == 'E') // exits the program
        {
            printf(" Exiting the program\n");
            exit(0);
        }

        if (flag == 1) // saves the input after the first flag is detected
        {
            saved_input[j] = input[i];
            j++;
        }

        count = 0; // reset count
        i++;
    }

    return 0;
}
```

Output:

```
PS C:\Users\chris\OneDrive\Desktop\C_C++\Assignment_2> cd "c:\Users\chris\OneDrive
\Desktop\C_C++\Assignment_2\" ; if ($?) { gcc Assignment2.c -o Assignment2 } ; if
($?) { .\Assignment2 }
Please type characters or type E to exit the program: sgdfhdh01111110fgdfgdfg01111
110
The end flag has been detected: fgdfgdfg
Continue typing or Press E to exit
hgkjdfhg01111110
The end flag has been detected: hgkjdfhg
Continue typing or Press E to exit
skfksfjsnv,vn,zkxkfjjxvnnvdzkkdjkskznnvjzkzsvnnz,vn01111110
The end flag has been detected: skfksfjsnv,vn,zkxkfjjxvnnvdzkkdjkskznnvjzkzsvnnz,v
n
Continue typing or Press E to exit
dnsjzs,bfzsjf, c,mnf,,ieg,dznfs,zfnndg001111110
The end flag has been detected: dnsjzs,bfzsjf, c,mnf,,ieg,dznfs,zfnndg0
Continue typing or Press E to exit
nadn,ndn,snnfvnvndsnf0929283011101101jakjd001011001111110
The end flag has been detected: nadn,ndn,snnfvnvndsnf092928301101kjakjd081010
Continue typing or Press E to exit
E Exiting the program
PS C:\Users\chris\OneDrive\Desktop\C_C++\Assignment_2>
```