Tasks:

```c
int count_edge(int *check ,int size)
{
    int num = -1;
    int count =0;
    int i=0;
    while(i<size)
    {
        if(num == 1 && *(check+i) == 0 )
        {
            count++;
        }
        num = check[i];
        i++;
    }
    return count;
}

void main(){
    char input;
    int check[12] = {0,0,1,1,0,1,1,0,1,1,0,1};
    int count =count_edge(check , 12 );
    printf("The number of falling edge : %d",count);
```

```
S C:\Users\hassa\OneDrive\□□□ □□□□□□> gcc .\main.c
S C:\Users\hassa\OneDrive\□□□ □□□□□□> .\a.exe
he number of falling edge : 3
S C:\Users\hassa\OneDrive\□□□ □□□□□□>
```

Task 2: Header.h

```c
#include <stdio.h>
#include <stdlib.h>
#include <stdint.h>
#include <string.h>
#define SIZE 4

typedef struct students{
    char name[20];
    float grade;
    int id;
}S_op;

S_op *get_data ();

float *avg_highest_lowest(S_op * arr,int num);
```

App.c

```c
#include "header.h"

S_op *get_data (){
    static S_op arr[SIZE];
    int i ;
    for(i=0 ; i <SIZE ; i++){
        printf("\n==== Student %d ====\n",i+1);
        printf("Enter your name : ");
        scanf("%s",(arr+i)->name);
        printf("Enter your grade : ");
        scanf("%f",&(arr+i)->grade);
        printf("Enter your id : ");
        scanf("%d",&(arr+i)->id);
    }
    return arr;
}

float *avg_highest_lowest(S_op * arr,int num){
    int i,high=arr->grade,low=arr->grade;
    float sum=0;
    static float arr_2[3];
    for(i=0 ; i <SIZE ;i++){
        //get avrage grade
        sum += (arr+i)->grade;
        //get lowest grade
        if((arr+i)->grade < low ){
            low =(arr+i)->grade ;
        }
        //get highest grade
        if((arr+i)->grade > high ){
            high =(arr+i)->grade ;
        }
    }
    arr_2[0] = sum/num;
    arr_2[1] = high;
    arr_2[2] = low;
    return arr_2;
}
```

Main.c

header.h | APP.c | main.c | fifo.c | main.c | task_4.c | main.c

```c
#include "header.h"

void main(){
    S_op *arr;
    arr = get_data();
    float *array;
    array = avg_highest_lowest(arr,SIZE);
    printf("\n\nAvg grade is : %.2f\n",array[0]);
    printf("highest grade is : %.2f\n",array[1]);
    printf("lowest grade is : %.2f\n",array[2]);
}
```

```
PS C:\Users\hassa\OneDrive\□□□□ □□□□□□□\New folder (3)> gcc .\main.c .\APP.c
PS C:\Users\hassa\OneDrive\□□□□ □□□□□□□\New folder (3)> .\a.exe

==== Student 1 ====
Enter your name : Hassan
Enter your grade : 28
Enter your id : 1

==== Student 2 ====
Enter your name : Mai
Enter your grade : 26
Enter your id :
2

==== Student 3 ====
Enter your name : Osama
Enter your grade : 29
Enter your id : 3

==== Student 4 ====
Enter your name : Naser
Enter your grade : 20
Enter your id : 4


Avg grade is : 25.75
highest grade is : 29.00
lowest grade is : 20.00
PS C:\Users\hassa\OneDrive\□□□□ □□□□□□□\New folder (3)>
```