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1. In the first question i take the name from the users then i cut the name using the lengths and spaces. After that i changed the surname from the last to the top and brought the name to desired order.

```
#include <stdio.h>
#include <string.h>

int main(void)
{
    int x=0;

    while(x<10){
        int i,j=0,length,m,count=0;
        char first[40],last[40],mid[40]=""; //we define 3 type of
name

        printf("Enter name:");
        gets(first); //take name

        length = strlen(first); //take length first
        i = length-1;

        while(first[i]!=' '){ //when we see a first gap, we get
the first word
            i--;
            count++;
        }

        m = length-count; //we subtract the length of the first
word from the total length

        while(first[m]!='\0'){ //get second word
            last[j] = first[m];
            j++;
            m++;
            count++;
        }

        m = length-count; //subtract length of first and second
word from total length

        while(first[m]!='\0'){ //get third word if there exist
            last[j]=first[m];
            j++;
            m++;
        }

        for(i=0;i<count;i++){ //reverse process
            first(strlen(first)-1) = '\0';
        }
    }
}
```

```

        strcat(mid,last);
        printf("New version of
name: %s\n",strcat(mid,first)); //print new reversed version of
name

        x++;
    }

    return(0);
}

```

2.I get the name from the user like first one. I cut the names same as first one. Then i try to delete middle one but i think program not doing well.

```

#include <stdio.h>
#include <string.h>

int main(void)
{
    int x;

    for(x=0;x<10;x++){
        int i=0,j=1,k,l1=0,l2=0,count=0,blank=0,m,n;
        char name[40];
        printf("Enter your name:");
        gets(name); //get the name

        for(n=0;name[n];n++){ //when we see a first gap, we get
the first word
            if(name[n]==' ')
                blank++;
        }

        if(blank==1){
            printf("%s\n",name); //print a first name
        }
        else{
            int len = strlen(name); //get length

            while(name[i]!=' '){ //l1==first name
                l1++;
                i++;
            }

            while(name[len-j]!=' '){ //l2== second name
                l2++;
                j++;
            }

            for(k=0;k<len;k++){
                if(name[k]==' ' && name[k+l2+1]!='\0'){
                    name[k+2]='.';
                }
            }

            int lenmid = len-l2-l1-blank; //lenmid is the middle name

```

```

        int w = len-12;

        for(k=11;k<lenmid+1;k++){
            name[k+3]=name[w];
            w++;
        }

        printf("%s\n",name);
    }
}
}
return(0);
}

```

3.I get the sentence from the user and find length of the sentence then i get the word to be deleted. I find the word to be deleted in the given sentence and then i delete that word. After that i print new sentence.

```

#include <stdio.h>
#include <string.h>

int main(void){
    int len1,len2;//length of sentence and word
    char sentence[100];
    char word[20],*find;

    printf("Enter a sentence:");//get sentence from user
    gets(sentence);
    len1 = strlen(sentence);

    printf("Enter the word you want to delete:");//and get word
for delete
    gets(word);
    len2 = strlen(word);

    find = strstr(sentence,word);//find a word from sentence

    while(find!=NULL){//delete process is here
        if(*(find+len2)==' ')
            strcpy(find,find+len2+1);
        else
            strcpy(find,find+len2);
        find = strstr(sentence,word);
    }

    printf("The sentence is %s",sentence);//print new sentence

    return(0);
}

```

4.I write 3 function for start with 'ST' end with 'ST' and count a total 'ST' in the sentence.This functions get string and size from main. In main i get the sentence from user and get size with strlen.After that call all 3 functions in main and get the desired.

```
#include <stdio.h>
#include <string.h>
#define BLANK ' '

int startST(char string[],int size){//take words starting with
'ST'
    int count=0,i;

    if(string[0]=='s' || string[0]=='S')//s and S first
        if(string[1]=='t' || string[1]=='T')//t and T second
            count++;

    for(i=0;i<size;i++){
        if(string[i]==BLANK)//we jump to the word after i's the
blank
            if(string[i+1]=='s' || string[i+1]=='S')
                if(string[i+2]=='t' || string[i+2]=='T')
                    count++;
    }

    return(count);
}

int numST(char string[],int size){//take total 'ST' from sentence
and the doing same things
    int i,count=0;

    for(i=0;i<size;i++){
        if(string[i]=='s' || string[i]=='S')
            if(string[i+1]=='t' || string[i+1]=='T')
                count++;
    }

    return(count);
}

int lastST(char string[],int size){//take words ending with 'ST'
and doing same things
    int i,count=0;

    if(string[size-1]=='t' || string[size-1]=='T')
        if(string[size-2]=='s' || string[size-2]=='S')
            count++;

    for(i=0;i<size;i++){
        if(string[i]==BLANK)
            if(string[i-1]=='t' || string[i-1]=='T')
                if(string[i-2]=='s' || string[i-2]=='S')
```

```

        count++;

    }

    return(count);
}

int main(void)
{
    int size;
    char sentence[100];

    printf("Enter sentence:\n");
    gets(sentence); //take the sentence

    size = strlen(sentence); //take the size of the words read

    printf("There are %d 'ST's in
sentence .", numST(sentence, size)); //print all numST, startST and
lastST
    printf("There are %d words starting with
'ST'", startST(sentence, size));
    printf("There are %d words ending with
'ST'", lastST(sentence, size));

    return(0);
}

```

5. I cannot do this question I try to but I don't get it at all. When I did one of the desired, all my code was going to be trash for the others and I stuck.

6. I get branches and accounts from the text files and then get how much money has accounts. I do 4 if, else if structure and print account number and total money for each branch.

```

#include <stdio.h>
#include <math.h>
int main(void)
{
    FILE *br=fopen("branches.txt", "r");
    FILE *ac=fopen("accounts.txt", "r");

    double bran[4]; // branches.txt has 4 branches
    double acc[100][2];
    int total_1234=0, total_2345=0, total_3456=0, total_4567=0;
    int counter=0;

    for(int i=0; i<4; i++){ //taking branches
        fscanf(br, "%lf", &bran[i]);
    }

    for(int j=0; j<1000; j++){ //taking account datas and how much
money has account

```

```

        for(int k=0;k<2;k++){
            fscanf(ac,"%lf",&acc[j][k]);
        }
    }

    int op;// menu options

    printf("please choose
    branc\n1)=1234\n2)=2345\n3)=3456\n4)=4567\n"); // menu
    scanf("%d",&op);

    if(op==1){

        for(int a=0;a<100;a++){
            int control=acc[a][0]/100000000;

            if(control==bran[0]){
                total_1234=total_1234+acc[a][1]; //total money
of accounts
                counter++; //counts how many accounts open
            }
        }

        printf("branch %d has %d accounts and total money
is %d",op,counter,total_1234); //display
    }

    else if(op==2){
        for(int a=0;a<100;a++){
            int control=acc[a][0]/100000000;
            if(control==bran[1]){
                total_2345+=acc[a][1];
                counter++;
            }
        }

        printf("branch %d has %d accounts and total money
is %d",op,counter,total_2345);
    }

    else if(op==3){
        for(int a=0;a<100;a++){
            int control=acc[a][0]/100000000;
            if(control==bran[2]){
                total_3456+=acc[a][1];
                counter++;
            }
        }

        printf("branch %d has %d accounts and total money
is %d",op,counter,total_3456);
    }

    else if(op==4){
        for(int a=0;a<100;a++){
            int control=acc[a][0]/100000000;

```

```

        if(control==bran[3]){
            total_4567+=acc[a][1];
            counter++;
        }
    }
    printf("branch %d has %d accounts and total money
is %d",op,counter,total_4567);

}

return(0);
}

```

7.I dont get it and i cannot doing anything for this question. Hard one...

8.I define 50\*5 matrix first then i get 5 grades of 50 students from grades.txt file.After that as requested in the question i find and display the fourt quiz grade of the student who got 25 from the third quiz. If there is no wanted one print "No student who got 25 points from the 3rd quiz".

```

#include <stdio.h>

int main(void)
{
    int grades[50][5]; //define 50*5 matrix

    FILE *inp;
    inp = fopen("grades.txt", "r"); //open grades.txt

    if(inp==NULL)
        printf("File cannot be open");

    else{
        int i;

        for(i=0; i<50; i++){ //We take the grades of 50 students
            int st;
            st = fscanf(inp, "%d", &grades[i][2]);

            if(st==25){ //we look at whether these 50 students got 25
points
                int f=fscanf(inp, "%d", grades[i][3]);
                printf("Fourth quiz:%d\n", f);
            }
            else
                printf("No student who got 25 points from the 3rd
quiz ");
        }

        return(0);
    }
}

```

9.I write bubblesort and findLocation functions first. Bubblesort function take size and content then sort it. FindLocation function is take size and content too and locate them. In main i get size from user and i placed it in the array then i call the functions.

```
#include <stdio.h>

void bubblesort(int arr[],int size){//take the size and content
and sort it by bubblesort
    int x,temp;

    if(size==1){
        return;
    }

    for(x=0;x<size-1;x++){//take the content individually
        if(arr[x]>arr[x+1]){//and sort it here
            temp = arr[x];
            arr[x] = arr[x+1];
            arr[x+1] = temp;
        }
    }

    bubblesort(arr,size-1);
}

int findLocation(int arr[],int size){//take the size and content
again and locate them
    int i,y=0,index;

    if(size==0){
        return(-1);
    }
    if(arr[size]==arr[size-1]){
        return size;
    }
    else{
        findLocation(arr,size-1);
    }
}

int main(void)
{
    int size,i,pos,x;

    printf("Enter size:");//take size from user
    scanf("%d",&size);
    int arr[size];

    for(i=0;i<size;i++){
        scanf("%d\n",&arr[i]);
    }
}
```



```

        bubblesort(arr,size);//call the bubblesort and findLocation
functions
        pos = findLocation(arr,size);

        printf("The position of last occurrence is:%d",pos);

        for(x=0;x<size;x++){
            printf("%d\n",arr[x]);
        }

        return(0);
}

```

10.I write function for GCD because to be modular. I get 2 integers from the users and call the function in the main.

```

#include <stdio.h>

int gcd(int m,int n){

    if(n==m)
        return(m);//if there is a equality we get that
    else
        return(gcd(n,m%n));
}

int main(void)
{
    int n1,n2;

    printf("Enter first number:");//we get 2 integers from users
    scanf(" %d", &n1);
    printf("Enter second number:");
    scanf(" %d", &n2);

    printf("GCD of %d and %d is:%d",n1,n2,gcd(n1,n2));

    return(0);
}

```

11.I write 2 recursive function for the two sentences. This functions get sentences and positions from the main. In main function i placed sentences in the arrays and get sizes of sentences by strlen then i call the functions.

```

#include <stdio.h>
#include <string.h>

void ra(char arr[],int pos,int size){//take sentence size and pos
from main
    int i;

```

```

        if(pos==size){
            return;
        }

        for(i=pos;i<size;i++){//Editing individual pos until you sync
size
            printf("%c",arr[i]);
        }

        printf("\n");//jump line

        ra(arr,pos+1,size);
    }

void rb(char arr[],int pos,int size){//take sentence size and pos
from main
    int j;

    if(pos>=size)
        return;

    for(j=pos;j<size;j++){//Editing individual pos until you sync
        printf("%c",arr[j]);
    }

    printf("\n");//jump line

    rb(arr,pos+1,size-1);
}

int main(void){
    int size,size2;
    char arr[] = "THE EXAM";//take the sentences
    char arr2[] = "THE EXAM IS VERY EASY";

    size = strlen(arr);//take the sentence's sizes
    size2 = strlen(arr2);

    ra(arr,0,size);//call ra and rb fuctions
    rb(arr2,0,size2);

    return(0);
}

```

12.I built 2 different structures for birthdate and friends. Birthdate struct have day, mounth and year. Friends struct have name, surname and birthdate. Find fuction take all structure staff and if input greater than other return 0. In main open and read all staff from the info.txt and get the others from input then throws what is read from the .txt into the array.After that call find fuction and comparison all staffs. 3 different options in If, else if structure for older, younger and same birthday and write to .bin folders.

```

#include <stdio.h>
#include <string.h>

```

```

struct date{
    int day;
    int mounth;
    int year;
}birhthdate;//structure of date

```

```

struct friends{
    char name[20];
    char surname[20];
    date birhthdate;
}fre[5];//there are 4 people in the article, we will take the last
one as input if we want

```

```

int find(int text_day,int text_mounth,int text_year,int
input_day,int input_mounth,int input_year){// return 0 keeps
younger

```

```

    if(input_year>text_year){
        return 0;
    }
    else if(input_year<text_year){
        return 1;
    }
    else{
        if(input_mounth>text_mounth){
            return 0;
        }
        else if(input_mounth<text_mounth){
            return 1;
        }
        else{
            if(input_day>text_day){
                return 0;
            }
            else if(input_day<text_day){
                return 1;
            }
            else{
                return 2;
            }
        }
    }
}

```

```

}

```

```

int main(void){
    int i;
    FILE *ptr=fopen("info.txt","r");//friends.txt
    FILE *b1ptr=fopen("younger.bin","w+b");
    FILE *b2ptr=fopen("older.bin","w+b");

```

```

    printf("please enter your name , surname & birthday\n");
    scanf("%s %s",fre[0].name,fre[0].surname);//comparing day
goes to array index 0
    scanf("%d %d %d",&fre[0].birhthdate.day,&fre[0].birhthdate.mo
unth,&fre[0].birhthdate.year);
    printf("End\n");

    for( i=1;i<5;i++){
        fscanf(ptr,"%s %s ",fre[i].name,fre[i].surname);

        fscanf(ptr,"%d %d %d",&fre[i].birhthdate.day,&fre[i].birhthda
te.mounth,&fre[i].birhthdate.year );

        int status =
find(fre[i].birhthdate.day,fre[i].birhthdate.mounth,fre[i].birhthd
ate.year,fre[0].birhthdate.day,fre[0].birhthdate.mounth,fre[0].bir
hthdate.year);

        printf("status: %d",status);

        if(status){//add older
            int t1;

            t1=fre[i].birhthdate.day;
            fwrite(&t1,sizeof(int),1,b2ptr);
            t1=fre[i].birhthdate.mounth;
            fwrite(&t1,sizeof(int),1,b2ptr);
            t1=fre[i].birhthdate.year;
            fwrite(&t1,sizeof(int),1,b2ptr);

        }

        else if(status==2){//printing whose birthday same
            printf("%s %s",fre[i].name,fre[i].surname);

            int t1;//when sending array value from fwrite
probably writes address of array because of i use another integer

            t1=fre[i].birhthdate.day;
            fwrite(&t1,sizeof(int),1,b1ptr);
            t1=fre[i].birhthdate.mounth;
            fwrite(&t1,sizeof(int),1,b1ptr);
            t1=fre[i].birhthdate.year;
            fwrite(&t1,sizeof(int),1,b1ptr);

        }

        else{//add younger
            fwrite(&fre[i].name, sizeof(char),
strlen(fre[i].name), b1ptr);
        }
    }

    return(0);
}

```

13.isPrime function check a number that is divisible only by itself and 1. disp\_bin fuction display the content of primes.bin. In main read the others.bin and put integers array then call isPrime function with that array and if the integers prime write to the primes.bin. After that call disp\_bin function and display prime numbers.

```
#include<stdio.h>
```

```
int isPrime(int num,int i){ //check a number that is divisible  
only by itself and 1
```

```
    if(num<2)  
        return 0;  
    if(i==1){  
        return 1;  
    }else{  
        if(num%i==0)  
            return 0;  
        else  
            isPrime(num,i-1);  
    }  
}
```

```
void disp_bin(FILE* out){//display the content of primes.bin  
    int arr[500];  
    int size = fread(arr,sizeof(int),500,out);  
  
    for(int i=0;i<size;i++)  
        printf("%d ",arr[i]);  
  
}
```

```
int main(){  
    FILE *input;  
    input = fopen("others.bin", "wb");  
  
    for (int i = 0; i < 100; i++)  
        fwrite(&i, sizeof(int), 1, input);  
    fclose(input);  
  
    input = fopen("others.bin", "rb");//read nums from other.bin  
    if(input==NULL)  
        printf("It failed to open the file.");  
  
    else{  
  
        int nums[500];  
        int size = fread(nums, sizeof(int), 500,  
input);//received numbers are sent to the array  
        FILE *output = fopen("primes.bin","wb");  
  
        for(int i=0;i<size;i++){//checks if numbers are prime  
individually
```

```

        if (isPrime(nums[i], (int)nums[i]/2) == 1) {
            fwrite(&nums[i], sizeof(int), 1, output);
        }
    }

    fclose(output);
    output = fopen("primes.bin", "rb");
    disp_bin(output); // print primes.bin
}

return 0;
}

```

14. I build a structure with name, age and gpa. Menu function have 4 options and return the choice. In main read from the info.txt and copies them to binary.bin. After that in the switch case structure intended operation works.

```

#include <stdio.h>

typedef struct // build our structure with name age and gpa
{
    char name[20];
    int age;
    double gpa;
} stu_t;

int menu() // four options in menu
{
    int choice;

    printf("\n1) Go to record X from top");
    printf("\n2) Move X records ahead");
    printf("\n3) Go X records back from bottom");
    printf("\n4) Exit");

    printf("\n\nEnter your choice: ");
    scanf("%d", &choice);

    return (choice);
}

int main(void)
{
    stu_t list[10]; // we define a system for 10 people
    stu_t record;
    int i = 0, choice, exit = false, X;

    FILE *inp = fopen("info.txt", "r"); // read informations from
    info.txt
    if (inp == NULL)
        printf("Error : info.txt not found!\n");
    else
    {

```

```

        FILE *b_outp = fopen("binary", "wb");
        while (fscanf(inp, "%s %d %lf", list[i].name,
&list[i].age, &list[i].gpa) != EOF)//scan name age and gpa
            i++;

        fwrite(list, sizeof(stu_t), i, b_outp);//copies to binary
file
        fclose(b_outp);

        b_outp = fopen("binary", "rb");
        do {
            choice = menu();
            switch (choice)
            {
                case 1:
                    printf("\nEnter X: ");
                    scanf("%d", &X);
                    fseek(b_outp, sizeof(stu_t)*(X - 1),
SEEK_SET);//find from .txt
                    fread(&record, sizeof(stu_t), 1, b_outp);//gets
from .txt
                    printf("\n%-6s %d %5.2f\n", record.name,
record.age, record.gpa);
                    break;
                case 2:
                    printf("\nEnter X: ");
                    scanf("%d", &X);
                    fseek(b_outp, sizeof(stu_t)*(X - 1), SEEK_CUR);
                    fread(&record, sizeof(stu_t), 1, b_outp);
                    printf("\n%-6s %d %5.2f\n", record.name,
record.age, record.gpa);
                    break;
                case 3:
                    printf("\nEnter X: ");
                    scanf("%d", &X);
                    fseek(b_outp, sizeof(stu_t)*-X, SEEK_END);
                    fread(&record, sizeof(stu_t), 1, b_outp);
                    printf("\n%-6s %d %5.2f\n", record.name,
record.age, record.gpa);
                    break;
                case 4:
                    exit = true;
                    break;
                default://warning will be given if user enters a
different entry than the options
                    printf("\nInvalid choice!");
            }
        } while (!exit);
    }
    return (0);
}

```