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Practical 0

OOP Lab

Practical 0 A

Write a program in C to check whether two given strings are an anagram.

CODE

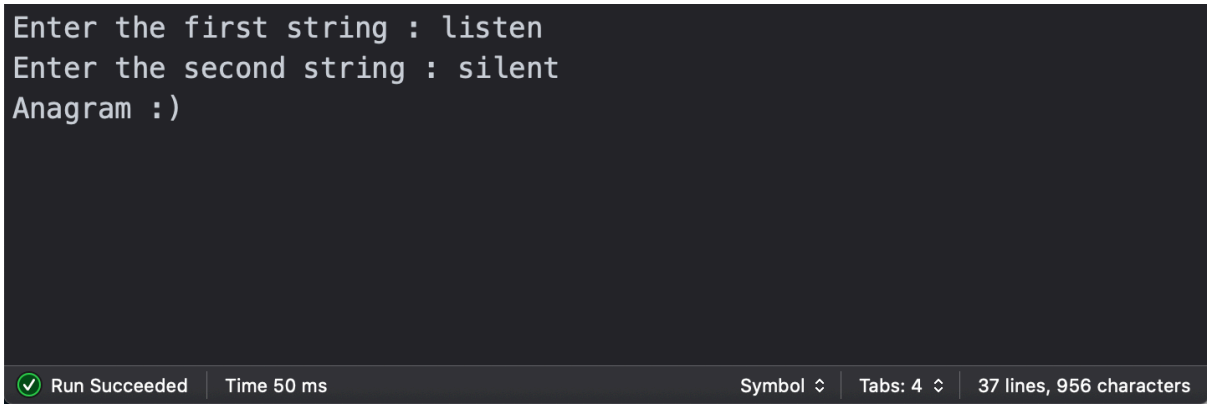
```
#include<stdio.h>
#include<string.h>
int main(){
	char first[20],second[20];
	printf("Enter the first string : ");
	scanf(" %[^\n]",first);		//taking first string
	printf("Enter the second string : ");
	scanf(" %[^\n]",second);	//taking second string
	int flag=0;
	if(strlen(first)!=strlen(second)){
		printf("Not Anagram :(\n");		//As length is different
	}
	else{
		for(int pick=0;pick<strlen(first);pick++){
			for(int comp=0;comp<strlen(second);comp++){
				if(first[pick]==second[comp]){
					second[comp]='0';		//matched character with first string is converted in zero
					break;
				}
			}
		}
		flag=0;
		for(int i=0;i<strlen(second);i++){
			if(second[i]=='0')
			continue;
			else {
				printf("Not Anagram :(\n");		//if any char in second string is not zero than returning that its not anagram. as all char are not covered
```

```
                    flag=1;
                    break;
                }
            }
            if(flag==0)
            printf("Anagram :)");  //if all characters matched.
        }

        return 0;
}
```

INPUT :

listen
silent

OUTPUT :



CONCLUSION :

From the practical 0 A, we revised the concept of for loop along with predefined functions related to string [string.h header file].

Practical 0 B

Add two distances (feet (integer) – inch (float) system) and display the result without the return statement.

CODE

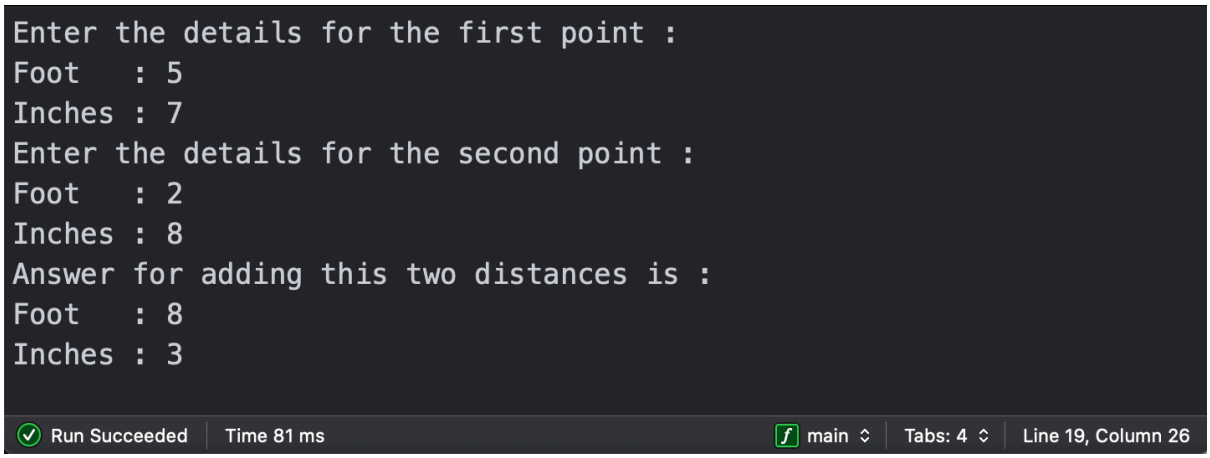
```
#include<stdio.h>
struct distance{
	int foot;
	int inches;
};
void add(struct distance *D1,struct distance *D2);
int main(){
	struct distance d1,d2;
	printf("Enter the details for the first point : \n");
	printf("Foot   : ");
	scanf("%d",&d1.foot);
	printf("Inches : ");
	scanf("%d",&d1.inches);
	printf("Enter the details for the second point : \n");
	printf("Foot   : ");
	scanf("%d",&d2.foot);
	printf("Inches : ");
	scanf("%d",&d2.inches);
	add(&d1,&d2);
	printf("Answer for adding this two distances is : \n");
	printf("Foot   : %d\nInches : %d",d1.foot,d1.inches);
	return 0;
}
void add(struct distance *D1,struct distance *D2){
	if((D1->inches + D2->inches)<12){    //if addition of inches is less then zero then no need to convert inches into feet.
		D1->inches+=D2->inches;
		D1->foot+=D2->foot;
	}
	else{        ////if addition of inches is greated then zero then we have to convert inches into feet and have to display remaining inches.

		D1->foot+=D2->foot;
		D1->foot+=((D1->inches + D2->inches)/12);
		D1->inches=((D1->inches + D2->inches)%12);
	}
```

```
}
```

INPUT :

```
5
7
2
8
```

OUTPUT :



CONCLUSION :

From the practical 0 B, we revised the basic concept of structure along with function with structure and pointer.

Practical 0 C

Calculate time difference between two time periods using structure and pointer.

CODE :

```
#include<stdio.h>
#include<string.h>
struct time24hour{              //declaring structure for 24 hour format
        int hour;
        int minute;
        float second;
};
struct time12hour{              //declaring strucutre for 12 hour format
        int hour;
        int minute;
        float second;
        char amORpm[3];
};
int main(){
        struct time12hour t1,t2,*t1ptr,*t2ptr;
        struct time24hour T1,T2,*T1ptr,*T2ptr;
        t1ptr=&t1;
        t2ptr=&t2;
        T1ptr=&T1;
        T2ptr=&T2;

        int choice;         //for giving user to choice between 12 hour format and 24 hour
format.
        printf("Select the format : \n[1.] 12 hour format  (press 1)\n[2.] 24 hour format
(press 2)\n");
        scanf("%d",&choice);
        if(choice==1){              //if user selected 12 hour format
                printf("Enter the details for starting time : \n");
                printf("Hour : ");
                scanf("%d",&t1.hour);
                printf("Minute : ");
                scanf("%d",&t1.minute);
                printf("Second : ");
                scanf("%f",&t1.second);
                printf("'am' or 'pm' : ");
                scanf(" %s",t1.amORpm);
                printf("Enter the details for ending time : \n");
```

```
            printf("Hour : ");
            scanf("%d",&t2.hour);
            printf("Minute : ");
            scanf("%d",&t2.minute);
            printf("Second : ");
            scanf("%f",&t2.second);
            printf("'am' or 'pm' : ");
            scanf(" %s",t2.amORpm);
            if(strcmp(t1ptr->amORpm, t2ptr->amORpm)==0){      //is two time period
are in same range that is 'am' or 'pm'
                  if(t1ptr->second>t2ptr->second){
                        t2ptr->minute--;
                        t2ptr->second=60+t2ptr->second-t1ptr->second;
                  }
                  else{
                        t2ptr->second=t2ptr->second-t1ptr->second;
                  }
                  if(t1ptr->minute>t2ptr->minute){
                        t2ptr->hour--;
                        t2ptr->minute=60+t2ptr->minute-t1ptr->minute;
                  }
                  else{
                        t2ptr->minute=t2ptr->minute-t1ptr->minute;
                  }
                  t2ptr->hour=t2ptr->hour-t1ptr->hour;
            }
            else{        //if two time period in in different range i.e. one is in 'am' and
other one is in 'pm'
                  t2ptr->hour+=12;
                  if(t1ptr->second>t2ptr->second){
                        t2ptr->minute--;
                        t2ptr->second=60+t2ptr->second-t1ptr->second;
                  }
                  else{
                        t2ptr->second=t2ptr->second-t1ptr->second;
                  }
                  if(t1ptr->minute>t2ptr->minute){
                        t2ptr->hour--;
                        t2ptr->minute=60+t2ptr->minute-t1ptr->minute;
                  }
                  else{
                        t2ptr->minute=t2ptr->minute-t1ptr->minute;
                  }
                  t2ptr->hour=t2ptr->hour-t1ptr->hour;
            }
            printf("Difference between these two time periods is : \nHours :
%d\nMinutes : %d\nSeconds : %f\n",t2.hour,t2.minute,t2.second);
      }
      else if(choice==2){           //if user selected 24 hour format
```

```
            printf("Enter the details for starting time : \n");
            printf("Hour : ");
            scanf("%d",&T1.hour);
            printf("Minute : ");
            scanf("%d",&T1.minute);
            printf("Second : ");
            scanf("%f",&T1.second);
            printf("Enter the details for ending time : \n");
            printf("Hour : ");
            scanf("%d",&T2.hour);
            printf("Minute : ");
            scanf("%d",&T2.minute);
            printf("Second : ");
            scanf("%f",&T2.second);
            if(T1ptr->second>T2ptr->second){            //if seconds of first time period
are greater than second time period [substraction along with conversion]
                  T2ptr->minute--;
                  T2ptr->second=60+T2ptr->second-T1ptr->second;
            }
            else{       //if seconds of first time period are less than second time period
[simply substraction]
                  T2ptr->second=T2ptr->second-T1ptr->second;
            }
            if(T1ptr->minute>T2ptr->minute){
                  T2ptr->hour--;
                  T2ptr->minute=60+T2ptr->minute-T1ptr->minute;
            }
            else{
                  T2ptr->minute=T2ptr->minute-T1ptr->minute;
            }
            T2ptr->hour=T2ptr->hour-T1ptr->hour;
            printf("Difference between these two time periods is : \nHours :
%d\nMinutes : %d\nSeconds : %f\n",T2.hour,T2.minute,T2.second);
      }
      else{       //if user selected wrong number
            printf("Invalid Choice :(\n");
      }
      return 0;
}
```

INPUT :

1
1
23
34
am
4

12
28
pm

OUTPUT :

```
Select the format :
[1.] 12 hour format  (press 1)
[2.] 24 hour format  (press 2)
1
Enter the details for starting time :
Hour : 1
Minute : 23
Second : 34
'am' or 'pm' : am
Enter the details for ending time :
Hour : 4
Minute : 12
Second : 28
'am' or 'pm' : pm
Difference between these two time periods is :
Hours : 14
Minutes : 48
Seconds : 54.000000
```

Run Succeeded | Time 73 ms | main | Tabs: 4 | Line 112, Column 10

CONCLUSION :

From the practical 0 C, we revised the concept of pointer + structure and its syntax as well as writing format. Also in this code we had given two choice to the user, first one is for taking 12 hour format and the second one is for 24 hour format for calculating the time difference between two time period with the help of if-else statement.