

A dark blue vertical bar runs down the left side of the page. A blue arrow points to the right from this bar, containing the date.

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PF Lab Assignment

Lab 10

Abdullah Shafiq
22K-4489

Several thin, curved lines in dark blue and light grey originate from the bottom left corner and sweep upwards and to the right, creating a decorative, organic shape.

Task 01

Write a C program can be used to read item details used in party and calculate all expenses, divide expenses in all friends equally. This program will read item name, price, quantity, number of friends and calculate amount and equally divide among friends.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct amount
{
    int ni;
    char in[20];
    int price,qauntity,nf,total;
    float div;
};
int main()
{
    struct amount a,b;
    int i=0;
    printf("Enter Number Of Items:");
    scanf("%d",&a.ni);
    printf("\nEnter Number Of Friends:");
    scanf("%d",&a.nf);
    for ( i=0;i<a.ni;i++)
    {
        printf("Enter Item Name:");
        scanf(" %s",a.in);
        printf("\nEnter Price:");
        scanf("%d",&a.price);
        printf("\nEnter Quantity:");
        scanf("%d",&a.qauntity);
    }
    a.total=a.total+a.qauntity*a.price;
    b.div=(float)a.total/a.nf;
    printf("\nTotal Amount:%d",a.total);
    printf("\nPrice Divided Equally:%f",b.div);
}
```

```
Enter Number Of Items:2
Enter Number Of Friends:4
Enter Item Name:Chocolate
Enter Price:1200
Enter Quantity:12
Enter Item Name:lollypop
Enter Price:3400
Enter Quantity:67

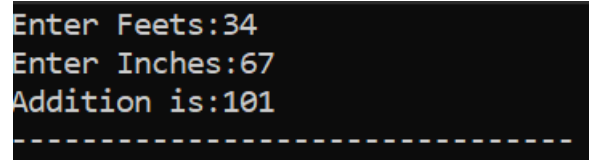
Total Amount:227800
Price Divided Equally:56950.000000
-----
```

Task 02

Create a structure named distance with two integer members feet and inches. Create a user define function named addDistance() that will take two structure objects as argument and print sum (addition) of them.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct distance
{
    int feet;
    int inches;
    int total;
};
void adddistance()
{
    struct distance l;
    printf("Enter Feets:");
    scanf("%d",&l.feet);
    printf("Enter Inches:");
    scanf("%d",&l.inches);
    l.total=l.feet+l.inches;
    printf("Addition is:%d",l.total);
}
int main()
{
    adddistance();
}
```



```
Enter Feets:34
Enter Inches:67
Addition is:101
-----
```

Task 03

Write a C program to accept book details for books as book_no, book_title, author, publisher and cost using structures. Display these details as,

1. Books of a specific author
2. Books by a specific Publisher
3. All Books costing Rs. 500 and above.
4. All Books.

PROGRAM & OUTPUT

```
#include<stdio.h>
#include<string.h>
struct details
{
    int b_no;
    char b_title[20];
    char author[20];
    char publisher[20];
    int cost;
};
int main()
{
    int n_b,i,j;
    printf("Enter Number of Books:");
    scanf("%d",&n_b);
    struct details a[n_b];
    for (i=0;i<n_b;i++)
    {
        printf("Enter Book No:");
        scanf(" %d",&a[i].b_no);
        printf("Enter Book Title:");
        scanf(" %s",a[i].b_title);
        printf("Enter Book Author:");
        scanf(" %s",a[i].author);
        printf("Enter Book Publisher:");
        scanf(" %s",a[i].publisher);
        printf("Enter Book Cost:");
        scanf(" %d",&a[i].cost);
    }

    printf("\nMenu:");
    printf("\n1.Book Author:");
    printf("\n2. Book Publisher:");
    printf("\n3.Book Cost :");
    printf("\n4.All Books:");
    int option;
    char author[20];
    char publisher[20];
    printf("\nEnter option:");
    scanf("%d",&option);
```

```

switch(option)
{
    case 1:
    {
        printf("Enter Author You want to Search:");
        scanf("%s",author);
        for (i=0;i<n_b;i++)
        {
            if (strcmp(author,a[i].author)==0)
            {
                printf("\n%d.",a[i].b_no);
                printf("%s",a[i].b_title);
                printf("\nAuthor:%s",a[i].author);
                printf("\nPublisher:%s",a[i].publisher);
                printf("\nCost:%d",a[i].cost);
            }
        }
        break;
    case 2:
    {
        printf("Enter Author You want to Search:");
        scanf("%s",publisher);
        for (i=0;i<n_b;i++)
        {
            if(strcmp(publisher,a[i].publisher)==0)
            {
                printf("\n%d.",a[i].b_no);
                printf("%s",a[i].b_title);
                printf("\nAuthor:%s",a[i].author);
                printf("\nPublisher:%s",a[i].publisher);
                printf("\nCost:%d",a[i].cost);
            }
        }
        break;
    case 3:
    {
        for (i=0;i<n_b;i++)
        {
            if(a[i].cost>500)
            {
                printf("\n%d.",a[i].b_no);
                printf("%s",a[i].b_title);
                printf("\nAuthor:%s",a[i].author);
                printf("\nPublisher:%s",a[i].publisher);
                printf("\nCost:%d",a[i].cost);
            }
        }
        break;
    case 4:
    {
        for (i=0;i<n_b;i++)
        {
            printf("\n%d.",a[i].b_no);
            printf("%s",a[i].b_title);
            printf("\nAuthor:%s",a[i].author);
            printf("\nPublisher:%s",a[i].publisher);
            printf("\nCost:%d",a[i].cost);
        }
    }
}
}

```

```
Enter Number of Books:2
Enter Book No:1
Enter Book Title:Abdullah
Enter Book Author:HashimNadeem
Enter Book Publisher:IlmoIrfan
Enter Book Cost:1250
Enter Book No:2
Enter Book Title:MantokAfsane
Enter Book Author:SaadatHassanManto
Enter Book Publisher:Ilmi
Enter Book Cost:550

Menu:
1.Book Author:
2. Book Publisher:
3.Book Cost :
4.All Books:
Enter option:1
Enter Author You want to Search:HashimNadeem

1.Abdullah
Author:HashimNadeem
Publisher:IlmoIrfan
Cost:1250
-----
```

Task 04

Write a C program to accept details of employee(eno, ename, salary) and display the details of employee having highest salary. Use array of structure.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct details
{
    int e_num;
    char name[20];
    int salary;
};
int main()
{
    int n_e,i,j,temp=0;
    printf("Enter Number of Employee:");
    scanf("%d",&n_e);
    struct details a[n_e];
    for(i=0;i<n_e;i++)
    {
        printf("Employee Number:");
        scanf("%d",&a[i].e_num);
        printf("Enter Name:");
        scanf("%s",a[i].name);
        printf("Enter Salary:");
        scanf("%d",&a[i].salary);
    }
    for(i=0;i<n_e;i++)
    {
        printf("\n-----");
        printf("\nEmployee Number: %d",a[i].e_num);
        printf("\nName : %s",a[i].name);
        printf("\nSalary : %d",a[i].salary);
    }
    for (i=0;i<n_e;i++)
    {
        for (j=i+1;j<n_e;j++)
        {
            if(a[i].salary<a[j].salary)
            {
                temp=a[i].salary;
                a[i].salary=a[j].salary;
                a[j].salary=temp;
            }
        }
    }
    for (i=0;i<n_e;i++)
    {
        if(a[i].salary==a[0].salary)
        {
            printf("\n-----");
            printf("\nHighest Salary Employee Detail:");
            printf("\nEmployee Number: %d",a[i].e_num);
            printf("\nName : %s",a[i].name);
            printf("\nSalary : %d",a[i].salary);
        }
    }
}
```

```
Enter Number of Employee:2
Employee Number:1
Enter Name:ali
Enter Salary:100
Employee Number:2
Enter Name:khan
Enter Salary:500

-----
Employee Number: 1
Name      : ali
Salary    : 100
-----
Employee Number: 2
Name      : khan
Salary    : 500
-----
Highest Salary Employee Detail:
Employee Number: 1
Name      : ali
Salary    : 500
-----
```

Task 05

Write a structure to store the name, account number and balance of customers (more than 10) and store their information

PROGRAM & OUTPUT

```
#include<stdio.h>
struct details
{
    char name[20];
    int acc_num;
    int balance;
    char info[20];
};
void print()
{
    int i;
    struct details a[10];
    for (i=0;i<4;i++)
    {
        printf("Enter Name:");
        scanf(" %s",a[i].name);
        printf("Enter Account Number:");
        scanf("%d",&a[i].acc_num);
        printf("Enter Balance:");
        scanf("%d",&a[i].balance);
        printf("Enter Info:");
        scanf(" %s",a[i].info);
        printf("\n");
    }
    printf("\nCostumers Having Balance less than 200$.");
    for (i=0;i<10;i++)
    {
        if(a[i].balance<200)
        {
            printf("\nName: %s",a[i].name);
        }
    }
    printf("\nIncremented Value After Adding 100$");
    for (i=0;i<10;i++)
    {
        if(a[i].balance>1000)
        {
            a[i].balance=a[i].balance+100;
            printf("\nName: %s",a[i].name);
            printf("\nIncrimented Value: %d",a[i].balance);
        }
    }
}
int main()
{
    print();
}
```

```
Enter Name:Abdullah
Enter Account Number:23451
Enter Balance:155
Enter Info:info
Enter Name:Ali
Enter Account Number:34789
Enter Balance:1150
Enter Info:info

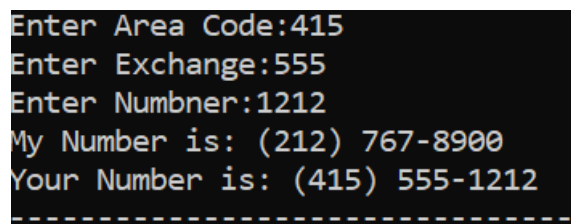
Costumers Having Balance less than 200$.
Name: Abdullah
Incremented Value After Adding 100$
Name: Ali
Incrimented Value: 1250
-----
```


Task 06

A phone number, such as (212) 767-8900, can be thought of as having three parts: e.g., the area code (212), the exchange (767), and the number (8900). Write a program that uses a structure to store these three parts of a phone number separately. Call the structure phone.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct phone
{
    int a_code,ex,num;
};
int main()
{
    struct phone a;
    printf("Enter Area Code:");
    scanf(" %d",&a.a_code);
    printf("Enter Exchange:");
    scanf(" %d",&a.ex);
    printf("Enter Numbner:");
    scanf(" %d",&a.num);
    printf("My Number is: (212) 767-8900");
    printf("\nYour Number is: (%d) %d-%d",a.a_code,a.ex,a.num);
}
```

A screenshot of a terminal window showing the output of the C program. The text is as follows:
Enter Area Code:415
Enter Exchange:555
Enter Numbner:1212
My Number is: (212) 767-8900
Your Number is: (415) 555-1212

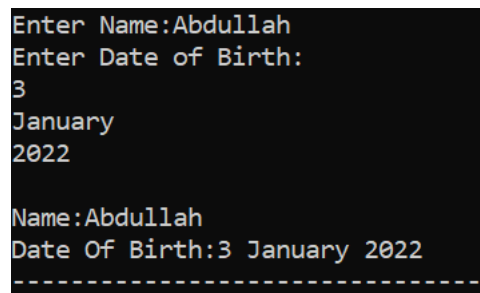
The text is displayed in a monospaced font on a dark background.

Task 07

Create a struct to store two data for a person: name and date of birth. The date of birth must be another struct consisting on day, month and year. Finally, create an array of persons, ask the user for the data of two persons and display them.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct one
{
    char name[20];
};
struct two
{
    struct one a;
    int day;
    int month[20];
    int year;
};
int main()
{
    struct two b[1];
    printf("Enter Name:");
    scanf("%s",b[1].a.name);
    printf("Enter Date of Birth:\n");
    scanf("\n%d%s%d",&b[1].day,b[1].month,&b[1].year);
    printf("\nName:%s",b[1].a.name);
    printf("\nDate Of Birth:%d %s %d ",b[1].day,b[1].month,b[1].year);
}
```

A screenshot of a terminal window showing the output of the C program. The user has entered 'Abdullah' for the name, '3' for the day, 'January' for the month, and '2022' for the year. The program then displays the name and the date of birth in a formatted string, followed by a dashed line.

```
Enter Name:Abdullah
Enter Date of Birth:
3
January
2022

Name:Abdullah
Date Of Birth:3 January 2022
-----
```

Task 08

Write a program that has two structures named school and student. The structure school contains two variables sch_Name, sch_id. Student structure contains four variable stu_id, stu_name, marks, Avg and also the structure address of school with that object such that school structure can be accessed from inside the student structure. Create a function getData() to take record from user. How many records he wants to enter must also be asked. Create a function display() to print the records of all students entered.

PROGRAM & OUTPUT

```
#include<stdio.h>
struct school
{
    char sch_name[20];
    int sch_id;
};
struct student
{
    struct school sc[1];
    int stu_id;
    char stu_name[20];
    int marks;
    float avg;
};
void getData ()
{
    int i,n;
    struct student st[1];
    printf("Enter Name Of School:");
    scanf(" %s",st[1].sc[1].sch_name);
    printf("Enter School ID:");
    scanf(" %d",&st[1].sc[1].sch_id);
    printf("How many Records You want to enter:");
    scanf("%d",&n);
    for (i=0;i<n;i++)
    {
        printf("Enter Student ID:");
        scanf(" %d",&st[i].stu_id);
        printf("Enter Name:");
        scanf(" %s",st[i].stu_name);
        printf("Enter Marks:");
        scanf(" %d",&st[i].marks);
        printf("Enter Average:");
        scanf(" %f",&st[i].avg);
        printf("\n");
    }
    for (i=0;i<n;i++)
    {
        printf("\n-----");
        printf("\nStudent Id: %d",st[i].stu_id);
        printf("\nName: %s",st[i].stu_name);
        printf("\nMarks: %d",st[i].marks);
        printf("\nAverage: %f",st[i].avg);
    }
}
int main()
{
    getData();
}
```

Enter Name Of School: Cadet College Karachi

Enter School ID: 54461

How many Records You want to enter: 3

Enter Student ID: 054

Enter Name: Abdullah Shafiq

Enter Marks: 1011

Enter Average: 91.99

Enter Student ID: 043

Enter Name: Moiz Ali

Enter Marks: 1011

Enter Average: 89.99

Enter Student ID: 029

Enter Name: Waqar Bugti

Enter Marks: 999

Enter Average: 80.81

Student Id: 54

Name: Abdullah Shafiq

Marks: 1011

Average: 91.989998

Student Id: 43

Name: Moiz Ali

Marks: 1011

Average: 89.989998

Student Id: 29

Name: Waqar Bugti

Marks: 999

Average: 80.809998
