

SSN COLLEGE OF ENGINEERING (Autonomous)

Affiliated to Anna University

DEPARTMENT OF CSE

UCS 1211 PROGRAMMING IN C LABORATORY

Assignment 6

User Defined Data Types in C

Reg Number : 185001131

Name : Sai Charan B

Class : CSE – B

1. Generate the salary slip of a single employee using structure and functions. Use separate functions for getting input, computing and displaying output. Pass the structure by reference. Display the pay slip with proper formatting. Use pointer notation.

```
#include<stdio.h>

struct sal
{
    int bp,cca,ins;
    float da,hra,pf,gross,net,ded;
};

void display(struct sal *s)
{
    printf("Enter BP of employee");
    scanf("%d",&s->bp);
    s->da=s->bp*0.88;
```

```

        s->hra=s->bp*0.08;
        s->cca=1000;
        s->ins=1000;
        s->pf=s->bp*0.1;
        s->gross=s->bp+s->hra+s->da+s->cca;
        s->ded=s->ins+s->pf;
        s->net=s->gross-s->pf;
        printf("\nTotal pay is");
        printf("%f",s->net);
    }
int main()
{
    struct sal s;
    display(&s);
    return(0);
}

```

Output:

cseb131@jtl-29:~\$./sal

Enter BP of employee5000

Total pay is10300.000000

2. Define a structure called Medicine which contains the attributes Name, Vendor, Manufacture Date, Expiry Date, Cost and other required attributes. Simulate the working of an online medical store.

```
#include<stdio.h>
#include<string.h>
struct date
{
    int month;
    int year;
};
struct Medicine
{
    char name[20];
    char vendor[20];
    struct date ManDate;
    struct date ExpDate;
    int cost;
    int units;
};
void medsell(struct Medicine Meds[],int a)
{
    char n[20];
    int u,i;
    printf("Enter drug name to sell\n");
    scanf("%s",n);
    printf("Enter no. of units to sell\n");
    scanf("%d",&u);
    for(i=0;i<a;i++)
    {
        if(strcmp(n,Meds[i].name)==0)
        {
            if(u>Meds[i].units)
            {
                printf("Not enough units to sell");
            }
            else
            {
                Meds[i].units-=u;
                printf("Sale successful");
            }
        }
    }
}
void medbuy(struct Medicine Meds[],int a)
{
    int i=a;
    printf("Enter drug name\n");
    scanf("%s",Meds[i].name);
    printf("\nEnter drug vendor\n");
    scanf("%s",Meds[i].vendor);
    printf("\nEnter month of manufacture\n");
    scanf("%d",&Meds[i].ManDate.month);
    printf("\nEnter year of manufacture\n");
    scanf("%d",&Meds[i].ManDate.year);
    printf("\nEnter month of expiry\n");
```

```

        scanf("%d",&Meds[i].ExpDate.month);
        printf("\nEnter year of expiry\n");
        scanf("%d",&Meds[i].ExpDate.year);
        printf("\nEnter drug cost\n");
        scanf("%d",&Meds[i].cost);
        printf("\nEnter no. of units available\n");
        scanf("%d",&Meds[i].units);
    }
void medcheck(struct Medicine Meds[],int a)
{
    char n[20];
    int i=0;
    printf("Enter drug name to check\n");
    scanf("%s",n);
    for(i=0;i<a;i++)
    {
        if(strcmp(n,Meds[i].name)==0)
        {
            printf("%d",Meds[i].units);
        }
    }
}
void display(struct Medicine Meds[],int a)
{
    int i=0;
    printf("Name \t Vendor \t Manufacture Date\t Expiry Date\t
Units\t Price\n");
    for(i=0;i<a;i++)
    {
        printf("%s \t %s \t\t %d/%d \t\t\t %d/%d \t\t %d\t
%d\n",Meds[i].name,Meds[i].vendor,Meds[i].ManDate.month,Meds[i].ManDate
.year,Meds[i].ExpDate.month,Meds[i].ExpDate.year,Meds[i].cost,Meds[i].u
nits);
    }
}

int main()
{
    struct Medicine Meds[10];
    printf("Enter drug info\n");
    int i=0,o,a=3,flag=0;
    for(i=0;i<a;i++)
    {
        printf("Enter drug name\n");
        scanf("%s",Meds[i].name);
        printf("\nEnter drug vendor\n");
        scanf("%s",Meds[i].vendor);
        printf("\nEnter month of manufacture\n");
        scanf("%d",&Meds[i].ManDate.month);
        printf("\nEnter year of manufacture\n");
        scanf("%d",&Meds[i].ManDate.year);
        printf("\nEnter month of expiry\n");
        scanf("%d",&Meds[i].ExpDate.month);
        printf("\nEnter year of expiry\n");
        scanf("%d",&Meds[i].ExpDate.year);
        printf("\nEnter drug cost\n");
        scanf("%d",&Meds[i].cost);
        printf("\nEnter no. of units available\n");
        scanf("%d",&Meds[i].units);
    }
    while(flag==0)
    {
        printf("1. Sell\n2. Buy\n3. Check Availability\n4.
Display all\n5. Exit\n");
        scanf("%d",&o);
        switch(o)

```

```

        {
            case 1: medsell(Meds,a);
                break;
            case 2: medbuy(Meds,a);
                a+=1;
                break;
            case 3: medcheck(Meds,a);
                break;
            case 4: display(Meds,a);
                break;
            case 5: flag=1;
                break;
        }
    }
    return(0);
}

```

Output:

cseb131@jtl-29:~\$./med

Enter drug info

Enter drug name

a

Enter drug vendor

b

Enter month of manufacture

1

Enter year of manufacture

1

Enter month of expiry

2

Enter year of expiry

2

Enter drug cost

4

Enter no. of units available

5

Enter drug name

r

Enter drug vendor

f

Enter month of manufacture

5

Enter year of manufacture

5

Enter month of expiry

6

Enter year of expiry

6

Enter drug cost

7

Enter no. of units available

88

Enter drug name

u

Enter drug vendor

j

Enter month of manufacture

9

Enter year of manufacture

9

Enter month of expiry

9

Enter year of expiry

10

Enter drug cost

5

Enter no. of units available

50

1. Sell

2. Buy

3. Check Availability

4. Display all

5. Exit

4

Name	Vendor	Manufacture Date	Expiry Date	Units	Price
a	b	1/1	2/2 4	5	
r	f	5/5	6/6 7	88	
u	j	9/9	9/10 5	50	

1. Sell

2. Buy

3. Check Availability

4. Display all

5. Exit

1

Enter drug name to sell

a

Enter no. of units to sell

3

Sale successful1. Sell

2. Buy

3. Check Availability

4. Display all

5. Exit

5

3. Define a data type for Date having 3 members namely day, month and year. Define a data type for Student with members rollnum, name, marks[5], totalMarks, rank, dateofbirth (of type Date), age, gender. Use an enumerated data type for gender with values MALE, FEMALE, TRANSGENDER. Write a C program that gets data for N students and computes and display the rank of the students. Use array of structures.

```
#include<stdio.h>

struct Date
{
    int day,month,year;
};
struct Student
{
    int rollnum,marks[5],total,rank,age;
    char name[20];
    struct Date dob;
    enum gender{Male=1,Female=2,Transgender=3}gen;
};

int main()
{
    struct Student list[10],temp;
    int n,i=0,j=0,c=0,flag=0,k;
    printf("Enter no. of students");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("\nEnter student %d info\n",(i+1));
        printf("Enter student name\n");
        scanf("%s",list[i].name);
        printf("\nEnter roll number, 5 marks in order and age\n");
        scanf("%d",&list[i].rollnum);
        scanf("%d",&list[i].marks[1]);
        scanf("%d",&list[i].marks[2]);
        scanf("%d",&list[i].marks[3]);
        scanf("%d",&list[i].marks[4]);
        scanf("%d",&list[i].marks[5]);
        scanf("%d",&list[i].age);
```

```

        printf("\nEnter date of birth: Day month and year");
        scanf("%d",&list[i].dob.day);
        scanf("%d",&list[i].dob.month);
        scanf("%d",&list[i].dob.year);

        list[i].total=list[i].marks[1]+list[i].marks[2]+list[i].marks[3]
+list[i].marks[4]+list[i].marks[5];
        printf("\nEnter gender");
        scanf("%s",&list[i].gen);
    }

    for(i=0;i<n;i++)
    {
        for(j=i;j<n;j++)
        {
            if(list[i].total<list[j].total)
            {
                temp=list[i];
                list[i]=list[j];
                list[j]=temp;
            }
        }
    }

    for(i=0;i<n;i++)
    {
        list[i].rank=i+1;
    }

    for(i=0;i<n;i++)
    {
        for(j=i;j<n;j++)
        {
            if(list[i].total==list[j].total)
            {
                list[j].rank=list[i].rank;
                c++;
            }
        }
        for(k=j+1;k<n;k++)
        {
            list[k].rank+=c;
        }
    }

    for(i=0;i<n;i++)
    {
        printf("\nRank      %d",list[i].rank);
        printf("\nName      %s",list[i].name);
        printf("\nTotal    %d\n",list[i].total);
    }
}

```

Output:

cseb131@jtl-29:~\$./student

Enter no. of students3

Enter student 1 info

Enter student name

ram

Enter roll number, 5 marks in order and age

1

9

9

9

9

9

18

Enter date of birth: Day month and year4

5

99

Enter gender1

Enter student 2 info

Enter student name

shyam

Enter roll number, 5 marks in order and age

2

5

5

5

5

5

5

Enter date of birth: Day month and year5

5

5

Enter gender2

Enter student 3 info

Enter student name

sai

Enter roll number, 5 marks in order and age

3

5

5

5

5

5

18

Enter date of birth: Day month and year5

6

7

Enter gender3

Rank 1

Name ram

Total 45

Rank 2

Name shyam

Total 25

Rank 2

Name sai

Total 25