**SSN COLLEGE OF ENGINEERING (Autonomous)**

**Affiliated to Anna University**

**DEPARTMENT OF CSE**

**UCS 1211 PROGRAMMING IN C LABORATORY**

**A6: User Defined Data Type in C**

================================================================

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**CLASS: CSE-B (SEMESTER-2)**

**1)Program name: To generate the salary slip of a employee using structures and functions.**

#include<stdio.h>

struct emp

{

float bp,da,hra,cca,ins,pf,gross,ded,net;

};

void input(struct emp \*e);

void cal(struct emp \*e);

void display(struct emp \*e);

void main()

{

int n;

printf("enter the number of records");

scanf("%d",&n);

while(n>0)

{

struct emp e;

input(&e);

cal(&e);

display(&e);

n--;

}

}

void input(struct emp \*e)

{

printf("\n \n enter the basic pay of the employee:");

scanf("%f",&e->bp);

printf("\n enter the cca:");

scanf("%f",&e->cca);

printf("\n enter the ins:");

scanf("%f",&e->ins);

}

void cal(struct emp \*e)

{

e->da=(e->bp\*88/100);

e->hra=(e->bp\*8/100);

e->pf=(e->bp\*12/100);

e->gross=e->da+e->hra+e->cca;

e->ded=e->ins+e->pf;

e->net=e->gross-e->ded;

}

void display(struct emp \*e)

{

printf("the employe salary is:\n");

printf("\t \n basic pay:%f",e->bp);

printf("\t \n cca:%f",e->cca);

printf("\t \n da:%f",e->da);

printf("\t \n hra:%f",e->hra);

printf("\t \n ins:%f",e->ins);

printf("\t \n pf:%f",e->pf);

printf("\t \n gross:%f",e->gross);

printf("\t \n ded:%f",e->ded);

printf("\t \n net:%f",e->net);

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ gcc a6.1.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ ./a.out

enter the number of records2

enter the basic pay of the employee:100000

enter the cca:1000

enter the ins:2000

the employe salary is:

basic pay:100000.000000

cca:1000.000000

da:88000.000000

hra:8000.000000

ins:2000.000000

pf:12000.000000

gross:97000.000000

ded:14000.000000

net:83000.000000

enter the basic pay of the employee:200000

enter the cca:1000

enter the ins:1500

the employe salary is:

basic pay:200000.000000

cca:1000.000000

da:176000.000000

hra:16000.000000

ins:1500.000000

pf:24000.000000

gross:193000.000000

ded:25500.000000

net:167500.000000

**2)Program name: To create a user interactive program to buy, sell, check for availability and to display all the drugs .**

#include<stdio.h>

#include<string.h>

struct mdate

{

int date,month,year;

};

struct edate

{

int date,month,year;

};

struct drug

{

char name[100],vendor[100];

struct mdate md;

struct edate ed;

float cost;

int qu;

};

void buy(struct drug \*s,int n,int m);

void sell(struct drug \*s,int n);

void check(struct drug \*s,int n);

void display(struct drug \*s,int n);

void main()

{

struct drug s[100];

int n=0,m,t;

char z,p[100];

do

{

printf("\n enter any one of the below options\n1. buy a drug\n2. sell a drug\n3. check for availablity\n4. display all the drugs\n");

scanf("%d",&t);

switch(t)

{

case 1: printf("\n enter the number of records you want to add");

scanf("%d",&m);

buy(s,n,m);

n=n+m;

break;

case 2: sell(s,n);

break;

case 3: check(s,n);

break;

case 4: display(s,n);

break;

default: printf("\n \*\*\*the option you entered is wrong\*\*\* \n ");

break;

}

printf("\n do you want to continue y or n:");

scanf(" %c",&z);

}

while(z=='y');

}

void buy(struct drug \*s,int n,int m)

{

int i;

for(i=n;i<n+m;i++)

{

printf("\n enter the details of the drug:");

printf("\n enter the drug name:");

scanf( " %[^\n]",s[i].name);

printf("\n enter the vendor name:");

scanf( " %[^\n]",s[i].vendor);

printf("\n enter the manufacturing date");

printf("\n date:");

scanf("%d",&s[i].md.date);

printf("\n month:");

scanf("%d",&s[i].md.month);

printf("\n year:");

scanf("%d",&s[i].md.year);

printf("\n enter the expiry date");

printf("\n date:");

scanf("%d",&s[i].ed.date);

printf("\n month:");

scanf("%d",&s[i].ed.month);

printf("\n year:");

scanf("%d",&s[i].ed.year);

printf("\n enter the quantity:");

scanf("%d",&s[i].qu);

}

}

void sell(struct drug \*s,int n)

{

int i,flag=0;

char p[100];

printf("\n enter the drug name:");

scanf(" %[^\n]",p);

for(i=0;i<n;i++)

{

if((strcmp(s[i].name,p)==0))

{

flag=1;

if(s[i].qu>0)

{

printf("\n\t THE DRUG IS PRRESENT \n ");

printf("\n here are the drug details");

printf("\n drug name: %s",s[i].name);

printf("\n vendor name: %s",s[i].vendor);

printf("\n \*\*\*\*\*manufacturing date\*\*\*\*\*");

printf("\n date:%d",s[i].md.date);

printf("\n month:%d",s[i].md.month);

printf("\n date:%d",s[i].md.year);

printf("\n \*\*\*\*\*expiry date\*\*\*\*\*");

printf("\n date:%d",s[i].ed.date);

printf("\n month:%d",s[i].ed.month);

printf("\n date:%d",s[i].ed.year);

s[i].qu--;

printf("\n quantity remaining:%d",s[i].qu);

}

else

{

printf("\n the drug is present but not in stock");

}

}

}

if(flag=0)

{

printf("\n sorry we do not sell this drug");

}

}

void check(struct drug \*s,int n)

{

int i,flag=0;

char p[100];

printf("\n enter the drug name:");

scanf(" %[^\n]",p);

for(i=0;i<n;i++)

{

if((strcmp(s[i].name,p)==0))

{

flag=1;

if(s[i].qu>0)

{

printf("\n\t THE DRUG IS PRRESENT \n ");

printf("\nhere are the drug details");

printf("\n drug name: %s",s[i].name);

printf("\n vendor name: %s",s[i].vendor);

printf("\n \*\*\*manufacturing date\*\*\*");

printf("\n date:%d",s[i].md.date);

printf("\n month:%d",s[i].md.month);

printf("\n date:%d",s[i].md.year);

printf("\n \*\*\*expiry date\*\*\*");

printf("\n date:%d",s[i].ed.date);

printf("\n month:%d",s[i].ed.month);

printf("\n date:%d",s[i].ed.year);

printf("\n quantity remaining:%d",s[i].qu);

}

else

{

printf("\n the drug is present but not in stock");

}

}

}

if(flag=0)

{

printf("\n we do not sell this drug");

}

}

void display(struct drug \*s,int n)

{

int i;

for(i=0;i<n;i++)

{

printf("\n Here are the drug details");

printf("\n drug name: %s",s[i].name);

printf("\n vendor name: %s",s[i].vendor);

printf("\n \*\*\*manufacturing date\*\*\*");

printf("\n date:%d",s[i].md.date);

printf("\n month:%d",s[i].md.month);

printf("\n date:%d",s[i].md.year);

printf("\n \*\*\*expiry date\*\*\*");

printf("\n date:%d",s[i].ed.date);

printf("\n month:%d",s[i].ed.month);

printf("\n date:%d",s[i].ed.year);

printf("\n quantity remaining:%d",s[i].qu);

}

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ gcc a6.2.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ ./a.out

enter any one of the below options

1. buy a drug

2. sell a drug

3. check for availability

4. display all the drugs

1

enter the number of records you want to add: 2

enter the details of the drug:

enter the drug name: penicillin

enter the vendor name: nandi medicals

enter the manufacturing date

date:12

month:12

year:2017

enter the expiry date

date:12

month:12

year:2019

enter the quantity:44

enter the details of the drug:

enter the drug name: crocin

enter the vendor name: apollo

enter the manufacturing date

date:15

month:1

year:2018

enter the expiry date

date:15

month:1

year:2020

enter the quantity:51

do you want to continue y or n: y

enter any one of the below options

1. buy a drug

2. sell a drug

3. check for availability

4. display all the drugs

2

enter the drug name:crocin

THE DRUG IS PRRESENT

here are the drug details

drug name: crocin

vendor name: apollo

\*\*\*\*\*manufacturing date\*\*\*\*\*

date:15

month:1

year:2018

\*\*\*\*\*expiry date\*\*\*\*\*

date:15

month:1

year:2020

quantity remaining:50

do you want to continue y or n: y

enter any one of the below options

1. buy a drug

2. sell a drug

3. check for availability

4. display all the drugs

3

enter the drug name: penicillin

THE DRUG IS PRRESENT

here are the drug details

drug name: penicillin

vendor name: nandi medicals

\*\*\*manufacturing date\*\*\*

date:12

month:12

year:2017

\*\*\*expiry date\*\*\*

date:12

month:12

year:2019

quantity remaining:44

do you want to continue y or n:y

enter any one of the below options

1. buy a drug

2. sell a drug

3. check for availablity

4. display all the drugs

4

Here are the drug details

drug name: penicillin

vendor name: nandi medicals

\*\*\*manufacturing date\*\*\*

date:12

month:12

year:2017

\*\*\*expiry date\*\*\*

date:12

month:12

year:2019

quantity remaining:44

Here are the drug details

drug name: crocin

vendor name: apollo

\*\*\*manufacturing date\*\*\*

date:15

month:1

year:2018

\*\*\*expiry date\*\*\*

date:15

month:1

year:2020

quantity remaining:50

do you want to continue y or n: n

**2)Program name: To enter the student data and display it based on roll no using structures.**

#include <stdio.h>

#define MAX 10

enum gender{male,female,transgender};

typedef struct

{

int d,m,y;

} Date;

typedef struct{

int roll\_no;

char name[30];

float marks[5];

int rank;

enum gender g;

int age;

Date dob;

float total;

} Student;

void Accept(Student[],int);

void Display(Student);

void CalcRank(Student[],int);

int main(){

Student s[MAX];

int n ,roll;

printf("Enter the number of students: ");

scanf("%d",&n);

Accept(s,n);

CalcRank(s,n);

int stop = 0;

while(!stop){

printf("Enter the roll\_no to display: ");

scanf("%d",&roll);

for(int i = 0 ; i < n ; i++)

if( s[i].roll\_no == roll){

Display(s[i]);

break;

}

printf("Do you want to stop 1/0: ");

scanf("%d",&stop);

printf("\n\n\n");

}

}

void Accept(Student s[] , int n){

for(int i = 0 ; i < n ; i++){

s[i].total = 0 ;

printf("Enter the roll no: ");

scanf("%d",&s[i].roll\_no);

getchar();

printf("Enter the name: ");

scanf("%[^\n]\*c",s[i].name);

printf("Enter the age: ");

scanf("%d",&s[i].age);

getchar();

char ch;

printf("Enter gender: ");

scanf("%c",&ch);

switch(ch){

case 'm' : s[i].g = 0; break;

case 'f' : s[i].g = 1; break;

case 't' : s[i].g = 2; break;

}

printf("Enter date[dd/mm/yyyy]: ");

scanf("%d %d %d" , &s[i].dob.d , &s[i].dob.m , &s[i].dob.y );

printf("Enter marks in 5 subjects:\n");

for(int j = 0 ; j < 5 ; j++){

scanf("%f" , &s[i].marks[j] );

s[i].total += s[i].marks[j];

}

}

}

void Display(Student s){

printf("Roll no: %d\n",s.roll\_no);

printf("Name : %s\n",s.name);

printf("Age : %d\n",s.age);

char ch;

switch(s.g){

case 0 : ch = 'm'; break;

case 1 : ch = 'f'; break;

case 2 : ch = 't'; break;

}

printf("Gender : %c\n",ch);

printf("DOB : %d|%d|%d\n",s.dob.d,s.dob.m,s.dob.y );

printf("Marks : ");

for(int j = 0 ; j < 5 ; j++)

printf("%.1f " , s.marks[j] );

printf("\n");

printf("Rank : %d\n",s.rank);

}

void CalcRank(Student s[],int n){

for(int i = 0 ; i < n ; i++)

for(int j = i+1 ; j<n ; j++)

if( s[j].total > s[i].total){

Student tmp = s[i];

s[i] = s[j];

s[j] = tmp;

}

for(int i = 0 ; i<n ; i++)

s[i].rank = i+1;

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ gcc a6.3.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment6$ ./a.out

Enter the number of students: 3

Enter the roll no: 1

Enter the name: kshitij

Enter the age: 18

Enter gender: m

Enter date[dd/mm/yyyy]: 30

11

2000

Enter marks in 5 subjects:

100

100

100

100

100

Enter the roll no: 2

Enter the name: krishna

Enter the age: 19

Enter gender: m

Enter date[dd/mm/yyyy]: 22

5

2000

Enter marks in 5 subjects:

99

99

99

99

99

Enter the roll no: 3

Enter the name: kiruthika

Enter the age: 18

Enter gender: f

Enter date[dd/mm/yyyy]: 1

1

2000

Enter marks in 5 subjects:

98

98

100

99

99

Enter the roll\_no to display: 1

Roll no: 1

Name : kshitij

Age : 18

Gender : m

DOB : 30|11|2000

Marks : 100.0 100.0 100.0 100.0 100.0

Rank : 1

Do you want to stop 1/0: 0

Enter the roll\_no to display: 2

Roll no: 2

Name : krishna

Age : 19

Gender : m

DOB : 22|5|2000

Marks : 99.0 99.0 99.0 99.0 99.0

Rank : 2

Do you want to stop 1/0: 0

Enter the roll\_no to display: 3

Roll no: 3

Name : kiruthika

Age : 18

Gender : f

DOB : 1|1|2000

Marks : 98.0 98.0 100.0 99.0 99.0

Rank : 3

Do you want to stop 1/0: 1