Assignment - 21

Structure

1. Define a structure Employee with member variables id, name, salary

Code

#include<stdio.h>

struct Employee

{

    int id;

    char name[100];

    float salary;

};

int main()

{

    int i;

    int n;

    struct  Employee E[1000] ;

    printf("Enter number of employee : ");

    scanf("%d",&n);

    fflush(stdin);

    for(i=1 ; i<=n ; i++)

    {

         printf("\n\n Enter Employee : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(E[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&E[i].id);

        printf(" \n Enter salary : ");

        scanf("%.2f",&E[i].salary);

         fflush(stdin);

    }

    return 0;

}

Output

Enter number of employee : 2

Enter Employee : 1 Details

Enter Name : Dhruv

Enter id : 2323

Enter salary : 10000

Enter Employee : 2 Details

Enter Name : ram

Enter id : 2345

Enter salary : 1000

2. Write a function to take input employee data from the user. [ Refer structure from

question 1 ]

Code

#include<stdio.h>

struct Employee

{

    int id;

    char name[100];

    float salary;

};

void Employee\_input(int);

int main()

{

    int n;

    printf("Enter number of employee : ");

    scanf("%d",&n);

    fflush(stdin);

    Employee\_input(n);

    return 0;

}

void Employee\_input(int n)

{

    int i;

    struct  Employee E[1000] ;

     for(i=1 ; i<=n ; i++)

    {

         printf("\n\n Enter Employee : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(E[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&E[i].id);

        fflush(stdin);

        printf(" \n Enter salary : ");

        scanf("%.2f",&E[i].salary);

         fflush(stdin);

    }

}

Output

Enter number of employee : 2

Enter Employee : 1 Details

Enter Name : Dhruv

Enter id : 2323

Enter salary : 10000

Enter Employee : 2 Details

Enter Name : ram

Enter id : 2345

Enter salary : 1000

1. Write a function to display employee data. [ Refer structure from question 1 ]

Code

#include<stdio.h>

struct Employee

{

    int id;

    char name[100];

    float salary;

};

void Employee\_input(int);

void display\_Employee\_input(int n);

int main()

{

    int n;

    printf("Enter number of employee : ");

    scanf("%d",&n);

    fflush(stdin);

    Employee\_input(n);

    display\_Employee\_input (n);

    return 0;

}

void Employee\_input(int n)

{

    int i;

    struct  Employee E[1000] ;

     for(i=1 ; i<=n ; i++)

    {

         printf("\n\n Enter Employee : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(E[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&E[i].id);

        printf(" \n Enter salary : ");

        scanf("%f",&E[i].salary);

         fflush(stdin);

    }

}

void display\_Employee\_input(int n)

{

    int i ;

     struct  Employee E[1000] ;

     for(i=1 ; i<=n ; i++)

    {

         printf("\n\n Employee : %d  Details \n\n",i);

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

         printf(" \n Employee id : %d \n",E[i].id);

         printf(" \n Employee salary : %.2f \n",E[i].salary);

    }

}

Output

Enter number of employee : 2

Enter Employee : 1 Details

Enter Name : efrfr

Enter id : 23432

Enter salary : 55435

Enter Employee : 2 Details

Enter Name : fdgfht

Enter id : 12432

Enter salary : 6568

Employee : 1 Details

Employee Name : efrfr

Employee id : 23432

Employee salary : 55435.00

Employee : 2 Details

Employee Name : fdgfht

Employee id : 12432

Employee salary : 6568.00

4. Write a function to find the highest salary employee from a given array of 10

employees. [ Refer structure from question 1]

Code

#include<stdio.h>

#include<string.h>

struct Employee

{

    int id;

    char name[100];

    float salary;

} E[1000];

void Employee\_input(int);

char\* Highest\_salaried\_Employee(int n);

int main()

{

    int n;

    printf("Enter number of employee : ");

    scanf("%d",&n);

    fflush(stdin);

    Employee\_input(n);

    printf("\nHighest Salaried Employee : %s",Highest\_salaried\_Employee(n));

    return 0;

}

void Employee\_input(int n)

{

    int i;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Enter Employee : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(E[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&E[i].id);

        printf(" \n Enter salary : ");

        scanf("%f",&E[i].salary);

         fflush(stdin);

    }

}

char\* Highest\_salaried\_Employee(int n)

{

    int  i,j ;

    for(i=0;i<n;i++)

    {

       if(E[0].salary<E[i].salary)

       {

      //   E[0].salary=E[i].salary;

         strcpy(E[0].name , E[i].name);

       }

    }

         return E[0].name;

}

Output

Enter number of employee : 2

Enter Employee : 0 Details

Enter Name : fgdh

Enter id : 23

Enter salary : 232

Enter Employee : 1 Details

Enter Name : dfgdg

Enter id : 344

Enter salary : 4564

Highest Salaried Employee : dfgdg

5. Write a function to sort employees according to their salaries [ refer structure from

question 1]

Code

#include<stdio.h>

#include<string.h>

struct Employee

{

    int id;

    char name[100];

    float salary;

} E[1000];

void Employee\_input(int);

void sort\_Employees\_by\_salary(int n);

int main()

{

    int n;

    printf("Enter number of employee : ");

    scanf("%d",&n);

    fflush(stdin);

    Employee\_input(n);

    sort\_Employees\_by\_salary(n);

   //printf(" %s salary : %.2f \n",E[0].name,E[0].salary);

    return 0;

}

void Employee\_input(int n)

{

    int i;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Enter Employee : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(E[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&E[i].id);

       fflush(stdin);

        printf(" \n Enter salary : ");

        scanf("%f",&E[i].salary);

         fflush(stdin);

    }

}

void sort\_Employees\_by\_salary(int n)

{

   char temp[100];

    int  i,j;

    for(i=0;i<n;i++)

{

         for(j=0;j<n;j++)

         {

              if(E[i].salary<E[j].salary)   // if(b[i]>b[j]) desending order

              {

                    strcpy(temp,E[j].name);

                    strcpy(E[j].name,E[i].name);

                    strcpy(E[i].name,temp);

                E[i].salary = E[i].salary + E[j].salary;

                E[j].salary = E[i].salary - E[j].salary;

                E[i].salary = E[i].salary - E[j].salary;

              }

         }

    }

  for(i=0;i<n;i++)

  printf("\n %d : %s salary : %.2f \n",i,E[i].name,E[i].salary);

}

Output

Enter number of employee : 3

Enter Employee : 0 Details

Enter Name : dffd

Enter id : 23

Enter salary : 545

Enter Employee : 1 Details

Enter Name : gfg

Enter id : 43

Enter salary : 54

Enter Employee : 2 Details

Enter Name : thtyht

Enter id : 43

Enter salary : 6

0 : thtyht

salary : 6.00

1 : gfg

salary : 54.00

2 : dffd

salary : 545.00

6. Write a function to sort employees according to their names [refer structure from

question 1]

Code

#include<stdio.h>

#include<string.h>

int main()

{

    char str[5][100],cpr[5][100],temp[100];

    int j,i,k=0,n=0,count;

    printf("Enter 10 city names : \n ");

    for(i=0;i<=9;i++)

    {

    fgets(str[i],100,stdin);

    }

   for (j = 0; temp[j]; j++)

    temp[j]='\0';  //clean a string

   for(j=0;j<=9;j++)

   {

    for(i=0;i<=9;i++)

      if(strcmp(str[j],str[i])<0)

      {

            strcpy(temp,str[j]);

            strcpy(str[j],str[i]);

            strcpy(str[i],temp);

      }

   }

      printf("print 10 Strings : \n ");

     for(i=0;i<=9;i++)

     {

       for(j=0;str[i][j];j++)

       printf("%c",str[i][j]);

       printf(" ");

     }

    return 0;

}

Output

Enter number of employee : 3

Enter Employee : 0 Details

Enter Name : c

Enter id : 43

Enter salary : 2

Enter Employee : 1 Details

Enter Name : b

Enter id : 43

Enter salary : 1

Enter Employee : 2 Details

Enter Name : a

Enter id : 6

Enter salary : 5

0 : a

salary : 5.00

1 : b

salary : 1.00

2 : c

salary : 2.00

7. Write a program to calculate the difference between two time periods.

Code

#include<stdio.h>

struct Time

{

    int hrs;

    int min;

    int sec;

} T1,T2,T3 ;

void Time\_difference();

int main()

{

    int n;

    printf("Enter first Time period (hh:mm:ss) format : ");

    scanf("%d:%d:%d",&T1.hrs,&T1.min,&T1.sec);

    printf("Enter second Time period (hh:mm:ss) format : ");

    scanf("%d:%d:%d",&T2.hrs,&T2.min,&T2.sec);

    Time\_difference();

  // printf("The time Difference is : (hh:mm:ss) format : ");

    return 0;

}

void Time\_difference()

{

    int Td1 ,Td2 , td , temp;

    Td1 = T1.hrs\*3600 + T1.min\*60 + T1.sec ;

    Td2 = T2.hrs\*3600 + T2.min\*60 + T2.sec ;

   if(Td1>Td2)

  td = Td1 - Td2 ;

  else

  td = Td2 - Td1 ;

  printf("%d",td);

   T3.hrs = td/3600;

   temp = td/60;

   T3.min = temp%60;

   T3.sec = td%60;

   printf ("The Time difference is :  %d:%d:%d",T3.hrs,T3.min,T3.sec);

}

Output

Enter first Time period (hh:mm:ss) format : 3:34:23

Enter second Time period (hh:mm:ss) format : 5:23:23

6540The Time difference is : 1:49:0

8. Write a program to store information of 10 students and display them using structure.

Code

#include<stdio.h>

struct student

{

    int id;

    char name[100];

    float marks;

} S[1000];

void student\_input(int);

void display\_student\_input(int);

int main()

{

    int n = 10;

    student\_input(n);

    display\_student\_input (n);

    return 0;

}

void student\_input(int n)

{

    int i;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Enter Student : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(S[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&S[i].id);

        fflush(stdin);

        printf(" \n Enter marks : ");

        scanf("%f",&S[i].marks);

         fflush(stdin);

    }

}

void display\_student\_input(int n)

{

    int i ;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Student : %d  Details \n\n",i);

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

         printf(" \n Student id : %d \n",S[i].id);

         printf(" \n Student marks : %.2f \n",S[i].marks);

    }

}

Output

Enter Student : 0 Details

Enter Name : ds

Enter id : 54

Enter marks : 3

Enter Student : 1 Details

Enter Name : de

Enter id : 67

Enter marks : 87

Enter Student : 2 Details

Enter Name : ds

Enter id : 54

Enter marks : 87

Enter Student : 3 Details

Enter Name : gh

Enter id : 65

Enter marks : 89

Enter Student : 4 Details

Enter Name : df

Enter id : 23

Enter marks : 87

Enter Student : 5 Details

Enter Name : vf

Enter id : 42

Enter marks : 75

Enter Student : 6 Details

Enter Name : fd

Enter id : 13

Enter marks : 86

Enter Student : 7 Details

Enter Name : fd

Enter id : 24

Enter marks : 78

Enter Student : 8 Details

Enter Name : fg

Enter id : 13

Enter marks : 77

Enter Student : 9 Details

Enter Name : fr

Enter id : 65

Enter marks : 89

Student : 0 Details

Student Name : ds

Student id : 54

Student marks : 3.00

Student : 1 Details

Student Name : de

Student id : 67

Student marks : 87.00

Student : 2 Details

Student Name : ds

Student id : 54

Student marks : 87.00

Student : 3 Details

Student Name : gh

Student id : 65

Student marks : 89.00

Student : 4 Details

Student Name : df

Student id : 23

Student marks : 87.00

Student : 5 Details

Student Name : vf

Student id : 42

Student marks : 75.00

Student : 6 Details

Student Name : fd

Student id : 13

Student marks : 86.00

Student : 7 Details

Student Name : fd

Student id : 24

Student marks : 78.00

Student : 8 Details

Student Name : fg

Student id : 13

Student marks : 77.00

Student : 9 Details

Student Name : fr

Student id : 65

Student marks : 89.00

9. Write a program to store information of n students and display them using structure

Code

#include<stdio.h>

struct student

{

    int id;

    char name[100];

    float marks;

} S[1000];

void student\_input(int);

void display\_student\_input(int);

int main()

{

    int n;

    printf("Enter number of students : ");

    scanf("%d",&n);

    fflush(stdin);

    student\_input(n);

    display\_student\_input (n);

    return 0;

}

void student\_input(int n)

{

    int i;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Enter Student : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(S[i].name,100,stdin);

        printf(" \n Enter id : ");

        scanf("%d",&S[i].id);

        printf(" \n Enter marks : ");

        scanf("%f",&S[i].marks);

         fflush(stdin);

    }

}

void display\_student\_input(int n)

{

    int i ;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Student : %d  Details \n\n",i);

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

         printf(" \n Student id : %d \n",S[i].id);

         printf(" \n Student marks : %.2f \n",S[i].marks);

    }

}

Output

Enter number of students : 2

Enter Student : 0 Details

Enter Name : Dhruv

Enter id : 24224

Enter marks : 90.54

Enter Student : 1 Details

Enter Name : ram

Enter id : 24245

Enter marks : 80.43

Student : 0 Details

Student Name : Dhruv

Student id : 24224

Student marks : 90.54

Student : 1 Details

Student Name : ram

Student id : 24245

Student marks : 80.43

10. Write a program to enter the marks of 5 students in Chemistry, Mathematics and

Physics (each out of 100) using a structure named Marks having elements roll no.,

name, chem\_marks, maths\_marks and phy\_marks and then display the percentage

of each student.

Code

#include<stdio.h>

struct student

{

    int roll\_no;

    char name[100];

    float chem\_marks;

    float math\_marks;

    float phy\_marks;

} S[1000];

void student\_input(int);

void display\_student\_input(int);

int main()

{

    int n = 5;

    student\_input(n);

    display\_student\_input (n);

    return 0;

}

void student\_input(int n)

{

    int i;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Enter Student : %d  Details \n\n",i);

         printf(" \n Enter Name : ");

         fgets(S[i].name,100,stdin);

        printf(" \n Enter roll no : ");

        scanf("%d",&S[i].roll\_no);

        printf(" \n Enter chem marks : ");

        scanf("%f",&S[i].chem\_marks);

         fflush(stdin);

        printf(" \n Enter math marks : ");

        scanf("%f",&S[i].math\_marks);

         fflush(stdin);

        printf(" \n Enter phy marks : ");

        scanf("%f",&S[i].phy\_marks);

         fflush(stdin);

    }

}

void display\_student\_input(int n)

{

    int i ;

    float per;

     for(i=0 ; i<n ; i++)

    {

         printf("\n\n Student : %d  Details \n\n",i);

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

         printf(" \n Student roll no : %d \n",S[i].roll\_no);

         per = (S[i].chem\_marks + S[i].math\_marks + S[i].phy\_marks) / 300.00 ;

         printf(" \n Student persentage : %.2f \n",per\*100.00);

    }

}

Output

Enter Student : 0 Details

Enter Name : dgd

Enter roll no : 45

Enter chem marks : 67

Enter math marks : 65

Enter phy marks : 56

Enter Student : 1 Details

Enter Name : Dhruv

Enter roll no : 99

Enter chem marks : 99

Enter math marks : 99

Enter phy marks : 99

Enter Student : 2 Details

Enter Name : rfghr

Enter roll no : 45

Enter chem marks : 45

Enter math marks : 32

Enter phy marks : 67

Enter Student : 3 Details

Enter Name : tgh

Enter roll no : 878

Enter chem marks : 67

Enter math marks : 56

Enter phy marks : 45

Enter Student : 4 Details

Enter Name : yju

Enter roll no : 87

Enter chem marks : 56

Enter math marks : 78

Enter phy marks : 98

Student : 0 Details

Student Name : dgd

Student roll no : 45

Student persentage : 62.67

Student : 1 Details

Student Name : Dhruv

Student roll no : 99

Student persentage : 99.00

Student : 2 Details

Student Name : rfghr

Student roll no : 45

Student persentage : 48.00

Student : 3 Details

Student Name : tgh

Student roll no : 878

Student persentage : 56.00

Student : 4 Details

Student Name : yju

Student roll no : 87

Student persentage : 77.33