ASSIGNMENT – 21

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

#include<stdio.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

int main()

{

    struct emp;

    return 0;

}

2. Write a function to take input employee data from the user. [ Refer structure from question 1 ]

#include<stdio.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

struct employee inputdata()

{

    struct employee a;

    printf("Enter employee ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter employee name : ");

    gets(a.name);

    printf("Enter salary : ");

    scanf("%d",&a.salary);

    return a;

}

int main()

{

    struct employee x;

    x=inputdata();

    return 0;

}

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

#include<stdio.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

struct employee inputdata()

{

    struct employee a;

    printf("Enter employee ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter employee name : ");

    gets(a.name);

    printf("Enter salary : ");

    scanf("%f",&a.salary);

    return a;

}

void showdata(struct employee x)

{

    printf("Employee ID : %d",x.id);

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

    printf("\nEmployee Salary : %.2f",x.salary);

}

int main()

{

    struct employee x;

    x=inputdata();

    showdata(x);

    return 0;

}

4. Write a function to find the highest salary employee from a given array of 10 employees. [ Refer structure from question 1]

#include<stdio.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

struct employee inputdata()

{

    struct employee a;

    printf("Enter employee ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter employee name : ");

    gets(a.name);

    printf("Enter salary : ");

    scanf("%f",&a.salary);

    return a;

}

int highestsalary(struct employee x[])

{

    int i,max=0;

    for(i=1;i<10;i++)

    {

        if(x[max].salary<x[i].salary)

            max=i;

    }

    return max;

}

void showdata(struct employee x)

{

    printf("Employee ID : %d",x.id);

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

    printf("\nEmployee Salary : %.2f\n",x.salary);

}

int main()

{

    int i,max;

    struct employee x[10];

    for(i=0;i<10;i++)

        x[i]=inputdata();

    max=highestsalary(x);

    printf("Employee with highest salary is : %s",x[max].name);

    return 0;

}

5. Write a function to sort employees according to their salaries [ refer structure from question 1]

#include<stdio.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

struct employee inputdata()

{

    struct employee a;

    printf("Enter employee ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter employee name : ");

    gets(a.name);

    printf("Enter salary : ");

    scanf("%f",&a.salary);

    return a;

}

void showdata(struct employee x)

{

    printf("Employee ID : %d",x.id);

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

    printf("\nEmployee Salary : %.2f\n",x.salary);

}

void sortbysalary(struct employee x[])

{

    int i,j;

    struct employee temp;

    for(i=0;i<10;i++)

    {

        for(j=i+1;j<10;j++)

        {

            if(x[i].salary<x[j].salary)

            {

                temp=x[i];

                x[i]=x[j];

                x[j]=temp;

            }

        }

    }

}

int main()

{

    int i;

    struct employee x[10];

    for(i=0;i<10;i++)

        x[i]=inputdata();

    sortbysalary(x);

    for(i=0;i<10;i++)

        showdata(x[i]);

    return 0;

}

6. Write a function to sort employees according to their names [refer structure from question 1]

#include<stdio.h>

#include<string.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

struct employee inputdata()

{

    struct employee a;

    printf("Enter employee ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter employee name : ");

    gets(a.name);

    printf("Enter salary : ");

    scanf("%f",&a.salary);

    return a;

}

void showdata(struct employee x)

{

    printf("Employee ID : %d",x.id);

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

    printf("\nEmployee Salary : %.2f\n",x.salary);

}

void sortbyname(struct employee x[])

{

    int i,j;

    struct employee temp;

    for(i=0;i<10;i++)

    {

        for(j=i+1;j<10;j++)

        {

            if(strcmp(x[i].name , x[j].name)>0)

            {

                temp=x[i];

                x[i]=x[j];

                x[j]=temp;

            }

        }

    }

}

int main()

{

    int i;

    struct employee x[10];

    for(i=0;i<10;i++)

        x[i]=inputdata();

    sortbyname(x);

    for(i=0;i<10;i++)

        showdata(x[i]);

    return 0;

}

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

#include<stdio.h>

#include<math.h>

#define DIFF(a,b) (a>b)?a-b:b-a

struct time

{

    int hours,minutes,seconds;

};

struct time inputdata()

{

    struct time a;

    printf("Enter time(hours minutes seconds) : ");

    scanf("%d %d %d",&a.hours,&a.minutes,&a.seconds);

    return a;

}

void showdata(struct time x)

{

    printf("Difference between the two time periods is : %d : %d : %d",x.hours,x.minutes,x.seconds);

}

struct time difference(struct time t1,struct time t2)

{

    struct time a;

    while(t2.seconds>t1.seconds)

    {

        t1.minutes--;

        t1.seconds+=60;

    }

    a.seconds=(t1.seconds-t2.seconds);

    while(t2.minutes>t1.minutes)

    {

        t1.hours--;

        t1.minutes+=60;

    }

    a.minutes=t1.minutes-t2.minutes;

    a.hours=abs(t1.hours-t2.hours);

    return a;

}

int main()

{

    struct time t1,t2,diff;

    t1=inputdata();

    t2=inputdata();

    diff=difference(t1,t2);

    showdata(diff);

    return 0;

}

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

#include<stdio.h>

struct student

{

    int id;

    char name[20];

    int standard;

};

struct student inputdata()

{

    struct student a;

    printf("Enter student ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter student name : ");

    gets(a.name);

    printf("Enter standard : ");

    scanf("%d",&a.standard);

    return a;

}

void showdata(struct student x)

{

    printf("Student ID : %d",x.id);

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

    printf("\nStudent Class : %d\n",x.standard);

}

int main()

{

    int i;

    struct student x[10];

    for(i=0;i<10;i++)

        x[i]=inputdata();

    for(i=0;i<10;i++)

        showdata(x[i]);

    return 0;

}

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

#include<stdio.h>

struct student

{

    int id;

    char name[20];

    int standard;

};

struct student inputdata()

{

    struct student a;

    printf("Enter student ID : ");

    scanf("%d",&a.id);

    fflush(stdin);

    printf("Enter student name : ");

    gets(a.name);

    printf("Enter standard : ");

    scanf("%d",&a.standard);

    return a;

}

void showdata(struct student x)

{

    printf("Student ID : %d",x.id);

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

    printf("\nStudent Class : %d\n",x.standard);

}

int main()

{

    int i,n;

    printf("Enter the value of n : ");

    scanf("%d",&n);

    struct student x[n];

    for(i=0;i<n;i++)

        x[i]=inputdata();

    for(i=0;i<n;i++)

        showdata(x[i]);

    return 0;

}

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.

#include<stdio.h>

struct Marks

{

    int rollno,chem\_marks,math\_marks,phy\_marks;

    char name[20];

};

struct Marks inputdata()

{

    struct Marks a;

    printf("Enter student roll no. : ");

    scanf("%d",&a.rollno);

    fflush(stdin);

    printf("Enter student name : ");

    gets(a.name);

    printf("Maths Marks : ");

    scanf("%d",&a.math\_marks);

    printf("Chemistry Marks : ");

    scanf("%d",&a.chem\_marks);

    printf("Physics Marks : ");

    scanf("%d",&a.phy\_marks);

    return a;

}

void showpercent(struct Marks x)

{

    float s;

    s=(x.chem\_marks+x.math\_marks+x.phy\_marks)/3;

    //printf("Student Roll no. : %d",x.rollno);

    printf("\nStudent Name : %s\t",x.name);

    printf("Percentage Obtained : %.2f",s);

}

int main()

{

    int i,n;

    printf("Enter the value of n : ");

    scanf("%d",&n);

    struct Marks x[n];

    for(i=0;i<n;i++)

        x[i]=inputdata();

    for(i=0;i<n;i++)

        showpercent(x[i]);

    return 0;

}