**Assignment - 21 A Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Structure**

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

#include<stdio.h>

#include<string.h>

struct employee

{

    int id;

    char name[30];

    float salary;

}e1;

int main()

{

    printf("\n");

    e1.id=101;

    strcpy(e1.name,"Abhishek");

    e1.salary=1200;

    printf("Employee id: %d\n",e1.id);

    printf("Employee name: %s\n",e1.name);

    printf("Employee salary: %f",e1.salary);

    return 0;

}

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

question 1 ]\*/

#include<stdio.h>

#include<string.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

int main()

{

    struct employee e;

    printf("Enter the employee name:");

    fflush(stdin);

    fgets(e.name,20,stdin);

    printf("Enter the employee id:");

    scanf("%d",&e.id);

    printf("Enter the employee salary:");

    scanf("%f",&e.salary);

    printf("\n");

    printf("Employee name: %s",e.name);

    printf("Employee id: %d\n",e.id);

    printf("Employee salary: %f",e.salary);

    return 0;

}

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

#include<stdio.h>

#include<string.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

int main()

{

    struct employee e1;

    e1.id=101;

    strcpy(e1.name,"Abhishek");

    e1.salary=1200;

    printf("\n");

    printf("Employee id: %d",e1.id);

    printf("Employee name: %s\n",e1.name);

    printf("Employee salary: %f",e1.salary);

    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>

#include<string.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

int main()

{

    struct employee e[5];

    int i,temp,j;

    for(i=0; i<=3; i++)

    {

        printf("Enter employee name:");

        fflush(stdin);

        fgets(e[i].name,20,stdin);

        printf("Enter employee id:");

        scanf("%d",&e[i].id);

        printf("Enter employee salary:");

        scanf("%f",&e[i].salary);

    }

    printf("\n");

    for(i=0; i<=3; i++)

    {

        for(j=0; j<=2; j++)

        {

            if(strcmp(e[i].name,e[j].name)<0)

            {

                temp = e[i].salary;

                e[i].salary = e[j].salary;

                e[j].salary = temp;

            }

        }

    }

    printf("\n");

    for(i=0; i<=3; i++)

    {

        printf("Employee name: %s",e[i].name);

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

        printf("Enployee salary: %0.f\n",e[i].salary);

        printf("\n");

    }

    return 0;

}

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

question 1]\*/

#include<stdio.h>

#include<string.h>

struct employee

{

    int id;

    char name[20];

    float salary;

};

int main()

{

    struct employee e[5];

    int i,temp,j;

    for(i=0; i<=2; i++)

    {

        printf("Enter employee name:");

        fflush(stdin);

        fgets(e[i].name,20,stdin);

        printf("Enter employee id:");

        scanf("%d",&e[i].id);

        printf("Enter employee salary:");

        scanf("%f",&e[i].salary);

    }

    printf("\n");

    for(i=0; i<=2; i++)

    {

        for(j=0; j<=2; j++)

        {

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

            {

                temp = e[i].salary;

                e[i].salary = e[j].salary;

                e[j].salary = temp;

            }

        }

    }

    printf("\n");

    for(i=0; i<=2; i++)

    {

        printf("Employee name: %s",e[i].name);

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

        printf("Enployee salary: %0.f\n",e[i].salary);

        printf("\n");

    }

    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 mark;

};

int main()

{

    struct employee e[20];

    char temp[20];

    int i, j, n;

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

    scanf("%d", &n);

    for (i = 0; i < n; i++)

    {

        printf("Enter the Students name: e[%d]:",i);

        scanf("%s",&e[i].name);

        printf("Enter the Students id:");

        scanf("%d", &e[i].id);

        printf("Enter the Students mark:");

        scanf("%f", &e[i].mark);

        printf("\n");

    }

    for(i=0; i<n; i++)

    {

        for(j=0; j<n; j++)

        {

            if(strcmp(e[j-1].name,e[j].name)>0)

            {

                strcpy(temp,e[j-1].name);

                strcpy(e[j-1].name,e[j].name);

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

            }

        }

    }

    printf("\n\tStudents name sorted:\n");

    for (i = 0; i < n; i++)

    {

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

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

        printf("Students mark: %f\n", e[i].mark);

        printf("\n");

    }

    return 0;

}

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

#include<stdio.h>

struct time

{

    int hour;

    int min;

    int sec;

};

int main()

{

    struct time start,stop,diff;

    printf("Enter hour,minute and second start time:");

    scanf("%d %d %d",&start.hour,&start.min,&start.sec);

    printf("Enter hour,minute and second stop time:");

    scanf("%d %d %d",&stop.hour,&stop.min,&stop.sec);

    if(start.sec > stop.sec)

    {

        start.sec += 60;

        --stop.min;

    }

    if(start.min > stop.min)

    {

        start.min +=60;

        --stop.hour;

    }

    diff.sec = stop.sec - start.sec;

    diff.min = stop.min - start.min;

    diff.hour = stop.hour - start.hour;

    printf("Difference is: %d : %d : %d",diff.hour,diff.min,diff.sec);

    return 0;

}

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

#include<stdio.h>

struct student

{

    int roll\_no;

    char name[20];

    float marks;

};

int main()

{

    struct student s[10];

    int i;

    for(i=1; i<=10; i++)

    {

        printf("Enter the name:");

        fflush(stdin);

        fgets(s[i].name,20,stdin);

        printf("Enter the roll no:");

        scanf("%d",&s[i].roll\_no);

        printf("Enter the marks:");

        scanf("%f",&s[i].marks);

        printf("\n");

    }

    for(i=1; i<=10; i++)

    {

        printf("Student name: %s",s[i].name);

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

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

    }

    return 0;

}

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

#include<stdio.h>

struct student

{

    int roll\_no;

    char name[20];

    float marks;

};

int main()

{

    struct student s[10];

    int i,n;

    printf("Information of n Students:\n");

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

    printf("Enter the size of array elements:");

    scanf("%d",&n);

    printf("Enter the array %d elements:\n",n);

    for(i=1; i<=n; i++)

    {

        printf("Enter the name:");

        fflush(stdin);

        fgets(s[i].name,20,stdin);

        printf("Enter the roll no:");

        scanf("%d",&s[i].roll\_no);

        printf("Enter the marks:");

        scanf("%f",&s[i].marks);

        printf("\n");

    }

    for(i=1; i<=n; i++)

    {

        printf("Student name: %s",s[i].name);

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

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

        printf("\n");

    }

    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 student

{

    int roll;

    char name[20];

    float chem\_marks,math\_marks,phy\_marks;

};

int main()

{

    struct student marks[5];

    int i;

    for(i=1; i<=4; i++)

    {

        printf("Enter the student name:");

        fflush(stdin);

        fgets(marks[i].name,20,stdin);

        printf("Enter the student roll:");

        scanf("%d",&marks[i].roll);

        printf("Enter the che\_marks:");

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

        printf("Enter the math\_marks:");

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

        printf("Enter the phy\_marks:");

        scanf("%f",&marks[i].phy\_marks);

        printf("\n");

    }

    for(i=1; i<=4; i++)

    {

        float percentage = (marks[i].chem\_marks + marks[i].math\_marks + marks[i].phy\_marks)/5;

        printf("Percentage %f\n",percentage);

        printf("\n");

    }

    return 0;

}