(STRUCTURES AS FUNCTIONS)

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(BSCS IST SS1)

QUESTION

Write a menu driven c++ for following:

Solve all by Structures as functions.

1- Enter a number and display it on the screen using structure as function:

2- Enter person id,his name and age and display it on the screen using structure as function:

3- Enter student roll no and his marks in 3 subjects and their average and display it on the screen using structure as function:

4- Enter empolee no,name,hours worked,hourly rate and gross pay and display it on screen:

5- Enter real and imaginary number and display it on screen:

6- Enter 2 players distance and time in minutes and display winner on the screen:

7- Enter hours,minutes and seconds and display total seconds on the screen:

8- Addition of two complex numbers:

9- Enter 2 computers id, their brand name and price and display costliest computer on screen:

SOLUTION

```
#include <iostream>

using namespace std;

struct MyStructure{

        int no;

};

void display(MyStructure n );
```

```
struct person{
        int pid;
        char fname[40],sname[30];
        int age;
};
void Person(person p);
struct student{
        int rno;
        int engmarks;
        int phymarks;
        int compmarks;
        float avg;
};
void Student(student s);
struct einfo{
        int eno;
        char fname[40],sname[30];
        double hrs,hrsrate,gsal;
};
void empolyee(einfo e);
        struct complex{
        int realno;
        int imgno;
};
void Complex (complex c);
struct player{
```

```
        int distance;
        int minutes;
        int seconds;
};
player Winner(player,player);
struct time {
        int hours;
        int minutes;
        int seconds;
};
void show(time);
struct complexx {
int real;
int imaginary;
};
void add( complexx, complexx ,complexx);
struct computer{
        int id;
        string bname;
        float price;
};
void Computer (computer, computer);
int main(){
int opt;
cout<<"\n \t Structure as function Menu By @ALI AKBER R036:"<<endl;
cout<<"1- Enter a number and display it on the screen using structure as function:"<<endl;
```

```
cout<<"2- Enter person id,his name and age and display it on the screen using structure as function:"<<endl;

cout<<"3- Enter student roll no and his marks in 3 subjects and their average and display it on the screen using structure as function:"<<endl;

cout<<"4- Enter empolee no,name,hours worked,hourly rate and gross pay and display it on screen:"<<endl;

cout<<"5- Enter real and imaginary number and display it on screen:"<<endl;

cout<<"6- Enter 2 players distance and time in minutes and display winner on the screen:"<<endl;

cout<<"7- Enter hours,minutes and seconds and display total seconds on the screen:"<<endl;

cout<<"8- Addition of two complex numbers:"<<endl;

cout<<"9- Enter 2 computers id, their brand name and price and display costliest computer on screen:"<<endl;

cout<<"Enter an option:"<<endl;

cin>>opt;

switch(opt){

case 1:

        MyStructure n;

        display(n);

        break;

case 2:

        person p;

        Person(p);

        break;

case 3:

        student s;

        Student(s);

        break;

        break;
```

```
                case 4:
                einfo e;
                empolyee(e);
                break;
                case 5:
                        complex c;
                        Complex (c);
                        break;
                        case 6:
                                player p1,p2;
                        Winner(p1,p2);
                                break;
                                case 7:
                                        time t;
                                        show(t);
                                        break;
                                        case 8:
                                complexx c1,c2,c3;
                    add (c1,c2,c3);
                                        break;
                                        case 9:
                                        computer co1, co2;
                      Computer (co1,co2);
                      break;
}
        return 0;
```

```
}
void display(MyStructure n ){
        cout<<"Enter the integer"<<endl;
        cin>>n.no;
        cout<<"Entered number is: "<<n.no<<endl;
}
void Person(person p){
        cout<<"Enter person id: "<<endl;
        cin>>p.pid;
        cout<<" Enter person first name : "<<endl;
        cin>>p.fname;
        cout<<" Enter person second name : "<<endl;
        cin>>p.sname;
        cout<<"Enter person age: "<<endl;
        cin>>p.age;
        cout<<"The Person data is as follows:\t "<<endl;
cout<<"The Person id is: "<<p.pid<<endl;
cout<<" The Person name is: "<<p.fname<<"    "<<p.sname<<endl;
cout<<"The Person age is: "<<p.age<<endl;
}
void Student(student s){
        cout<<"Enter roll no: ";
        cin>>s.rno;
        cout<<"Enter marks in English: ";
        cin>>s.engmarks;
        cout<<"Enter marks in Physics: ";
```

```
        cin>>s.phymarks;
        cout<<"Enter marks in Computer: ";
        cin>>s.compmarks;
        s.avg=(s.engmarks+s.phymarks+s.compmarks)/3;
cout<<"\t The student data is given as: \t"<<endl;
cout<<"The student roll no is"<<s.rno<<endl;
cout<<"The student marks in English are: "<<s.engmarks<<endl;
cout<<"The student marks in Physcis are: "<<s.phymarks<<endl;
cout<<"The student marks in Computer are: "<<s.compmarks<<endl;
cout<<"The student average marks     are: "<<s.avg<<"%"<<endl;
}
void empolyee(einfo e){
        cout<<" Enter employee number: "<<endl;
        cin>>e.eno;
        cout<<" Enter employee first name : "<<endl;
        cin>>e.fname;
        cout<<" Enter employee second name : "<<endl;
        cin>>e.sname;
        cout<<" Enter employee's hours worked: "<<endl;
        cin>>e.hrs;
        cout<<"Enter empolyee's hourly rate : "<<endl;
        cin>>e.hrsrate;
        e.gsal=e.hrs*e.hrsrate;
        cout<<" \t The Empolyee data is as follows :\t "<<endl;
        cout<<" Employee number: "<<e.eno<<endl;
        cout<<" Employee first name : "<<e.fname<<endl;
```

```
	cout<<" Employee second name : "<<e.sname<<endl;
	cout<<" Employee's hours worked: "<<e.hrs<<endl;
	cout<< " Empolyee's hourly rate : "<<e.hrsrate<<endl;
	cout<<"    Empolyee's gross salary: Rs    "<<e.gsal<<endl;
}
void Complex( complex c){
	cout<<"Enter the real part: "<<endl;
	cin>>c.realno;
	cout<<"Enter the imaginary part: "<<endl;
	cin>>c.imgno;
	cout<<"The output of program will be: "<<endl;
	cout<<"Complex number"<<" = "<<c.realno<<"+"<<c.imgno<<"i"<<endl;
}
player Winner(player p1,player p2){
	float t1,t2;
	cout<<" Enter    Details of ist player\t: "<<endl;
	cout<<"enter distance covered by ist player: ";
	cin>>p1.distance;
	cout<<"enter minutes and seconds for ist player distance : ";
	cin>>p1.minutes>>p1.seconds;
	cout<<" Enter    Details of 2nd player\t: "<<endl;
	cout<<"enter distance covered by 2nd player: ";
	cin>>p2.distance;
	cout<<"enter minutes and seconds for 2nd player distance : ";
	cin>>p2.minutes>>p2.seconds;
	t1=(p1.minutes*60+p1.seconds);
```

```
        t2=(p2.minutes*60+p2.seconds);
        cout<<"The record of the winner player is : "<<endl;
        if (t1<t2){
        cout<<"Distance: "<<p1.distance<<endl;
        cout<<"Minutes: "<<p1.minutes<<endl;
        cout<<"seconds : "<<p1.seconds<<endl;
        }
        else{
                cout<<"Distance: "<<p2.distance<<endl;
        cout<<"Minutes: "<<p2.minutes<<endl;
        cout<<"seconds : "<<p2.seconds<<endl;
        }
}
void show(time t){
        cout<<"Enter hours: "<<endl;
        cin>>t.hours;
        cout<<"Enter minutes: "<<endl;
        cin>>t.minutes;
        cout<<"Enter seconds: "<<endl;
        cin>>t.seconds;
        t.seconds +=(t.hours*3600)+(t.minutes*60);
        cout<<"Total seconds are: "<<t.seconds<<endl;
}
void add( complexx c1, complexx c2 ,complexx c3){
cout<<"Enter first complex number :\n ";
cout<<"Enter real part : ";
```

```
cin>>c1.real;
cout<<"Enter imaginary part : ";
cin>>c1.imaginary;
cout<<"\nEnter second complex number :\n ";
cout<<"Enter real part : ";
cin>>c2.real;
cout<<"Enter imaginary part : ";
cin>>c2.imaginary;
c3.real=c1.real+c2.real;
c3.imaginary=c1.imaginary+c2.imaginary;
cout<<"\n Addition of Complex numbers is : "
<<c3.real<<" + "<<c3.imaginary<<"i";
}
void Computer (computer co1, computer co2){
cout<<"Enter details of computer 1"<<endl;
        cout<<"Enter id of the computer: "<<endl;
        cin>>co1.id;
        cout<<"Enter brand name    of the computer: "<<endl;
        cin>>co1.bname;
        cout<<"Enter price of the computer: "<<endl;
        cin>>co1.price;
        cout<<"Enter details of computer 2"<<endl;
        cout<<"Enter id of the computer: "<<endl;
        cin>>co2.id;
        cout<<"Enter brand name    of the computer: "<<endl;
        cin>>co2.bname;
```

```
	cout<<"Enter price of the computer: "<<endl;
	cin>>co2.price;
	cout<<" The most costly computer is as follows: "<<endl;
	if (co1.price> co2.price){
		cout<<"Computer id: "<<co1.id<<endl;
		cout<<"Computer brand name : "<<co1.bname<<endl;
		cout<<"Computer price : "<<co1.price<<endl;
	}
	else {
			cout<<" Computer id: "<<co2.id<<endl;
		cout<<"Computer brand name "<<co2.bname<<endl;
		cout<<"Computer price :"<<co2.price<<endl;
	}
}
```

Question 11:

Write a program that declares a structure to store the code number, salary and grade of an employee. The program defines two structure variables, inputs records of two employees and then displays the record of the employee with more salary.Perform this using structres as function.

```
#include <iostream>
using namespace std;
struct empolyee{
	int code;
	float salary;
	int grade;
};
void empdata( empolyee, empolyee);
```

```
int main(){
	empolyee e1,e2;
empdata(e1,e2);



	return 0;
}
void empdata( empolyee e1, empolyee e2){
cout<<" Enter    Details of ist empolyee\t: "<<endl;
	cout<<"enter empolyee code number: ";
	cin>>e1.code;
	cout<<"enter empolyee salary : ";
	cin>>e1.salary;
	cout<<"enter empolyee grade: ";
	cin>>e1.grade;
	cout<<" Enter Details of 2nd empolyee :"<<endl;
	cout<<"enter empolyee code number: ";
	cin>>e2.code;
	cout<<"enter empolyee salary: ";
	cin>>e2.salary;
	cout<<"enter empolyee grade : ";
	cin>>e2.grade;
	cout<<"The empolyee with more salary is : "<<endl;
	if (e1.salary>e2.salary){
	cout<<"code number: "<<e1.code<<endl;
	cout<<"salary: "<<e1.salary<<endl;
```

```
        cout<<"grade : "<<e1.grade<<endl;
        }
        else{
                cout<<"code number: "<<e2.code<<endl;
        cout<<"salary: "<<e2.salary<<endl;
        cout<<"grade : "<<e2.grade<<endl;
        }
}
```