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ROLL-2005757
BRANCH-CSE (SLOT-1)
https://github.com/Kingsky1t/OOP_Lab_2005757

1) WAP to display the message "hello" followed by your name on screen.

```
#include <iostream>
using namespace std;

int main() {
    char name[]="shaunak chandra";
    cout<<"hello "<<name;
}
```

output

```
hello shaunak chandra
```

2) Create a class which stores name, roll number and total marks for a student. Input the data for a student and display it.

```
#include <iostream>
using namespace std;

class student{
    char name[100];
    int roll;
    int tot;

    public:
    void input() {
     cout<<"enter the details of the student\n";
     cout<<"enter name:";
     cin>>name;
     cout<<"enter roll no.:";
     cin>>roll;
     cout<<"enter total marks:";
     cin>>tot;
    }

    void display() {
     cout<<name<<" has roll number "<<roll<<" and total marks "<<tot;
    }
};

int main() {
    student s;
    s.input();
    s.display();
    return 0;
}
```

output

```
enter the details of the student
enter name:neek
enter roll no.:757
enter total marks:400
neek has roll number 757 and total marks 400
```

3) Modify the program (2) to store marks in 5 subjects. Calculate the total marks and percentage of a student
and display it.

```
#include <iostream>
using namespace std;

class student{
    char name[100];
    int roll;
    int marks[5];
    int tot=0;
    int per=0;

    public:
    void input() {
     cout<<"enter the details of the student\n";
     cout<<"enter name:";
     cin>>name;
     cout<<"enter roll no.:";
     cin>>roll;
     cout<<"enter marks in 5 subjects:";
     for(int i=0;i<5;i++) {
              cin>>marks[i];
     }
    }

    void calc() {
     for(int i=0;i<5;i++) {
              tot+=marks[i];
     }
     per=tot/5;
    }

    void display() {
     cout<<name<<" has roll number "<<roll<<" and total marks "<<tot<<" and "<<per<<"%";
    }
};

int main() {
    student s;
    s.input();
    s.calc();
    s.display();
```

```
    return 0;
}
```

output

```
enter the details of the student
enter name:neel
enter roll no.:757
enter marks in 5 subjects:100 90 87 90 57
neel has roll number 757 and total marks 424 and 84%
```

4) Create a class complex which stores real and imaginary part of a complex number. Input 10 complex numbers and display them.

```
#include <iostream>
using namespace std;

class complex{
    int real;
    int img;

    public:
    void input() {
     cout<<"enter the complex number:";
     cin>>real>>img;
    }

    void output() {
     cout<<"\nthe complex number is "<<real<<"+i"<<img;
    }
};

int main() {
    complex arr[10];
    for(int i=0;i<10;i++) {
     arr[i].input();
    }
    for(int i=0;i<10;i++) {
     arr[i].output();
    }
    return 0;
}
```

output

```
enter the complex number:3 4
enter the complex number:1 3
enter the complex number:9 8
enter the complex number:16 78
enter the complex number:09 66
enter the complex number:23 1
enter the complex number:6 3
enter the complex number:90 7
```

```
enter the complex number:11 56
enter the complex number:34 7

the complex number is 3+i4
the complex number is 1+i3
the complex number is 9+i8
the complex number is 16+i78
the complex number is 9+i66
the complex number is 23+i1
the complex number is 6+i3
the complex number is 90+i7
the complex number is 11+i56
the complex number is 34+i7
```

5) Create a class distance which stores a distance in feet and inches. Input 2 distance values in objects, add them, store the resultant distance in and object and display it.
Write the above program in two ways.
a) store the resultant distance in the calling object:C3.add(C1,C2)
b) return the resultant object C3=C1.add(C2)

```
#include <iostream>
using namespace std;

class Distance{
    public:
    int ft;
    int in;

    void input() {
     cout<<"enter the distance in ft and inches:";
     cin>>ft>>in;
    }

    void add(Distance a,Distance b) {
     ft=a.ft+b.ft;
     in=a.in+b.in;
     if(in>=12) {
                ft++;
                in-=12;
     }
    }

    Distance add(Distance a) {
     Distance m;
     m.ft=ft+a.ft;
     m.in=in+a.in;
     if(m.in>=12) {
                m.ft++;
                m.in-=12;
     }
```

```
     return m;
    }

    void display() {
     cout<<"the addition of distances is "<<ft<<" ft and "<<in<<" inches";
    }
};

int main() {
    Distance c1,c2,c3;
    c1.input();
    c2.input();
    c3.add(c1,c2);
    c3.display();
    cout<<"\n";
    Distance d1,d2,d3;
    d1.input();
    d2.input();
    d3=d1.add(d2);
    d3.display();
    return 0;
}
```

output

```
enter the distance in ft and inches:12 6
enter the distance in ft and inches:4 11
the addition of distances is 17 ft and 5 inches
enter the distance in ft and inches:2 4
enter the distance in ft and inches:7 9
the addition of distances is 10 ft and 1 inches
```

6) Create a class which stores id, name, age and basic salary of an employee. Input data for n number of employees. Calculate the gross salary of all the employees and display it along with all other details in a tabular form. [Gross salary= Basic salary + DA + HRA, DA = 80% of Basic salary
HRA=10% of Basic salary]

```
#include <iostream>
using namespace std;

class employee {
    char id[20];
    char name[100];
    int age;
    int bas_sal;
    int grs_sal;
    public:
    void input() {
     cout<<"enter id:";
     cin>>id;
     cout<<"enter name:";
     cin>>name;
```

```
     cout<<"enter age:";
     cin>>age;
     cout<<"enter basic salary:";
     cin>>bas_sal;
    }

    void cal() {
     grs_sal=bas_sal+0.8*bas_sal+0.1*bas_sal;
    }

    void output() {
     cout<<id<<"\t"<<name<<"\t"<<age<<"\t"<<bas_sal<<"\t"<<grs_sal<<"\n";
    }
};

int main() {
    int n;
    cout<<"enter the number of employees:";
    cin>>n;
    employee arr[n];
    for(int i=0;i<n;i++) {
     arr[i].input();
     arr[i].cal();
    }
    cout<<"in tabular form:\n";
    cout<<"id\tname\tage\tbasic salary\tgross salary\n";
    for(int i=0;i<n;i++) {
     arr[i].output();
    }
    return 0;
}
```

output

```
enter the number of employees:2
enter id:ek677
enter name:neel
enter age:19
enter basic salary:40000
enter id:yu778
enter name:sai
enter age:19
enter basic salary:80000
in tabular form:
id      name    age     basic salary    gross salary
ek677   neel    19      40000           76000
yu778   sai     19      80000           152000
```

7) Create a class which stores x and y coordinates of a point. Calculate distance between two given points and display it.

```
#include <iostream>
#include <cmath>
using namespace std;

class Point {
    public:
    int x;
    int y;

    void input() {
     cout<<"enter the x coordinate:";
     cin>>x;
     cout<<"enter the y coordinate:";
     cin>>y;
    }

    void dist(Point a) {
     int m=abs(x-a.x);
     int n=abs(y-a.y);
     double dis= m*m+n*n;
     dis=sqrt(dis);
     cout<<"the distance between the points is "<<dis;
    }
};

int main() {
    Point a,b;
    a.input();
    b.input();
    a.dist(b);
    return 0;
}
```

output

```
enter the x coordinate:2
enter the y coordinate:4
enter the x coordinate:7
enter the y coordinate:9
the distance between the points is 7.07107
```