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**OOP LAB-4**

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1.WAP to find area of a circle,a rectangle and a triangle using concept of function overloading.

#include<iostream>

using namespace std;

int main()

{

int area(int);

double area(int,double);

int area(int,int);

cout<<area(2)<<endl;

cout<<area(2,3.0)<<endl;

cout<<area(2,3)<<endl;

return 0;

}

int area(int p)

{

return (3.14\*p\*p);

}

double area(int p,double q)

{

return (p\*q);

}

int area(int p,int q)

{

return (0.5\*p\*q);

}

OUTPUT:

12

6

3

2.WAP to find volume of a sphere, a cylinder and a cuboid using function overloading.

#include<iostream>

using namespace std;

int main()

{

int vol(int);

double vol(int ,double);

int vol(int ,int, double);

cout<<vol(3)<<endl;

cout<<vol(3,6.0)<<endl;

cout<<vol(3,6,9.0)<<endl;

return 0;

}

int vol(int a)

{

int s=4\*22\*a\*a\*a;

return (s/21);

}

double vol(int p,double q)

{

int r=22\*p\*p\*q;

return (r/7);

}

int vol(int c,int d,double e)

{

return (c\*d\*e);

}

OUTPUT:

113

169

162

3.WAP which displays a given character,n no of times using a function.When the n value is not provided, it should print the given character 80 times.When both the character and n value is not provided, it should print’\*’ character 80 times.

#include<iostream>

using namespace std;

void num(char c='\*',int n=80)

{

while (n>0)

{

cout<<c;

n--;

}

cout<<endl;

}

int main()

{

num('A',6);

num('A');

num();

return 0;

}

OUTPUT:

AAAAAA

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

4.WAP to find square and cube of a number using inline functions.

#include<iostream>

using namespace std;

inline int square(int n)

{

return (n\*n);

}

inline int cube(int n)

{

return (n\*n\*n);

}

int main()

{

cout<<square(3)<<endl;

cout<<cube(3)<<endl;

return 0;

}

OUTPUT:

9

27

5.WAP to swap two integers using pass by reference.

#include<iostream>

using namespace std;

int main()

{

void swap(int &,int &);

int a,b;

cout<<"Enter the numbers:"<<endl;

cin>>a>>b;

swap(a,b);

return 0;

}

void swap(int &p,int &q)

{

int s;

s=p;

p=q;

q=s;

cout<<"a ="<<p<<endl<<"b ="<<q<<endl;

}

OUTPUT:

Enter the numbers:

12

3

a =3

b =12

6.WAP to increment the value of an argument given to function.

#include<iostream>

using namespace std;

int main()

{

void inc(int);

int n;

cin>>n;

inc(n);

return 0;

}

void inc(int a)

{

a=a+1;

cout<<a<<endl;

}

OUTPUT:

9

10

7.WAP to display no. From 1 to 10 by using static data member.

#include<iostream>

using namespace std;

class number

{

static int n;

public:

void getdata()

{

cin>>n;

}

void display()

{

for (int i=1;i<=n;i++)

{

cout<<i<<” ”;

}

}

};

int number::n;

int main()

{

number c;

c.getdata();

c.display();

return 0;

}

OUTPUT:

10

1 2 3 4 5 6 7 8 9 10

8.WAP to find simple interest by using static data member and member function.

#include<iostream>

using namespace std;

class simple

{

static float p;

static int r;

static int y;

public:

void getdata()

{

cin>>p>>r>>y;

}

static void calculate()

{

float SI;

SI=p\*r\*y\*0.01;

cout<<SI;

}

};

float simple::p;

int simple::r;

int simple::y;

int main()

{

simple ob;

ob.getdata();

simple::calculate();

return 0;

}

OUTPUT:

12000

10

3

3600

9.WAP to display to enter student roll,name,mark and display their cgpa by using static member function.

#include<iostream>

using namespace std;

class student

{

static int roll;

static char name[30];

static float marks[3];

static float cgpa;

static float sum;

public:

void getdata()

{

cout<<"Enter the name: ";

cin>>name;

cout<<"Enter the roll: ";

cin>>roll;

cout<<"Enter the marks: ";

for (int i=0;i<3;i++)

{

cin>>marks[i];

}

}

static void display()

{

for (int i=0;i<3;i++)

{

sum=sum+marks[i];

}

cgpa=(sum/3)/9.5;

cout<<"Name: "<<name<<endl;

cout<<"Roll: "<<roll<<endl;

cout<<"Cgpa: "<<cgpa<<endl;

}

};

int student::roll;

char student::name[30];

float student::marks[3];

float student::cgpa;

float student::sum;

int main()

{

student ob;

ob.getdata();

student::display();

return 0;

}

OUTPUT:

Enter the name: KIITian

Enter the roll: 1905000

Enter the marks: 12

13

15

Name: KIITian

Roll: 1905000

Cgpa: 1.40351

10.WAP to over load area(circle,rectangle)function by using static member function.

#include<iostream>

using namespace std;

class A

{

static float areac,arear;

public:

static int r,l,b;

void read()

{

cout<<"Enter the radius: \n";

cin>>r;

cout<<"Enter the length: \n";

cin>>l;

cout<<"Enter the breadth: \n";

cin>>b;

}

static void area(int r)

{

areac=3.14\*r\*r;

}

static void area(int l, int b)

{

arear=l\*b;

}

void display()

{

cout<<"Area of circle: "<<areac<<endl;

cout<<"Area of rectangle: "<<arear<<endl;

}

};

int A::r;

int A::l;

int A::b;

float A::areac;

float A::arear;

int main()

{

A ob;

ob.read();

A::area(A::r);

A::area(A::l,A::b);

ob.display();

return 0;

}

OUTPUT:

Enter the radius: 10

Enter the length: 20

Enter the breadth: 30

Area of circle: 314

Area of rectangle: 600

11.WAP in c++ to design a class Employee having data member empid,ename,basic,TA,DA and Gross.Create a static data member bonus shared by all employees.

Use read() member function to read data.

Use show() member function to display data.

Use calc() member function to calculate TA=30%of basic and DA=0%of basic and Gross salary.Read data for n employees.

#include<iostream>

using namespace std;

class Employee

{

int empid;

char ename[30];

float basic;

float TA;

float DA;

float gross;

static float bonus;

public:

void read()

{

cout<<"Enter id: ";

cin>>empid;

cout<<"Enter name: ";

cin>>ename;

cout<<"Enter basic: ";

cin>>basic;

cout<<"Enter bonus: ";

cin>>bonus;

}

void show()

{

cout<<"Name :"<<ename<<endl;

cout<<"Id :"<<empid<<endl;

cout<<"Basic :"<<basic<<endl;

cout<<"TA :"<<TA<<endl;

cout<<"DA :"<<DA<<endl;

cout<<"Bonus :"<<bonus<<endl;

cout<<"Gross :"<<gross<<endl;

}

void calc()

{

TA=30\*basic\*0.01;

DA=70\*basic\*0.01;

gross=TA+DA+basic+bonus;

}

};

float Employee::bonus;

int main()

{

int n;

cin>>n;

Employee e[n];

for (int i=0;i<n;i++)

{

e[i].read();

}

for (int i=0;i<n;i++)

{

e[i].calc();

e[i].show();

}

return 0;

}

OUTPUT:

3

Enter id: 1905001

Enter name: man1

Enter basic: 12000

Enter bonus: 3000

Enter id: 1905002

Enter name: man2

Enter basic: 30000

Enter bonus: 15000

Enter id: 1905003

Enter name: man3

Enter basic: 17000

Enter bonus: 3000

Name :man1

Id :1905000

Basic :12000

TA :3600

DA :8400

Bonus :3000

Gross :27000

Name :man2

Id :1905002

Basic :30000

TA :9000

DA :21000

Bonus :3000

Gross :63000

Name :man3

Id :1905003

Basic :17000

TA :5100

DA :11900

Bonus :3000

Gross :37000

12.WAP in c++ to design a class complex having data member real and imaginary.Use apppropriate member function to perform i/o operations.

Create two objects and add them.

#include<iostream>

using namespace std;

class complex

{

int real;

int imag;

public:

void input()

{

cout<<"Enter real part: ";

cin>>real;

cout<<"Enter imaginary part: ";

cin>>imag;

}

void output(complex S,complex A)

{

real=S.real+A.real;

imag=S.imaginary+A.imag;

cout<<"Sum is: "<<sumreal<<"+i"<<sumimag<<endl;

}

};

int main()

{

complex ob1,ob2;

ob1.input();

ob2.input();

ob1.output(ob1,ob2);

return 0;

}

OUTPUT:

Enter real part: 3

Enter imaginary part: 6

Enter real part: 5

Enter imaginary part: 6

Sum is: 8+i12

13.WAP in c++ to design a class complex having data member real and imaginary.Use appropriate member function to perform i/o operations.

Create two objects and add them and store the result in the third object.

#include<iostream>

using namespace std;

class complex

{

int real;

int imag;

public:

void input()

{

cout<<"Enter real part: ";

cin>>real;

cout<<"Enter imaginary part: ";

cin>>imag;

}

void sum(complex S,complex A)

{

real=S.real+A.real;

imag=S.imag+A.imag;

}

void output()

{

cout<<real<<"+ i"<<imag<<endl;

}

};

int main()

{

complex ob1,ob2,ob3;

ob1.input();

ob2.input();

ob3.sum(ob1,ob2);

ob3.output();

return 0;

}

OUTPUT:

Enter real part: 3

Enter imaginary part: 6

Enter real part: 1

Enter imaginary part: 5

4+ i11