**Assignment 2**

1.

Create a class named 'Student' with a string variable 'name' and an integer variable 'roll\_no'. Assign

the value of roll\_no as '2' and that of name as "John" by creating an object of the class Student.

#include<iostream>

using namespace std;

class student

{

private :

int rollno;

char name[10];

public :

void set\_data()

{

cout<<"\n Enter student rollno,name";

cin>>rollno>>name;

}

void show\_data()

{

cout<<"\n Rollno ="<<rollno<<"\nName ="<<name;

}

};

main()

{

student s1;

s1.set\_data();

s1.show\_data();

}

Output :

Enter student rollno,name

1

Jack

Rollno =1

Name =jack

2.

Assign and print the roll number, phone number and address of two students having names "Sam"

and "John" respectively by creating two objects of the class 'Student'.

#include<iostream>

using namespace std;

class student

{

private :

int rollno;

long int phoneno;

char name[40];

char address[40];

public:

void get()

{

cout<<"\n Enter the rollno";

cin>>rollno;

cout<<"\n Enter the phoneno";

cin>>phoneno;

cout<<"\n Enter the name";

cin>>name;

cout<<"\n Enter the address";

cin>>address;

}

void show()

{

cout<<"\n Rollno ="<<rollno;

cout<<"\n phone no ="<<phoneno;

cout<<"\nName ="<<name;

cout<<"\nAddress ="<<address;

}

};

main()

{

student s1,s2;

s1.get();

s1.show();

s2.get();

s2.show();

}

Output :

Enter the rollno

1

Enter the phoneno4587262

Enter the nameSam

Enter the addressPune

Rollno =1

phone no =4587262

Name =Sam

Address =Pune

Enter the rollno

2

Enter the phoneno7892441

Enter the nameJohn

Enter the addressNashik

Rollno =2

phone no =7892441

Name =John

Address =Nashik

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3.

Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by

creating a class named 'Triangle' with a function to print the area and perimeter.

#include<iostream>

#include<math.h>

using namespace std;

class triangle

{

private :

int s1,s2,s3;

float sq;

int perimeter,area;

public :

void get()

{

cout<<"\n enter the value of s1,s2,s3";

cin>>s1>>s2>>s3;

sq = (s1+s2+s3)/3;

area = sqrt(sq\*(sq-s1)\*(sq-s2)\*(sq-s3));

perimeter = s1+s2+s3;

}

void show()

{

cout<<"\nS1 ="<<s1<<"\nS2 ="<<s2<<"\nS3 ="<<s3;

cout<<"\n Area ="<<area;

cout<<"\n Perimeter="<<perimeter;

cout<<endl;

}

};

main()

{

triangle t1;

t1.get();

t1.show();

}

Output :

enter the value of s1,s2,s3

3

4

5

S1 =3

S2 =4

S3 =5

Area =0

Perimeter=12

4..

Write a program to print the area and perimeter of a triangle having sides of 3, 4 and 5 units by

creating a class named 'Triangle' with the constructor having the three sides as its parameters.

#include<iostream>

#include<math.h>

using namespace std;

class triangle

{

private :

int s1,s2,s3;

float sq;

int area, perimeter;

public :

triangle(int x, int y, int z)

{

s1 = x;

s2 = y;

s3 = z;

area = sqrt(sq\*(sq-s1)\*(sq-s2)\*(sq-s3));

perimeter = s1+s2+s3;

}

void show()

{

cout<<"\n S1="<<s1<<"\n S2 ="<<s2<<"\n S3 ="<<s3<<"\n Area ="<<area<<"\n Perimeter ="<<perimeter;

}

};

main()

{

triangle t1(4,5,5);

t1.show();

}

Output :

S1=4

S2 =5

S3 =5

Area =0

Perimeter =14

5.

Write a program to print the area of two rectangles having sides (4,5) and (5,8) respectively by

creating a class named 'Rectangle' with a function named 'Area' which returns the area. Length and

breadth are passed as parameters to its constructor.

#include<iostream>

using namespace std;

class rectangle

{

private :

int l,b;

public :

rectangle (int x, int y)

{

l = x;

b = y;

}

int area()

{

return l\*b;

}

};

main()

{

rectangle r1(4,5);

int p,q;

p =r1.area();

rectangle r2(5,8);

q=r2.area();

cout<<"\n Area ="<<p;

cout<<"\n Area ="<<q;

}

Output :

Area =20

Area =40

6.

Write a program to print the area of a rectangle by creating a class named 'Area' having two

functions. First function named as 'setDim' takes the length and breadth of the rectangle as

parameters and the second function named as 'getArea' returns the area of the rectangle. Length and

breadth of the rectangle are entered through keyboard.

#include<iostream>

using namespace std;

class Area

{

private :

int length,breadth;

public :

void setdim (int l, int b)

{

length = l;

breadth = b;

}

int getarea()

{

return length\*breadth;

}

};

main()

{

int Ar;

Area ar;

ar.setdim(4,5);

Ar = ar.getarea();

cout<<"\n Area ="<<Ar;

}

Output :

Area =20

----------------------------------------------------------------------------------------------------

7.

Write a program to print the area of a rectangle by creating a class named 'Area' taking the values of

its length and breadth as parameters of its constructor and having a function named 'returnArea'

which returns the area of the rectangle. Length and breadth of the rectangle are entered through

keyboard.

#include<iostream>

using namespace std;

class rect

{

private :

int l,b;

public :

rect (int x, int y)

{

l = x;

b = y;

}

int returnarea()

{

return l\*b;

}

};

main()

{

rect r1(5,5);

int p,q;

p =r1.returnarea();

rect r2(3,6);

q=r2.returnarea();

cout<<"\n Area ="<<p;

cout<<"\n Area ="<<q;

}

Output :

Area =25

Area =18

----------------------------------------------------------------------------------------------------

8.

Print the average of three numbers entered by the user by creating a class named 'Average' having a

function to calculate and print the average without creating any object of the Average class.

# include<iostream>

using namespace std;

class Average

{

private :

int a,b,c,avg;

public :

void get()

{

cout<<"Enter 3 numbers";

cin>>a>>b>>c;

avg = (a+b+c)/3;

}

void show()

{

cout<<"\n A ="<<a<<"\n B ="<<b<<"\n C ="<<c;

}

int show\_data()

{

return(avg);

}

};

class B : public Average

{

};

main()

{

int ans;

B b1;

b1.get();

b1.show();

ans = b1.show\_data();

cout<<"\n Ans="<<ans;

}

Output :

Enter 3 numbers

4

5

6

A =4

B =5

C =6

Ans=5

--------------------------------------------------------------------------------------------------

9.

Print the sum, difference and product of two complex numbers by creating a class named 'Complex'

with separate functions for each operation whose real and imaginary parts are entered by the user.

#include<iostream>

using namespace std;

class Complex

{

public:

int a,b;

char c1,c2;

void add()

{

cout<<"\nEnter real part";

cin>>a>>b;

cout<<"\n Enter imaginary part";

cin>>c1>>c2;

}

void diff()

{

cout<<"\n"<<a<<c1<<"+"<<b<<c2<<"="<<a-b<<c1-c2;

}

void pro()

{

cout<<"\n"<<a<<c1<<"+"<<b<<c2<<"="<<a\*b<<c1\*c2;

}

};

main(){

Complex c1;

c1.add();

c1.diff();

c1.pro();

}

Output :

Enter real part

4

5

Enter imaginary part8

6

48+56=-12

48+56=203024

-----------------------------------------------------------------------------------------------------

10.

Write a program to print the volume of a box by creating a class named 'Volume' with an

initialization list to initialize its length, breadth and height. (just to make you familiar with

initialization lists)

#include<iostream>

using namespace std;

class volume

{

public:

int l;

int b;

int h;

int vol;

public:

void read()

{

cout<<"\n Enter the length of box";

cin>>l;

cout<<"\n Enter the breadth of box";

cin>>b;

cout<<"\n Enter the height of the box";

cin>>h;

vol=l\*b\*h;

}

void show()

{

cout<<"\n The volume of the box="<<vol;

}

};

main()

{

volume v1;

v1.read();

v1.show();

}

Output :

Enter the length of box5

Enter the breadth of box4

Enter the height of the box5

The volume of the box=100

-----------------------------------------------------------------------------------------------------

11.

Write a program that would print the information (name, year of joining, salary, address) of three

employees by creating a class named 'Employee'. The output should be as follows:

Name Year of joining Address

Robert 1994 64C- WallsStreat

Sam 2000 68D- WallsStreat

John 1999 26B- WallsStreat

#include<iostream>

using namespace std;

class Employee

{

private :

int yoj;

char name[40],address[50];

float salary;

public :

void get()

{

cout<<"\n Enter yoj, name, address, salary";

cin>>yoj>>name>>address>>salary;

}

void show()

{

cout<<"\n" <<yoj<<"\t" << name <<"\t " << address << "\t " << salary;

}

};

main()

{

Employee e1,e2,e3;

e1.get();

e1.show();

e2.get();

e2.show();

e3.get();

e3.show();

Output :

Enter yoj, name, address, salary

1994

robert

WallsStreat

6200

1994 robert WallsStreat 6200

Enter yoj, name, address, salary

2000

sam

WalsStreat

64000

2000 sam WalsStreat 64000

Enter yoj, name, address, salary

1998

john

Wallsstreat

6600

1998 john Wallsstreat 6600

---------------------------------------------------------------------------------------------------------

12.

Write a program to print the name, salary and date of joining of 10 employees in a company. Use

array of objects.

#include<iostream>

using namespace std;

class Employee

{

private:

int doj;

char name[40];

float sal;

public:

void get\_emp()

{

cout<<"\nEnter Date of joining name & salary";

cin>>doj>>name>>sal;

}

void show\_emp()

{

cout<<"\n"<<doj <<"\t "<<name <<"\t "<<sal;

}

};

main()

{

Employee obj[10];

int i;

cout<<"\nEnter 10 Employee details";

for(i=0;i<10;i++)

{

obj[i].get\_emp();

}

cout<<"\nEmployee Details";

cout<<"\nDate of joining name salary";

cout<<"\n---------------------------------------------------";

for(i=0;i<10;i++)

{

obj[i].show\_emp();

}

}

Output :

seeta

4500

Enter Date of joining name & salary

3

geeta

4590

Enter Date of joining name & salary

4

meena

4563

Enter Date of joining name & salary

5

jack

5820

Enter Date of joining name & salary

6

jill

4563

Enter Date of joining name & salary

7

john

6300

Enter Date of joining name & salary

8

git

5463

Enter Date of joining name & salary

9

sona

7852

Enter Date of joining name & salary

10

sonali

4563

Employee Details

Date of joining name salary

---------------------------------------------------

1 meeena 500

2 seeta 4500

3 geeta 4590

4 meena 4563

5 jack 5820

6 jill 4563

7 john 6300

8 git 5463

9 sona 7852

10 sonali 4563

---------------------------------------------------------------------------------------------------

Practice Problem

13.

Write a program to print the roll number and average marks of 8 students in three subjects (each

out of 100). The marks are entered by the user and the roll numbers are automatically assigned.

#include<iostream>

using namespace std;

class Student

{

public:

int avgmark, rollno=0;

void set()

{

cout<<"\nenter average marks";

cin>>avgmark;

rollno++;

}

void get()

{

int rollno;

cout<<"\nroll\_no="<<rollno<<"Average Marks="<<avgmark;

}

};

main()

{

Student s[8];

int r;

for(r=0;r<8;r++)

{

s[r].set();

}

for(r=0;r<8;r++)

{

s[r].get();

}

}

Output :

enter average marks89

enter average marks87

enter average marks86

enter average marks93

enter average marks97

enter average marks76

enter average marks83

enter average marks75

roll\_no=0Average Marks=89

roll\_no=0Average Marks=87

roll\_no=0Average Marks=86

roll\_no=0Average Marks=93

roll\_no=0Average Marks=97

roll\_no=0Average Marks=76

roll\_no=0Average Marks=83

roll\_no=0Average Marks=75

--------------------------------------------------------------------------------------------------

14.

Write a program to calculate the average height of all the students of a class. The number of students

and their heights are entered by the user.

#include<iostream>

using namespace std;

class students

{

public:

int average(int a,int b,int c)

{

return (a+b+c)/3;

}

};

int main()

{

students h;

cout<<"\nEnter height=";

int h1,h2,h3;

cin>>h1;

cin>>h2;

cin>>h3;

float avg;

avg=h.average(h1,h2,h3);

cout<<"\nstudents average height="<<avg;

}

Output :

Enter height=1120

123

125

students average height=456

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