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CPP Assignment 1

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 roll\_no;

char name[20];

public:

void get\_data()

{

cout<<"Enter Roll No and Name of Student \n";

cin>>roll\_no>>name;

}

void show\_data()

{

cout<<"\n Roll No = "<<roll\_no<<"\n Name "<<name;

}

};

main()

{

Student obj;

obj.get\_data();

obj.show\_data();

}

Output :

Enter Roll No and Name of Student

12

Jack

Roll No = 12

Name = Jack

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

Process exited after 8.205 seconds with return value 0

Press any key to continue . .

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 roll\_no;

long int ph\_no;

char name[20];

char address[20];

public:

void set()

{

cout<<"\n Enter Roll No \n ";

cout<<"\n Name \n";

cout<<"\n Phone No \n";

cout<<"\n Address \n";

cin>>roll\_no ;

cin>>name;

cin>>ph\_no;

cin>>address;

}

void show()

{

cout<<"\n Roll No = "<<roll\_no;

cout<<"\n Name = "<<name;

cout<<"\n Phone No = "<<ph\_no;

cout<<"\n Address = "<<address;

}

};

main()

{

student ob1;

student ob2;

ob1.set();

ob1.show();

}

Output :

Enter Roll No

Name

Phone No

Address

12

Jack

95641235

Pune

Roll No = 12

Name = Jack

Phone No = 95641235

Address = Pune

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

Process exited after 16.46 seconds with return value 0

Press any key to continue . . .

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 s3,s1,s2;

float sp;

int p,area;

public:

void set\_data()

{

cout<<"Enter side1,side2,side3" ;

cin>>s1>>s2>>s3;

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

area= sqrt(sp\*(sp-s1)\*(sp-s2)\*(sp-3));

p=s1+s2+s3;

}

void show\_ap()

{

cout<<"\n side1 ="<<s1<<"\n side2 ="<<s2<<"\n side3 ="<<s3;

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

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

}

};

main()

{

Triangle t1;

t1.set\_data();

t1.show\_ap();

}

Output :

Enter side1,side2,side3 3

4

5

side1 =3

side2 =4

side3 =5

Area = 0

Perimeter = 12

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

Process exited after 5.116 seconds with return value 0

Press any key to continue .

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 sp;

int area,P;

public:

Triangle(int a,int b,int c)

{

s1=a;

s2=b;

s3=c;

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

area= sqrt(sp\*(sp-s1)\*(sp-s2)\*(sp-3));

P= s1+s2+s3;

}

void show()

{

cout<<"\n Side 1 ="<<s1;

cout<<"\n Side 2 ="<<s2;

cout<<"\n Side 3 ="<<s3;

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

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

}

};

main()

{

Triangle t1(3,4,5);

t1.show();

}

Output :

Side 1 =3

Side 2 =4

Side 3 =5

Area =0

Perimeter =12

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

Process exited after 0.06486 seconds with return value 0

Press any key to continue . . .

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 len, br ;

public: Rectangle(int a,int b)

{

len=a;

br=b;

}

int area()

{

return len\*br;

}

};

main()

{

int Ar,area;

Rectangle r1(4,5);

Ar = r1.area();

Rectangle r2(5,8);

area= r2.area();

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

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

}

Output :

Area = 20

Area = 40

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

Process exited after 0.1396 seconds with return value 0

Press any key to continue . . .

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(5,5);

Ar = ar.getArea();

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

}

Output

Area of Rectangle =25

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

Process exited after 0.08974 seconds with return value 0

Press any key to continue . . .

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 Rec

{

private: int len,br;

public: Rec(int a,int b)

{

len=a;

br=b;

}

int returnArea()

{

return len\*br;

}

};

main()

{

int area;

Rec obj(9,8);

area= obj.returnArea();

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

}

Output :

Area = 72

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

Process exited after 0.06429 seconds with return value 0

Press any key to continue . . .

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 ave

{

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 ave

{

};

main()

{

int ans;

B b1;

b1.get();

b1.show();

ans=b1.show\_data();

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

}

Output:

Enter 3 Numbers = 2

25

11

A= 2

B= 25

C =11

Ans= 12

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

Process exited after 3.75 seconds with return value 0

Press any key to continue . . .

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 :

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,b,h,ans;

void get()

{

cout<<" \n Enter Length = "<<l;

cin>>l;

cout<<" \n Enter Breadth = "<<b;

cin>>b;

cout<<" \n Enter Height = "<<h;

cin>>h;

ans= l\*b\*h;

}

void show()

{

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

}

};

main()

{

volume v1;

v1.get();

v1.show();

}

Output:

Enter length = 5

Enter breadth =4

Enter height =4

The volume of the box=80

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:

string name, address;

int yr, salary;

public:

void set(string name1, string address1, int yr1, int salary1)

{

name = name1;

address = address1;

yr = yr1;

salary = salary1;

}

void show()

{

cout<<"\nEmployee name="<<name<<"\nEmployee address="<<address<<"\nEmployee year of joining"<<yr<<"\nEmployee salary"<<salary;

}

};

main()

{

Employee e;

e.set("Robert", "64C-WallsStreat",1994,2000);

Employee b;

b.set("Sam", "68D-WallsStreat", 2000, 4000);

Employee c;

c.set("John", "26B-WallsStreat", 1999, 5000);

e.show();

b.show();

c.show();

}

Output :

Employee name=Robert

Employee address=64C-WallsStreat

Employee year of joining1994

Employee salary2000

Employee name=Sam

Employee address=68D-WallsStreat

Employee year of joining2000

Employee salary4000

Employee name=John

Employee address=26B-WallsStreat

Employee year of joining1999

Employee salary5000

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

Process exited after 0.0905 seconds with return value 0

Press any key to continue . . .

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: char name[20];

int jy;

float sal;

public:

void set\_data()

{

cout<<"\n Enter Name Year of Joining and Salary ";

cin>>name>>jy>>sal;

}

void show\_details()

{

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

}

};

main()

{

Employee obj[10];

int i;

cout<<"\n Enter 10 Employee details =";

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

{

obj[i].set\_data();

}

cout<<"\n Employee Details ";

cout<<"\n name Date Of Joining Salary";

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

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

{

obj[i].show\_details();

}

}

Output :

Enter 10 Employee details =

Enter Name Year of Joining and Salary Geeta

1994

50000

Enter Name Year of Joining and Salary Seeta

1996

60000

Enter Name Year of Joining and Salary Meena

1995

200000

Enter Name Year of Joining and Salary Mita

1994

30000

Enter Name Year of Joining and Salary Veena

2001

40000

Enter Name Year of Joining and Salary Rajesh

2005

90000

Enter Name Year of Joining and Salary Suresh

2003

6000

Enter Name Year of Joining and Salary Anil

2006

60000

Enter Name Year of Joining and Salary Yash

2020

40000

Enter Name Year of Joining and Salary Anurag

2018

50000

Employee Details

name Date Of Joining Salary

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

Geeta 1994 50000

Seeta 1996 60000

Meena 1995 200000

Mita 1994 30000

Veena 2001 40000

Rajesh 2005 90000

Suresh 2003 6000

Anil 2006 60000

Yash 2020 40000

Anurag 2018 50000

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

Process exited after 187.6 seconds with return value 0

Press any key to continue . . .

Output :

Roll No= 1

enter average marks 200

Roll No= 2

enter average marks 300

Roll No= 3

enter average marks 250

Roll No= 4

enter average marks 350

Roll No= 5

enter average marks 450

Roll No= 6

enter average marks 245

Roll No= 7

enter average marks 210

Average Marks= 4253488

Average Marks= 200

Average Marks= 300

Average Marks= 250

Average Marks= 350

Average Marks= 450

Average Marks= 245

Average Marks= 210

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

Process exited after 26.45 seconds with return value 0

Press any key to continue . .

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 student

{

public:

int p,q,r;

int Avg\_height()

{ cout<<"Enter Height ";

cin>>p>>q>>r;

return(p+q+r)/3;

}

};

main()

{

student s1;

float avg;

cout<<"Enter Student height ";

avg=s1.Avg\_height();

cout<<"\n Average height = "<<avg;

}

Output :

Enter Student height Enter Height 5

6

5

Average height = 5

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

Process exited after 4.111 seconds with return value 0

Press any key to continue . . .