(Multilevel Inheritance)

Write a program contains the following:

a) **A class Rectangle that has:**
   i. **Data members: Dim[10][2] (float), n (number of rows).**
   ii. **A function to read data members.**
   iii. **A function Area (int i) to return the area of rectangle with dimensions Dim $_{i,0}$, Dim $_{i,1}$.**
   iv. **A function Print() to display data members in table form.**

b) **A class RArea which is a subclass of Rectangle that has:**
   i. **Data member: RA[10].**
   ii. **A function to set the elements of RA such that each RA_i is the area which is computed from i^{th} row in Dim matrix (i=0,..,n-1).**
   iii. **A function Print() to display data members in list form.**

c) **A class Pvolum which is a subclass from class RArea that has:**
   i. **Data members: H[10] as float, V[10] as float.**
   ii. **A function to set data members such that each element V_i is equal to $H_i \times RA_i$ for i=0…n-1.**
   iii. **A function Print() to display data members in table form.**

In main function, define an object of Pvolum class and apply all functions on

Diamond-shaped inheritance (Hybrid Inheritance)

Write a program contains the following:

a) **A class Program that has data members: name (string), Div[2](string), function to read data members.**

b) **A class Div1 which is a subclass from Program that has:**

i. **Data members: ND1(string), CON1[3](string), COD1[3](float), TCOD1[3] (int), GPAC1[3](char), avg(average of total degrees)**

ii. **A function to read data members, and set the elements of GPAC1 according to the following table:**

GPAC1	(COD1 / TCOD1) %
A	≥92
B+	84:<90
B	80:<84
C+	75:<80
C	65:<75
D	60:<65
F	<60

iii. **A function Total() to return the total degrees for success courses(use GPAC1).**

c) **A class Div2 which is a subclass from Program that has:**

iv. **Data members: ND2 (string), CON2[4](string), COD2[4](float), TCOD2[4] (int), GPAC2[4](char), avg(average of total degrees)**

v. **A function to read data members, and set the elements of GPAC2 according to the following table:**

GPAC2	(COD2 / TCOD2) %
A	≥92
B+	84:<90
B	80:<84
C+	75:<80
C	65:<75
D	60:<65
F	<60

i. **A function Total() to return the total degrees for success courses(use GPAC2).**

d) **It contains a class Student is a subclass of Div1 and Div2 that has:**

i. **Data members: name (string), age(float), ID(int), GPA(char), average (float).**

ii. **A function to read data members, set the value of average(sum of all averages for two subclasses), and set the value of GPA according to the following table:**

GPA	average %
A	≥92
B+	84:<90
B	80:<84
C+	75:<80
C	65:<75
D	60:<65
F	<60

iii. **A function Total() to return the total degrees for all courses(for two subclasses).**

iv. **A function to display all data members for all classes in a suitable form.**

In main function, define an object of student class and apply all functions on it.